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Built to Buy

Highlights. We are initiating coverage on Tenda S.A.(TEND3) with a BUY recommendation and a YE20 target price of BRL 42.90 per share. Representing a 44.15% upside from current levels. Our estimate is based on the following aspects: (i) Lean structure, ready for a scalable growth movement, offsite building strategy as a plus.; (ii) Positive perspectives for the sector, mainly due to the high housing deficits and abundance of credit; (iii) Prominent position within the regions where the it operates and high geographical diversification; (iv) Huge potential with offside wood frame production, but with equally huge challenges in the execution side.

Operational efficiency. Tenda has a vertical operating strategy, ranging from the acquisition of the land to the delivery of keys to the beneficiary of the housing program. The company operates with an industrialized construction approach, using aluminum forms. In addition to a high level of standardization, carrying out only 3 SKUs, which allows the company to have the shortest work time, lower costs and high sales speed.

High hopes for the sector. The low-income sector has a constant demand, which allows greater and more accurate predictability on sales when compared to the medium and high-income sector. This is mainly because the government created a program, PCVA, that aims to reduce the country's current housing deficit by facilitating and cheapening the purchase of home ownership, through FGTS resources. As a result, the financing program for these houses is quite cheaper when compared to traditional financing. Moreover, another factor that stimulates the sector, besides the government funding program, is the current low level of interest rate in the country, driving the market and the access to credit.

Diversification and Price leadership. Within the sector, Tenda seeks a prominent position by diversifying the location of its operations. The company is present in 9 metropolitan regions, being the market share leader in 3 of them. We believe that this can be an advantage over its competitors, which in some cases concentrate their operations in only one metropolitan area, or in smaller regions. The company is at a leading position in relation to housing prices, given that price is a relevant variable on the consumer decision making process, we believe that Tenda has a high growth potential to conquer market share.

ESG. Besides being listed in the highest level of corporate governance, Tenda's operations are 100% dedicated to the PCVA. In this way, the company offers real estate within reach of low-income families - family monthly income of R\$ 2,432.00 - that accounts for more than 43% of the Brazilian families. Another positive ESG aspect is the reduction of waste and the reduction of water usage, due to its standardized method of construction.

Offsite model. Currently, the two most common construction methods are traditional masonry and structural masonry. However, seeking for greater efficiency and for expansion into the countryside, Tenda is now testing a new constructive model, the offsite. With the new method, the company will be able to operate in several regions that are currently not feasible. We believe that there will be a high productivity gain, which can transform not only the company, but also the sector as a whole. Furthermore, the model uses wood as the raw material, a commodity with less price volatility when compared to steel and cement.

Attention points. There are some a number of risks associated with our investment thesis in regard to Tenda. Among the main ones, we highlight: (i) Macroeconomic risks, such as an increase in the basic interest rate, which would lead to an increase in the families' financing costs, and would, consequently, decrease the demand; (ii) Risks related to the company's dependence on the government program PCVA, where there is the possibility of changing the rules of the program, or even its extinction; (iii) Risks related to scarcity of FGTS resources; and (iv) Risks related to the feasibility of the offsite model, given that the project is still in the testing stage and no efficiency metrics have been disclosed so far, which raises doubts regarding the profitability of the molds of this new method to the construction site, such as tolls, transport licenses and qualities of the Brazilian road network.

Investment Recommendation Team 13

Recommendation	BUY
Target price	42.90 BRL
Current price	29.76 BRL
Upside	44.15%
Ticker, B3	TEND3
Closing Price Data	04/11/2020

Source: Team's own calculations using Tenda's balance sheet data

Stock Data

Market Cap [mn]	3.11 BRL
YTD Return	-0.40%
52 wk Low	15.28 BRL
52 wk High	39.91 BRL
Number of Shares	104.344
5 Day Average	1.229.480 BRL
PE (LTM)	15.86 BRL
Div Yield	1.08%
Stock Exchange	B3 Novo Mercado
Economic Sector	Real Estate Rental

Source: Company's IR and Refinitiv

Figure 1: TEND3 vs. IBOV vs. IMOB -Since Tenda's IPO [base 100]



Source: B3 - Brasil Bolsa Balcão

Highlights	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E
Net Revenue [BRL mn]	1950,10	2174,78	2493,75	2897,15	3278,30	3643,87	4086,00	4637,41	5345,57	6363,67
EBITDA [BRL mn]	290,74	324,24	371,79	427,41	446,16	450,88	505 <i>,</i> 59	573,82	661,45	787,43
Net Income [BRL mn]	264,41	263,95	302,67	347,88	362,61	365,76	410,14	465,49	536,57	638,76
EBITDA Margin [%]	14,9%	14,9%	14,9%	14,8%	13,6%	12,4%	12,4%	12,4%	12,4%	12,4%
Net Margin [%]	13,6%	12,1%	12,1%	12,0%	11,1%	10,0%	10,0%	10,0%	10,0%	10,0%
Asset Turnover [%]	56,1%	57,0%	60,3%	61,1%	60,0%	58,7%	59,8%	61,6%	64,3%	68,9%
Financial Leverage	2,57	2,76	2,56	2,51	2,47	2,42	2,32	2,23	2,14	2,06
ROE [%]	19,6%	19,1%	18,7%	18,4%	16,5%	14,4%	14,0%	13,9%	13,9%	14,4%
ROA [%]	7,6%	6,9%	7,3%	7,3%	6,6%	5,9%	6,0%	6,2%	6,5%	6,9%
EPS [BRL]	2,53	2,53	2,90	3,33	3,48	3,51	3,93	4,46	5,14	6,12
Dividends per Share [BRL]	0,60	0,14	0,55	0,20	0,25	0,40	0,55	1,00	1,55	2,00

CFA INSTITUTE RESEARCH CHALLENGE

Business Description

Founded in 1969, Tenda S.A. is a homebuilder that provides quality housing for a growing number of lowincome families and is currently focused on metropolitan regions around Brazil (see Figure 12). On this market, the company is the second largest popular housing developer, reaching BRL 2.58bn and 17,900 units released in 2019. The company's business model is based on an industrial approach of civil construction, resulting on standardized products and decreased costs. This is only possible because Tenda has established its operations at levels 1,5 and 2 of Brazil's affordable house state program, now called PCVA (see Appendix Q), and has offered its products in regions with more than 1,000 demand units per year. By using that strategy Tenda achieved 22.2% ROIC in 2019.

Inside the operation

One-time business program. Tenda is one of the only companies in B3 fully dedicated to properties in the Federal Government's Casa Verde e Amarela Program. Thus, despite being a publicly traded company, its performance is strongly connected to the success of the Federal program. The program, previously called Minha Casa Minha Vida, has changed a couple of its metrics this year. But no major impacts will be seen from these changes. In fact, the new program has only emphasized the importance it has within the government's strategy for reducing the habitational deficit. For further details on the program, refer to Appendix Q.

From the bottom to the top. Tenda is fully coordinated into the value chain, from the acquisition of the landbank to the sales of units. The process starts with the landbank purchase, regarding the strategic planning of the company and considering aspects such as localization, expected demand, cost of land, and stock in that region. The development of the whole project is internalized by Tenda, including finance viability analysis, engineering projects, regulatory approvals, selection of funding financial institution, and creation of commercial material. After that, the company initiates the sales and the construction of the building. This entire process is key to scalability, due the knowledge acquired by acting so profoundly into the value chain.

Model of construction. Nowadays, 100% of Tenda's projects are constructed using aluminum shape's technique. This method allows continuous improvement of productive cycle and scale gains at big cities. Consequently, Tenda's real estate construction time is 45% smaller than that of common masonry construction (Figure 2). Also, Tenda's constructions cost decreased almost 30% from 2013 to 2020 (Figure 4). Finally, in this way, the company is capable to offer its units with smaller prices – extremely important factor in the low-income business – and to accelerate its sales in relation to its peers (Figure 3).

How does Tenda make money?

Hired releases. Unit sales start only after the complete approval of the project within the standards required by the Casa Verde e Amarela Program. Because of that, many risk factors that can negatively impact the project are avoided. Such as legal risks, financing risks, environmental approvals, and others.

Passed on sales. This point is highly correlated with the previous one. If every project only goes to the final step (sale stage) after the funders' approval, every sale is only concluded after the verification of the client's credit eligibility by the banks. What may sound useless bureaucracy, is in fact, a crucial factor. This final stage preserves the company's cash – basically it only has cash exposure to buy land - and necessity of working capital, transferring to the bank almost all the credit risk through associative credit. When the client does not obtain all the financing through the bank, the construction company finances this remaining installment via pro-solute. However, they are not representative amounts and, in the last 3 years, receivables from customers represented an average of 18.2% of total assets (Figure 5).

Own sales stores. The major part of the revenue comes from the company's own sales force, using its own employees and stores. Tenda focuses on the brand impact and the attraction of a flow of families in its physical stores. However, this strategy requires a high level of selling expenses. Due to Covid-19 and social isolation, physical visitations became limited and even restricted in some cities. In order to maximize the consumer experience during the pandemic, the company initiated a digital transformation – including scheduled visits and online preview with 3D tour on the unit. Despite of the whole situation, the company's sales results were impressive, with 6M2020 net revenue 14.5% bigger than that of 6M2019, and 2Q20 was the best gross sales quarter in the entire history of the company.

Next steps

Maturation and expansion. Tenda's current business model – aluminum shapes technique – only allows operations in cities with more than 1000 units demanded per year. Because of that the company has focused its expansions on metropolitan regions. Today, Tenda operates on 9 different areas around the country and visualizes only four more to place itself. By the company's own projections, this represents one new place per year on coming years until 2023 and a growth potential of 13,300 units by the end of the expansion process. This would represent a 74.3% growth of units released relative to 2019. We emphasize that the maturation time of a new location is long, and the company expects a smaller margin on its first projects within these new places.

