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## Latin America Technology

## The Rise Of Brazilian Technology

Technology adoption in Brazil is accelerating, boosted by COVID. We think the tailwinds are secular, and our bottom-up work uncovers a BRL362bn p.a. opportunity. The sector looks undervalued, especially software.

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Technology adoption in Brazil is accelerating, boosted by COVID. We think the tailwinds are secular, and our bottom-up work uncovers a BRL362bn p.a. opportunity. The sector looks undervalued, especially software.

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## WHAT'S CHANGED

Totvs S.A.	From	To
Price Target	R\$23.30	<b>R\$28.00</b>
Linx S.A.		
Price Target	US\$6.00	<b>US\$5.00</b>
Linx S.A.		
Price Target	R\$30.00	<b>R\$28.00</b>
Locaweb Servicos de Internet SA		
Price Target	R\$19.00	<b>R\$32.00</b>
Telefonica Brasil SA		
Price Target	US\$13.00	<b>US\$13.50</b>
TIM Participacoes		
Price Target	US\$15.00	<b>US\$16.00</b>
StoneCo Ltd.		
Price Target	US\$37.00	<b>US\$44.00</b>
PagSeguro Digital		
Price Target	US\$43.00	<b>US\$48.00</b>

**In response to the pandemic, Brazilians are increasing their technology usage faster than the rest of the world.** Further, our AlphaWise surveys show technology spend is taking wallet share from legacy items. Of the 540 firms we surveyed, 62% are planning to increase their technology spend at the expense of working capital and other investments. We think this is the start of a secular tech opportunity in the world's 9th-largest economy, home to 210m people, with young demographics and a strong cultural affinity for technology (users spend +9 hours online per day vs. +6 hours on average globally).

**Addressable markets (TAMs) are larger than you think.** Unlike traditional top-down TAM models based on GDP or revenues, our new estimates factor in: (1) penetration adjusted for Brazil's unique distribution of firm sizes and household income, and (2) domestic pricing for ~550 tech and telco products. This allows us to track spending for middle-market clients and also the high/low-end alter-

natives to account for differences in spending power among end-users. Our company-level TAM estimates consider recent launches (e.g. Business Performance for TOTVS) and are up to 2x bigger than consensus numbers, covering 23 technology products from mobile (BRL96bn in TAM) to SSL (BRL0.1bn) that combined are worth BRL362bn. Regulation and infrastructure are also falling into place, suggesting a sustainable opportunity for profitable long-term growth across tech and related industries in Brazil (Software, E-commerce, Payments, Telecoms and Education Technology).

**A large opportunity not priced in.** IBOV trades at a -20% discount to S&P500, but the discount for tech-related industries is much greater. We highlight that SaaS names are: (a) -60% cheaper on EV/NTM revenues, (b) -60% cheaper on a 2020-22 growth-adjusted basis, and (c) -50% cheaper on EV/TAM. We expect secular tailwinds to drive re-rating and increase representation (tech-related names are ~15% of the market, vs. 35% in DM and 42% in EM).

**Our top picks are:** 1) Software – TOTVS (20% PT increase to BRL28/Sh) as a diversified play on technology adoption for industry; 2) E-commerce – MGLU3 for omni-channel execution and growing E-commerce marketplace; 3) Payments – PAGES (12% PT increase to US\$48) and STNE (18% PT increase to US\$44) on plastification of payments, E-Commerce acceleration, and market share gains from incumbents; 4) Education technology – vehicles to play the theme are ARCE and YDUQS; and 5) Telecom – VIV for exposure to pent-up demand for premium connectivity and telco reform implementation.

**On average, these stocks offer 26% upside by mid-2021, vs 17% for IBOV.**

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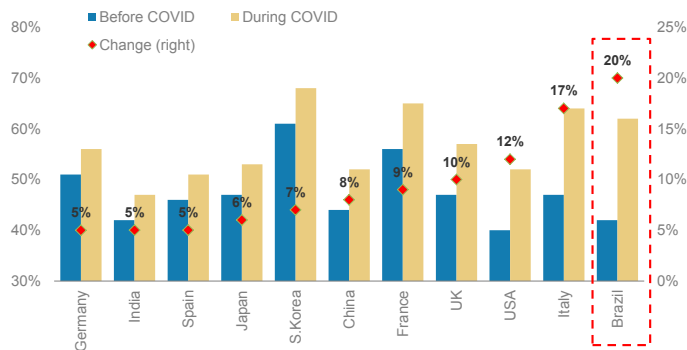
# Executive Summary

Global surveys show that, in response to the COVID outbreak, Brazilian corporates and households are increasing their technology usage at a faster pace than the rest of the world. Indeed, Brazilian businesses have sharply increased their B2B e-commerce by 20p.p. (left chart below) and 58% of households expect to permanently increase time spent on digital activities (e.g. streaming or on-line education). Indeed, 1Q20 already saw a boost to e-commerce and payments ([Link](#) and [link](#)).

## Exhibit 1:

In response to the pandemic, Brazilian corporates and households...

Global Survey: B2B firms that also sell on-line:  
% of revenue driven by e-commerce (April 2020)

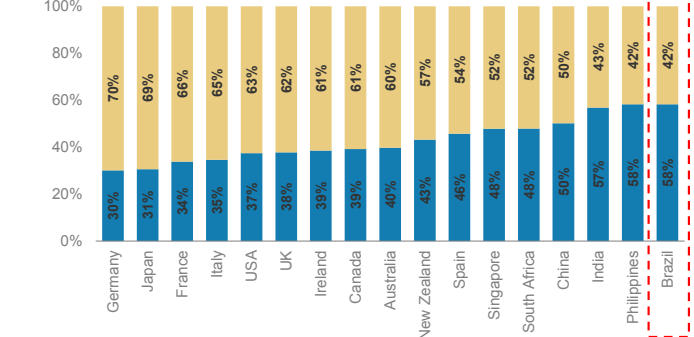


Source: McKinsey and Morgan Stanley Research

## Exhibit 2:

...are adopting technology at a faster pace than the rest of the world...

Global Consumer Survey: Expected permanent increase in post-COVID activities (April 2020)



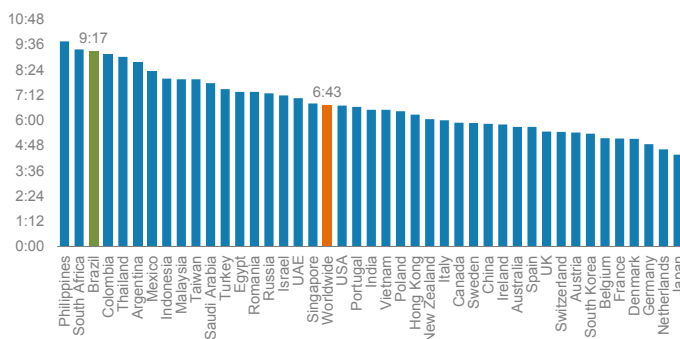
Source: GlobalWeb Index and Morgan Stanley Research

We think this is an interesting trend for a country that is home to some of the most avid internet users in the world (users spend +9hr on-line per day, vs. +6 global average). This suggests structural potential to monetize technology in a very large market with attractive demographics (~150m of young internet users in Brazil as of 2019, the 4th largest in the world).

## Exhibit 3:

...an interesting trend for a country with very avid internet users...

Time per day spent using the internet 2019 (hours)

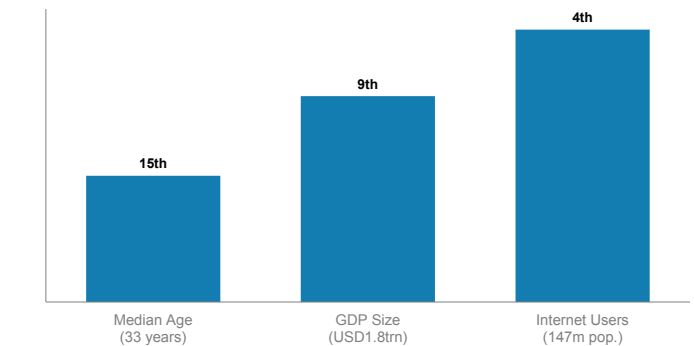


Source: HootSuite and Morgan Stanley Research

## Exhibit 4:

...that suggests ample potential for technology monetization

Brazil 2019 ranking out of 49 countries in MSCI ACWI



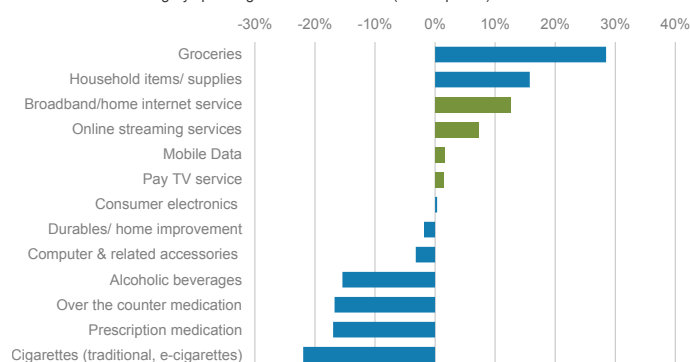
Source: IMF, WEF and Morgan Stanley Research

Our economist Fernando Sedano expects Brazil to post a -7.2% GDP contraction this year followed by a gradual +2.9% recovery in 2021. Amid this challenging macro backdrop, our AlphaWise surveys show technology spend is gaining wallet-share among local households (left chart below) and domestic corporates (Of the 540 firms we surveyed, 62% are planning to increase their technology spend at the expense of working capital and other investments). We think this is the start of secular tailwinds for technology related companies in our coverage (software, e-commerce, payments, education technology and telcos).

#### Exhibit 5:

Amid a challenging ST macro backdrop, our AlphaWise survey shows technology spend is gaining wallet share...

Brazil Consumer: Category spending over the next month (Net response)

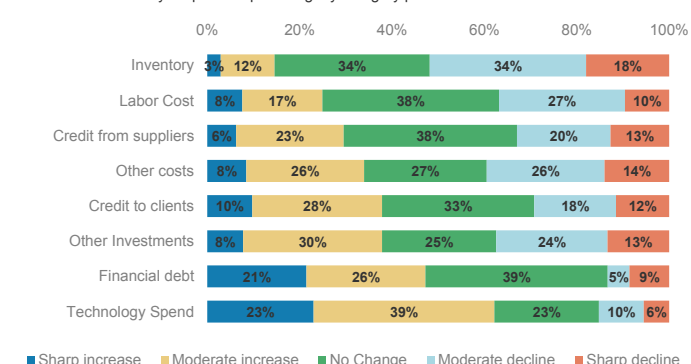


Note: Survey June 15-18, 2020. Source: AlphaWise and Morgan Stanley Research

#### Exhibit 6:

...among consumers and corporates. We see secular tailwinds for technology related companies

Brazil Business Survey: Expected spend chg. by category post COVID



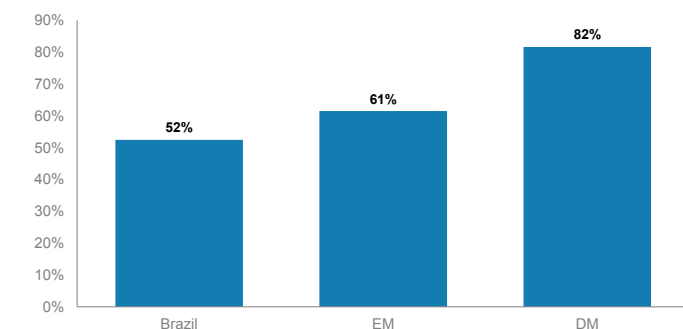
Note: June 2020 data. Source: AlphaWise and Morgan Stanley Research

We think the budget increase for technology could help move Brazil technology adoption towards EM levels (if not higher considering cultural affinity with technology - e.g., time spent on-line). Further, our positive view is reinforced by structural changes for better monetization of data infrastructure: 1) Telco reform implementation, 2) Network sharing, and 3) Potential for industry consolidation. Importantly, international experience shows that countries that benefitted from a similar industry backdrop experience an acceleration in broadband penetration (right chart below, [link](#)), a key element for digitalization in Brazil.

#### Exhibit 7:

BZ tech wallet share gain could boost tech investment towards EM average...

2019 Technology adoption (Global percentile, Higher = Better)

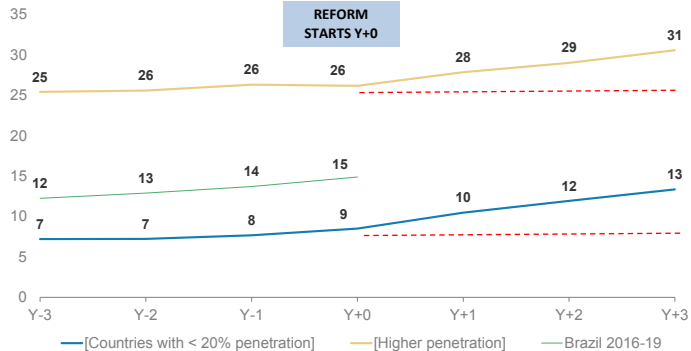


Source: WEF and Morgan Stanley Research

#### Exhibit 8:

...especially considering positive structural changes on the tech infrastructure side

Bband. adoption in telco reform countries (Sub/100pp; Reform starts Y+0)



Note: Considers Bolivia, Oman, Vietnam, Costa Rica, Turkey, Slovak Republic, Israel, Italy, Estonia, Portugal, and Iceland. Source: ITU, WEF, and Morgan Stanley Research

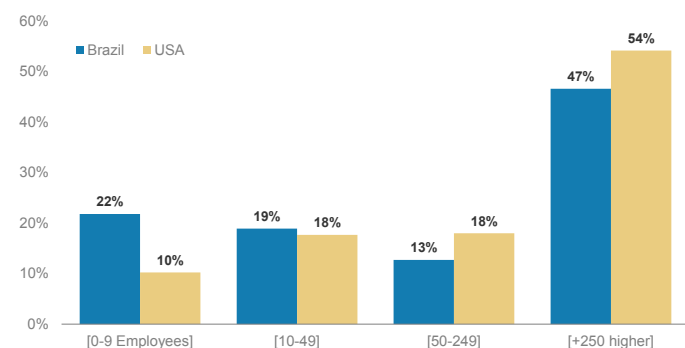
Further, in an effort to quantify the long term technology opportunity, we now introduce 23 new proprietary estimates of Total Addressable Markets (TAM) that follow a bottom-up approach based on a domestic pricing environment.

**Our models are derived from a bottom-up perspective.** Rather than relying on global top-down models that start with GDP or Revenues, our analysis considers a bottom-up perspective that captures the reality of the Brazilian economy (which has a smaller average firm size and lower household income). We used official data from Brazil's latest enterprise and household census to better capture potential end-users for each product in our sample. We combined this data with technology adoption surveys across firm-size and household-income from the US Census Bureau, OECD and ERC (a European institution focused on SMB's). For instance, focusing on Enterprise Resource Planning software (ERP), we noticed that adjusting by firm size, Brazil and DM have similar ERP penetration (right chart below), but overall spending varies significantly (as Brazilian companies either subscribe to more basic products, or reduce the number of employees with access to the system, [Exhibit 10](#)).

#### Exhibit 9:

To quantify the LT opportunity in Brazil, we developed proprietary bottom-up TAM models for 23 technology products...

Employment distribution by firm size (2017)

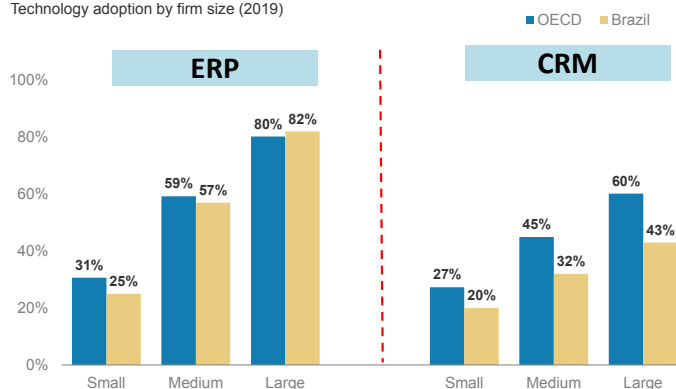


Source: BLS, IBGE and Morgan Stanley Research

#### Exhibit 10:

...that adjusts for Brazil's unique distribution of firm sizes and household income...

Technology adoption by firm size (2019)



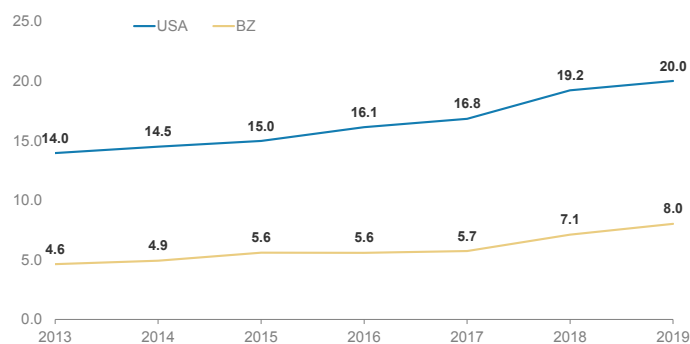
Source: OECD, CETIC & Morgan Stanley Research

**Our models consider detailed pricing structure in Brazil.** We reviewed ~550 commercial offers of technology and telco products to capture not only the spend for middle-market user, but also the low and high-end alternatives. This allows our models to reflect a low-income household that can only afford a cheaper and low-speed broadband connection, while a large corporation would subscribe to a premium product offered by a global technology provider.

#### Exhibit 11:

Our models also consider domestic prices of ~550 products to capture not only average costs...

Spending in ERM software (bps of GDP)

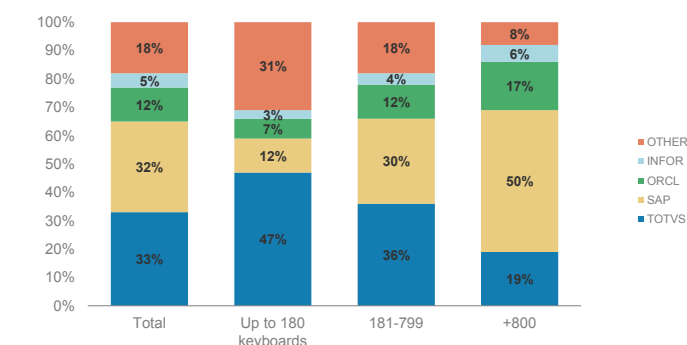


Source: IDC, IMF and Morgan Stanley Research

#### Exhibit 12:

...but also high-low end versions to consider affordability issues

Brazil - ERP market share by company size (2019)



Source: FGV and Morgan Stanley Research

**How does everything tie together?** Below we present our TAM estimate for ERP. Per the last national enterprise census, Brazil has 5m firms that create 52m formal jobs (Medium sized business represent 67k and employ 6.6m Brazilians on the formal side). We apply ERP penetration data across firm sizes and use third-party figures and channel checks to estimate the number of potential employees having access to the ERP system. Subsequently, we rely on our Brazilian pricing database to assign a price per user by cohort (high-end products for large corporates but basic features for small companies). We then multiply pricing and users by firm size and estimate Brazil ERP TAM is worth BRL18bn p.a.

### Exhibit 13:

Our proprietary bottom-up estimate for the Brazilian ERP TAM is BRL18bn p.a.