A new business model. One of the problems to be addressed by the company's management is the viability to operate on locations with a lower minimum scale. There is a large market that Tenda is incapable to attend: cities with yearly demand smaller than 1,000 units. In terms of construction model, this kind of

Figure 2: Construction time by each model [months]



Source: Company's IR

Figure 3: Company's VSO 2019 [%]







Source: Team's own calculations using Tenda's balance sheet data

Figure 5: % of Customer Receivables in Total Assets [BRL mn; %]



region accepts common masonry or offsite model. However, the first one has a large operational cost, a long construction time, a high environmental impact, and a loss of margin and scalability. Hence, to face this situation, the company initiated a project to study many possibilities of an offsite model, searching for a more industrial approach. The idea is to start the first projects in the new model in 2022. Tenda plans a long-term increase of 30,000 units per year with the adoption of offsite construction.

Industry Overview

Construction is the largest industry in the global economy, accounting for 13% of the world's GDP. In Brazil, the sector corresponds to 3.17% of the GDP, being responsible for 44.16% of the country's total investment rate in 2019. It is possible to note that the performance of the sector is partly associated with the growth of the economy (Figure 6). As macroeconomic factors such as disposable income, unemployment, confidence, and interest rates, define the demand for housing and dictate the pace of this market. There is a correlation between the growth of Brazilian GDP and the growth of civil construction, revealing a trace of cyclical characteristic. However, the sector is divided into subsectors that have some acyclic characteristic, such as the low-income segment, environment in which Tenda operates.

Home builder low-income

Resilience. The low-income segment reveals great resilience when compared to the medium and highincome segment. This is mainly because the sector is supported by the government program, PCVA, which aims to reduce the representative housing deficit that the country holds. According to Getúlio Vargas Foundation (FGV), the lack of housing in the country totaled more than 7,7 million housings in 2017. The PCVA works through real estate financing for the purchase of homes, where the subsidy is granted by FGTS resources. The financial institution responsible for this credit operation is Caixa Econômica Federal (CEF). Hence, the credit risk of the whole operation is passed on to the bank.

Remaining risks. The segment's high dependence on PCVA signals some risks to the business model. As it is a program in which the company has no power of opinion, the possibilities of changes on the program's rule is feasible. Another concern is related to FGTS resources, the fund may suffer from unexpected withdrawals, compromising the program's funding primary source. Last but not least, it is worth remembering that the segment has a low price-demand elasticity, which reflects in price competition and smaller margins.

Opportunity. There is an opportunity for growth in the sector given that one of the main drivers of the segment is the low cost of financing, which benefits from the current level of interest rates, at its lowest historical level (Figure 7). Also, the demand remains higher than the supply. According to data from the second quarter of 2020 released by Câmara Brasileira da Indústria da Construção (CBIC), 9.265 units were launched at MCMV (56% of total launches) and 18.105 units were sold through the new federal program.

No money, no gambling. The Brazilian real estate sector is highly dependent on access to credit. The lowincome housing segment, in which the company operates, is supplied by FGTS resources, mainly through PCVA. However, the fund may be affected by the increase in the unemployment rate, given that one of the sources of fundraising is the compulsory contribution of 8% of the worker's gross income. In addition, the government has recently allowed extraordinary withdrawals from the fund, generating a new risk of scarcity of the fund that could impact the financing of the federal housing program PCVA.

Covid-19 impacts

Impacts. In 2020 the economy was surprised by the coronavirus crisis, which affected all sector of the economy, including civil construction. On May 7, a presidential decree was signed classifying civil construction as an essential service. This helped the construction progress since the services related to civil constructions were allowed to continue operating even during the period of social isolation. Yet, when we look at macroeconomic factors, such as income, unemployment rate, and confidence, the sector may suffer from a possible turndown in demand for real estate.

V recovery. According to CBIC data, the purchase intention of families before the pandemic was 43%. During the month of March and April, this percentage changed to 24% and 20%, respectively. But, in June, this number registered strong growth, reaching 40% in August. Demonstrating a "V" shaped recovery in the housing market. This fact was reflected in a record monthly sale, according to a report released by Credit Suisse. According to the institution, about 3,500 units were sold in August, an increase of 92% relative to July. The launches also had record according to the report, 8 thousand new units, against 2.6 thousand in the previous month.

Heavy Investment. Although Covid-19 affected many sectors of the industry, the V recovery previously mentioned gives high expectations on the recuperation of the construction market. Sales are increasing as we will expose later, and land acquisition is getting more and more competitive, heating the housing market. As one of the main sectors of the Brazilian economy, its investment rate – rate of Gross Fixed Capital Formation to GDP - is quite high. When looking at the bigger picture, civil construction represents 44% of the total investment rate (Figure 8). Which contributes to the expansion and growth of this market.

Competitive Positioning

To evaluate Tenda's competitive positing against its competitors, we need to look at its peers that operate





Figure 7: Central Bank Target Interest Rate [%]



Source: Brazilian Central Bank

Figure 8: Investment (GFCF) in Civil Construction [%]



Source: IBGE, Sistema de Contas Nacionais Trimestrais – SCNT

Figure 9: Average price per unit [BRL th]



within the low-income segment. Furthermore, we need to analyze what is the company's position in the sector in relation to its peers, knowing that the low-income construction segment is highly dispersed.

Competition

The low-income housing market is highly competitive and dispersed in Brazil. According to the company's data, Tenda has only a 10% stake in 9 regions in which it operates. There are several smaller companies operating in the segment that do not have the financial strength that the major players have. Although is a highly scattered segment, the last factor presented can be one of the drivers for the company to increase its market share, mainly due the Covid-19 crisis.

Positioning

Figure 12: Operating Regions

As it is a highly competitive market, the company has sought to increase market share through (i) lower costs, (ii) sales speed, (iii) strong regional operations, (iv) land acquisition, and (v) expansion into new regions.

Low Costs. In recent years, Tenda has pursued to reduce its costs mainly through (i) housing standardization, (ii) industrial construction approach, based on aluminum shapes, and (iii) being part of PCVA. The company has been successful with its business model, significantly reducing its costs over the past years, increasing margins, and lowering the average price of launched units, while its peers have been presenting increased prices (Figure 9).

High sales speed. Tenda is the company with the highest sales speed among its peers. With lower prices, the company is able to sell its units at a higher speed than its competitors (Figure 10). This makes the company have a high inventory turnover, and consequently the shortest average inventory deadline, when compared to MRV, Direcional e Cury (Figure 11).

Regional Presence. The company currently operates in 9 metropolitan regions of the country. While MRV operates in 22 states and 156 cities and Direcional is present in 7 Brazilian states, of which Tenda is present in 6 (Figure XX). However, in its areas of operation, Tenda stands out from its competitors, being the market leader in 33% of them, in Salvador (BA), Recife (PE), and Rio de Janeiro (RJ) (Figure 12).

Land Bank Dinamics. The first stage for any housing-building company is the acquisition of land for the construction of the new units. Therefore, landbank management is important for the company's business model. Tenda has a strategic plan that, besides establishing the potential cities that have sufficient demand to support an operation, also defines some factors for the acquisition of the new land, such as: (i) Location, (ii) Expected demand, (iii) Inventory of units in the region, and (iv) Acquisition cost. In the company's report, the management team emphasizes the commitment to maintain a strong land bank, equivalent to three years of launches in each of the regions where it operates. Ensuring operational stability. This positioning reveals the need to acquire new land in the coming years, which can be a problem for the company. Mainly due to high competition for land, leading to price increase and land scarcity. (Figure 13).

Expansion. As mentioned in the Business Description section, Tenda wishes to expand into 4 more regions until 2023, which, according to the company, would result in an increase of one region per year. However, Tenda is developing a new model of construction that will enable its operations not only in the metropolitan areas, but also in the countryside. This new method, the *offsite* construction, is the main weapon of the company for its expansion plans. Although recent and only in the studding stage so far, the new project promises incredible expansion and growth rates.



Source: Company's IR

Figure 11: Average Inventory Days [days]





Figure 13: Land Acquisition [BRL mn]



Source: Company's IR



SWOT Analysis



Environmental, Social, and Governance

The internationally known acronyms ESG have been growing around the globe, but in Brazil, they started to gain space recently. Hence, this is exactly what can be observed with Tenda. As a high standardization company within a non-standardized sector, Tenda has several processes, committees, and audits that seek to avoid risks and align the company's culture with those of its employees. Besides having a strong Board of Directors and Executive Committee, Tenda also has an Internal Audit area, Internal Controls area, Executive Investment Committee, Ethics Committee, Audit Committee, and People Committee.

Governance

Highest governance standard. The company acts in accordance with the B3 listing segment of Novo Mercado, which sets guidelines for good corporate governance practices. The highest standard segment establishes some regulations such as: installation of an Internal Audit area, Compliance Function and Audit Committee, 100% tag along right, and capital exclusively composed of common shares.

Dispersed Ownership Structure. Tenda's ownership structure is quite impressive as it is dispersed and has a free float of more than 90% of its shares. Although it does not have a controlling shareholder, the company has several renowned Private Equity funds as shareholders that strongly encourage the corporate governance good practices. (Figure 14). Also, there is no family or marital relationship up to the second degree related to Tenda's managers, subsidiaries, and controllers.

Experts and expertise. Tenda's Board of Directors is highly qualified and experienced, and it is entirely composed of Independents Board members (Figure 18) It accounts with members such as José Urbano Duarte, that worked over 30 years in Caixa Econômica Federal, acting as the vice president of Housing between 2011 and 2014. Also, with Cláudio José de Carvalho Andrade, the chairman, in spite of being partner of Polo Capital, one of Tenda's relevant shareholders, he has plenty of experience in real estate investment, being partner of other real estate asset management companies. (Appendix M)

Long and short term alignment. The Board of Directors members are entitled to fixed compensation and long-term incentives, in the form of restricted share programs. On the other hand, the Executive Committee compensation program, in addition to both compensation strategies previously mentioned, contains a short-term variable based on the company's performance. Indicating a proper way to align management's interest with those of the company and its shareholders. (Figure 15)

Social

Strong governance, yet not diverse. The company does not have any women on the Board of Directors. As far as the Executive Committee is concerned, only two women integrate the team composed of fifteen people. Despite de low numbers, it is not an uncommon situation for the sector and for the listing segment. Although the company is a bit far behind its peers in relation to social diversity (Figure 17) we believe the company will seek to establish a more diverse board as ESG drivers grow.