ERP Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of firms in Brazil ('000)	5,009	19	67	537	4,386
A. Number of formal employees (m)	52.0	24.2	6.6	9.8	11.3
B. ERP Penetration - DM	36%	80%	59%	31%	20%
C. Employees using ERP - DM	36%	18%	27%	56%	56%
D. Average price per user in Brazil (BRL/mo)	195	283	234	165	13
<b>Brazil ERP - TAM (BRLm p.a.) (AxBxCxDx12)</b>	<b>18,412</b>	<b>11,891</b>	<b>3,005</b>	<b>3,324</b>	<b>192</b>
Avg spend per firm using ERP	BRL/mo	63,666	6,350	1,681	18

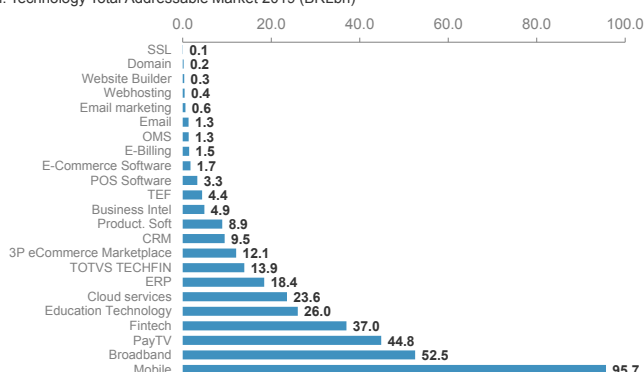
Source: IBGE, US Census, ERC, OECD, Softwarepath and Morgan Stanley Research

We do a similar exercise across 23 markets from mobile (BRL96bn in TAM) to SSL (BRL0.1bn) that represent a combined BRL362bn p.a. Our new company-level TAM estimates consider recently launched initiatives (e.g. performance software for TOTVS) and are in some cases 2x current consensus estimates. This supports our view that Latam tech companies have ample room for long term profitable growth (i.e. TAM is ~6.5x their reported 2019 revenues).

### Exhibit 14:

Our TAM estimate for 23 technology products in Brazil...

Brazil: Technology Total Addressable Market 2019 (BRLbn)

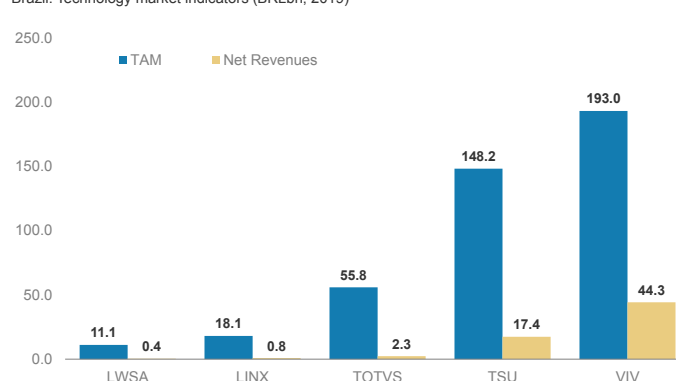


Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

### Exhibit 15:

...suggests ample opportunity for profitable growth in the long run

Brazil: Technology market indicators (BRLbn, 2019)



Source: Company data and Morgan Stanley Research

**We think the positive outlook of Brazilian technology is not yet priced in.** Brazil trades 20% cheaper than the US, but the valuation discount is much wider in technology names, despite accelerating prospects. For instance, in SaaS, the group is -60% cheaper on a EV/Revenue basis and -50% on a EV/TAM approach (to capture both the near term prospects and the long term opportunity).

**Exhibit 16:**

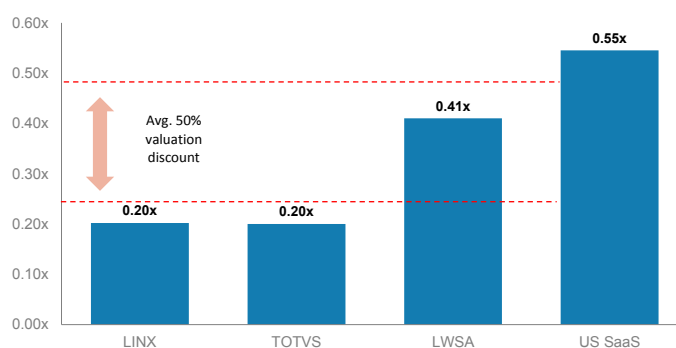
Brazil trades -20% cheaper vs. the US but tech trades at a much wider discount

NTM EV/Revenues (consensus in USD)

**Exhibit 17:**

SaaS trades at a 60% discount on EV/Rev, -50% cheaper on EV/TAM

SaaS comparison: EV/TAM



We also note that this 50-60% discount persists on USD growth adjusted valuations (left chart below). In that sense we think these secular tailwinds could support an industry re-rating and a increase in its representation (i.e. tech-related industries account for 15% of market, vs 42% in EM and 35% and DM).

**Exhibit 18:**

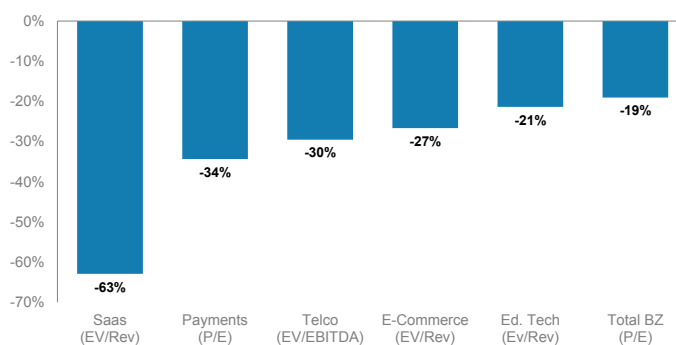
...and the discount persists even when adjusted by growth

SaaS valuation [EV/NTM Revenues]/[2020-22 USD rev. growth]

**Exhibit 19:**

...suggesting potential for additional re-rating relative to the broader BZ market

Brazil: Relative valuation vs. US Peers



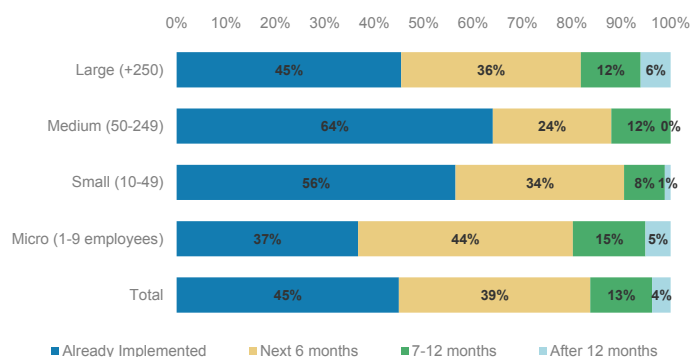


Further, we think monetization of the technology opportunity in Brazil could be a near term phenomenon. Indeed, our AlphaWise survey shows that 52% of those that intend to increase their technology spend plan to do so over the next 12 months (left chart below). The rapid pace of adoption is similar to that last seen in DM between 2012 and 2014 (right chart).

#### Exhibit 20:

The increase in technology spending could be a near term phenomenon...

BZ Survey: Timing of implementation of higher tech spend

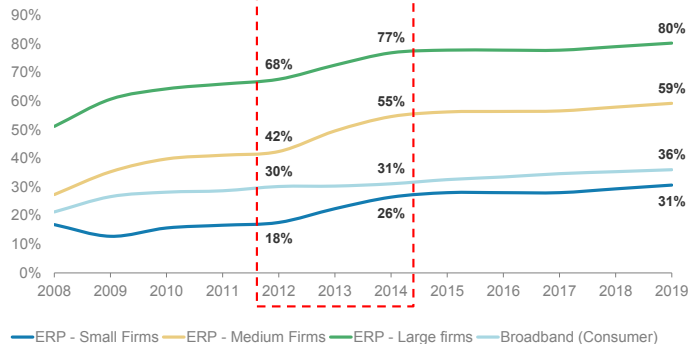


Note: June 2020 data. Source: AlphaWise and Morgan Stanley Research

#### Exhibit 21:

...and materialize into an acceleration similar to that seen in DM between 2012-14

DM technology adoption (% of population)



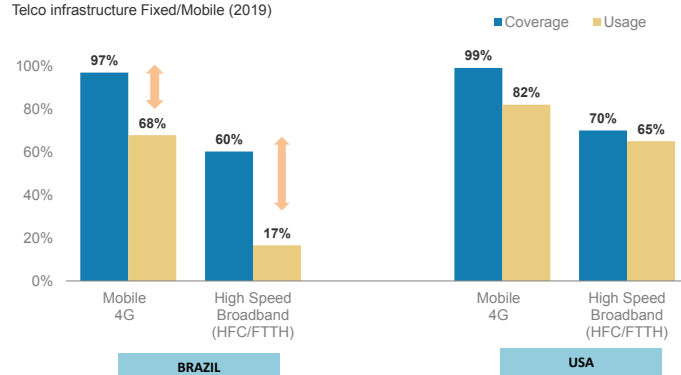
Source: OECD, WEF and Morgan Stanley Research

Importantly, we note Brazil has appropriate data infrastructure to allow for faster technology adoption ([link](#)). Indeed, 4G networks cover 97% of the population and 60% of broadband connections are on FTTH/HFC, but overall usage is much lower (left chart below). Thus, as shown by our AlphaWise surveys, we think the main obstacles for faster digitalization in the country are pricing/affordability, a weak macro cycle and limited skills of human talent (right chart).

#### Exhibit 22:

We see appropriate data infrastructure to support faster technology adoption in the country...

Telco infrastructure Fixed/Mobile (2019)



Source: ANATEL, GSMA and Morgan Stanley Research

#### Exhibit 23:

...but affordability, a weak macro cycle and limited employee skills are important hurdles for digitalization

Brazilian Companies: Post-Covid Top IT Spending Obstacles (% of responses)



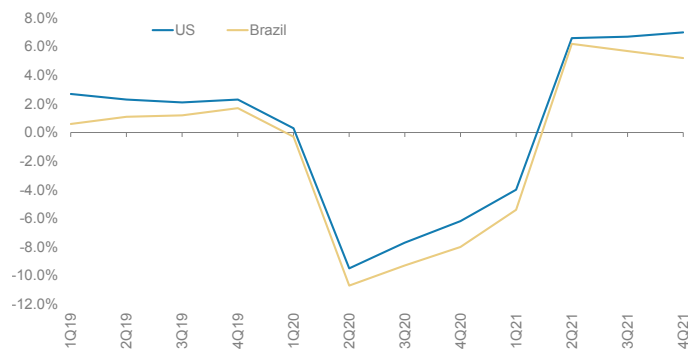
Note: June 2020 data. Source: AlphaWise and Morgan Stanley Research

**What are the risks?** International experience suggests technology penetration and spend can increase at a consistent pace but is not immune to the macro cycle. Thus a protracted recession in Brazil is a risk to our positive view on the sector ([link](#)). For global investors, we highlight BRL has shown ample volatility over the past 5 years (right chart below).

#### Exhibit 24:

In addition, other risks for our thesis are a muted recovery in Brazil...

GDP growth YoY

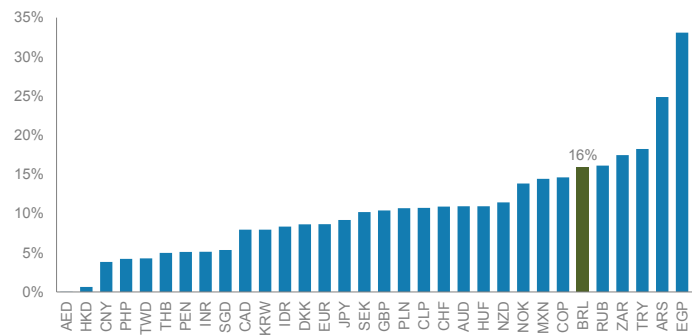


Source: Morgan Stanley Research

#### Exhibit 25:

...and ample currency volatility.

Annualized FX volatility (2015-20)



Source: Bloomberg and Morgan Stanley Research

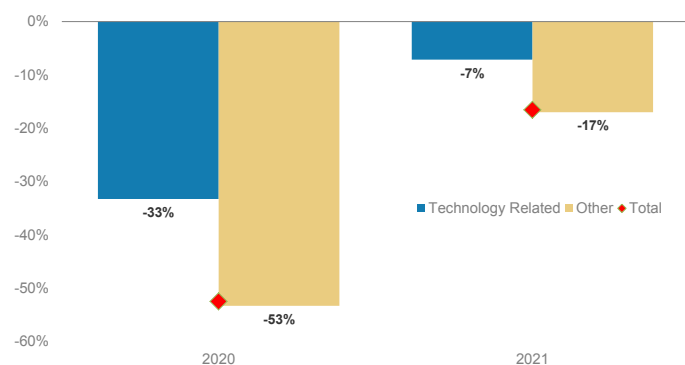
# Introduction

Technology use in Brazil is increasing at faster pace than the rest of the world ([Exhibit 1](#) & [Exhibit 2](#)) and our AlphaWise surveys show technology spend is gaining share over legacy items in corporate and household budgets ([Exhibit 5](#) & [Exhibit 6](#)). We think these trends are secular tailwinds for the Brazilian tech industry that can boost domestic technology adoption towards EM levels and beyond (right chart).

## Exhibit 26:

Increased digitalization in Brazil adds near term resiliency to industry stocks...

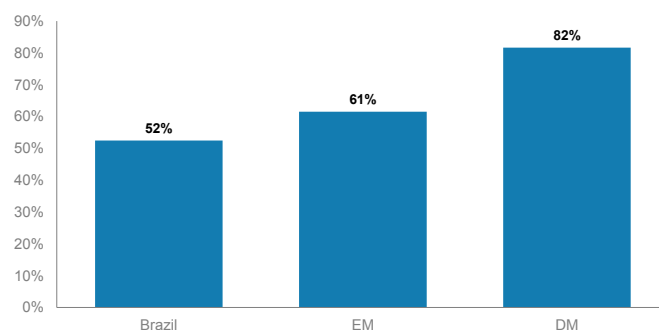
Brazil: EPS estimate chg. by industry since 03/15/20 (in CCY)



Source: Bloomberg and Morgan Stanley Research

## Exhibit 27:

...and could reduce Brazil's technology gap vs. the rest of the world  
2019 Technology adoption (Global percentile, Higher = Better)



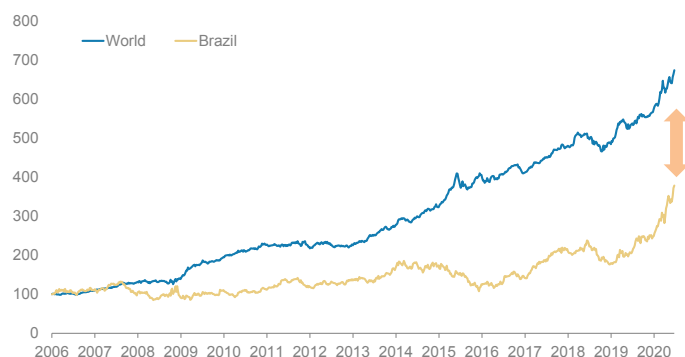
Source: WEF and Morgan Stanley Research

If sustained, these positive industry trends could support additional sector outperformance (in-line with global markets, left chart) and increase technology representation among Brazilian equities (15% market cap in Brazil, much lower than in DM and EM). In this note, we explore valuation and total addressable markets (TAM) amid faster digitalization across five Brazilian industries: 1) Software, 2) E-commerce, 3) Payments, 4) Education technology, and 5) Telecom.

## Exhibit 28:

Positive industry trends could support further outperformance of BZ tech sector...

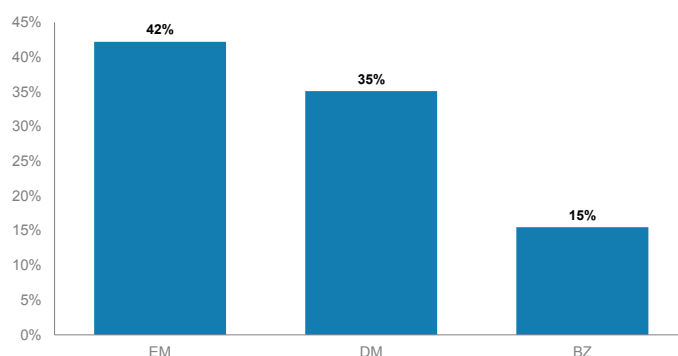
Tech related stocks vs overall market (Rebased)



Source: Bloomberg and Morgan Stanley Research

## Exhibit 29:

...and increase representation of the industry amid Brazilian equities  
Weight of tech related sectors (June 2020, % of market cap)



Source: Bloomberg and Morgan Stanley Research

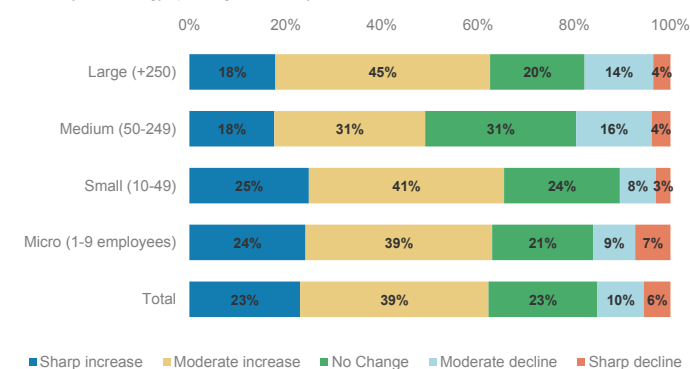
# Software

We conducted an AlphaWise survey of 540 firms in Brazil and found 62% of respondents expect to increase their technology spending going forward. The expected increase is higher for Small firms (65% intention, 25% of the sample) and the lowest amid Medium companies (49%, ~10%). We see an interesting opportunity for local SaaS names as they have a prominent share on SMB's than global peers (right chart).

## Exhibit 30:

62% of Brazilian firms intend to increase their technology spending...

BZ survey: Technology spending intention by firm size

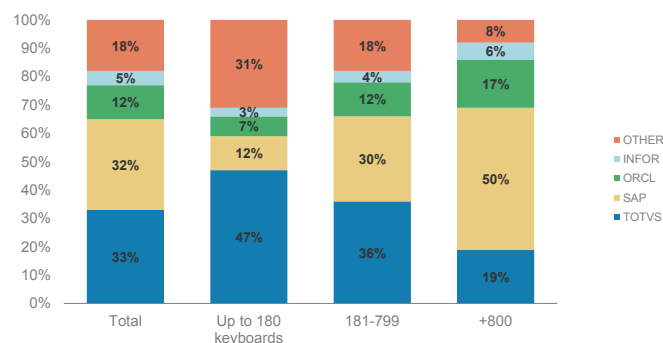


Note: Data for June 2020. Source: AlphaWise and Morgan Stanley Research

## Exhibit 31:

...especially in the SMB segment, on which domestic players have prominent share

Brazil - ERP market share by company size (2019)



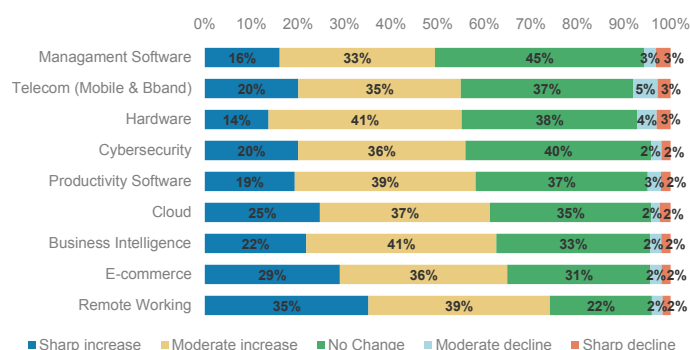
Source: FGV and Morgan Stanley Research

Also, our survey registers increased spending intention across several products ranging from management software (49% of respondents) to remote working (74%). Importantly, to quantify the commercial positioning of domestic SaaS, we reviewed +130 software solutions in Brazil across four categories: 1) Breadth of offering, 2) Technological robustness, 3) Regulatory compliance, and 4) Price. We found Latam tech names have a product advantage that supports pricing power and margins ([link](#)).