Social inclusion. Tenda is able to offer real estate within reach of low-income families. Due to its performance in a specific sector of the Casa Verde e Amarela Program and its ability to reduce costs and offer better prices. The families' average income wage that Tenda serves is R\$ 2.432, according to the company. Incorporating more than 43% of the Brazilian families, according to IBGE studies. (Figure 16)

Safe Environment and Work Passport. Tenda offers its employees a safe environment to work. By using standardized industrial processes in its constructions, the company operates in an environment with risk monitoring. Also, 65% of the employees are directly employed by Tenda.

Environmental

Still working on it. Tenda strictly complies with environmental legislation established in the locations

Figure 14: Ownership Structure [%]



Source: Company's IR

Figure 15: Executive Committee Compensation [BRL mn]



Source: Company's IR

Figure 16: % Families vs Income [BRL]



Source: IBGE, Family Budget Search 2018

Figure 17: Women in the BoD [%]



Source: Companies' IR

Figure 18: Composition of the BoD [%]



Source: Companies' IR

where it operates, following standards and procedures such as waste management and earthworks. The company does not elaborate a Sustainability Report, and until the end of 2019, the company did not adhere to any international or national standards related to environmental protection. However, Tenda's management emphasizes that actions have already been taken towards the preparation of the Sustainability Report and the development of socio-environmental responsibility policy.

Investment Thesis

Aiming higher

We present an overweight rating for Tenda with a BRL R\$ 42,90 target price for 2020YE, this number represents a 44,15% upside against the closing price of 04/11/2020. The investment thesis is founded on a positive alignment of factors for the company. (I) Lean structure, ready for a scalable growth movement, Offsite building strategy as a plus; (II) The demand is there, Brazilian habitational deficit, together with abundant credit, transform the outlook for the sector; (III) Simply the greatest in delivering the lowest cost, compared with affordable housing companies; (IV) Huge potential within offside wood frame production, but equally huge challenges in the execution side.

Quick flow. Tenda stands out for being the fastest company in terms of delivering a real estate construction. From the beginning of the construction to the key exchange with the clients, the speed in which Tenda makes the whole process stands out. And best of all, the improvement curve is not near the end.

Low concentration risks. The company has a distributed PSV across Brazilian regions, with a large presence within metropolitan regions (Figure 12). Looking at the company's peers, MRV has a large presence in small regions, which limits potential growth. While the smaller companies, especially Plano & Plano and Cury, concentrate only in São Paulo and Rio de Janeiro. Only Direcional benefits from similar characteristics.

Value creator blood. The industrial processes, against the archaic methods widespread within Brazilian companies - even in the big brands – ensure the highest ROIC for the company. Along with conservatism in the expansion of the business, Tenda stands out as the top company for the next growth cycle, without neglecting the intrinsic risk of a long cycle business, such as construction.

Offsite strategy. The game-changer?

Despite being a model for homebuilding extremely popular around the world today (Figure 19) the use of the offsite strategy, especially with wood frames, is just starting in Brazil. The challenges in terms of construction technique, the high necessity of qualified workforce, and the doubts about the execution are high. However, if the company manage to overcome those difficulties, the potential to be unlocked can transform the entire sector, not just Tenda.

The engineering outlooks. There are basically four ways in terms of construction systems. The traditional masonry and structural masonry are the most common techniques used in the construction sites (Figure 20). Despite this, the hunt for efficiency led companies to invest in wood frame and steel frame strategies, and in the case of Tenda, with an Offsite approach. While the traditional methods rely on beams, pillars, and reinforced concrete slabs, the main raw material used in wood frame are a special treated wood, notably pine wood. In terms of Brazil, it is a widespread commodity, with less volatility in prices compared to steel and cement. In addition, another major topic is the massive reduction in terms of water use and waste, in line with the company's ESG attention.

Those gains don't come easy. On the other hand, there is a great uncertainty in the delivery of a large-scale wood frame production. Firstly, the workforce needed for this kind of production is much more specialized, which means higher costs. Another point is the lack of normative technical guidance. Despite the "ABNT NBR 7190:1997 – Projeto de Estruturas de Madeira", that creates a general guidance, it is not enough to allow a large scale of production. Further, because the number of units produced with the same area is smaller, maybe PCVA financing will never be a major challenge for this line of the business.

Offsite production, is the logistic available? In Tenda's first trial, the company developed the production in a private condominium in the State of São Paulo. However, with the advance of these models, there are many challenges regarding the transport of an entire building to the installation site. There are a few companies already running this business model throughout Brazil and, in the process of transporting the materials to the construction site, there is a list of requirements in order to guarantee the success of an operation. Possible difficulties regarding tolls, transportation licenses, security worries and the quality of the roads must be considered for a successful delivery. And while the great centers do not offer much risk in those points, the broader the company looks, the harder those challenges become (Appendix R – Road Safety Outlook), which can limit the growth potential.

Still learning to build offsite. The company is still investing in R&D for the project. Although the management says it intends to spend ~1-2% of top line revenue on the studies, there is a risk in terms of the success in developing a profitable product. The offsite business is still used by small players, with the main applications not designed for homebuilding. Despite this, there is a possible acquisition of knowledge that would reduce this risk (Appendix S – M&A Radar).

Financial Analysis

A growing company. In 2011, Gafisa S.A. dedicated an exclusive management team to Tenda. From a

Figure 19: New homes built using offsite strategy [%]



Source: US Census Bureau; UK Commission for Employment and Skills; Association of German Prefabricated Building Manufacturers; Boston Consulting Group (BCG).

Figure 20: Techniques used in Construction site [%]





Figure 21: Growth of Tenda, MCMV, Civil Construction Sector and Brazil



Figure 22: Net Revenue evolution, SG&A Expenses e NOPAT [BRL mn]



deficient legacy from previous years, the new management restructured the business and prepared a growth path to the company. By 2013, Tenda began to trace a growing path that would become expressive even at awful moments of the sector and the economy. Examining Tenda's units releases from 2013 to 2019, the company reported a CAGR of + 39.20% while PCVA reported a unit's CAGR of + 16.68% during from 2015 to 2019. The impressive fact is that, during the same period Brazil presented a GDP 's CAGR of -0.46%, and the construction sector registered a GDP's CAGR of -5,51%. (Figure 21).

Rebuild to be profitable. Since its inside reorganization, in 2011, Tenda experienced a huge decline in its SG&A expenses and an increase in its NOPAT (Figure 22). This is mainly due to (i) new construction model using aluminum's shapes; (ii) focus on metropolitan regions, where it is possible to be managerial efficient and the demand is constant; and (iii) standardization of its products. In 2019 Tenda reported the highest ROIC among 10-principal capital open homebuilders, showing its capacity to reward the shareholders (Figure 23). After reaching its profit break-even point at this new phase, in 2015 the company achieved +67.13% ROIC 4yr CAGR (FYO) (Figure 24). Furthermore, the growth in housing releases combined with operational efficiency, enabled five consecutive years of increased profits and net margins.

Efficiency. Tenda has improved its efficiency over the past few years, showing a continuous increase in its asset's profitability, from 1.56% in 2015 to 7.60% in 2019 (Figure 24). This is a reflection of an increase in the net profit well above the growth of the company's total assets, which means that the company has managed to generate more profit with fewer assets, proportionally. When compared to its peers, in 2019, Tenda has one of the highest ROA indicators, 7.60% against 4.7% of that for MRV, 2.16% for Direcional, and only behind Cury that has 15.84% (Figure 24).

Value creator. Through DuPont analysis (Figure 25), we are able to see what the sources of value creation for Tenda's stockholders are. From the results, reported in 2019, it is clear that, among its peers, the company has the lowest degree of financial leverage. However, the company holds one of the best margins and asset turnover of the sector. Reflecting in a high return for the stockholders, which may be driven by the gain in margins with the offsite model.

A financially health company. Using Piotroski F-Score (Appendix I) we can judge the strength of Tenda's financial situation, exploring indicators of profitability, leverage, liquidity, source of funds and operational efficiency. From 2016 to 2018, the company showed a robust financial strength, satisfying at least 8 of 9 Piotroski criteria. In 2019, the company's Piotroski F-Score decreased to 5 of 9. Although still on an acceptable situation, a warning was triggered about stabilization of gross margin and asset turnover, due to this decreased observed from 2018 to 2019. Also, from 2018 to 2019, the company's leverage increased and net cash flow from operations activities did not exceed net income, becoming two other factors to keep an eye on it to the continuity of the share quality (Figure 26).

Short cash risk. As soon as Tenda started with the new process of releases and sales, the company's cash cycle showed a consistent down flow: from 350 days 2012-2015 on average to 217 days 2016-2019 on average. An explanation for how Tenda achieved this mark is (i) by an impressive decline in the average sales receipt time, allowed by the strategy of only starting to build a new edifice after the financial approval. So, as the construction goes on, Tenda is financed by the POC method; and (ii) by the decline of the average inventory renewal time, resulted from the new construction method (Figure 27). Hence, the company has a low cash necessity and has the seventh lowest Working Capital Syr Avg (FYO) among the 10-principal open capital construction companies, also with the second lowest Wkg Cap/Total Revenue % FYO (Figure 28).

Security VSO. Using simple statistical concepts, we can draw some conclusions about the company's VSO. Analyzing the quarterly VSO per year since 2013, we obtain the values on Appendix H. Based on them, we can claim that the company does not suffer from seasonality in its speed of sales, seeing that every year has variance smaller than 1%. Similarly, trying to understand the annual behavior of this metric, we calculated an annual VSO average from 2013 to 2019 of 50.8% with 0.96% of variance, and a standard deviation of 9.80%. Moreover, into all 28 quarters, we observed only 3 outliers through the box plot (Appendix H), and all of them occurred at 2013 or 2014. So, removing 2013's and 2014's quarts of the sample, we obtain an average of 55,82% with 0,165% of variance and 4,06% of standard deviation for the annual's VSO. Thus, with low variance and standard deviation, and good annual average, Tenda delivers a solid and consistent speed of sales.

Well spent Money. In the last 5 years, Tenda was able to reduce in 4.4 p.p. the proportion of real estate development cost and sales cost over net revenue, from 71.16% in 2015 to 66,77% in 2019. The same happened with the G&A expenses, dropping 3,8 p.p. from 2015 to 2019. Lastly, sales expenses remained almost constant with an average of 8.6% of net revenue (Figure 4). To verify the company's efficiency gain, we confronted the expenses evolutions with (i) the 5yr CAGR (FY0) net revenue of 27,9% (Figure 22); (ii) the 5yr CAGR (FY0) released units of 32,91%; (iii) the accrued National Index of Civil Construction of 28.5% of the same period (see Apprendix J); and (iv) the values of the same cost metrics from the three-year period from 2012 to 2014 (Figure 4). With this breakdown of the company's cost and expenses, we verified how the new business model was able to increase operational efficiency and guarantee the expansion of Tenda's operations.

Bigger margins, an efficiency payout. Reflecting the improvement of operational efficiency, Tenda presented a growth and consolidation in all of its margins. The company's gross margin showed a 5Yr CARG (FY0) of 38.8% and the net margin a 3Yr CARG (FY0) of 38.9%. In additional, currently, among the 10 largest construction companies listed on B3, Tenda has (i) the second largest gross 5Yr average margin; (ii) the third

Figure 23: ROIC 2019 [%]



Figure 24: ROIC and ROA evolution [%]



Figure 25: DuPont Analysis

Index	Tenda	MRV	Direcional	Cury
ROE	19,50%	13,51%	7,34%	56,09%
Financial Leverage	2,57	2,87	3,40	3,54
Asset Turnove	0,56	0,41	0,31	0,79
Net Margin	13,51%	11,40%	6,89%	20,02%

Source: Companies' IR

Figure 26: Tenda's Pietroski F-Score

Criteria	2016	2017	2018	2019
C1	1	1	1	1
C2	1	1	1	1
C3	1	1	1	1
C4	1	1	1	0
C5	0	0	0	0
C6	1	1	1	1
C7	1	1	1	1
C8	1	1	1	0
C9	1	1	1	0
F-Score	8	8	8	5

Source: Team's own calculations using Tenda's balance sheet data

largest EBITDA 5Yr average margin; (iii) the fourth largest EBIT 5Yr average margin; and (iv) the fourth largest net 5Yr average margin. (Figure 29). See Appendix K for more information.

Figure 29: Average Profitability Margins [%]



Leverage and Liquidity. The combination of hired releases and passed on sales, besides reducing the company's cash exposure, drastically improved the company's liquidity and leverage scenario. Given that Tenda practically abolished the need to contract debt. From 2015 to 2019, the debt service went from R\$ 204mn to R\$ 54mn, and the interest coverage index – calculated by EBIT – increased from 0.70 to 8.05 (Figure 30). Moreover, Tenda has a current ratio 5Yr average (FYO) of 3.61 and a quick ratio 5YR average (FYO) of 2.28, being the runner-up in the two indicators among the 10 main construction companies listed in B3 (Appendix L). The biggest drops in the three leverage measures depicted in demonstrate financial improvement achieved by Tenda over 6 years (Appendix L). This scenario was reversed in the third quarter of 2017 when the company started a series of 4 debenture issues with a total value of R\$ 770mn (Appendix N). However, this is not a problem, knowing that the cost of theses debts is quite smaller than the company's ROIC.

Valuation

We reiterate a BUY recommendation for Tenda, with a target price of BRL R\$ 42,90 for 2020YE, with a 44,15% upside against the closing price of 04/11/2020. The number was constructed by a 10-year discounted cash flow model and reinforced by a multiple analysis against peer companies.

Revenue Assumptions

Far, but bright future. Taking on account both the traditional and the offsite models, we have projected an expected revenue of 6.24 BRL bn for 2030. By calculating the number of expected launches made by Tenda in both traditional and offsite models (Figure 31), it is possible to estimate its future revenues by multiplying this number for the average price of the properties at that given year.

→ Traditional model: as we believe that Tenda has reached a certain maturity operating the traditional model for the PCVA, our estimates for 2020 are of 18000 new properties launched (less than 10% growth), a number that slightly grows until 2030. The average price of the properties was calculated by adjusting its current price by the inflation rate (IPCA) (Figure 32).

→ Offsite model: According to Tenda's CEO Rodrigo Osmo, the offsite model is expected to start running in 2022. Hence it is an innovation in our country, we expect a fast growth in the number of properties sold in 2023 and 2024. Our assumptions show that the offsite will represent more than % of Tenda's total revenue (Figure 33), achieving 3.95 BRL bn.

Margins Assumptions

Tenda's gross margin has remained impressively constant in the last 4 years (Figure 34). As a consequence, our expectations are that the gross margin will continue to remain constant in the future. This situation leads us to the conclusion that the COGS will grow at the same rate of revenue each year, in such a way that the gross margin remains constant at approximately 33,23%.

CaPex Assumptions

Invest to grow. The major portion of Tenda's permanent assets acquisitions is destined to aluminum shapes, representing 47%, on average, of the total CapEx of the company (see Figure 36). The remaining 53% are spent mostly with industrial machines and hardware. Hence, as we believe in a growing number of launched units in the next few years, we projected the firm's CapEx as the previous year CapEx adjusted by inflation plus a 1% of the net revenue of the respective year we're calculating. In the 2022-2024 triennium, we estimated a total 750 BRL mn CapEx, divided equally by each of the 3 years, that would be designated to invest in the necessary infrastructure for the implementation of the offsite model. From 2025 and beyond, the CapEx was calculated by adjusting the previous year CapEx for inflation plus 0.75% of the company's net revenue. Extraordinarily for the 2025 CapEx, we utilized the 2021 CapEx instead of 2024 (Figure 35).





Source: Team's own calculations using Tenda's balance sheet data

Figure 28: Working Capital need [DOL]



Figure 30: Financial Strength and Leverage [BRL; ratio]







Source: Team's own calculations using Tenda's balance sheet data

Working Capital Assumptions

No big chances until Offsite project kicks-in. The projection for working capital metrics such as days of inventory, payables and receivables was constructed based on recent performance delivered by the company, with minor efficiency gains, until 2022. From then on, the numbers have to change to incorporate the new Offsite business. Despite being a minor contributor of revenue at inception, as the time passes the tendency converges to greater time of inventory and receivables, sustained by the less liquidity of a higher-end product.

Debt Assumptions

Is there a need for debt? Despite needing cash for the new project, the current cash position, together with the income provided by the current operations, gives Tenda a comfortable position of net cash capital structure. While there may be a loss in terms of an optimal capital structure, we believe the company will maintain this current guideline. So, we expected Tenda to roll the current debt, without issuance of incremental positions.

DFC Methodology

WACC. To calculate the Cost of Equity we used (i) a risk-free rate of 1.35% (US 30y Treasury Bond); (ii) an adjusted beta of 1.29, calculated as the unleveraged Tenda's beta re-leveraged by the average debt-to-equity proportion of Tenda and its direct peers (MRV and Direcional). For making this adjustment, we utilized a 5Y (monthly) beta provided by Refinitiv Eikon; (iii) a market risk-premium of 9.64%, that was calculated by Aswald Damodaran; and (iv) a country-risk of 5.5% for Brazil, also calculated by Damodaran; finding, as a result, a Ke of 20.12%. We evaluated the Cost of Capital for lenders through the debt/financial expenses proportion of 2019, resulting in a 6.02% Kd before the effective tax rate. By taking it on account, we get a WACC of 10.89%, based on the company's debt/equity proportion at the end of 2019 (61% debt and 39% equity).

Perpetuity considerations. We estimated a perpetuity growth-rate of 5% for Tenda, utilizing, for the long-term, an inflation rate and a GDP growth-rate of 3.5% and 2.5%, respectively. At perpetuity, we assumed an effective tax rate of 17.2% and calculated a terminal contribution value of 71%.

Multiples analysis

Looks expensive, but is it? Tenda currently trades at 1,95 x BV, higher than the average of homebuilders listed in B3. Despite this, the revenue growth is the greatest of them all, together with Direcional. Furthermore, the company is capable of doing so while maintaining comfortable margins, as seen in the financial analysis section. So, the multiples analysis is in line with the results obtained by the DCF. (Appendix T – Multiples Analysis).

Investment Risks

Macroeconomic risk 1 - Diminishing of PCVA and shortfall of its resources

It is known that Tenda's performance is highly dependent on the PCVA and, as an obvious outturn, any potential fragilities within the program can affect the company's results. The primary source that finances the group 2 of PCVA -- which is the focus of Tenda's operation -- is the FGTS (Service Time Guarantee Fund). 1

We can see two grave, yet improbable, threats here: (i) FGTS is administered in part by the Federal Government, which enhances the possibility of changes in its parameters and designation (reducing the percentage of funds that are designated to the housing sector, in especial low-income housing, for example) and (ii) there may happen a situation where withdrawals start to be made in a substantial speed by the employees and the funds resources diminish quickly. Both situations raised above can heavily impact Tenda's revenue and future cash flows, and directly affect our thesis and valuation. Given the historic political, economic, and fiscal instability that Brazil is used to, we believe that those topics should be paid attention and monitored closely.

1) FGTS is a fund that gathers monthly (coercive) deposits -- made by the employer -- that can be used by the employee in case of resignation. Annually, more than 15% of the fund's resources, approximately 10,6 BRL bn on average for the last six years, are designated to subsidize the PVCA (Figure 39).

Macroeconomic risk 2 - Increasing tax rates

It is a clear vision that the entire world is going through an environment of structural low (or even negative) interest rates and high liquidity -- the FED, the ECB, the BoJ, the SNBN and many other central banks around the globe can exemplify this tendency. In Brazil, a similar movement could be seen from 2016 from now, when the Selic rate (the main interest rate of brazilian economy) fell from 14,25% to 2% now, at its historical minimum. However, the brazilian curve yield shows, today, a different perspective, with tax rates for fixed-rate bonds being priced at more than 8% for 2030 (Figure 38). In our vision, it is fair to say that a 2% interest rate might be misplaced and, therefore, our central bank has high chances of raising the Selic rate soon1. Itaú BBA projections show a Selic at 3% by the end of 2021. We see two main reasons for that: (i) price indexes are rising much faster than expected, as detailed in *Industry Risk 2 section*, and (ii) the national fiscal situation is significantly problematic, so that investors are not willing to receive a 2% a year interest rate for such credit risk.