## Exhibit 32:

Increased spending intention benefits a broad range of products and local SaaS firms...

BZ Survey: Spending intention by product

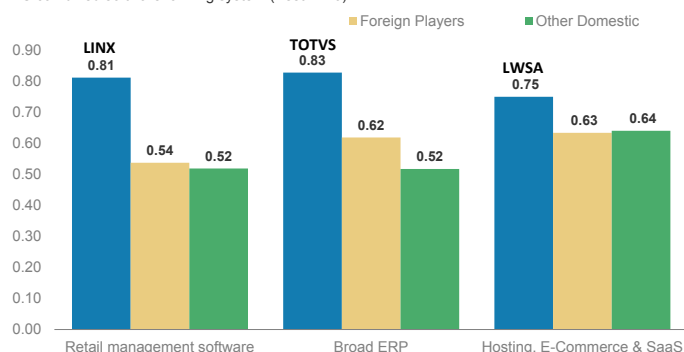


Note: Data for June 2020. Source: AlphaWise and Morgan Stanley Research

## Exhibit 33:

...stand ready to monetize the opportunity with a product advantage that supports pricing power

MS combined software ranking system (Best = 1.0)



Source: Company data and Morgan Stanley Research

**Introducing our proprietary TAM estimates.** To better quantify the opportunity of faster digitalization in Brazil, we built models that measure total addressable markets across 23 different technology products (See Appendix I for details). Relative to existing top-down models that rely on a high-level link to GDP or revenues, our models have two key advantages: 1) They are built from a bottom-up perspective, and 2) They reflect a domestic pricing environment.

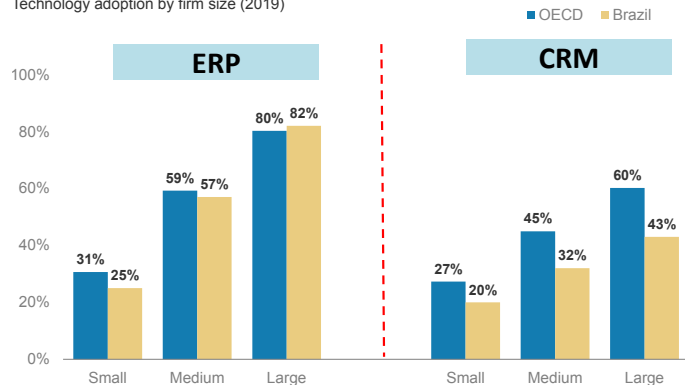
**First advantage: A bottom-up approach.** Extrapolating Brazilian software potential based on average penetration rates across the developed world fails to account for Brazil's unique distribution of firm sizes (skewed towards SMB's). In our models we combined two sources of information to estimate potential users: 1) Latest micro-data for Brazil's enterprise census, and 2) Technology adoption rates across company-sizes compiled from the OECD, the US Census Bureau and ERC (a European institution focusing on SMB's). Acknowledging that technology adoption rates vary by company size adds a reality check to our estimates.

**Second advantage: Domestic pricing environment.** We assembled a pricing database of ~550 technology products in Brazil to capture not only the typical spend of the middle-market user but also the high and low-end alternatives. Some software products in Brazil are priced in USD in packages typically sold to multinationals with a local presence. However, SMBs typically adopt more basic solutions that are priced in BRL. Acknowledging that local SaaS companies indeed offer products better suited for the Brazilian reality gives us more visibility on how companies can monetize increased tech spend in under-penetrated sectors. For instance, while ERP penetration in Brazil appears to be at par with DM (left chart), we show that overall spending in the product is much lower (right chart) as Brazilian firms using ERP either reduce the number of employees with access to the system or limit its functionality.

#### Exhibit 34:

Our models combine metrics of technology adoption by firm size and domestic pricing to adjust to a Brazilian reality...

Technology adoption by firm size (2019)

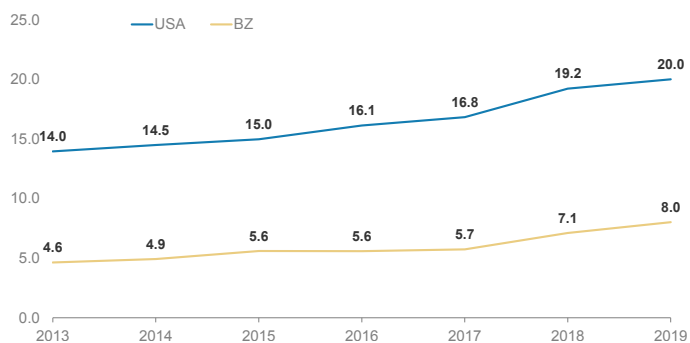


Source: OECD, CETIC and Morgan Stanley Research

#### Exhibit 35:

...creating a robust roadmap for monetization of increased technology adoption in the country

Spending in ERM software (bps of GDP)



Source: IDC, IMF and Morgan Stanley Research



**How does everything tie together?** Below we present our TAM estimate for ERP. Per the last national enterprise census, Brazil has 5m firms that create 52m formal jobs (Medium sized business represent 67k and employ 6.6m Brazilians on the formal side). We apply ERP penetration data across firm sizes ( [Exhibit 9](#) ) and use channel checks and figures from third parties to estimate the number of potential employees having access to the ERP system. Subsequently, we rely on our Brazilian pricing database to assign a price per user by cohort (high-end products for large corporates but basic features for small companies). We then multiply pricing and users by firm size and estimate Brazil ERP TAM is worth BRL18bn p.a.

**Exhibit 36:**

Our proprietary bottom-up estimate for the Brazilian ERP TAM is BRL18bn p.a.

ERP Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of firms in Brazil ('000)	5,009	19	67	537	4,386
A. Number of formal employees (m)	52.0	24.2	6.6	9.8	11.3
B. ERP Penetration - DM	36%	80%	59%	31%	20%
C. Employees using ERP - DM	36%	18%	27%	56%	56%
D. Average price per user in Brazil (BRL/mo)	195	283	234	165	13
<b>Brazil ERP - TAM (BRLm p.a.) (AxBxCxDx12)</b>	<b>18,412</b>	<b>11,891</b>	<b>3,005</b>	<b>3,324</b>	<b>192</b>
Avg spend per firm using ERP	BRL/mo	63,666	6,350	1,681	18

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

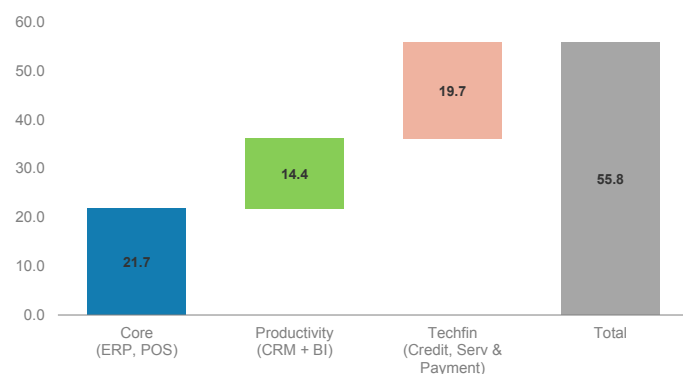
We do a similar exercise across 23 different products that represent a combined BRL362bn p.a. opportunity (detailed calculations in Appendix I of this note). To calculate the opportunity at the company level, we aggregate product TAMs that match each company focus (e.g. For LWSA, we consider Webhosting + SaaS + E-commerce for small firms, and for Linx we consider management software for Retail only). Below, we present key company takeaways.

**TOTVS: Diversified exposure and TAM expansion.** The company is expanding its addressable market from its Core solution (e.g. ERP, 99% renewal rate) into Business Performance (CRM) and Techfin. The expansion comes via organic initiatives, M&A and strategic partnerships that can move aggregate TAM towards BRL56bn (left chart below, see Appendix II) that result in revenue forecasts that are above consensus. Further, as the leading Brazilian SaaS, TOTVS has assembled a robust portfolio to service increased technology spending across many industry verticals (right chart). **Our new Mid-2021 price target of BRL28/Sh reflects our new industry estimates and accounts for new macro and FX assumptions.**

#### Exhibit 37:

TOTVS TAM expansion adds Performance and Techfin to a successful core business

TOTVS: TAM estimate 2019 (BRLbn)

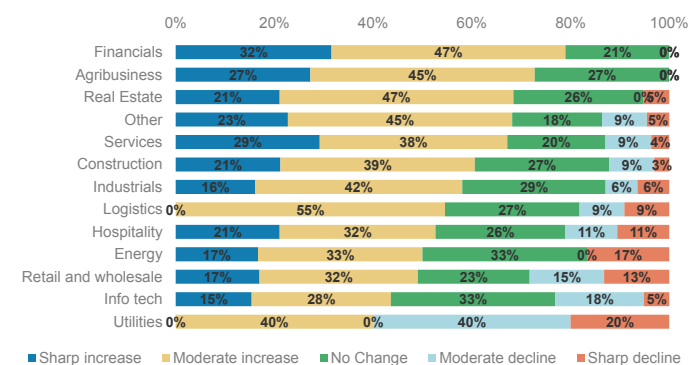


Note: See Appendix II for details. Source: IBGE, CETIC, OECD, US Census Bureau, ERC and Morgan Stanley Research

#### Exhibit 38:

Its diversified industry and product exposure gives them a solid position to monetize higher industry digitalization

BZ Survey: Technology spending intention by industry



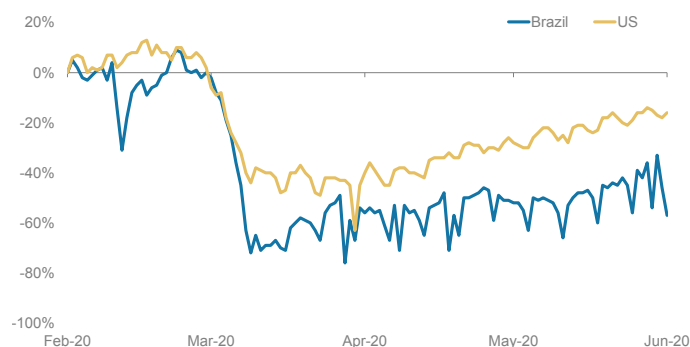
Note: Data for June 2020. Source: AlphaWise and Morgan Stanley Research

**LINX: Waiting for a re-opening of Brazilian retail.** As the leader in retail management software, the stock should benefit from a gradual re-opening in the domestic economy (left chart below, [link](#)). This is relevant as current valuation and trends in consensus estimates reflect a more muted outlook for the LINX Pay Division (right chart). Our new mid-2021 price target of BRL28/Sh reflects new industry assumptions, lower contribution from the Pay Division and new macro forecasts for Brazil (See Appendix IV for details on company's BRL18/bn TAM).

#### Exhibit 39:

As the leader in retail management software LINX could benefit from a gradual reopening in the Brazilian economy...

Retail & recreation mobility (chg vs. pre-covid baseline)

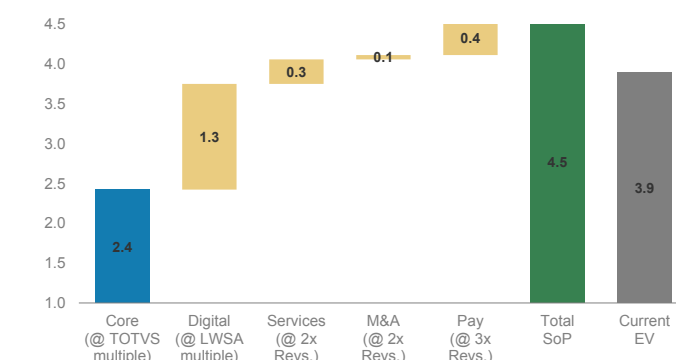


Source: Google and Morgan Stanley Research

#### Exhibit 40:

...especially considering attractive valuation and more muted expectations for the LINX Pay initiative

Linx: SoP valuation (BRLbn)



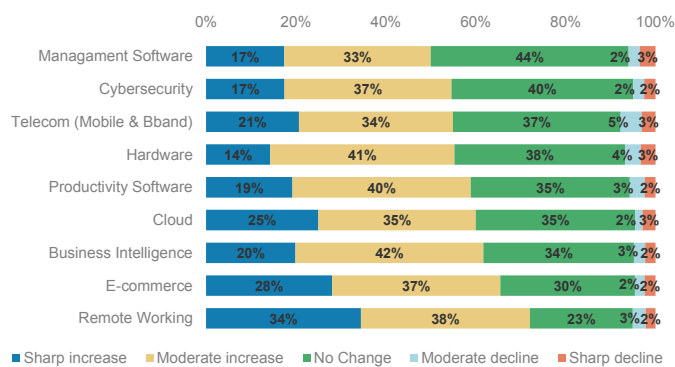
Note: Considers market multiples as of 06/26/20. Source: Bloomberg and Morgan Stanley Research

**LWSA: Higher beta to digitalization.** As a company focused on integrated solutions for SMB's, Locaweb stands to benefit from the group with the highest increase in tech spending intention in a Post-COVID environment ([Exhibit 30](#)). Further, the firm's commerce division should continue benefiting from important tailwinds as the product generates strong interest from small firms in Brazil (left chart below). As a result, we continue to see room for margin expansion on LWSA's improving revenue mix and operating leverage.

#### Exhibit 41:

LWSA's SMB focus offers higher beta to increased digitalization in Brazil...

BZ Survey: Spending intention by product (firms with up to 50 employees)

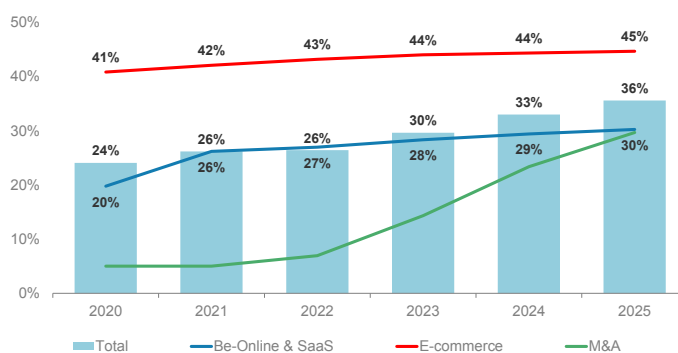


Note: Data for June 2020. Source: AlphaWise and Morgan Stanley Research

#### Exhibit 42:

...and changing revenue mix and operational leverage should support margin expansion

LWSA: EBITDA margin trends



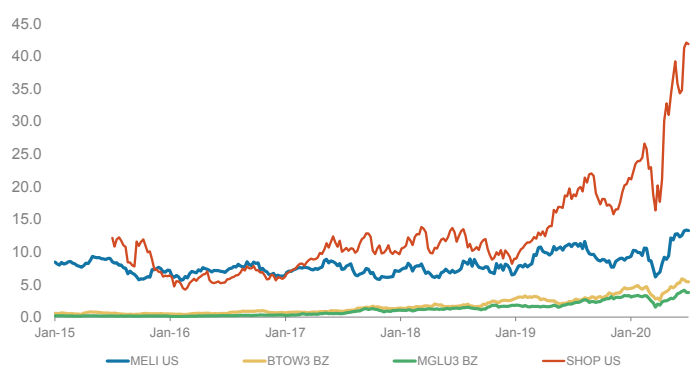
Source: Company Data and Morgan Stanley Research

Our new Mid-2021 price target of BRL32/Sh for LWSA accounts for new industry and macro assumptions. More importantly, we are incorporating in our numbers a more bullish outlook for E-commerce in Brazil after the Pandemic ([link](#)) and for a lower discount rate that coincides with a sharp re-rating in both domestic and foreign names linked to E-commerce (See Appendix III for details on the company's BRL11bn TAM).

#### Exhibit 43:

We are incorporating in our LWSA model a more bullish outlook for E-commerce in Post-Covid Brazil...

EV/NTM revenues (Consensus)

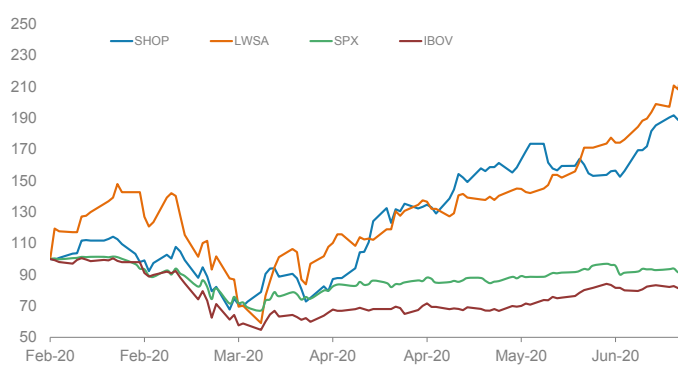


Source: Bloomberg and Morgan Stanley Research

#### Exhibit 44:

...that coincides with a sharp re-rating in both domestic and global names linked to E-commerce

Equity performance in trading currency (rebased)



Source: Bloomberg and Morgan Stanley Research

**Growing Digital opportunity not in the price.** Brazil trades 20% cheaper vs the US, but the valuation discount is much wider in technology names, despite accelerating prospects. For instance, in SaaS, the group trades ~60% cheaper on both EV/Revenue and on a growth adjusted basis.

#### Exhibit 45:

Accelerating technology adoption in Brazil is not yet priced on SaaS names. Near term...

NTM EV/Revenues (consensus in USD)



Source: Bloomberg and Morgan Stanley Research

#### Exhibit 46:

...the group trades at a ~60% discount vs. their US peers, even on growth adj. basis...

SaaS valuation [EV/NTM Revenues]/[2020-22 USD rev. growth]



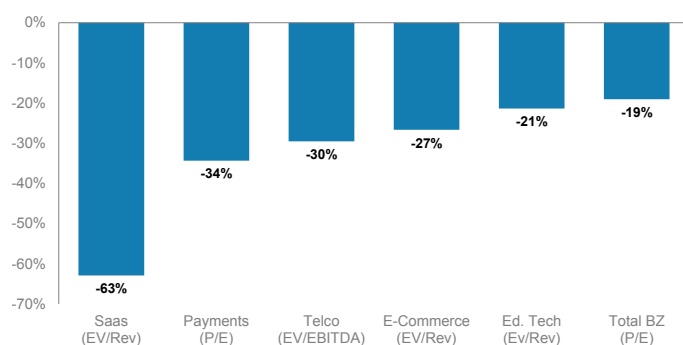
Source: Bloomberg and Morgan Stanley Research

Importantly, relative to its long term prospects, software trades at a 50% discount on a EV/TAM basis. We think secular tailwinds could result in additional re-rating for the industry that could add to increased representation in the market ([Exhibit 29](#)).