Figure 32: Average price for traditional model properties [BRL th]



Source: Team's own calculations using Tenda's balance sheet data and Focus Report





Source: Team's own calculations using Tenda's balance sheet data

Figure 34: Tenda's gross margin [%]



Source: Companies' IR

Figure 35: Projected Capex [BRL mn]



Source: Companies' IR

of

Higher costs, smaller profits. A potential increase in interest rates should eventually lead to: (i) less capacity/will of clients financing their house acquisition, reducing the company's revenue, (ii) higher debt related costs, since Tenda's debt rates float according to the Interbanking Deposit Receipt (CDI). Each one of these points may gravely impact the firm's performance and cash flow, potentially shrinking the projected valuation.

Industry Risk 1 - Fierce competition for lands in metropolitan regions

A substantial part of Tenda's (and many other companies operating in the housing sector) success is due to acquiring great located lands at a reasonable price. In some core metropolitan regions for the company, like São Paulo and surrounding cities, the availability and cost of lands may be a problem for them. As said by both the CEO and the CFO of the company in the 2Q result's conference, the "boom" of peer's IPOs — Cury Construtora being the most relevant — will increase competition for lands in São Paulo and make building a strategic landbank (in terms of costs and location) a difficult task for the company. Such competition for land and its increasing prices will raise the sales price and incur in a smaller revenue for Tenda. Furthermore, margins will shrink and the expansion plans towards São Paulo, by using more verticalized towers, might turn out to be unsustainable. If consolidated on a stronger scale than imagined, this competition will directly affect our investment thesis and valuation.

Business Risk 1 - Relevant cash consumption and offsite model not being economically viable

Although the offsite model is already intensively utilized in many countries worldwide, such as Canada and Japan, there isn't any solid validation that it will be economically viable in Brazil when implemented on a large scale, such as planned by Tenda. As presented in their institutional presentation, the offsite construction model is yet being tested and validated. Rodrigo Osmo, Tenda's CEO, said at the 2Q result's conference that, although they believe the cost of the offsite model is going to be as competitive as the aluminum shape construction, no solid efficiency metric could be spread yet. The implementation of the offsite concept will require a significant amount of cash to (i) gather the proper teams of professionals, (ii) test the new technologies and (iii) build the structure (PP&E) to operate the model in a plausible scale. Potentially affecting the company's cash flow in the next years more than what was intended. In addition, there is no guarantee that the offsite construction model will be, in fact, reasonably profitable and that will be possible to develop a strong business model from this technology. Such points could highly affect Tenda's results and, as a direct effect, our valuation and investment thesis would be misrepresented.

Business Risk 2 - Control alienation, takeovers and similar practices

Tenda has an extremely dispersed equity control. The four major shareholders of the company - Pátria Investimentos, Polo Capital, Itaú Unibanco and Constellation - hold less than 35% of the outstanding shares (see Figure 14). Although they can be considered high-quality shareholders, since they all are well known names and have cleared reputation among the market, we might still see a fragility when it comes to a potential control alienation. The absence of a controller shareholder or a titular group possessing more than 50% of the voting equity lead the company to a scenario where a coalition between shareholders or hostile takeovers are reasonably possible, so that could gravely affect the decision-making process and the business as a whole.

But how does Tenda (tries to) mitigate this risk? The company's Social Statute indicates that if any shareholder acquires more than 30% of the firm's equity, he is obligated to propose a Tender Offer to purchase all shares of the company. But besides that, the statute cannot ensure that no control groups are going to arise, that hostile takeovers are not going to happen and, furthermore, that these dispositions won't be changed in the future by the shareholders.

Industry Risk 2 - Rising prices of raw material and general inflationary pressure

A ghost that is never gone. Concerns about inflationary pressures are once again on the table. The General Market Price Index (IGP-M) went up 4,41% in September and accumulated a 19,45% climb in the LTM (see figure 37). The preview release of IGP-M in October shows a possible slowdown, going up "only" 1,97%. Three main factors, in our consent, may lead to an inflationary pressure: (i) the scenario of astonishing low interest rates that we live in Brazil, which increases liquidity among the markets, (ii) the social aid given by the Federal Government during the pandemic to low-income classes, what should rise the demand for goods and services, and iii) the supply shock caused by the lockdown. (iii) the supply shock caused by the lockdown. When talking about the current reality, there are already some signs that the prices of raw material are also soaring. As said by Tenda's CFO Renan Sanches, the company is facing high purchasing prices for many raw materials commonly used in construction, in special steel and cement. This situation might eventually lead to suppressed margins and/or high sales price to the final customer, impacting negatively the company's revenue and performance.

An inflexion point about the offsite construction model is that the inputs (i.e. the materials used in the process) have a much bigger weight in the total cost than the manpower. This tendency goes in the opposite way of the entire construction sector, where labor costs tend to be the most significant part of total cost. Therefore, for the offsite model, inflationary pressures in raw materials should have a stronger influence and struck the expansion plans based on this model.





Source: Companies' IR

Figure 37: 12m accrued IGP-M [%]





Figure 38: Brazilian Yield Curve [%]



Source: ANBIMA

Figure 39: Subsidies provided by FGTS for PCVA [BRL mn]



Appendix A: Financial Statements

Income Statement [BRL mn]	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Net Revenue	1681,25	1950,10	2174,78	2493,75	2897,15	3278,30	3643,87	4086,00	4637,41	5345,57	6363,67	7675,94	8716,04
COGS	-1095,42	-1302,02	-1452,03	-1665,00	-1934,33	-2188,82	-2432,90	-2728,09	-3096,25	-3569,07	-4248,82	-5124,98	-5819,43
Gross Profit	585,83	648,08	722,75	828,75	962,81	1089,48	1210,97	1357,91	1541,16	1776,50	2114,85	2550,96	2896,62
% Net Revenue	34,8%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%	33,2%
SG&A	-366,47	-357,34	-398,51	-456,96	-535,40	-643,32	-760,09	-852,32	-967,33	-1115,05	-1327,42	-1601,15	-1818,11
Sales Expense	145,29	162,53	181,26	207,84	243,52	292,60	345,71	387,66	439,98	507,16	603,76	728,26	826,94
G&A	123,85	117,12	130,61	149,77	175,48	210,85	249,12	279,35	317,05	365,46	435,07	524,79	595,90
Other accounts	97,33	77,7	86,65	99,36	116,42	139,88	165,27	185,33	210,34	242,46	288,63	348,16	395,33
EBIT	219,36	290,73	324,24	371,79	427,41	446,16	450,88	505,59	573,82	661,45	787,43	949,80	1078,50
% Net Revenue	13,0%	14,9%	14,9%	14,9%	14,8%	13,6%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%	12,4%
Financial Result	8,51	8,8	-5,49	-6,29	-7,31	-8,27	-9,20	-10,31	-11,70	-13,49	-16,06	-19,37	-22,00
Financial Revenue	42,88	61,24	56,29	64,55	74,99	84,85	94,32	105,76	120,03	138,36	164,71	198,68	225,60
Interest Expenses	34,38	52,44	50,80	58,25	67,68	76,58	85,12	95,45	108,33	124,87	148,65	179,31	203,60
EBT	227,87	299,53	318,75	365,50	420,10	437,89	441,69	495,28	562,12	647,96	771,36	930,43	1056,51
% Net Revenue	13,6%	15,4%	14,7%	14,7%	14,5%	13,4%	12,1%	12,1%	12,1%	12,1%	12,1%	12,1%	12,1%
Income Tax and Social Contribution	-26,520	-35,12	-54,80	-62,83	-72,22	-75,28	-75,93	-85,14	-96,63	-111,39	-132,60	-159,95	-181,62
Tax Rate	-11,6%	-11,7%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%	-17,2%
NetIncome	201,35	264,41	263,95	302,67	347,88	362,61	365,76	410,14	465,49	536,57	638,76	770,48	874,88
% Net Revenue	12,0%	13,6%	12,1%	12,1%	12,0%	11,1%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%

Balance Sheet [BRL mn]	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Assets	2621,04	3478,49	3814,74	4149,49	4840,63	5557,41	6339,74	7029,70	7831,60	8775,41	9921,95	11322,62	12838,19
Current Assets	1787,86	2506,37	2678,16	2963,87	3290,40	3607,32	3951,14	4312,75	4735,72	5241,47	5880,78	6693,18	7525,39
Cash and equivalents	855,559	1070,5	1173,98	1287,47	1411,92	1548,41	1698,09	1862,24	2042,25	2239,67	2456,17	2693,60	2953,98
Accounts receivables	317,515	406,599	536,25	614,90	714,37	808,35	898,49	1007,51	1143,47	1318,09	1569,12	1892,70	2149,16
Inventories	570,773	955,589	887,08	972,83	1066,87	1143,93	1237,62	1314,76	1409,34	1529,47	1686,33	1921,37	2218,80
Other current assets	44,013	73,726	80,85	88,67	97,24	106,64	116,95	128,25	140,65	154,25	169,16	185,51	203,44
Non-current Assets	728,72	827,64	1075,94	1185,62	1550,23	1950,09	2388,59	2716,95	3095,89	3533,94	4041,17	4629,45	5312,80
Accounts receivables	158,181	218,543	239,67	262,84	288,24	316,11	346,67	380,18	416,93	457,23	501,43	549,90	603,06
Inventories	515,993	536,975	588,88	645,81	708,24	776,70	851,78	934,12	1024,42	1123,44	1232,04	1351,14	1481,75
Other non-current assets	54,545	72,125	79,10	86,74	95,13	104,32	114,41	125,47	137,60	150,90	165,48	181,48	199,02
PP&E	104,46	144,476	168,29	190,23	458,62	752,95	1075,74	1277,19	1516,95	1802,37	2142,21	2546,92	3028,97
Liabilities and Shareholders Equity	2621,04	3478,49	3814,74	4149,49	4840,63	5557,41	6339,74	7029,70	7831,60	8775,41	9921,95	11322,62	12838,19
Current Liabilities	453,58	578,97	662,18	689,27	803,03	913,97	1033,38	1116,28	1215,50	1335,16	1483,87	1668,06	1856,83
Loans and financing	10,088	14,115	16,14	18,46	21,12	24,15	27,62	31,59	36,14	41,33	47,27	54,06	61,83
Suppliers	21,449	38,926	37,79	43,34	50,35	56,97	63,32	71,01	80,59	92,89	110,59	133,39	151,46
Social accounts	26,951	30,048	34,37	39,31	44,96	51,42	58,81	67,26	76,92	87,98	100,63	115,09	131,63
Advances of costumers	258,24	340,862	389,85	445,88	509,97	583,26	667,09	762,97	872,62	998,04	1141,48	1305,54	1493,18
Other current liabilities	136,855	155,02	177,30	202,78	231,93	265,26	303,38	346,99	396,86	453,90	519,13	593,74	679,08
Non-current Liabilities	963,68	1547,81	1770,26	1842,69	2146,79	2443,39	2762,60	2984,23	3249,48	3569,38	3966,94	4459,36	4963,99
Loans and financing	532,403	856,321	979,39	1120,16	1281,15	1465,28	1675,88	1916,74	2192,22	2507,30	2867,66	3279,81	3751,19
Advances of costumers	361,302	602,386	688,96	787,98	901,24	1030,76	1178,91	1348,35	1542,14	1763,78	2017,28	2307,21	2638,81
Defered tax	7,833	11,794	13,49	15,43	17,65	20,18	23,08	26,40	30,19	34,53	39,50	45,17	51,66
Provisions	32,69	28,685	32,81	37,52	42,92	49,08	56,14	64,21	73,43	83,99	96,06	109,87	125,66
Others	29,454	48,619	55,61	63,60	72,74	83,19	95,15	108,83	124,47	142,36	162,82	186,22	212,98
Shareholders Equity	1203,77	1351,71	1382,29	1617,53	1890,81	2200,05	2543,77	2929,19	3366,63	3870,87	4471,14	5195,20	6017,37

Cash Flow [BRL mn]	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Revenue	1681,25	1950,10	2174,78	2493,75	2897,15	3278,30	3643,87	4187,19	4637,41	5345,57	6363,67	7675,94	8716,04
(-) COGS	-1095,4	-1302,0	-1452,0	-1665,0	-1934,3	-2188,8	-2432,9	-2728,1	-3096,2	-3569,1	-4248,8	-5125,0	-5819,4
Gross Profit	585,8	648,1	722,7	828,8	962,8	1089,5	1211,0	1357,9	1541,2	1776,5	2114,8	2551,0	2896,6
(-) SG&A Expenses	-366,5	-357,3	-398,5	-457,0	-535,4	-643,3	-760,1	-852,3	-967,3	-1115,1	-1327,4	-1601,2	-1818,1
EBITDA	219,4	290,7	324,2	371,8	427,4	446,2	450,9	505,6	573,8	661,4	787,4	949,8	1078,5
(-) Depreciation	-24,1	-31,7	-38,4	-45,9	-52,4	-151,8	-260,8	-380,3	-453,9	-541,6	-646,3	-771,3	-920,4
EBIT	195,2	259,1	285,8	325,9	375,0	294,3	190,1	125,2	119,9	119,8	141,1	178,5	158,1
EBIT (1-IR)	161,7	214,6	236,7	269,9	310,5	243,7	157,4	103,7	99,3	99,2	116,8	147,8	130,9
(+) Depreciation	24,1	31,7	38,4	45,9	52,4	151,8	260,8	380,3	453,9	541,6	646,3	771,3	920,4
(+) Working Capital Changes	20,3	-236,7	-0,9	-84,8	-97,7	-58,3	-51,2	-28,5	-43,5	-72,9	-143,4	-245,6	-195,3
(+) CaPex	22,5	-5,2	-18,7	-44,3	-250,0	-250,0	-250,0	-84,4	-127,7	-180,7	-248,7	-336,3	-439,7
Free Cash Flow	228,63	4,33	255,51	186,65	15,25	87,25	117,05	371,12	382,04	387,21	371,16	337,22	416,38

CFA INSTITUTE RESEARCH CHALLENGE

Appendix B: Revenue Assumptions

Units Released per Constructive Model	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total Units	14.881	16.397	18.000	20.000	21.500	23.100	24.650	26.475	28.700	31.500	35.500	40.500	44.000
Traditional Model	14.881	16.397	18.000	20.000	21.000	22.000	23.000	24.000	25.000	26.000	27.000	28.000	29.000
% of Total Releases	100,0%	100,0%	100,0%	100,0%	97,7%	95,2%	93,3%	90,7%	87,1%	82,5%	76,1%	69,1%	65,9%
Offsite Model Releases	-	-	-	-	500	1.100	1.650	2.475	3.700	5.500	8.500	12.500	15.000
% of Total Releases	0,0%	0,0%	0,0%	0,0%	2,3%	4,8%	6,7%	9,3%	12,9%	17,5%	23,9%	30,9%	34,1%

Units Average Price per Constructive Model	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Traditional Model	137.600	136.600	138.772	143.213	148.225	154.895	160.317	165.928	171.735	177.746	183.967	190.406	197.070
Offsite Model	-	-	-	-	200.000	207.000	214.245	221.744	229.505	237.537	245.851	254.456	263.362

Revenue Breakdown [BRL MM]	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total Net Revenue	1.681,25	1.950,10	2.174,78	2.493,75	2.997,15	3.506,00	3.997,37	4.736,01	5.486,57	6.652,02	8.453,40	10.856,64	12.666,47
Traditional Model Revenue	1.681,25	1.950,10	2.174,78	2.493,75	2.897,15	3.278,30	3.643,87	4.187,19	4.637,41	5.345,57	6.363,67	7.675,94	8.716,04
% of Net Revenue	100,0%	100,0%	100,0%	100,0%	96,7%	93,5%	91,2%	88,4%	84,5%	80,4%	75,3%	70,7%	68,8%
Offsite Model Revenue	-	-	-	-	100,00	227,70	353,50	548,82	849,17	1.306,45	2.089,73	3.180,70	3.950,43
% of Net Revenue	0,0%	0,0%	0,0%	0,0%	3,3%	6,5%	8,8%	11,6%	15,5%	19,6%	24,7%	29,3%	31,2%

Appendix C: Valuation Methodology

Kd	Source	
Financial Expenses [BRL mn] (2019)	52,44 Tenda S.A.	
Onerous Liabilities [BRL mn] (2019)	870,44 Tenda S.A.	
Cost of Debt Pre-tax	6,02% Team estimates	

Ке		Source
Risk Free	1,35%	T-Bond 30Y Eua
Equity Risk Premium	9,64%	Damodaran
Brazil Risk Premium	5,50%	Damodaran
Tenda's Beta 5Y (Monthly)	1,159	Refinitiv
Tenda's Final 2019 Debt/Equity	1,564	Company's IR
Tenda Unlevered Beta	0,570	Team estimates
Average Debt/Equity*	1,918	Team estimates
Tenda Re-Levereg Beta	1,292	Team estimates
Brazil CPI	2,23%	Brazil Central Bank
USA CPI	1,54%	U.S. Bureau of Labor Statistics
Cost of Equity	20,12%	Team estimates

 WACC

 Debt
 2.126.971.000,00

 Equity
 1.351.709.000,00

 tax
 17,19%

 WACC
 10,89%

Source: Company's IR and Team Estimates

Sector's Debt/Equity	
TEND3	1,5641
DIRR3	2,3333
MRVE3	1,8571
Average	1,9182

Source: Companies' IR and Team Estimates

Appendix D: Sensitivity analysis

While the target price was achieved using a calculated WACC of 10,89% and 5% growth over the perpetuity, those numbers may vary over time. Hence, we developed a matrix of the target-price, depending on those values, in order to establish the security margin for the recommendation.

Price Sensitivity - Ke vs. g

G/Ke		10,00%		10,50%		10,89%		11,00%		11,50%
3,00%	R\$	40,89	R\$	38,07	R\$	36,13	R\$	35,61	R\$	33,45
4,00%	R\$	44,92	R\$	41,40	R\$	39,02	R\$	38,39	R\$	35,80
5,00%	R\$	50,56	R\$	45,95	R\$	42,90	R\$	42,11	R\$	38,87
6,00%	R\$	59,03	R\$	52,51	R\$	48,37	R\$	47,31	R\$	43,06
7,00%	R\$	73,13	R\$	62,83	R\$	56,64	R\$	55,11	R\$	49,11

Appendix E: Turnover & Liquidity Ratios

Turnover & Liquidity Ratios	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Asset Turnover	0,71	0,64	0,60	0,63	0,64	0,63	0,61	0,61	0,62	0,64	0,68	0,72	0,72
Inventory Turnover	2,09	1,77	1,61	1,83	1,94	2,03	2,09	2,19	2,33	2,49	2,71	2,91	2,88
Days of Inventory	175,01	206,16	226,83	199,31	188,14	180,16	174,53	166,72	156,68	146,57	134,72	125,37	126,84
Receivables Turnover	5,66	5,39	4,61	4,33	4,36	4,31	4,27	4,29	4,31	4,34	4,41	4,43	4,31
Days of Receivables Collection	64,54	64,54	79,12	84,24	83,73	84,77	85,49	85,13	84,65	84,04	82,80	82,31	84,63
Payables Turnover	49,57	43,13	37,85	41,05	41,30	40,79	40,45	40,62	40,85	41,15	41,76	42,01	40,86
Days of Payable	7,36	8,46	9,64	8,89	8,84	8,95	9,02	8,99	8,94	8,87	8,74	8,69	8,93
Cash Cycle	232,19	262,24	296,31	274,66	263,03	255,98	250,99	242,86	232,39	221,74	208,78	198,99	202,54
	20184	2019A	2020F	2021F	2022F	2023F	2024F	2025F	2026F	2027F	2028F	2029F	2030F
Current Ratio	3,94	4,33	4,04	4,30	4,10	3,95	3,82	3,86	3,90	3,93	3,96	4,01	4,05
Debt Service Coverage Ratio	5,12	4,75	5,76	5,76	5,70	5,26	4,78	4,78	4,78	4,78	4,78	4,78	4,78
Net Debt/EBITDA	-1,43	-0,69	-0,55	-0,40	-0,26	-0,13	0,01	0,17	0,32	0,47	0,58	0,67	0,80