#### Exhibit 47:

Software discount vs. US peers is the widest among tech-related industries

Brazil: Relative valuation vs. US Peers

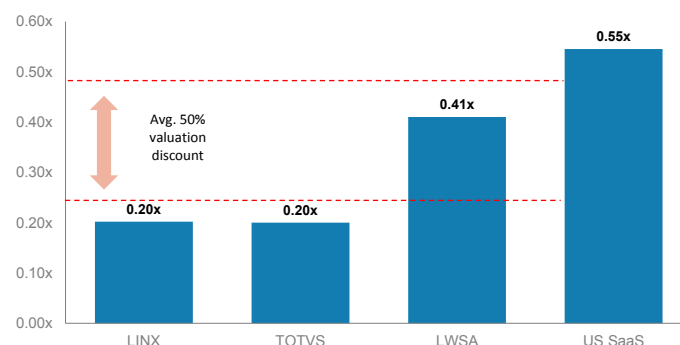


Source: Bloomberg and Morgan Stanley Research

#### Exhibit 48:

From a long term perspective (EV/TAM), software valuation also looks attractive

SaaS comparison: EV/TAM



Source: Bloomberg and Morgan Stanley Research

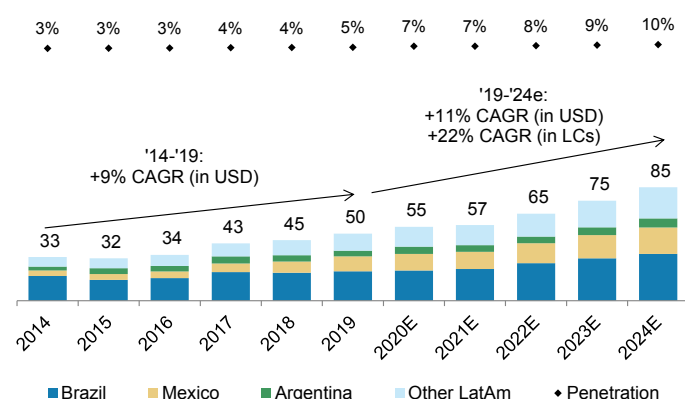
# E-Commerce

**At a consumer spending or gross merchandise value (GMV) level, we see secular growth for Brazil E-Commerce.** As shown in [Exhibit 49](#), we expect overall LatAm E-Commerce penetration to increase over 2x between 2019 and 2024, reaching 10% penetration and becoming a US\$85bn market. For Brazil, the largest market within LatAm E-Commerce, we see penetration rising from 7.2% in 2019 to nearly 15% in 2024 ([Exhibit 50](#)). While we see secular trends for E-Commerce growth globally, 2020 in particular is an accelerating growth year; we forecast +40% growth for Brazil E-Commerce (in BRL terms), with Covid-19 disruption including store closures spurring on a share shift online. For more detail see [LatAm Retail & eCommerce: eCommerce Penetration Accelerating; Raising Industry Forecasts \(28 May 2020\)](#).

## Exhibit 49:

We expect LatAm E-Commerce to reach ~US\$85bn in 2024 with 10% penetration

### LatAm eCommerce (US\$bn)

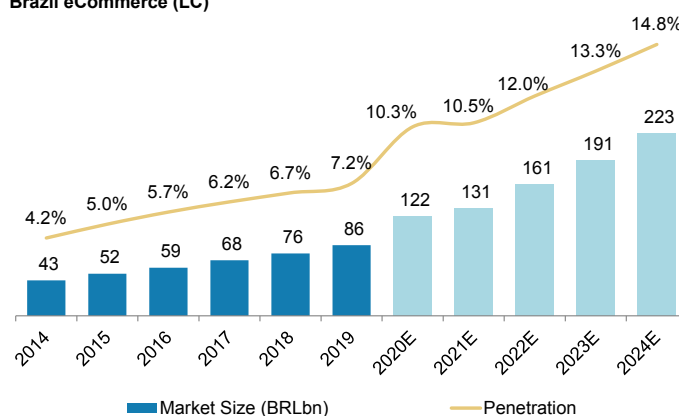


Source: Euromonitor, Company data, Morgan Stanley Research estimates

## Exhibit 50:

... led by Brazil at R\$220bn / ~US\$35bn in GMV and 15% penetration in 2024

### Brazil eCommerce (LC)



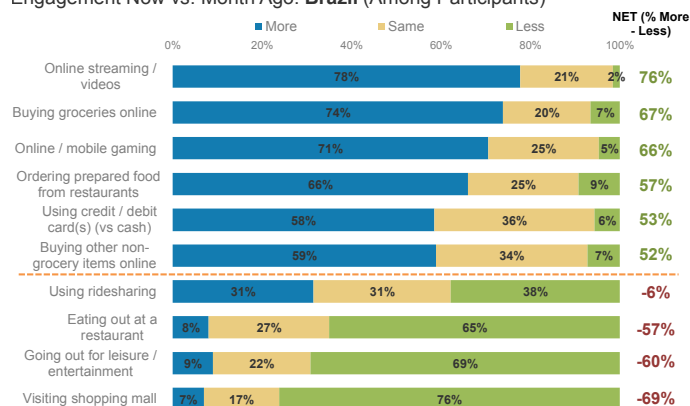
Source: Euromonitor, Company data, Morgan Stanley Research estimates

**Combining Brazil's digitalization and changing consumer behavior, we see a positive backdrop for E-Commerce companies.** Reiterating data from the [Executive Summary](#) section, Brazil consumers are some of the most avid internet users in the world (~9hrs/day online) and demographics are attractive (~150m of young internet users in Brazil as of 2019, the 4th largest in the world). In addition, our teams' [AlphaWise Brazil / Mexico Consumer Pulse](#) surveys have shown that participation in out-of-home activities remained low and decreasing through June, while at-home participation was high and increasing. For measures of engagement (consumers citing "more" versus "less" behavior), online behaviors also saw net favorable ratings. The "more versus less" spread for online grocery was +67% in both Brazil and Mexico; for non-grocery, +52% in Brazil and +43% in Mexico ([Exhibit 51](#) and [Exhibit 52](#)).

## Exhibit 51:

Consumers in Brazil indicated a net desire to purchase more online ...

### Engagement Now vs. Month Ago: Brazil (Among Participants)

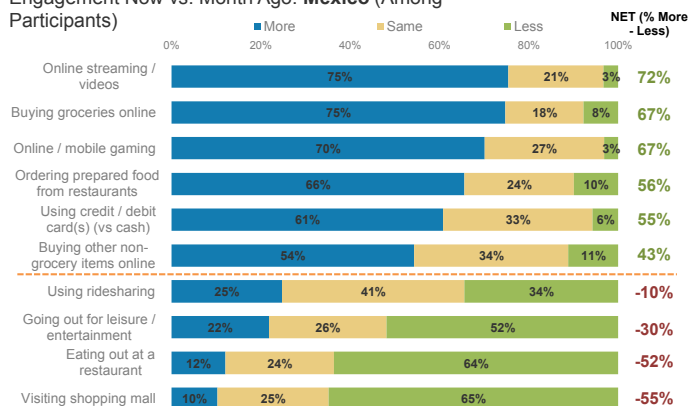


Source: AlphaWise, Morgan Stanley Research

## Exhibit 52:

... and we saw similar trends in Mexico

### Engagement Now vs. Month Ago: Mexico (Among Participants)



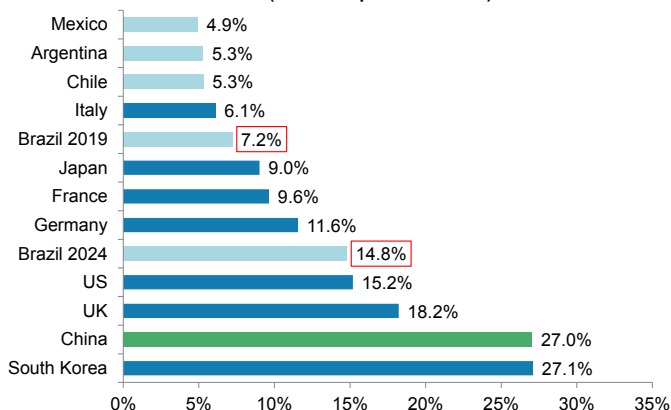
Source: AlphaWise, Morgan Stanley Research



**E-Commerce growth presents an opportunity for B2B marketplaces. To size the TAM, we first look to the potential relative to developed markets.** As shown in [Exhibit 53](#), LatAm markets under-index developed markets on an E-Commerce penetration basis. Looking at a composite of the US, UK, Germany, France, South Korea, Singapore, and Japan, E-Commerce penetration of 14% is 2.0x that of Brazil at 7%. When forecasting our B2B TAM, we peg Brazil's opportunity relative to where these developed markets are today. Notably, when looking at the 5 year path after reaching the 5% penetration mark, we see Brazil slightly exceeding the developed markets, in part due to the 2020 lift from Covid disruption to physical retail ([Exhibit 54](#)).

**Exhibit 53:**

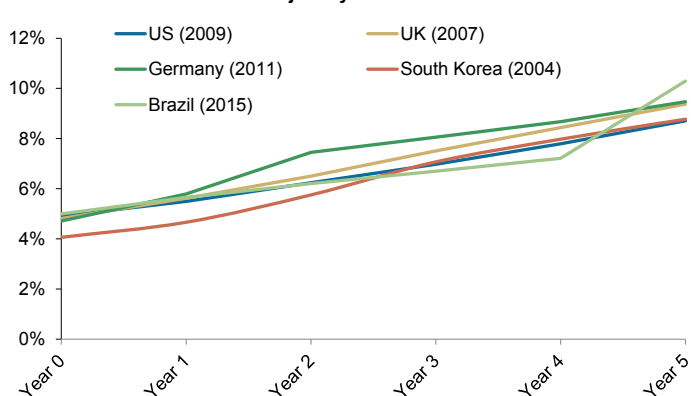
Our Brazil 2024 penetration estimate is in-line with where many DM countries were in 2019 (pre-Covid)

**Overall eCommerce Penetration (2019 except where noted)**

Source: Euromonitor, Company data, Morgan Stanley Research

**Exhibit 54:**

Brazil's path from 5% to 10% penetration is slightly faster than DM countries', in part due to the Covid-19 lift

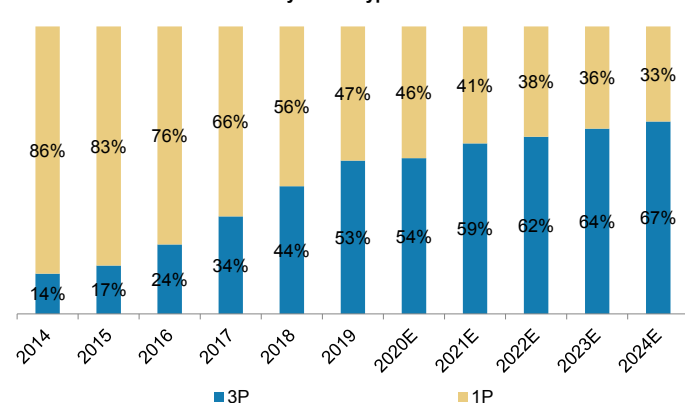
**eCommerce Penetration: 5Y Trajectory from 5% Penetration**

Source: Euromonitor, Company data, Morgan Stanley Research

**Within the Brazil E-Commerce channel, we see 3P marketplace continuing to outgrow 1P sales.** In a first-party (1P) model, retailers sell their own inventory; in a third-party (3P) marketplace model, companies operate platforms where other businesses sell their inventory. While 1P retailers earn revenue for goods sold, 3P platforms earn revenue as a take rate on the goods sold on their platforms. Within Brazil, 3P platforms have been growing their share of the market, and we expect this to continue; we forecast 3P at 67% of Brazil GMV in 2024E, up from 53% in 2019 and 34% in 2017 ([Exhibit 55](#)). Of the R\$86bn of Brazil 2019 E-Commerce GMV, we estimate R\$4.7bn was 3P, translating to R\$4.9bn in take rate revenue. MercadoLibre (MELI.O) is the leader with an estimated 63% of Brazil 3P revenue, followed by B2W (BTOW3.SA) at 24%, Magazine Luiza (MGLU3.SA) at 8%, and Via Varejo (VVAR3.SA) at 4% by our estimates.

**Exhibit 55:**

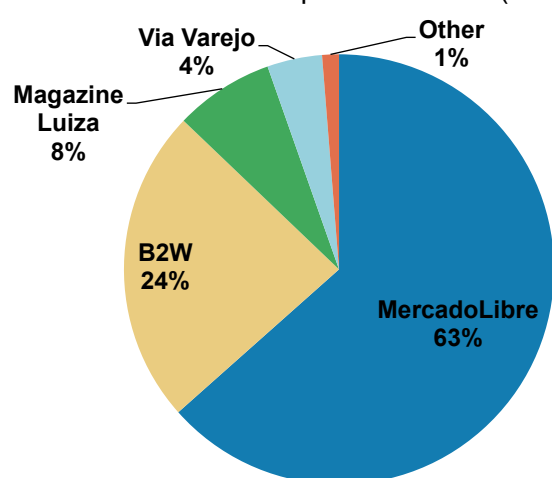
3P marketplace share of Brazil eCommerce has expanded, a trend we expect to continue

**Brazil eCommerce Breakdown by Seller Type**

Source: Euromonitor, Company data, Morgan Stanley Research

**Exhibit 56:**

MELI has the highest share of the R\$4.9bn market for Brazil 3P revenue by our estimate

**Market Share: Brazil 3P Marketplace Revenue (2019)**

Source: Euromonitor, Company data, Morgan Stanley Research

**From the B2B perspective, we see a 3P E-Commerce marketplace TAM of R\$12.1bn annually, nearly 2.5x higher than the revenue base today.** Putting together the E-Commerce market opportunity versus developed markets and the continued expected expansion of third-party marketplace, we build to a TAM of R\$12.1bn, nearly 2.5x above our estimate of R\$4.9bn of 3P revenue for Brazil marketplaces in 2019. Our proprietary build, including estimated bottom-up breakdown by company size, is shown in [Exhibit 57](#).

#### Exhibit 57:

Our proprietary estimate for the Brazilian 3P E-Commerce Marketplace TAM is R\$12.1bn p.a.

E-commerce Brazil 3P Marketplace - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Brazil Retail Sales (BRLm p.a.)	1,199,600	448,786	136,712	428,972	185,130
B. Brazil E-Commerce Sales (BRLm p.a.)	86,496	45,303	9,857	24,744	6,591
<b>E-commerce penetration (B / A)</b>	<b>7.2%</b>	<b>10.1%</b>	<b>7.2%</b>	<b>5.8%</b>	<b>3.6%</b>
C. % of Retailers selling online - DM	42%	50%	40%	32%	30%
D. Number of firms in Brazil* ('000)	2,148	2	15	228	1,903
E. Average E-commerce sales per company (BRL/mo, '000) (B / C / D / 12)	8.3	3,434.8	138.9	28.2	1.0
F. Take Rate (% of GMV)	10.6%	9.0%	10.5%	12.5%	14.0%
G. DM E-commerce Penetration vs Brazil	2.0x	2.0x	2.0x	2.0x	2.0x
H. 3P % of Brazil E-commerce LT Forecast	67%	67%	67%	67%	67%
<b>Brazil E-commerce 3P Revenue TAM (BRLm p.a.) (B * F * G * H)</b>	<b>12,076</b>	<b>5,394</b>	<b>1,369</b>	<b>4,092</b>	<b>1,221</b>
Avg spend per firm	BRL/mo	408,952	19,293	4,660	178

Source: IBGE, US Census, ERC, OECD, Euromonitor, Company data, and Morgan Stanley Research

**A notable takeaway from the bottom-up build is the 3P marketplace revenue opportunity from small and micro businesses, comprising 44% of our TAM despite only being an estimated 36% of E-Commerce sales.** In the TAM model, we break out Brazil Retail sales and E-Commerce sales by company size. The retail split is based on IBGE data; for E-Commerce, we adjust the breakdown to reflect the likely over-indexing of larger companies as online sellers. We additionally forecast take rate paid by company size, estimating that smaller businesses pay higher rates due to less bargaining power and more need for value-added services; our blended industry take rate is 10.6%. On the effect of higher take rates, we see small/micro businesses accounting for 44% of the 3P marketplace revenue opportunity, over-indexing versus their split of E-Commerce sales.

**We see the analysis shining most favorably on Magazine Luiza, with a growing but earlier-stage marketplace opportunity than other top Brazil E-Commerce peers MELI and B2W.** We see each of MELI, B2W, MGLU, and VVAR benefitting from the TAM opportunity within 3P marketplace. Looking to Magalu, the company has 8% share of 3P marketplace revenue, having only entered this segment in 2019; excluding the acquired Netshoes business, Magalu's 3P marketplace GMV grew by over 3x in 2019 alone (by our estimate). With a focus on digitalizing smaller sellers in Brazil, we see Magalu well-positioned within the small and micro company segments. The backdrop is supportive for multiple players, but with high growth and a lower starting share than top peers, the opportunity is outsized for Magazine Luiza, in our view.

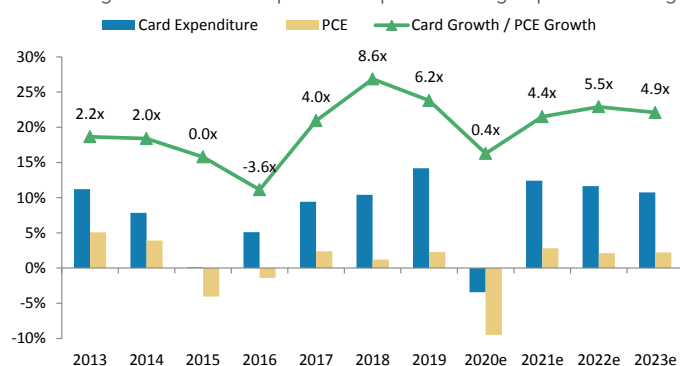
# Digital Payments

**We are more optimistic on total payment volume (TPV) growth in Brazil as individuals and businesses accelerate digitalization post-Covid.** Indeed, we are increasing our industry TPV estimates by 4% for 2021, 3% for 2022, and 2% for 2023. Our new estimates imply a real growth of 12.4%, 11.6%, and 10.8% respectively. Our new numbers are based on the assumption that recent events will drive many Brazilian businesses and households to permanently change their behavior, increasing time spent on digital activities that require the use of card payments and investing on digital capabilities to add E-commerce. And, as a result, we expect a stronger "substitution effect" (that is, consumers using more card-based payments relative to cash), that should drive TPV growth in the coming years.

**Our top-down model now incorporates a stronger substitution effect, as technology adoption accelerates and boosts plastification of payments and E-Commerce.** Included in our TPV growth estimates for the next few years, we assume that the substitution effect will add 6% to TPV in 2020, 10% in 2021 and 10% in 2022, up from 3%, 5%, and 9% before. This implies a card growth to consumption growth multiplier of 0.4x for 2020, 4.4x for 2021, and 5.5x in 2022, above historical levels seen in Brazil. For instance, between 2002 and 2019 personal consumption in Brazil grew 4% per year in real terms; nonetheless, card transaction volumes grew at 3.1 times that pace, or 13% per year, also in real terms.

## Exhibit 58:

The card growth to consumption multiplier should go up to a ~5x range



Source: Central Bank, ABECS, Morgan Stanley Research Estimates (e).

**Hence, we are increasing our EPS estimates and price targets for PAGS and STNE.** Our local currency net income estimates now incorporate stronger top-line growth at both companies, as we have a more positive view on the industry volume growth. Also, we are marking-to-market our FX assumptions using stronger R\$, hence our US\$ EPS estimates go up more. We now use YE'20 R\$/US\$ FX of 5.05, vs. 5.35 before, YE'21 of 5.10, vs. 5.50 before, and YE'22 of 5.26, vs. 5.67 before. We remain bullish on PAGS (OW) and STNE (OW) as we think they'll prove relatively resilient to the consumer downturn given the powerful secular trend of substituting cash for plastic.

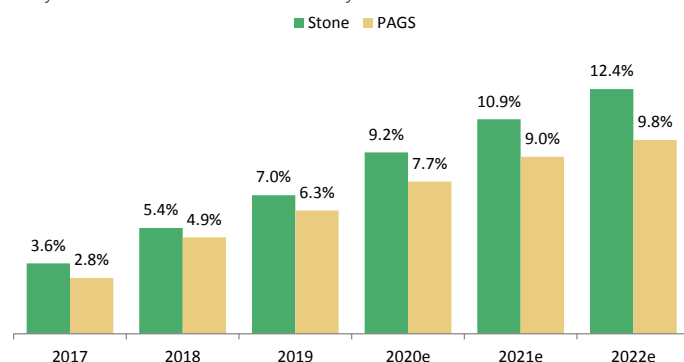
- **For PAGS**, we are raising 2020 net income estimate by 1% to R\$1,658 million. Our 2021 net income estimate is up 3% to R\$2,369 million. And our 2022 net income estimate is up 7% to R\$3,244 million. Our US\$ EPS estimates are up 3%, 11%, and 15% for 2020, 2021 and 2022, respectively. Our new year-end PT is US\$48, versus US\$43 before, and 27% above consensus. Our target offers 36% potential upside.
- **For STNE**, we are keeping our 2020 net income estimate unchanged at R\$765 million. We are raising our 2021 net income estimate by 3% to R\$1,246 million. And our 2022 net income estimate is up 1% to R\$1,802 million. Our US\$ EPS estimates are up 2%, 10%, and 9% for 2020, 2021 and 2022, respectively. Our new year-end PT is US\$44, versus US\$37 before, and 20% above consensus. Our target offers 13% potential upside.

**Our new estimates suggest that PAGS and STNE will pick up 4% and 5% market share over the next three years.** We forecast individual TPV and calculate market share levels based on our industry card model. In 2020, we believe STNE could pick up 217 bp of market share, while PAGS could pick up 147 bp. For next year, we estimate they could grab 168 bp and 126 bp, respectively. And for 2022, STNE could gain 154 bp and PAGS 85 bp. Specifically:

- **For PAGS**, our 2020 TPV estimate is R\$140 billion, up 22% y/y. For 2021, we see TPV at R\$189 billion, up 35% y/y. And for 2022, we see TPV at R\$240 billion, up 27% y/y.
- **For STNE**, our 2020 TPV is R\$167 billion, up 29% y/y. For 2021, we see TPV at R\$229 billion, up 37% y/y. And for 2022, we see TPV at R\$304 billion, up 32% y/y.

**Exhibit 59:**

We expect PAGS and STNE to continue to take share from the incumbents going forward, as they've done so over the last four years



Source: Company Data, Morgan Stanley Research Estimates (e).

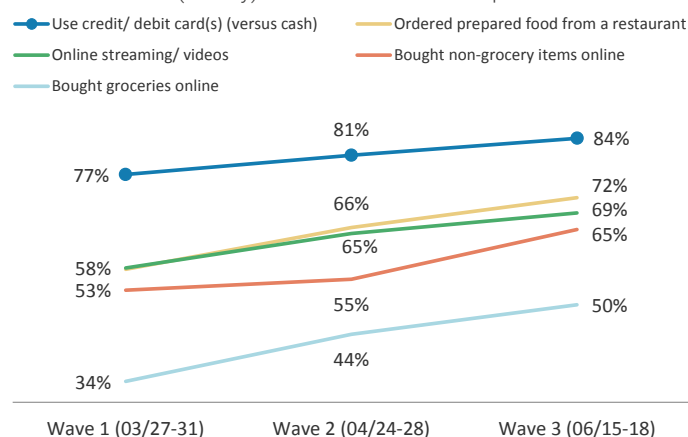
**Recent data shows that powerful secular drivers (plastification of payments and E-Commerce) continue to rise in Brazil, helping the payment companies.** Our latest Alphawise survey shows that card usage is indeed picking up in Brazil, 84% vs 81% a month ago. Still, we think penetration of card expenditure at 39% of personal consumption looks very low, much lower than in the US at 56%, offering a multiyear high growth opportunity. Our survey also shows more engagement in online shopping versus last month. In Brazil, 50-65% of consumers said they bought groceries and non-groceries online versus 44-55% a month ago. Unsurprisingly, given that, Brazil's low E-Commerce penetration has been at odds with the country's large online audience (fourth largest worldwide) and high penetration (~68% of the population). That said, Andrew Ruben, our retail analyst now expects E-Commerce penetration in Brazil to increase from 7.2% in 2019 to nearly 15% in 2024. As comparison, penetration is 15% in the US and 18% in the UK today.

**In the medium term, credit penetration should also drive card usage.** As the economy and employment start to recover, in a low interest rate environment, we think there is scope to expand the gearing that consumers are willing to incur. And, when it comes to borrowing, the legacy and stickiness of credit cards should fuel attractive growth over the medium term. Credit card loans represent only 12% of total consumer lending in Brazil, versus 30-45% in Chile, Mexico, and Peru, for example, arguing for potential market share gains in the product.

**By 2025, we see the revenue pool of card transactions reaching R\$66 billion, nearly 1.8x higher than today, a solid 10% CAGR.** In our card model, we break out credit card and debit card volumes and prices. Volumes are sourced from the card association ABCECS, while prices come from the central bank payments annual database. We

**Exhibit 60:**

At-Home/Online (Mostly) Activities Done / Participated in Past Month



Source: AlphaWise, Morgan Stanley Research.

**Exhibit 61:**

Card penetration in Brazil is still low relative to the US

	Brazil			US		
	2017	2018	2019	2017	2018	2019e
PCE	4,245	4,458	4,712	13,312	13,999	14,563
TPV	1,357	1,555	1,834	6,480	7,266	8,154
CC	843	966	1,156	3,600	3,936	4,303
DC	515	589	678	2,880	3,330	3,850
% PCE	32.0%	34.9%	38.9%	48.7%	51.9%	56.0%
CC	19.8%	21.7%	24.5%	27.0%	28.1%	29.6%
DC	12.1%	13.2%	14.4%	21.6%	23.8%	26.4%

Source: Morgan Stanley Research.

forecast volume growth at a 6 year CAGR of 12.5%, and we keep the mix of credit and debit fixed. Also, we assume that prices will remain under pressure. We forecast a -10% decline in credit merchant discount rates (MDRs) by 2025, from 2.4% to 2.15%, and a -18% decline in debit MDRs, from 1.35% to 1.11%. As a result, we expect credit card revenue growth at 10.5% per year, compared to debit card revenue growth at 9.0% per year.

**Other key assumptions behind our model include:**

- **New PCE estimates.** We now see personal consumption expenditures (PCE), a key driver of card spending, contracting -9.5% in real terms this year, compared to -5.5% before. And for 2021, we now expect a +2.8% recovery, compared to +1.8% before. As a reference, during the 2015-16 Brazil recession (-3.8% GDP growth in 2015 and -3.3% in 2016), PCE contracted -4.0% in 2015 and -1.4% in 2016.

- **New inflation estimates**, as card volumes capture nominal prices in the economy. We maintain our inflation estimate of 2.3% for 2020, but we lowered our estimate for 2021 from 3.6% to 3.2%, with the latter having a marginal negative impact on 2021 TPV nominal growth.

**Exhibit 62:**

Brazil – Card Payments Industry Model

<i>R\$ Billions</i>	2013	2014	2015	2016	2017	2018	2019	2020e	2021e	2022e	2023e	2024e	2025e
PCE	3,290	3,638	3,835	4,028	4,245	4,458	4,712	4,364	4,630	4,917	5,236	5,577	5,939
Nominal Growth	11.3%	10.6%	5.4%	5.0%	5.4%	5.0%	5.7%	-7.4%	6.1%	6.2%	6.5%	6.5%	6.5%
Real Growth	5.1%	3.9%	-4.0%	-1.4%	2.4%	1.2%	2.3%	-9.5%	2.8%	2.1%	2.2%	2.2%	2.2%
Card Expenditure	853	979	1,076	1,205	1,357	1,555	1,834	1,813	2,103	2,442	2,818	3,252	3,721
Credit	553	625	676	750	843	966	1,156	1,142	1,325	1,538	1,775	2,049	2,344
Debit	300	353	400	455	515	589	678	671	778	903	1,043	1,203	1,377
Nominal Growth	17.8%	14.8%	10.0%	12.0%	12.6%	14.5%	18.0%	-1.2%	16.0%	16.1%	15.4%	15.4%	14.4%
Inflation	5.9%	6.4%	9.9%	6.5%	2.9%	3.7%	3.4%	2.3%	3.2%	4.0%	4.2%	4.2%	4.2%
Consumption	5.1%	3.9%	-4.0%	-1.4%	2.4%	1.2%	2.3%	-9.5%	2.8%	2.1%	2.2%	2.2%	2.2%
Substitution	6.8%	4.4%	4.1%	6.8%	7.3%	9.6%	12.4%	6.0%	10.0%	10.0%	9.0%	9.0%	8.0%
Real Growth	11.2%	7.8%	0.1%	5.1%	9.4%	10.4%	14.2%	-3.4%	12.4%	11.6%	10.8%	10.8%	9.8%
Credit	8.9%	6.3%	-1.6%	4.1%	9.2%	10.5%	15.8%						
Debit	15.7%	10.8%	3.1%	6.8%	9.8%	10.3%	11.4%						
Substitution/Growth	38%	30%	42%	57%	58%	66%	69%	-509%	62%	62%	58%	58%	56%
Card Penetration	25.9%	26.9%	28.1%	29.9%	32.0%	34.9%	38.9%	41.5%	45.4%	49.7%	53.8%	58.3%	62.6%
Card Growth / PCE Growth	2.2x	2.0x	0.0x	-3.6x	4.0x	8.6x	6.2x	0.4x	4.4x	5.5x	4.9x	4.9x	4.4x
Avg Credit Card MDR	2.76%	2.77%	2.77%	2.73%	2.63%	2.50%	2.40%	2.35%	2.31%	2.27%	2.23%	2.19%	2.15%
Avg Debit Card MDR	1.58%	1.56%	1.54%	1.52%	1.48%	1.41%	1.35%	1.30%	1.26%	1.22%	1.18%	1.15%	1.11%
<b>Total Industry Revenue</b>	<b>20</b>	<b>23</b>	<b>25</b>	<b>27</b>	<b>30</b>	<b>32</b>	<b>37</b>	<b>36</b>	<b>40</b>	<b>46</b>	<b>52</b>	<b>59</b>	<b>66</b>
Credit Card Revenue	15	17	19	20	22	24	28	27	31	35	40	45	51
Debit Card Revenue	5	6	6	7	8	8	9	9	10	11	12	14	15
<b>Industry Revenue Growth</b>	<b>16.5%</b>	<b>14.1%</b>	<b>9.0%</b>	<b>10.0%</b>	<b>8.8%</b>	<b>8.8%</b>	<b>13.8%</b>	<b>-3.5%</b>	<b>13.6%</b>	<b>13.7%</b>	<b>13.0%</b>	<b>13.0%</b>	<b>12.1%</b>
Credit Card Revenue	14.9%	13.3%	8.1%	9.4%	8.2%	8.8%	14.9%	-2.9%	14.0%	14.1%	13.4%	13.4%	12.4%
Debit Card Revenue	21.9%	16.7%	11.9%	11.8%	10.6%	8.7%	10.6%	-5.1%	12.5%	12.6%	11.9%	11.9%	11.0%

Source: Central Bank, ABCECS, Morgan Stanley Research Estimates (e).



**Exhibit 63:**

PagSeguro -- Consolidated Income Statement

<i>R\$ Millions</i>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020e</b>	<b>2021e</b>	<b>2022e</b>
<b>Gross Revenues</b>	<b>2,048</b>	<b>3,152</b>	<b>4,106</b>	<b>4,767</b>	<b>6,308</b>	<b>7,858</b>
Transactions	1,393	2,638	3,863	4,767	6,308	7,858
Sales	655	514	244	-	-	-
Taxes on Revenues	352	510	584	564	763	951
<b>Net Revenues</b>	<b>1,696</b>	<b>2,642</b>	<b>3,522</b>	<b>4,203</b>	<b>5,545</b>	<b>6,907</b>
Cost of Goods Sold	1,113	1,814	2,250	2,414	3,120	3,811
<b>Gross Profit</b>	<b>583</b>	<b>827</b>	<b>1,272</b>	<b>1,789</b>	<b>2,425</b>	<b>3,096</b>
Personnel Expenses	106	547	399	460	520	579
Marketing Expenses	275	376	476	635	820	822
Chargebacks	48	71	201	287	349	409
Other Operating Income / (Expenses)	(142)	(182)	(273)	(356)	(442)	(550)
<b>EBITDA</b>	<b>12</b>	<b>(349)</b>	<b>(78)</b>	<b>52</b>	<b>295</b>	<b>736</b>
Depreciation & Amortization	52	95	128	244	315	393
<b>Operating Income</b>	<b>(39)</b>	<b>(444)</b>	<b>(206)</b>	<b>(192)</b>	<b>(21)</b>	<b>343</b>
Income from Pre-Payment	819	1,415	2,031	2,485	3,341	4,229
Financial Expense	102	31	38	188	203	220
Other Finance Income/(Expense)	6	278	126	234	239	249
FX Variation, net	-	-	-	-	-	-
<b>Financial Result</b>	<b>723</b>	<b>1,662</b>	<b>2,119</b>	<b>2,531</b>	<b>3,377</b>	<b>4,258</b>
<b>Pre-Tax Profit</b>	<b>683</b>	<b>1,218</b>	<b>1,913</b>	<b>2,339</b>	<b>3,356</b>	<b>4,601</b>
Income tax and social contribution	205	307	546	681	987	1,357
Non-controlling interests	0	1	1	0	-	-
<b>Net Income</b>	<b>478</b>	<b>909</b>	<b>1,366</b>	<b>1,658</b>	<b>2,369</b>	<b>3,244</b>
Shares Outstanding (million)	263	318	329	330	330	330
EPS (R\$)	1.82	2.86	4.15	5.02	7.18	9.83
<b>EPS (US\$)</b>	<b>0.56</b>	<b>0.77</b>	<b>1.05</b>	<b>0.96</b>	<b>1.41</b>	<b>1.89</b>
<b>Key Metrics</b>						
Active Merchants (millions)	2.79	4.14	5.27	6.11	7.15	8.09
Total Payment Value	38,477	76,142	114,819	140,141	189,156	240,405
EBITDA Margin	0.7%	-13.2%	-2.2%	1.2%	5.3%	10.7%
Net Margin	19.0%	22.4%	24.6%	24.8%	26.7%	29.1%
ROE	55.2%	13.9%	17.1%	17.4%	21.0%	23.7%

Source: Company data, Morgan Stanley Research (e)

**Exhibit 64:**

PagSeguro -- Consolidated Balance Sheet

<i>R\$ Millions</i>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020e</b>	<b>2021e</b>	<b>2022e</b>
<b>Current Assets</b>	<b>4,028</b>	<b>11,042</b>	<b>13,578</b>	<b>15,097</b>	<b>18,627</b>	<b>22,835</b>
Cash & short-term investments	277	2,763	2,754	4,245	4,064	4,421
Note Receivables	3,522	8,105	10,507	10,637	14,299	18,101
Receivables from related parties	125	-	-	-	-	-
Inventories	62	89	62	48	63	79
Tax receivable	14	66	172	95	126	157
Other current assets	28	20	84	72	74	77
<b>Long-Term Assets</b>	<b>208</b>	<b>375</b>	<b>1,004</b>	<b>1,374</b>	<b>1,735</b>	<b>2,189</b>
PP&E	11	67	400	688	832	1,052
Intangibles	159	306	590	667	883	1,116
Deferred tax assets	37	-	-	-	-	-
Other long-term assets	1	2	14	19	20	21
<b>Total Assets</b>	<b>4,236</b>	<b>11,417</b>	<b>14,582</b>	<b>16,471</b>	<b>20,362</b>	<b>25,024</b>
<b>Current liabilities</b>	<b>3,319</b>	<b>4,711</b>	<b>5,893</b>	<b>6,159</b>	<b>8,240</b>	<b>10,427</b>
Customers payable	3,081	4,324	5,326	5,606	7,566	9,616
Accounts payable	92	165	256	193	250	305
Accounts payable from related parties	39	31	22	36	37	39
Current debt / revolver	-	-	-	-	-	-
Accrued expenses	86	154	231	229	287	364
Other current liabilities	21	37	57	96	99	103
<b>Long-term liabilities</b>	<b>46</b>	<b>132</b>	<b>674</b>	<b>771</b>	<b>798</b>	<b>830</b>
Accounts payable from related parties	-	-	-	-	-	-
Deferred tax liabilities	43	132	631	771	798	830
Other long-term liabilities	4	-	43	-	-	-
<b>Total Liabilities</b>	<b>3,365</b>	<b>4,843</b>	<b>6,567</b>	<b>6,931</b>	<b>9,038</b>	<b>11,257</b>
<b>Shareholders' Equity</b>	<b>867</b>	<b>6,551</b>	<b>7,993</b>	<b>9,502</b>	<b>11,279</b>	<b>13,712</b>
Non-controlling interest	3	24	22	38	45	55
<b>Total Liabilities &amp; Shareholders' Equity</b>	<b>4,236</b>	<b>11,417</b>	<b>14,582</b>	<b>16,471</b>	<b>20,362</b>	<b>25,024</b>

Source: Company data, Morgan Stanley Research (e)

**Exhibit 65:**

PagSeguro -- Key Ratios

	2017	2018	2019	2020e	2021e	2022e
<b>Summary Financials (R\$ MM)</b>						
Net Revenues	1,696	2,642	3,522	4,203	5,545	6,907
EBITDA	12	(349)	(78)	52	295	736
Operating Profit	(39)	(444)	(206)	(192)	(21)	343
Income from Prepayment	819	1,415	2,031	2,485	3,341	4,229
Net Income	478	909	1,366	1,658	2,369	3,244
EPS (R\$)	1.82	2.86	4.15	5.02	7.18	9.83
EPS (US\$)	0.56	0.77	1.05	0.96	1.41	1.89
Shareholders' Equity	867	6,551	7,993	9,502	11,279	13,712
<b>Yr/Yr Growth Rates</b>						
Net Revenues	129%	56%	33%	19%	32%	25%
EBITDA	-109%	-2903%	-78%	-166%	469%	150%
Operating Profit	-78%	1034%	-54%	-7%	-89%	-1766%
Income from Prepayment	109%	73%	44%	22%	34%	27%
Net Income	275%	90%	50%	21%	43%	37%
EPS (R\$)	275%	57%	45%	21%	43%	37%
EPS (US\$)	282%	37%	36%	-8%	46%	34%
Shareholders' Equity	38%	656%	22%	19%	19%	22%
<b>Profitability</b>						
Gross Margin	34%	31%	36%	43%	44%	45%
EBITDA Margin	1%	-13%	-2%	1%	5%	11%
Operating Margin	-2%	-17%	-6%	-5%	0%	5%
Net Margin	19%	22%	25%	25%	27%	29%
ROE	55%	14%	17%	17%	21%	24%
<b>Key Revenue Drivers</b>						
Active Merchants (Millions)	2.79	4.14	5.27	6.11	7.15	8.09
Avg. Spending by Active Merchant - R\$	18,466	21,950	24,371	24,726	28,578	31,543
Total Payment Volume	38,477	76,142	114,819	140,141	189,156	240,405
Transaction Take Rate	3.6%	3.5%	3.4%	3.4%	3.3%	3.3%
Prepayment Revs as % of TPV	2.1%	1.9%	1.8%	1.8%	1.8%	1.8%
<b>Key Revenue Drivers -- Yr/Yr Growth</b>						
Active Merchants (Millions)	98%	48%	27%	16%	17%	13%
Avg. Spending by Active Merchant - R\$	45%	19%	11%	1%	16%	10%
Total Payment Volume	173%	98%	51%	22%	35%	27%
Transaction Take Rate	-6%	-4%	-3%	1%	-2%	-2%
Prepayment Revs as % of TPV	-24%	-13%	-5%	0%	0%	0%
<b>Other</b>						
Effective Tax Rate	30%	25%	29%	29%	29%	30%
<b>Macro Assumptions</b>						
Inflation - CPI (EoP)	2.9%	3.7%	3.4%	2.0%	3.4%	4.1%
Interest Rates - Selic Rate (EoP)	7.0%	6.5%	4.5%	2.3%	4.8%	6.0%
Interest Rates - Selic Rate (Year Avg)	10.3%	6.6%	5.9%	3.0%	3.5%	5.4%
Exchange Rate (EoP)	3.31	3.87	4.03	5.05	5.10	5.26
GDP Real Growth (Year-End)	1.1%	1.1%	1.1%	-7.2%	2.9%	2.5%