Appendix F: Macroeconomic Assumptions

Macroeconomic Assumption	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Dollar	3,49	3,19	3,66	3,95	5,28	5,00	4,78	4,80	4,80	4,80	4,80	4,80	4,80
Dollar variation	4,8%	-8,6%	14,7%	7,9%	33,7%	-5,3%	-4,4%	0,4%	0,0%	0,0%	0,0%	0,0%	0,0%
Real GDP growth	-3,3%	1,3%	1,3%	1,2%	-5,1%	3,2%	2,5%	2,5%	2,5%	2,5%	2,5%	2,5%	2,5%
Brazilian Inflation	6,3%	2,9%	3,7%	4,3%	1,6%	3,2%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%	3,5%

Appendix G: Dupont Analysis

Dupont Analysis	2018A	2019A	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
ROE	17,0%	20,7%	19,3%	20,2%	19,8%	17,7%	15,4%	15,0%	14,8%	14,8%	15,3%	15,9%	15,6%
ROA	8,5%	8,7%	7,2%	7,6%	7,7%	7,0%	6,1%	6,1%	6,3%	6,5%	6,8%	7,3%	7,2%
Asset Turnover	0,71	0,64	0,60	0,63	0,64	0,63	0,61	0,61	0,62	0,64	0,68	0,72	0,72
Net Margin	12,0%	13,6%	12,1%	12,1%	12,0%	11,1%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%	10,0%
Financial Leverage	2,0	2,4	2,7	2,7	2,6	2,5	2,5	2,4	2,4	2,3	2,2	2,2	2,2

Appendix H: VSO's Statistics

Box Plot of Quartely VSO (1T13



Source: Refinitiv and Tenda's IR

Appendix I: Pietroski F-Score

Developed by Joseph D. Pietroski in the early 2000s, the Pietroski F-score is a fundamental strategy for analyzing companies, using simple accounting. The author created nine criteria to evaluate the financial condition of three fundamental areas of the firm, they are: profitability, financial leverage and operational efficiency. In the article, Pietroski classifies the company as good (bad) in each criterion and it will receive a score of one (zero), depending on the classification in each parameter. The aggregate measure (composite score) is given by the sum of the score received in each criterion. The criteria developed by the author are:

1. Profitability Signals

Criteria 1 (C1) -> ROA: net income before extraordinary items scaled by beginning-of-the-year total assets; Score: 1 if positive, 0 if negative.

Criteria 2 (C2) -> CFO: cash flow from operations scaled by beginning-of-the-year total assets; Score: 1 if positive, 0 if negative.

Criteria 3 (C3) -> Delta ROA: current ROA less the prior year's ROA; Score: 1 if positive, 0 if negative.

Criteria 4 (C4) -> Accrual: current year's net income before extraordinary items less cash flow from operations, scaled by beginning-of-the-year total assets; Score: 1 if CFO > ROA, 0 otherwise.

2. Leverage, Liquidity, and Source of Funds Signals

Criteria 5 (C5) -> Delta Lever: historical change in the ratio of total long-term debt to average total assets, an increase (decrease) in financial leverage as negative (positive) signal. Score: 1 if the firm's leverage ratio fell in the year preceding portfolio formation, 0 otherwise.

Criteria 6 (C6) -> Delta Liquid: equal historical change in the firm's current ratio between the current year and prior year. Score: 1 if liquidity improved, 0 otherwise.

Criteria 7 (C7) -> EQ_Offer; Score: 1 if the firm did not issue common equity in the year preceding portfolio formation, 0 otherwise.

3. Operating Efficiency Signals

Criteria 8 (C8) -> Delta Margin: the firm's current gross margin ratio less the prior year's gross margin ratio. Score: 1 if Delta Margin > 0, 0 otherwise. Criteria 9 (C9) -> Delta Turn: the firm's current asset turnover ratio less the prior year's asset turnover ratio. Score: 1 if Delta Turn > 0, 0 otherwise.

Given these nine signals, the composite score can range from a low 0 to a high 9, where a low (high) composite score represents a firm with very few (mostly) good signals. This approach represents one simple application of fundamental analysis for identifying strong and weak value firms.

Reference: Value Investing: The Use of Historical Financial Statement Information to Separate Winners from Losers, Joseph D. Pietroski. Journal of Accounting Research (2000).

Appendix J: National Index of Civil Construction (INCC)

Designed with the purpose of evaluating the evolution of housing constructions cost, the INCC is one of the thermometers of the level of economic activity. It covers the prices of materials, equipment, services, and labor. Obtained monthly, the INCC is surveyed between the 1st and the last day of the month of reference in the following capitals: Recife, Salvador, Rio de Janeiro, São Paulo, Belo Horizonte, Brasília and Porto Alegre. The institution responsible for the Index is the Brazilian Institute of Economics (IBRE), from Getúlio Vargas Foundation (FGV).

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INCC accrued: jan/2011 - dec/2019

	jan	feb	mar	apr	may	jun	jul	aug	sep	oct	nov	dec	Yearly
2011	0,11	0,72	0,23	0,14	0,13	0,45	0,37	2,94	1,06	0,43	0,28	0,41	7,48
2012	0,16	0,33	0,21	0,22	0,26	0,67	0,73	1,88	0,75	0,51	0,3	0,89	7,12
2013	0,1	0,35	0,26	0,43	0,31	0,48	1,15	2,25	0,74	0,5	0,6	0,65	8,09
2014	0,08	0,44	0,17	0,15	0,08	0,75	0,66	2,05	0,88	0,28	0,33	0,88	6,94
2015	0,1	0,34	0,36	0,22	0,59	0,55	1,84	0,95	0,46	0,62	0,31	0,92	7,49
2016	0,35	0,16	0,21	0,33	0,29	0,49	1,93	0,08	0,55	0,64	0,54	0,39	6,11
2017	0,07	0,31	0,31	0,06	0,36	0,3	0,93	0,63	-0,02	0,16	0,65	0,41	4,25
2018	0,13	0,13	0,35	0,23	0,15	0,61	0,97	0,23	0,29	0,24	0,13	0,31	3,83
2019	0,21	0,04	0,18	0,46	0,42	0,58	0,88	0,03	0,38	0,31	0,09	0,49	4,14
	-												

Source: FGV IBRE

Appendix K: Profitability Metrics over the sector

Company Name	Gross Profit Margin, 5 Yr Avg(FY0)
Eztec	44,7%
Tenda	32,9%
MRV	32,0%
Trisul	31,9%
Cyrela	31,0%
Direcional	21,0%
Even	19,4%
Gafisa	16,1%
Helbor	9,6%
Tecnisa	5,0%
Average	24,3%

Company Name	EBIT Margin, 5 Yr Avg(FY0)
Eztec	23,6%
Trisul	13,8%
MRV	13,5%
Tenda	13,0%
Cyrela	6,6%
Direcional	4,8%
Even	-1,4%
Helbor	-10,2%
Gafisa	-12,0%
Tecnisa	-35,3%
Average	1,6%

Company Name	EBITDA Margin, 5 Yr Avg(FY0)
Eztec	23,9%
Trisul	15,5%
MRV	14,6%
Tenda	14,6%
Cyrela	8,8%
Direcional	7,2%
Even	-0,6%
Gafisa	-8,6%
Helbor	-9,2%
Tecnisa	-32,9%
Average	3,3%

Company Name	Net Margin, 5 Yr Avg(FY0)
Eztec	40,2%
MRV	13,4%
Trisul	11,8%
Tenda	9,4%
Cyrela	7,9%
Direcional	1,0%
Even	-1,2%
Helbor	-18,4%
Gafisa	-41,3%
Tecnisa	-49,6%
Average	-2,7%

Source: Refinitiv

Appendix L: Liquidity Metrics over the sector

Company Name	Curr Ratio, 5 Yr Avg(FY0)
Eztec	5,84
Tenda	3,61
Direcional	3,49
Cyrela	3,01
Even	2,80
Trisul	2,79
Helbor	2,66
MRV	2,52
Tecnisa	1,67
Gafisa	1,62
Average	3,00

Company Name	Quick Ratio, 5 Yr Avg(FY0)
Eztec	3,21
Tenda	2,28
Direcional	2,22
Cyrela	1,62
Trisul	1,51
Even	1,45
MRV	1,43
Helbor	1,03
Gafisa	0,88
Tecnisa	0,66
Average	1,63

Liquidity metris over sector and Tendas's Leverage



Source: Refinitiv

Appendix M: Members of the Board of Directors



Member	Experience			
José Urbano Duarte	He worked at Caixa Econômica Federal between 1981 and 2014, having held several technical and strategic positions, including Vice President of Housing between 2011 and 2014. He is a partner at José Urbano Consultoria Ltda. specialized consultancy in the real estate sector			
Cláudio José de Carvalho Andrade	He is a partner at Polo Capital Gestão de Recursos and several other real estate and asset management companies that are part of Polo's portfolio of companies. He is also a member of the Board of Directors of Casa e Video Rio de Janeiro S.A., a retail company			
Rodolpho Amboss	He is a founding partner and executive director of Silverpeak Real Estate Partners, a global real estate investment fund management and administration company			
Mauricio Luis Luchetti	He is vice president of the Board of Directors and coordinator of the People and Governance Committee of Estácio Participações S.A. He has pleny of experience, worked as People and Management director and regional director of Operations, Chief Operating Officer and member of the Boards of Directors of several publicly-held companies.			
Flavio Uchôa Teles de Menezes	He is a director at Pátria Investimentos, where he is responsible for investments in public companies. He was a partner at GPS Planejamento Financeiro, founding partner, CEO and member of the Board of Directors of MundoMedia S.A and partner and head of variable income management at Banco Patrimônio de Investimentos			
Eduardo Ferreira Pradal	He is a real estate associate at Polo Capital Gestão de Recursos. He was founding partner and commercial director of Movia and commercial director of PDG Realty / CHL			
Mario Mello Freire Neto	He is a founding partner and president of the institution Poder do Voto. He is a member of the Advisory Board of Valor Capital Group and a member of the Board of Directors of Track & Field. He was general director for Latin America at Paypal, member of the Boards of Directors of ContaAzul, Alelo and Cielo, and held executive positions at Visa, Bank of Boston and ABN AMRO Bank			

Appendix N: Recently Issued Debentures

Debt Contracts Breakdown	Launch	Maturity Date	Value BRL	Interest	Туре	Interest payment	Principal payment
Debentures 3rd Emission	03/09/17	15/01/21	270.000.000,00	CDI +0.9%	Non Convertible Debentures	At Maturity	100.00% 01/21
Debentures 4th Emission	10/09/18	15/09/23	150.000.000,00	CDI +1.75%	Non Convertible Debentures	Semestral	33.33% 09/21 - 33.33% 09/22 - 33.33% 09/23
Debentures 5th Emission	02/04/19	15/03/24	150.000.000,00	CDI +1.4%	Non Convertible Debentures	Semestral	50% 03/23 - 50% 03/24
Debentures 6th Emission	05/12/19	15/12/24	200.000.000,00	CDI +1.3%	Non Convertible Debentures	Semestral	25% 12/21 - 25% 12/22 - 25% 12/23 - 25% 12/24

Source: Tenda's IR

Appendix O: Brazilian Housing Deficit

According to the study realized by Ernest Young in partnership with FGV in 2007 - "Brasil Sustentável: potencialidades do mercado habitacional - a country's housing needs are dictated by three main elements: family dynamics (Appendix P), housing deficit and depreciation of the housing stock

"Análise das Necessidades Habitacionais e suas Tendências para os Próximos Dez Anos", published in 2018 by the Brazilian Association of Real Estate Developers (Abrainc) in partnership with FGV, states that in 2017, Brazil presented a housing deficit of around 7.7 million units. Of this amount, 12.4% are due to precarious housing, 41.3% due to family cohabitation, 42.3% due to excessive rent charges and 3.9% due to excessive density. Since 2007, the housing deficit has never been below 6.5 million.