Source: Company data, Morgan Stanley Research (e)

**Exhibit 66:**

Stone -- Consolidated Income Statement

R\$ Millions	2017	2018	2019	2020e	2021e	2022e
<b>Gross Revenues</b>	<b>386</b>	<b>823</b>	<b>1,230</b>	<b>1,574</b>	<b>2,087</b>	<b>2,747</b>
Transactions	268	587	862	1,132	1,476	1,904
Rental and Subscription	118	236	368	442	611	843
Taxes on Revenues	57	95	129	195	253	332
<b>Net Revenues</b>	<b>329</b>	<b>728</b>	<b>1,102</b>	<b>1,379</b>	<b>1,834</b>	<b>2,415</b>
Cost of Goods Sold	193	266	327	467	552	687
<b>Gross Profit</b>	<b>136</b>	<b>462</b>	<b>775</b>	<b>912</b>	<b>1,282</b>	<b>1,728</b>
Admin & Selling Expenses	241	397	597	787	937	1,109
Other Operating Income / (Expenses)	(134)	(69)	(58)	(12)	(11)	(12)
<b>EBITDA</b>	<b>(239)</b>	<b>(4)</b>	<b>120</b>	<b>114</b>	<b>334</b>	<b>608</b>
Depreciation & Amortization	57	103	149	253	313	412
<b>Operating Income</b>	<b>(296)</b>	<b>(107)</b>	<b>(29)</b>	<b>(139)</b>	<b>21</b>	<b>196</b>
Income from Pre-Payment	412	801	1,288	1,601	2,199	2,914
Financial Expense	237	301	353	522	594	728
Other Finance Income/(Expense)	25	50	186	156	173	231
<b>Financial Result</b>	<b>200</b>	<b>550</b>	<b>1,121</b>	<b>1,235</b>	<b>1,779</b>	<b>2,416</b>
Other Income/(Expense)	(0)	(0)	(1)	(1)	-	-
<b>Pre-Tax Profit</b>	<b>(96)</b>	<b>442</b>	<b>1,091</b>	<b>1,094</b>	<b>1,800</b>	<b>2,612</b>
Income tax and social contribution	9	137	286	329	554	810
<b>Net income</b>	<b>(105)</b>	<b>305</b>	<b>804</b>	<b>765</b>	<b>1,246</b>	<b>1,802</b>
Fully Diluted Shares Outstanding (million)	227.15	283.33	282.17	281.77	281.77	281.77
EPS (R\$)	(0.46)	1.23	2.87	2.72	4.42	6.40
<b>EPS (US\$)</b>	<b>(0.14)</b>	<b>0.32</b>	<b>0.72</b>	<b>0.52</b>	<b>0.87</b>	<b>1.23</b>
<b>Key Metrics</b>						
Active Merchants (millions)	0.13	0.27	0.50	0.68	0.96	1.18
Total Payment Value	48,500	83,475	129,100	166,944	229,097	303,506
Take Rate	1.53%	1.83%	1.85%	1.79%	1.76%	1.76%
Net Margin	-14.2%	20.0%	33.7%	25.7%	30.9%	33.8%
ROE	-22.5%	6.0%	13.5%	11.3%	16.0%	19.8%

Source: Company data, Morgan Stanley Research (e)

**Exhibit 67:**

Stone -- Consolidated Balance Sheet

R\$ Millions	2017	2018	2019	2020e	2021e	2022e
<b>ASSETS</b>						
<b>Current assets</b>						
Cash and ST Investments	844	3,069	3,905	4,154	4,698	7,097
Trade Accounts Receivable	23	45	249	69	92	121
Accounts Receivable from Card Issuers	5,078	9,245	14,067	14,430	18,265	21,422
Other Accounts Receivable	5	7	106	110	147	193
Recoverable Taxes	39	57	50	69	92	121
Prepaid Expenses	10	16	27	41	55	72
<b>Total current assets</b>	<b>6,000</b>	<b>12,438</b>	<b>18,405</b>	<b>18,873</b>	<b>23,348</b>	<b>29,026</b>
<b>Long-term assets</b>						
Other Accounts Receivable	3	9	45	7	9	12
Receivables from Related Parties	9	8	13	28	37	48
Deferred Income Tax Asset	198	263	193	208	215	224
Intangible Assets	234	308	374	384	397	414
Investment in Associate	2	2	28	27	28	29
Property and Equipment, net	190	266	549	733	994	1,210
<b>Total long-term assets</b>	<b>636</b>	<b>856</b>	<b>1,201</b>	<b>1,387</b>	<b>1,680</b>	<b>1,937</b>
<b>Total Assets</b>	<b>6,636</b>	<b>13,293</b>	<b>19,606</b>	<b>20,260</b>	<b>25,028</b>	<b>30,963</b>
<b>LIABILITIES AND EQUITY</b>						
<b>Current liabilities</b>						
Accounts Payable to Clients	3,638	4,996	6,500	6,678	9,164	12,140
Trade Accounts Payable	53	118	98	138	183	242
Loans and Financing	14	761	2,948	1,843	1,906	1,983
Labor and Social Security Liabilities	36	97	109	147	185	234
Taxes Payable	36	52	45	37	46	58
Other Accounts Payable	38	15	82	136	141	147
Obligation to FIDC Senior Quotaholders	9	17	2,091	2,069	2,752	3,623
<b>Total current liabilities</b>	<b>3,824</b>	<b>6,055</b>	<b>11,873</b>	<b>11,047</b>	<b>14,376</b>	<b>18,426</b>
<b>Long-term liabilities</b>						
Loans and Financing	3	1	87	1,217	1,259	1,310
Deferred Income Tax Liability	52	80	11	17	18	18
Share Based Payments	217	-	-	-	-	-
Obligation to FIDC Senior Quotaholders	2,056	2,058	1,620	1,002	1,375	1,821
Provision for contingencies	0	6	42	34	35	36
<b>Total long-term liabilities</b>	<b>2,330</b>	<b>2,146</b>	<b>1,760</b>	<b>2,269</b>	<b>2,685</b>	<b>3,185</b>
<b>Total Liabilities</b>	<b>6,153</b>	<b>8,200</b>	<b>13,633</b>	<b>13,316</b>	<b>17,062</b>	<b>21,611</b>
<b>Shareholder's equity</b>	<b>467</b>	<b>5,093</b>	<b>5,972</b>	<b>6,775</b>	<b>7,772</b>	<b>9,124</b>
Non-controlling interest	15	(0)	1	169	194	228
<b>Total liabilities &amp; shareholder's equity</b>	<b>6,636</b>	<b>13,293</b>	<b>19,606</b>	<b>20,260</b>	<b>25,028</b>	<b>30,963</b>

Source: Company data, Morgan Stanley Research (e)

**Exhibit 68:**

Stone -- Key Ratios

	2017	2018	2019	2020e	2021e	2022e
<b>Summary Financials (R\$ MM)</b>						
Net Revenues	329	728	1,102	1,379	1,834	2,415
EBITDA	(239)	(4)	120	114	334	608
Operating Profit	(296)	(107)	(29)	(139)	21	196
Income from Prepayment	412	801	1,288	1,601	2,199	2,914
Net Income	(105)	305	804	765	1,246	1,802
EPS (R\$)	(0.46)	1.23	2.87	2.72	4.42	6.40
EPS (US\$)	(0.14)	0.32	0.72	0.52	0.87	1.23
Shareholders' Equity	467	5,093	5,972	6,775	7,772	9,124
<b>Yr/Yr Growth Rates</b>						
Net Revenues	87%	121%	51%	25%	33%	32%
EBITDA	90%	-98%	NM	-6%	194%	82%
Operating Profit	75%	-64%	-73%	378%	-115%	826%
Income from Prepayment	67%	94%	61%	24%	37%	32%
Net Income	-14%	-391%	163%	-5%	63%	45%
EPS (R\$)	-14%	-367%	133%	-5%	63%	45%
EPS (US\$)	-16%	-329%	125%	-28%	67%	41%
Shareholders' Equity	-12%	990%	17%	13%	15%	17%
<b>Key Revenue Drivers</b>						
Active Merchants (Millions)	0.13	0.27	0.50	0.68	0.96	1.18
Avg. Spending by Active Merchant - R\$	454,916	419,561	346,707	285,696	278,737	283,372
Total Payment Volume	48,500	83,475	129,100	166,944	229,097	303,506
Transaction Take Rate	0.55%	0.70%	0.67%	0.68%	0.64%	0.63%
Rental Revenue per Active Merchant	1,110	1,092	924	756	744	787
Prepayment Revs as % of TPV	0.85%	0.96%	1.00%	0.96%	0.96%	0.96%
<b>Key Revenue Drivers -- Yr/Yr Growth</b>						
Active Merchants (Millions)	60%	104%	85%	38%	40%	22%
Avg. Spending by Active Merchant - R\$	33%	-8%	-17%	-18%	-2%	2%
Total Payment Volume	73%	72%	55%	29%	37%	32%
Transaction Take Rate	11%	28%	-5%	2%	-5%	-3%
Rental Revenue per Active Merchant	47%	-2%	-15%	-18%	-2%	6%
Prepayment Revs as % of TPV	-3%	13%	4%	-4%	0%	0%
<b>Other</b>						
Effective Tax Rate	-10%	31%	26%	30%	31%	31%
<b>Macro Assumptions</b>						
Inflation - CPI (EoP)	2.9%	3.7%	3.4%	2.0%	3.4%	4.1%
Interest Rates - Selic Rate (EoP)	7.0%	6.5%	4.5%	2.3%	4.8%	6.0%
Interest Rates - Selic Rate (Year Avg)	10.3%	6.6%	5.9%	3.0%	3.5%	5.4%
Exchange Rate (EoP)	3.31	3.87	4.03	5.05	5.10	5.26
GDP Real Growth (Year-End)	1.1%	1.1%	1.1%	-7.2%	2.9%	2.5%

Source: Company data, Morgan Stanley Research (e)

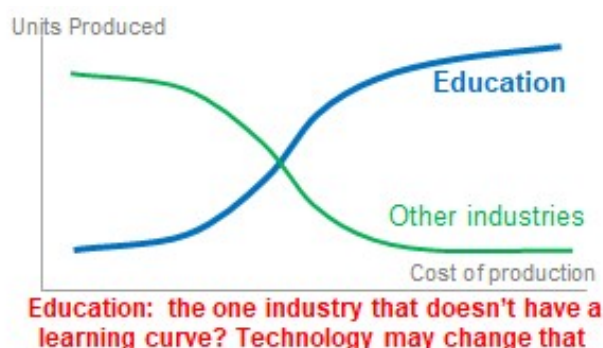
# Education Technology

## Brazil is leading the global Ed-Tech revolution.

- **k-12 content market:**
  - **BRL 6bn market for core business + BRL 6bn for English and a larger amount for other supplemental content.**  
Learning Systems represent a market of BRL 3bn, growing at 8% CAGR 2019-25e, as technology-enabled platforms gain share from traditional textbooks.
  - **ARCE is the pure player today, We are EW with a PT of USD 51.40**
- **Post-Secondary Market:**
  - **Distance Learning: BRL 7 Bn market.** Growing +2% CAGR 19-25e as it gains share from the decrease in traditional On-Campus market.
  - **Hybrid models.** We do not have information to quantify this market but it could be 1/3rd of the on-campus market, or BRL16 bn, and is also growing as it gains share from the traditional on-campus market.
  - **YDUQ3** is leading both trends – hybridity and distance learning market in Brazil.

### Exhibit 69:

Education industry paradox



Source: L.E.K., Morgan Stanley Research

**The education paradox ...** Education is one of the few industries with an ever-expanding cost per item, growing above inflation globally. This is due to the weight of tradition on brands, but also the extreme fragmentation (lack of scale, management and technological DNA), and resistance to change. As a consequence, the education industry is lagging behind in technological adoption, and in most cases "technology" has been used just as a marketing tool, not for delivering tangible improvements.

**... but the revolution has already started.** Similar to other sectors, technology has the capacity to dramatically impact both quality (improving the learning experience) and the economics of the business. You want your kids to attend a school that uses data and adap-

tative learning methodology, allowing for personalized education, so (i) your daughter competes with her own potential, rather than with a normal distribution of students, (ii) you gain visibility on her university options, and (iii) issues are identified and solved as they come, not at the end of the year.

**And Covid is going to accelerate the move.** Home schooling has exposed many schools that are lagging behind on technology. All schools in all segments including K-12 and universities are closed in most countries in the world, and the lockdown may still last for months, forcing them to deliver the content, homework and assessments via internet.

**All schools globally are heavily investing in technology.** The quality of the technological platforms and content has become a relevant competitive advantage/disadvantage, which is very visible to the parents, and management focus and investments are being deployed to build technological platforms in many schools. How well each school delivers on that front may impact volumes (absolute levels and market share) and prices, as students ask for discounts to compensate for below-expectation delivery (see as an example: [Brazil Education Services: Judge ruled in favor of a 50% discount on medical tuition in RJ \(21 May 2020\)](#)), but is also attracting political and regulatory scrutiny due to the social implications of education – a good example was Rio de Janeiro Government ruling of 30% discount for all tuitions during the lockdown (see: [YDUQS PART: \(-\) Price regulation, \(+\) YDUQS doing accretive M&A \(5 Jun 2020\)](#)).

**Technology is a must for capacity utilization and pricing power.**

The total number of students is in fact decreasing in Brazil YoY, generating an overcapacity situation in a fixed cost business, where the economics are driven by scale (SG&A and structure cost dilution), capacity utilization and prices. Being able to attract the incremental student at a given price is the key focus for each school owner today and again technology is incrementally becoming a differentiating factor.

**In K-12 education, the tech revolution has a name: Learning systems (LS).** The K-12 school market is very fragmented, most of the schools lack the scale, resources and DNA to develop their own content – they buy it from publishing companies, traditionally with a B2C model, where the school is the prescriber and parents buy the textbooks at retailers, which typically charge a ~100% markup. That model started to change a decade ago, particularly in Brazil, evolving into a B2B2C business, where the schools become the distribution channel (~60% markup), fully aligning interests (student-school-publisher) and the publishing company service becomes more sticky adding incremental layers of services to the content, helping in the management of the school and teachers. The product is taken to a new level when adding technology: personalized learning, interactive solutions, video classes, virtual reality, artificial intelligence and use of data to improve the quality of the service.

**K-12 schools: Large fragmented market.** Brazil has 43 mn K-12 students, the 5th largest market globally, including 8 mn in private schools (vs 7 mn for post-sec). The school market is large, BRL 109 bn (vs BRL 49 bn for post-sec) in Brazil, including schools (BRL 64 bn) and complementary courses (BRL 45 bn), but stagnant in volume, due to demographics. The private k-12 schools market is smaller, 8 mn students, BRL 25bn, very fragmented (no one >1% market share), but gaining share (currently ~19%), allowing for growth of ~1% in volumes and prices with or above inflation. 2021 will probably be an exception and we are expecting the private market to lose share due to the macro situation.

**k-12 content: Large, stagnant market.** Parents pay ~1.5k BRL in books/year, this is ~1 month's tuition. We estimate the market is BRL 6 bn for private K-12 regulated content, plus BRL 6 bn for after class English content, and another BRL 9bn for other programs (Kumon, tutoring, etc).

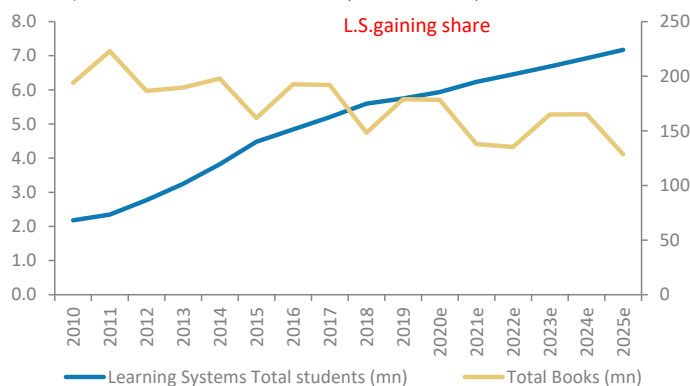
**K-12 Learning systems: ~60% of the private market, growing and consolidated.** Brazil is leading the Ed-tech move globally due to cultural factors, including the need to compensate low quality teachers and the fact that Brazilians are early technology adopters. The penetration of Learning Systems has been increasing over the last decade, reaching ~60% currently in Brazil, vs 10-15% in other LatAm countries. We estimate the market is BRL ~3 bn, growing 8% CAGR 2019-25e. Scale matters so as to dilute the heavy investments in technology, driving strong consolidation of the Learning Systems market in Brazil, with 2 top players today representing ~56% of the market, and the top 3 players >70%.

**ARCE is the pure play on Learning Systems.** ARCE is a content provider focused only on the private Brazilian market and only on Learning Systems, the fastest growing segment, explaining its large growth, pricing power, high profitability and earnings visibility. See more details here: [Arco Platform Ltd.: Disrupting the Way K-12 Students Learn; Initiating at OW \(22 Oct 2018\)](#), and our updated view here: [Arco Platform Ltd: Covid can accelerate K-12 Tech revolution and Arco's share gain \(1 Jun 2020\)](#).



**Exhibit 70:**

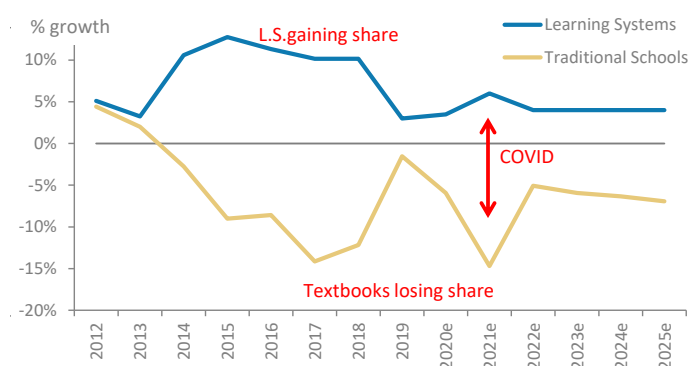
Brazil private k12 content market (mn students)



Source: MEC, Morgan Stanley Research

**Exhibit 71:**

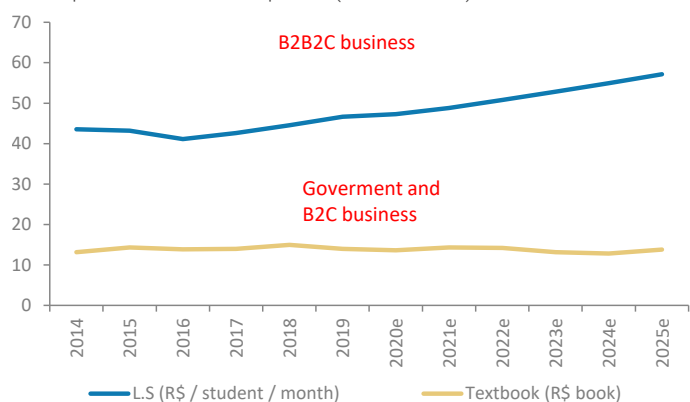
Brazil private k12 content market (% growth)



Source: MEC, Morgan Stanley Research

**Exhibit 72:**

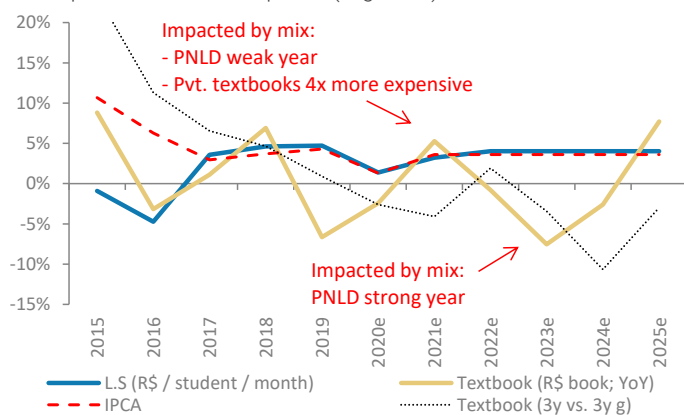
Brazil private k12 content prices (mn students)



Source: MEC, Morgan Stanley Research

**Exhibit 73:**

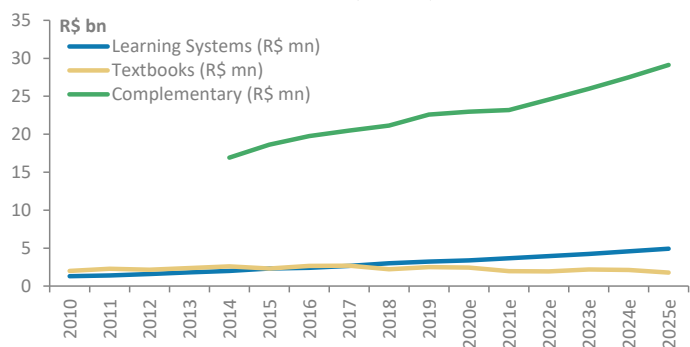
Brazil private k12 content prices (% growth)



Source: MEC, Morgan Stanley Research

**Exhibit 74:**

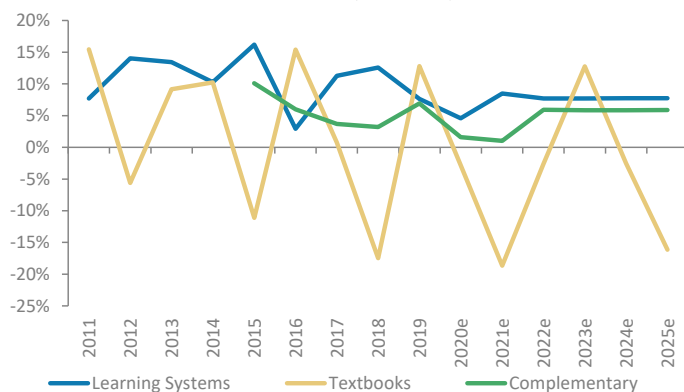
Brazil private k12 content revenue (BRL bn)



Source: MEC, Morgan Stanley Research

**Exhibit 75:**

Brazil private k12 content revenue (% growth)



Source: MEC, Morgan Stanley Research

**In post sec, it is about Distance Learning and hybrid models.** The post-sec market in Brazil covers 8 mn students, and out of those 6 mn are in private universities, a business that is consolidating fast in Brazil, with several large groups leading global education in number of students, particularly YDUQS with 0.7 mn students. These groups have invested heavily in technology to become cost efficient (hybridity) and capture the growing Distance Learning market (2 mn students in Brazil). Today the distinction between on-campus and distance learning education is not that clear anymore, since both models have converged to some middle point for commercial and regulatory reasons.

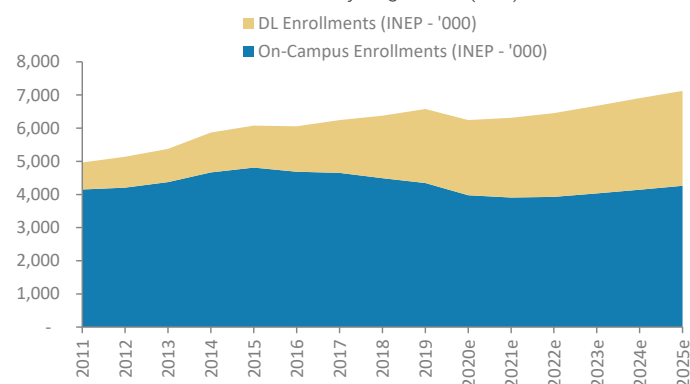
**Total post-sec is a BRL ~50bn market.** Private university volumes used to expand historically (+7% CAGR 2000-19), but during the last decade the growth was driven by government funding programs, FIES, that has become less relevant over the last few years, suggesting less growth going forward (+1% CAGR 2019-25e). There is a penetration opportunity in Brazil, but the problem is affordability, as many families just can not afford paying private universities. And the

real problem is Brazil is the lack of pricing power and structural over-capacity, added to the increasing weight of distance learning (cheaper tuition) driving prices down structurally, even in nominal terms. As a result, the market in BRL has been stagnant over the last decade (+2% CAGR 2011-19) and we expect it to continue like that in the future (+1% CAGR 2019-25e).

**Distance Learning is a BRL ~7 bn market.** Distance Learning is structurally gaining share for several reasons – it is cheaper (affordability), it is more convenient in a continental country with complex logistics and new generations have a cultural preference for anything connected, which is particularly a competitive advantage during Covid outbreak. Private Distance Learning University volumes have been growing +13% CAGR, and revenue +8% CAGR 2011-19, since prices have been under pressure, particularly over the last few years, as the government liberalized the industry in 2017, driving a large growth in supply (more than doubled in just 2 years). We expect the market to grow at ~2% CAGR 2019-25e, still driven by volume (+4% CAGR).

**Exhibit 76:**

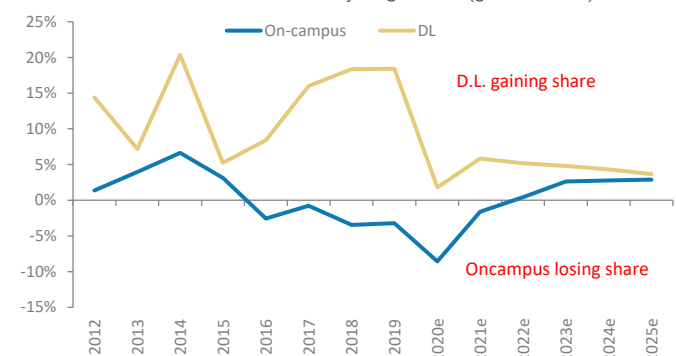
Brazil Private Post-Sec Students by segments (000)



Source: MEC, Morgan Stanley Research

**Exhibit 77:**

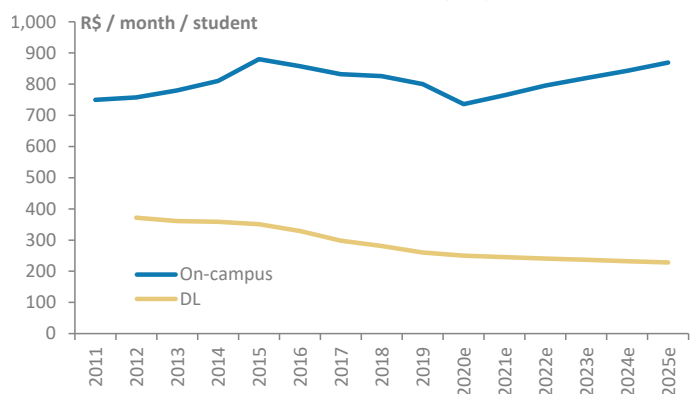
Brazil Private Post-Sec Students by segments (growth YoY)



Source: MEC, Morgan Stanley Research

**Exhibit 78:**

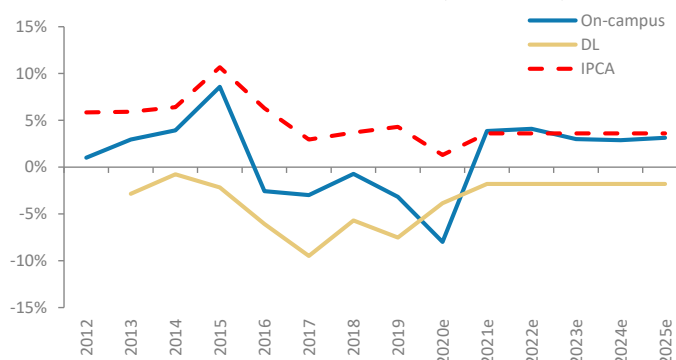
Brazil Private Post-Sec Prices by segments (000)



Source: MEC, Morgan Stanley Research

**Exhibit 79:**

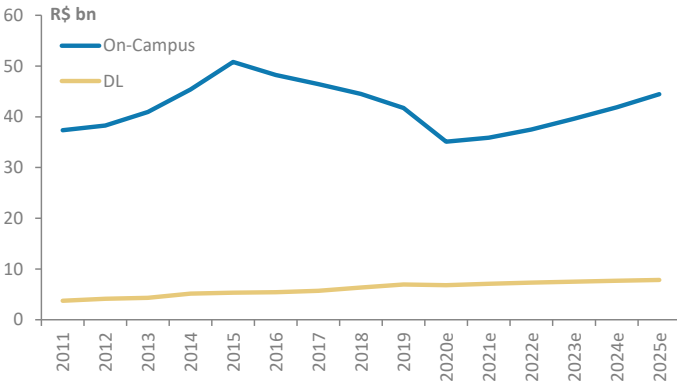
Brazil Private Post-Sec Prices by segments (growth YoY)



Source: MEC, Morgan Stanley Research

Exhibit 80:

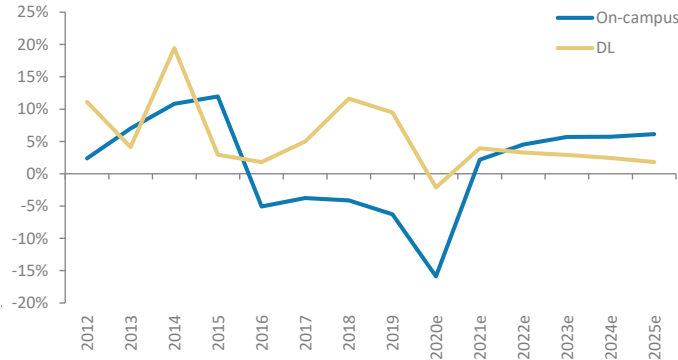
Brazil Private Post-Sec revenue by segments (BRL bn)



Source: MEC, Morgan Stanley Research

Exhibit 81:

Brazil Private Post-Sec revenue by segments (growth YoY)



Source: MEC, Morgan Stanley Research

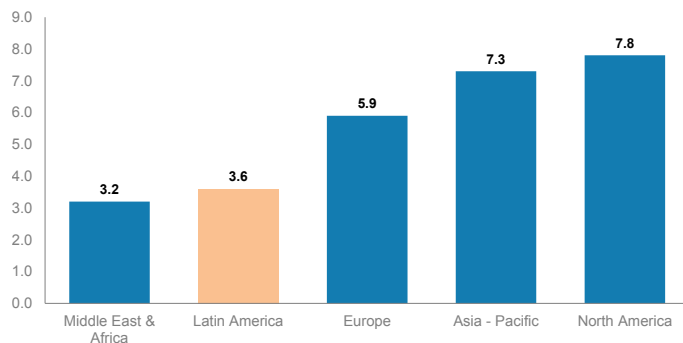
# Telecommunications

Brazilian households are accelerating their data consumption ([Exhibit 2](#)) and our AlphaWise surveys show they are prioritizing spending on digital activities vs. other legacy items ([Exhibit 5](#) [Exhibit 6](#)). This offers an interesting opportunity for Telcos to monetize increased data consumption and boost cash-flow generation from under-utilized high quality networks (right chart below, [link](#)).

## Exhibit 82:

Increased data consumption from Brazilian households...

Monthly Mobile Data Use Per Smartphone 2020 (GB)

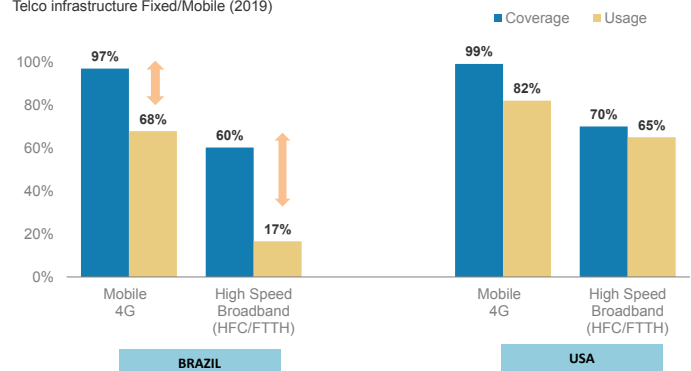


Source: HootSuite and Morgan Stanley Research

## Exhibit 83:

...could drive higher cash-flow generation from under-utilized high quality networks

Telco infrastructure Fixed/Mobile (2019)



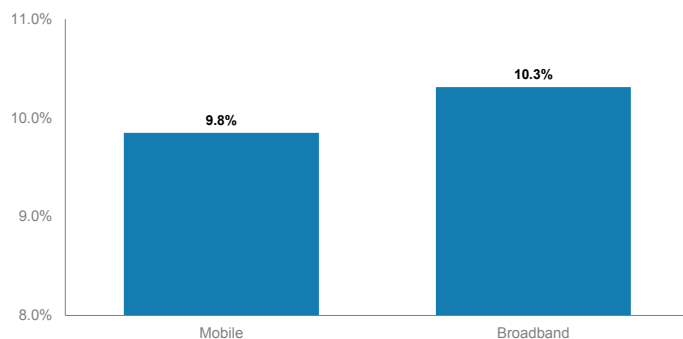
Source: GSMA, ANATEL and Morgan Stanley Research

**VIV: Pent-up demand for premium connectivity.** We think remote working and on-line education will be long-lasting trends that could benefit VIV via its commercial offering of premium connectivity (left chart below, [link](#)). Other structural positives impacting the name are: 1) Telco reform implementation, 2) Broadening network sharing agreements, 3) Potential industry consolidation and 4) Sustainable 8% DY ([link](#)). Our new Mid-2021 PT of USD13.5/ADR considers new industry and macro assumptions (See details of VIV BRL193bn TAM in Appendix V).

## Exhibit 84:

VIV could benefit from long lasting demand for premium connectivity...

VIV: Price premiums vs peers (June 2020)

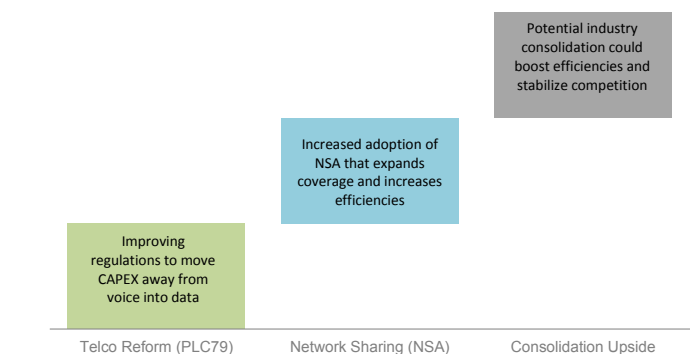


Source: Company data and Morgan Stanley Research

## Exhibit 85:

..and from improving industry fundamentals and sustainable 8% DY

Structural changes impacting the Brazilian telco market



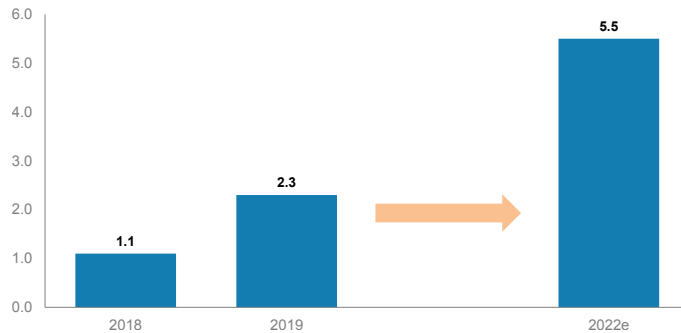
Source: Morgan Stanley Research

**TSU: Moving towards higher value.** The company has shown solid execution of its strategy to focus on more value added products, especially on the ultra broadband side. Industry data shows robust product adoption and TSU strategic plan aims to more than double homes passed by 2022 (left chart below). The strategic focus matches our survey results that show robust demand for premium connectivity across socioeconomic levels. Our new Mid-2021 PT of USD16/ADR considers new macro and industry assumptions (See details of the company's BRL148bn TAM in Appendix V).

#### Exhibit 86:

TSU's strategy of moving towards higher value added products...

TSU: Homes passed with UBB network (m)

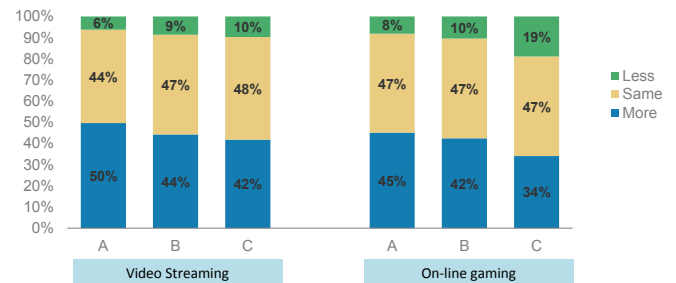


Source: Company data and Morgan Stanley Research

#### Exhibit 87:

...should benefit from increased connectivity demand across socioeconomic levels

BZ Survey: Intended time spend on activity over next 3 mo. (by socioec. level)



Note: Survey June 15-18, 2020. Source: AlphaWise and Morgan Stanley Research

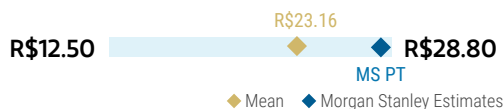
## Risk Reward – Totvs S.A. (TOTS3.SA)

From recovery to outperformance

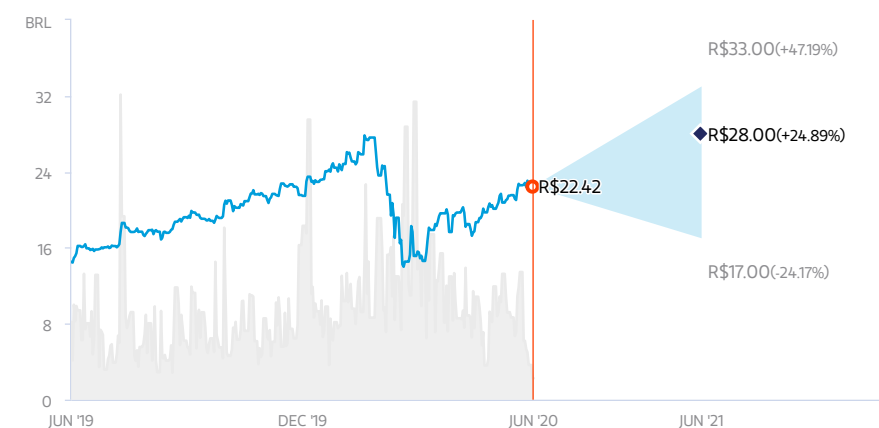
### PRICE TARGET R\$28.00

Derived from a DCF multiple with a 10.6% WACC in BRL and a terminal growth rate of 5.7%, also in BRL.

#### Consensus Price Target Distribution



### RISK REWARD CHART

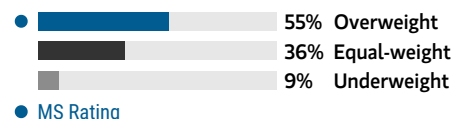


Source: Thomson Reuters, Morgan Stanley Research

### OVERWEIGHT THESIS

- TOTVS offers a diversified exposure to a secular trend of increased technology adoption among Brazilian firms. Further, the company is expanding its addressable market
- On Software: The company has a 99% renewal rate in a very resilient spending category (ERP). Further, a vast distribution network gives TOTVS exposure to accelerating digital adoption outside of main metropolitan areas
- On TECHFIN: The Supplier acquisition could pave the way for better monetization of TOTVS services facilitating credit access to SME's
- On Performance: CRM could be one of the early expansions to boost ARPUs with existing clients
- M&A: Improved execution could create value by deploying recent capital raise

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Macroeconomics:	Positive
Secular Growth:	Positive
Self-help:	Positive

View descriptions of Risk Rewards Themes, [here](#)

#### BULL CASE

R\$33.00

Implies ~5.0x NTM revenue of BRL3.7bn by mid-2021e

**Faster TECHFIN/Performance ramp-up (26% 2020-22 revenue CAGR).** TOTVS is able to mature its TECHFIN and Business performance initiatives faster than we have anticipated, and create more value from M&A, resulting in a higher multiple re-rating.