Distribution of housing deficit by income bracket [%]



Housing Needs (New Housing + Deficit Reduction) by 2027 [th]



Source: PNAD Contínua - IBGE

Source: FGV

Among families with housing demands, in 2017 most of them had monthly income of less than 1 to 3 minimum wages- 91.7% of the total. All of them fit in the maximum income parameters imposed by the Casa Verde e Amarela Program (Refer to Appendix Q)

The study also mentions that from 2018 to 2027, the need for financing the base scenario will be R\$ 240.7 billion annually, on average. However, there is a hiatus in resources, given that the government subsidy, the FGTS financing, and the market will not be able to supply the entire need for resources. It is estimated an average hiatus of R\$ 35 billion in the base scenario, per year.

To eliminate 100% of the housing deficit that are due to precarious housing, 100% of the deficit due to excessive density, 50% of the deficit due to cohabitation, and to meet the incremental demand, it would be necessary 11.982 million housing units by the year of 2027 - in the base scenario. This demonstrates how necessary the Federal Government's housing financing program is, and that its continuity will still be needed for a long period.

Appendix P: Formation of new families in Brazil

According to the study realized by Ernest Young in partnership with FGV in 2007 - "Brasil Sustentável: potencialidades do mercado habitacional - the growth rate of Brazilian families would be 2% per year between 2007 and 2030. The family dynamics of a country is basically influenced by the evolution of disposable income and by the population growth, with the pace of families' formation being the main generator of the housing needs in one nation.

To carry out the projections, the study took into account the demographic factor and the income growth, since the latter influences directly in the number of children and the need for family cohabitation. Yet, the relation between the number of inhabitants - determined by the birth rate, mortality and migratory movements- and the necessity for housing construction is direct.

In the demographic field, due to several factors, the study does not project an increase in the population growth rate for Brazil. Instead, between 2007 and 2017 the expected population growth rate is 1.1% and 1% for the 13 years after. However, from 2007 to 2030 the study projects a 58% growth in the number of Brazilian families, jumping from 60.3 million to 95.5 million. Regarding the income of these new families, 57% of the 15.3 million families that formed between 2007 and 2017 had a family income of less than R\$ 2 thousand. However, 78% of the 19.9 million families that will be form from 2017 to 2030 will have an income between R\$ 2 thousand and R\$ 8 thousand. This change in the profile of the new families also changes the context of housing policy, focusing on subsidies in the first period and market mechanisms and credit conditions in the second.

CFA INSTITUTE RESEARCH CHALLENGE

All this demographic dynamic of families in Brazil have a direct impact on construction companies and incorporated companies in the country. The companies will face a change in the profile of their target consumers and, consequently, in the range of products to be offered.

Appendix Q: Casa Verde e Amarela Program – PCVA

Because of the significant habitational deficit in Brazil, the federal government maintains a program that seeks to meet the habitational needs of the poor Brazilian families, granting access to decent housing with minimum levels of sustainability and safety. This policy consists in financing and/or subsidizing the construction of habitational units destined to families with up to 7k BRL of monthly income.

The operationalization of the program occurs through the Caixa Econômica Federal bank, by using resources from the FGTS. The family closes the fiduciary alienation with the bank and, if approved, receives up to 80% of the property value financed. The remaining value must be negotiated between the family and the building company. Insofar as the construction evolves, the company receives the resources of the bank financing the operation. Besides the recent drop of availabilities from FGTS, the program doesn't show any extinction risks. In fact, it was endorsed by many different governments, as shown below.

The program started in 2009, in Lula's Government, with the creation of the Minha Casa Minha Vida Program. Initially, the program covered families with monthly income of up to 10 minimum wages but prioritizing the ones that received less than 3 minimum wages monthly. However, the program was strongly criticized because of its inefficiency in covering this poorer group of families.

In 2017, in Temer's Government, the program has undergone some important changes. First, the program created the income bracket 1.5 between brackets 1 and 2. Furthermore, it has altered the maximum family income for some specific brackets. In 2018, Caixa Econômica Federal reported that more than 5 million houses could be constructed and more than 14.7 million people (7% of Brazil's population) bought a property through the program.

This year, in Bolsonaro's Government, the habitational program suffered new changes and established the goal of cover, up until 2024, 1.6 million low-income families, a 350 thousand properties increment relative to the previous format. In this new format, the program will have only 3 groups (see Figure BXX), instead of brackets: group 1 has the possibility of subsidized or financed purchase, land regularization and housing improvement, while the other two can only finance the purchase and get a land regularization. Moreover, reforms and improvements of properties and resumes of paralyzed constructions are among the actions of the program.

While in the Minha Casa Minha Vida Program the interest rates could only vary between brackets, the Casa Verde e Amarela Program can also adjust them according to the property location. For the North and Northeast population of the country, the rates are going to be lower, as an example. Besides that, there was an increase in the limit of real estate eligible for financing.

CASA VERDE E AMARELA								
Group	Income Bracket	S - SE	- MW	N - NE				
		Non-Quotaholder	Quotaholder	Non-Quotaholder	Quotaholder			
Group 1	Up to R\$ 2.000	5,00%	4,50%	4,75%	4,25%			
		5,25%	4,75%	5,00%	4,50%			
Group 2		5,50%	5,00%	5,25%	4,75%			
	R\$ 2.000 to R\$ 4.000	6,00%	5,50%	6,00%	5,50%			
		7,00%	6,50%	7,00%	6,50%			
Group 3	R\$ 4.000 to R\$ 7.000	8,16%	7,66%	8,16%	7,66%			

Appendix R: Brazilian Roads

especially where Tenda wants to do.

Road safety outlook. The Brazilian Federal Highway Police, together with the National Transport Confederation, has developed a series of statistics regarding the safety in roads across the country. The highway network is divided by three categories, regarding safety elements, asphalt quality, signaling, and geometry (i.e., Presence of places such as dangerous corners).

The statistics shows that the current network is mainly constituted of regular roads. However, changes regarding road safety impact massively on accidents statistics.

Looking for expansion to broader regions, Tenda's trucks will travel roads outside

main centers, and in the case of Brazil, those roads despite coping with less traffic,

concentrate the most dangerous parts. Thus, while it sounds easy, the logistics point of view for transporting buildings through Brazil may be a relevant challenge,

Road Safety outlook [%]

100% 90% 80% 70% 60% 50% 40% 30% 20% 10% 0% Asphalt Signaling Geometry ■ Very good ■ Good ■ Regular ■ Poor ■ Very poor

Source: Brazilian Federal Highway Police and National Transport Confederation

Construções eficientes

Source: Brazilian Federal Highway Police and National Transport Confederation

Appendix S: M&A Radar

While the offsite method isn't new looking worldwide, in Brazil the number of firms with expertise to deliver this kind of construction process is very strict. However, there are companies already developing and running the strategy.

TecVerde. The largest case of success in this business is the company from Curitiba. Since 2009, TecVerde has already made 4.500+ units, serving up to 20.000+ clients across several Brazilian states. Focused on productivity, the company uses a WoodFrame strategy as main vehicle. Currently, up to 85% of the construction process is made inside the factory, leaving just minor finishing details to be made in the site.

The leading profile has made the company a point of attention in the market. In 2020 the company was acquired by two big players globally, the Belgian Etex, together with wood player Arauco.







Brasil ao Cubo. Born in 2016, Brasil ao Cubo (BR3) was developed as a construtech. Since then, the team made up to 150

Despite being less than 5 years old, BR3 has already developed projects in 13 states around Brazil, proofing that is possible to escalate the operation around the country. And furthermore, notable brands such as AmBev and Movida have done business together with BR3, valuing even more the quality perception of the products and solutions developed.

Appendix T: Multiples Analysis

schools, hospitals and stores.

ambe

In terms of P/E, Tenda is aligned with MRV with the lower values within the class. The growth thesis of Tenda would justify running at larger multiples, but that is not even the case. Direcional, Even and Cyrela also running at less attractive P/Es.

However, in terms of price-to-book ratio, the figure changes a little. Tenda's position as the most expensive in this point of view, expected point, supported by the company outstanding ROE. Hence, supporting the point that Tenda is a play backed by a growth ahead, with a great technical capacity of delivering. Similar stories, such as Direcional's one are not charged by a larger multiple, mainly because that are doubts about the performance through any tough markets ahead.

But the most bullish comparison comes from looking at EV/EBIT ratios. Tenda's net cash positioning, together with current EBIT and market price, makes the company the cheapest of this sector. Hence, in line with the conclusion that Tenda is a company that could reasonably see a re-rating in its prices, in order to compile the great outlook coming from the current operations and the Offsite possibilities.



Source: Refinitiv

MRV Tenda Direcional

14.88 17,05 Average 18,26 Even 19,42 Cyrela 25.14 10 15 20 25

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