#### BASE CASE

R\$28.00

Implies ~4.5x NTM revenue of BRL3.5bn by mid-2021e

**From recovery to outperformance (23% 2020-22 revenue CAGR).** TOTVS is able to gradually ramp up its TECHFIN and Performance divisions with a corresponding increase in profitability.

#### BEAR CASE

R\$17.00

Implies ~3.0x NTM revenue of BRL3.2bn by mid-2021e

**Limited execution (16% 2020-22 revenue CAGR).** Benefits from new ventures are below expectations and higher sovereign risks contribute to a stock de-rating.

## Risk Reward – Totvs S.A. (TOTS3.SA)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Recurring as % of Software Revenue (%)	75.8	78.5	78.7	79.2
Recurring Revenue Growth (YoY) (%)	11.8	7.5	13.2	14.0

### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
05 Aug 2020	Q2 2020 Totvs SA Earnings Release	
06 Aug 2020	Q2 2020 Totvs SA Earnings Call	
11 Nov 2020	Q3 2020 Totvs SA Earnings Release	
12 Nov 2020	Q3 2020 Totvs SA Earnings Call	

### INVESTMENT DRIVERS

- Partnerships to develop TECHFIN initiatives
- Software revenue trends
- M&A transactions
- SME's may experience cash-flow disruptions related to COVID-19

### GLOBAL REVENUE EXPOSURE



100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### MS ALPHA MODELS

2/5  
MOST 3 Month  
Horizon

Source: Thomson Reuters, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Faster than expected acceleration of IT spend in Brazil
- Integration of acquired companies and cross selling trends are stronger than anticipated

#### RISKS TO DOWNSIDE

- Execution of TECHFIN, performance and M&A initiatives could fall behind our expectations.
- Brazilian GDP growth may trail our forecasts and sovereign risk premium may increase.
- Competition on the software market and limited progress on efficiency gains.

### OWNERSHIP POSITIONING

Inst. Owners, % Active 89%

Source: Thomson Reuters, Morgan Stanley Research

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e

**Sales / Revenue** (R\$, mm) 2,243 2,522 2,642  
2,473

**EBITDA** (R\$, mm) 449 534 571  
516

**Net income** (R\$, mm) 259 296 326

**EPS** (R\$) 0.45 0.55 0.78

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

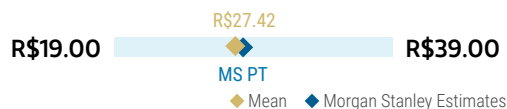
## Risk Reward – Linx S.A. (LINX3.SA)

Waiting for a Brazilian re-opening post COVID

### PRICE TARGET R\$28.00

Derived from a DCF multiple with a 10.8% WACC in BRL and a terminal growth rate of 5.7%, also in BRL (4.0% inflation in Brazil).

#### Consensus Price Target Distribution



Source: Thomson Reuters, Morgan Stanley Research

### RISK REWARD CHART



Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### OVERWEIGHT THESIS

- We think the re-opening of the Brazilian economy (including traditional retail stores) could be a catalyst to support the stock (cheapest SaaS in Brazil)
- In ERP, the stock has a solid product with a 99% renewal rate that could offer some resiliency amid a deep cyclical contraction
- Digital: Changing consumer behavior post-COVID creates pent-up demand for the product that enables better omni-channel/e-commerce experience
- Pay: expectations have sharply moderated towards a lower scale operation.
- Recent acquisitions could add to overall top line growth

#### Consensus Rating Distribution



● MS Rating

Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Macroeconomics: Positive

Secular Growth: Positive

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

R\$35.00

Implies ~4.5x NTM revenue of BRL1.5bn by mid-2021e

**Faster Core and Digital ramp-up (30% 2020-22 revenue CAGR).** Secular trends of faster digital adoption in retail exceed our expectations.

### BASE CASE

R\$28.00

Implies ~3.9x NTM revenue of BRL1.3bn by mid-2021e

**Benefits from gradual Brazilian re-opening.** ERP is resilient but not immune to COVID lockdowns. We think a gradual recovery of retail activity could stabilize organic trends at Linx and support stock re-rating. We also highlight sharply lower expectations for Pay Division and an interesting opportunity on the digital side.

### BEAR CASE

R\$17.00

Implies ~2.8x NTM revenue of BRL1.1bn by mid-2021e

**Limited execution (15% 2020-22 revenue CAGR).** Benefits from new ventures are below expectations and higher sovereign risks limit stock re-rating.



## Risk Reward – Linx S.A. (LINX3.SA)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Recurring Revenue Growth (YoY) (%)	19.1	18.8	30.5	19.0
Recurring Revenue as % of Gross (%)	84.3	85.7	85.5	86.2
Pay as % of Recurring (%)	12.7	16.4	15.2	14.2
Digital as % of Recurring (%)	13.0	12.9	18.6	18.5

### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
10 Aug 2020	Q2 2020 Linx SA Earnings Release	
11 Aug 2020	Q2 2020 Linx SA Earnings Call	
09 Nov 2020	Q3 2020 Linx SA Earnings Release	
10 Nov 2020	Q3 2020 Linx SA Earnings Call	

### INVESTMENT DRIVERS

- Adoption of digital solutions and bigger ERP spend.
- Software revenue trends and M&A.

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Increased adoption of Digital solutions and stronger rebound in Brazilian retail.
- Faster than expected acceleration of IT spend in Brazil

#### RISKS TO DOWNSIDE

- Execution of Digital and M&A initiatives could disappoint.
- Store closings, Brazilian GDP growth may weaken beyond our forecasts and sovereign risk premium may increase.
- Competition on the software, logistical hurdles for E-Commerce.

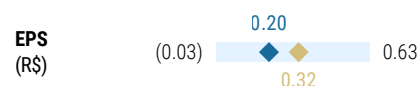
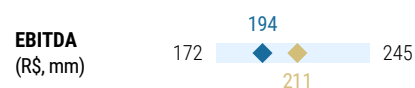
### OWNERSHIP POSITIONING

Inst. Owners, % Active 96.4%

Source: Thomson Reuters, Morgan Stanley Research

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

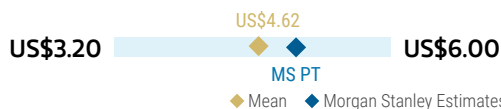
## Risk Reward – Linx S.A. (LINX.N)

Waiting for a Brazilian re-opening post Covid

### PRICE TARGET US\$5.00

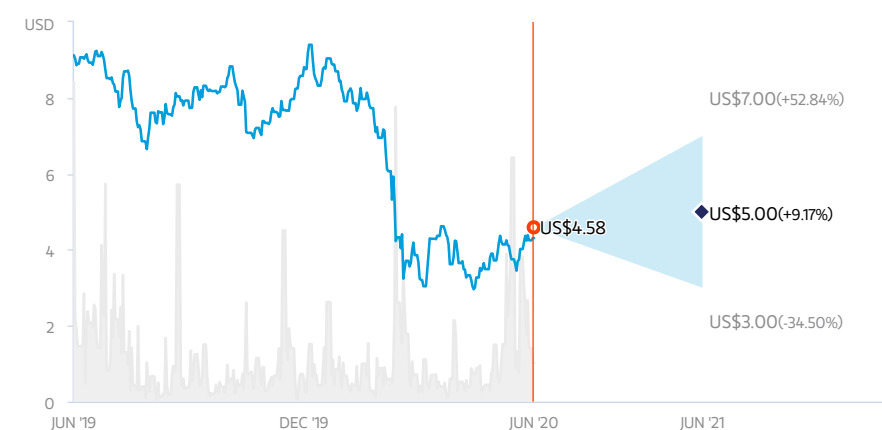
Derived from a DCF multiple with a 10.8% WACC in BRL and a terminal growth rate of 5.7%, also in BRL (4.0% inflation in Brazil).

#### Consensus Price Target Distribution



Source: Thomson Reuters, Morgan Stanley Research

### RISK REWARD CHART



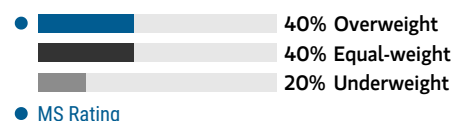
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### OVERWEIGHT THESIS

- We think the re-opening of the Brazilian economy (including traditional retail stores) could be a catalyst to support the stock (cheapest SaaS in Brazil)
- In ERP, the stock has a solid product with a 99% renewal rate that could offer some resiliency amid a deep cyclical contraction
- Digital: Changing consumer behavior post-COVID creates pent-up demand for the product that enables better omni-channel/e-commerce experience
- Pay: expectations have sharply moderated towards a lower scale operation
- Recent acquisitions could add to overall top line growth

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Macroeconomics: Positive

Secular Growth: Positive

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

US\$7.00

Implies ~4.5x NTM revenue of BRL1.5bn by mid-2021e

**Faster Core and Digital ramp-up (30% 2020-22 revenue CAGR).** Secular trends of faster digital adoption in retail exceed our expectations.

### BASE CASE

US\$5.00

Implies ~3.9x NTM revenue of BRL1.3bn by mid-2021e

**Benefits from gradual Brazilian re-opening.** ERP is resilient but not immune to COVID lockdowns. We think a gradual recovery of retail activity could stabilize organic trends at Linx and support stock re-rating. We also highlight sharply lower expectations for Pay Division and an interesting opportunity on the digital side.

### BEAR CASE

US\$3.00

Implies ~2.8x NTM revenue of BRL1.1bn by mid-2021e

**Limited execution (15% 2020-22 revenue CAGR).** Benefits from new ventures are below expectations and higher sovereign risks limit stock re-rating.

## Risk Reward – Linx S.A. (LINX.N)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Recurring Revenue Growth (YoY) (%)	19.1	18.8	30.5	19.0
Recurring Revenue as % of Gross (%)	84.3	85.7	85.5	86.2
Pay as % of Recurring (%)	12.7	16.4	15.2	14.2
Digital as % of Recurring (%)	13.0	12.9	18.6	18.5

### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
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11 Aug 2020	Q2 2020 Linx SA Earnings Call	
09 Nov 2020	Q3 2020 Linx SA Earnings Release	
10 Nov 2020	Q3 2020 Linx SA Earnings Call	

### INVESTMENT DRIVERS

- Adoption of Digital solutions and bigger ERP spend
- Software revenue trends and M&A.

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Increased adoption of Digital solutions and stronger rebound in Brazilian retail.
- Faster than expected acceleration of IT spend in Brazil

#### RISKS TO DOWNSIDE

- Execution of Digital and M&A initiatives could disappoint.
- Store closings, Brazilian GDP growth may weaken beyond our forecasts and sovereign risk premium may increase.
- Competition on the software, logistical hurdles for E-Commerce

### OWNERSHIP POSITIONING

Inst. Owners, % Active	90%	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	2.4x	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	32.3%	<div><div></div><div></div><div></div><div></div><div></div></div>

Thomson Reuters; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e

**Sales / Revenue**  
(R\$, mm)

◆ 926

Note: There are not sufficient brokers supplying consensus data for this metric

**EBITDA**  
(R\$, mm)

◆ 194

Note: There are not sufficient brokers supplying consensus data for this metric

**Net income**  
(R\$, mm)

◆ 37

Note: There are not sufficient brokers supplying consensus data for this metric

**EPS**  
(R\$)

◆ 0.20

Note: There are not sufficient brokers supplying consensus data for this metric

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

## Risk Reward – Locaweb Servicos de Internet SA (LWSA3.SA)

Attractive LT opportunity

### PRICE TARGET R\$32.00

Derived from a DCF multiple with a 10.3% WACC in BRL and a terminal growth rate of 5.2%, also in BRL.

### RISK REWARD CHART



Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### EQUAL-WEIGHT THESIS

LWSA benefits from 1) structural growth in Brazilian E-commerce, 2) improving revenue mix with high profitability, 3) increased software penetration in domestic SMB's and 4) a product and customer service advantage that supports pricing power and margins. For the near term, our Alphawise survey of +540 firms in Brazil suggests accelerating IT spending, especially among smaller firms. Medium and Long Term, we see interesting upside from cross-selling initiatives and attractive TAM. Nonetheless, the stock has benefited from a material re-rating over the past 3 months, a similar trend experienced by its foreign peers.

#### Risk Reward Themes

Alphawise - Primary Research:	Positive
Pricing Power:	Positive
Secular Growth:	Positive

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

**R\$53.00**

Implies ~8.3x NTM revenues of BRL785m by mid-2021e

Faster E-commerce adoption and narrower discount vs global E-commerce peers. LWSA benefits from a 35% 2020-22 revenue CAGR with our implied SoP model valuing Commerce division at 20x EV/Revenues (i.e. 55% discount vs. global peers)

### BASE CASE

**R\$32.00**

Implies ~5.4x NTM revenues of BRL714m by mid-2021e

Attractive LT opportunity. Due to its SMB focus, LWSA benefits from higher beta to the theme of secular increase in technology adoption in Brazil. The company also benefits from a product advantage that could support sustained and increasing profitability (via both improving revenue mix and operational leverage).

### BEAR CASE

**R\$19.00**

Implies ~3.5x NTM revenues of BRL643m by mid-2021e

Slower growth and lower multiples. Brazilian growth outlook and country risk deteriorate resulting in a wider discount vs. global peers.

## Risk Reward – Locaweb Servicos de Internet SA (LWSA3.SA)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
BeOnline & SaaS (as % of total) (%)	79.2	69.6	54.5	46.8
Commerce (as % of total) (%)	20.8	24.5	26.0	27.8
M&A (as % of total) (%)	0.0	5.9	19.5	25.3

### INVESTMENT DRIVERS

GDP growth in Brazil. Software adoption in SMBs, E-commerce growth in the country. M&A execution. Pricing power.

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

Lower discount vs. global peers. Faster GDP growth in Brazil. Better than expected margins or M&A accretion. Industry consolidation.

#### RISKS TO DOWNSIDE

Macro headwinds to Brazilian SME's. Higher country risk. Lower valuation for global tech. stocks. Competition from larger software firms and payment providers. Commercial and M&A execution. R&D failing to support product advantage.

### OWNERSHIP POSITIONING

Inst. Owners, % Active 99.2%

Source: Thomson Reuters, Morgan Stanley Research

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e

**Sales / Revenue** (R\$, mm) ◆ 476  
Note: There are not sufficient brokers supplying consensus data for this metric

**EBITDA** (R\$, mm) ◆ 113  
Note: There are not sufficient brokers supplying consensus data for this metric

**Net income** (R\$, mm) ◆ 37  
Note: There are not sufficient brokers supplying consensus data for this metric

**EPS** (R\$) ◆ 0.30  
Note: There are not sufficient brokers supplying consensus data for this metric

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

## Risk Reward – Telefonica Brasil SA (VIV.N)

VIV is now a growth story

### PRICE TARGET US\$13.50

Derived from base case scenario, which is based on a DCF analysis that includes a WACC of ~12.6% in nominal BRL terms and a nominal BRL perpetual growth rate of 4.5%.

#### Consensus Price Target Distribution

US\$10.00 US\$13.13 US\$17.00

US\$13.13

MS PT

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

### RISK REWARD CHART



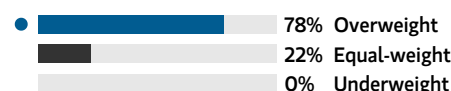
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### OVERWEIGHT THESIS

- VIV commercial positioning could benefit from pent-up demand for premium connectivity in a post-COVID environment (e.g. on-line education and remote working).
- Additional benefits to the stock include: 1) telco reform implementation and network sharing agreements to drive operational efficiencies and 2) potential industry consolidation.
- Solid balance sheet to support ~8% dividend yield

#### Consensus Rating Distribution



● MS Rating

Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Macroeconomics: *Positive*  
Regulation: *Positive*

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

US\$16.00

~6.5x Bull Case NTM EBITDA of BRL21b by Mid-2021e

**Higher monetization of positive industry backdrop.** Industry consolidation, coupled with stronger benefits from network sharing and telco reform, result in a 7% revenue CAGR for 2020-23

### BASE CASE

US\$13.50

~6.1x Base Case NTM EBITDA of BRL20b by Mid-2021e

**Growth acceleration.** Revenue growth benefits from telco reform approval and increased adoption of network sharing agreement support faster broadband adoption and boost revenue CAGR to 5% for 2020-2023

### BEAR CASE

US\$8.00

~4.0x Bear Case NTM EBITDA of BRL19b by Mid-2021e

**Growth disappointment and fiscal headwinds.** Renewed competition, weaker macro, and logistical hurdles for network deployment force stagnant growth. Higher tax burden.

## Risk Reward – Telefonica Brasil SA (VIV.N)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Mobile Service Revenue Growth (YoY) (%)	2.1	(0.4)	4.6	4.6
ARPU (BRL/m)	29.3	28.7	29.5	30.0
Post Paid Net Adds ('000) ('000s)	2,768	1,901	2,400	2,400
Fixed Service Revenue Growth (YoY) (%)	(3.2)	(5.8)	2.4	5.8

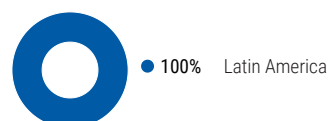
### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
H2 2020	Brazil 5G Spectrum Auction	
22 Jul 2020 - 27 Jul 2020	Q2 2020 Telefonica Brasil SA Earnings Release	
Q4 2020	Anatel defines investment commitments required to switch from concession to authorization	
02 Nov 2020 - 06 Nov 2020	Q3 2020 Telefonica Brasil SA Earnings Release	

### INVESTMENT DRIVERS

- Telco reform implementation
- Network sharing agreements
- Industry consolidation in Brazil

### GLOBAL REVENUE EXPOSURE



Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Synergies from network sharing agreements (e.g. TSU + VIV)
- Mobile Consolidation
- Monetization of new revenue initiatives (e.g., franchisees and partnership with AMT, covered by Simon Flannery)
- Better monetization of its premium brand

#### RISKS TO DOWNSIDE

- Elimination of the IoC fiscal benefit
- Competition in the Brazilian telecom market
- Delays in telco reform implementation
- Reduced appetite for EM and Brazilian equities

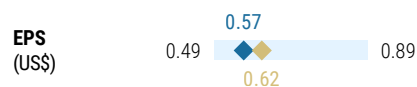
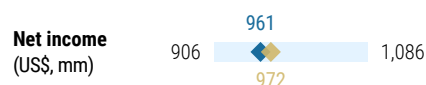
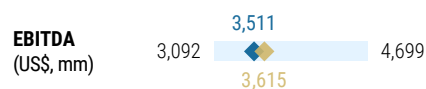
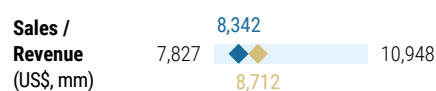
### OWNERSHIP POSITIONING

Inst. Owners, % Active	86.9%	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	2.5x	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	14.3%	<div><div></div><div></div><div></div><div></div><div></div></div>

Thomson Reuters; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

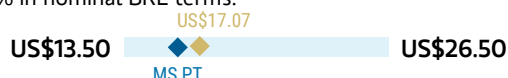
## Risk Reward – TIM Participacoes (TSU.N)

We remain EW as we see greater upside elsewhere in our universe

### PRICE TARGET US\$16.00

Derived from base case scenario, which is based on a DCF analysis that includes a WACC of 12.9% and a perpetual growth rate of 4.0% in nominal BRL terms.

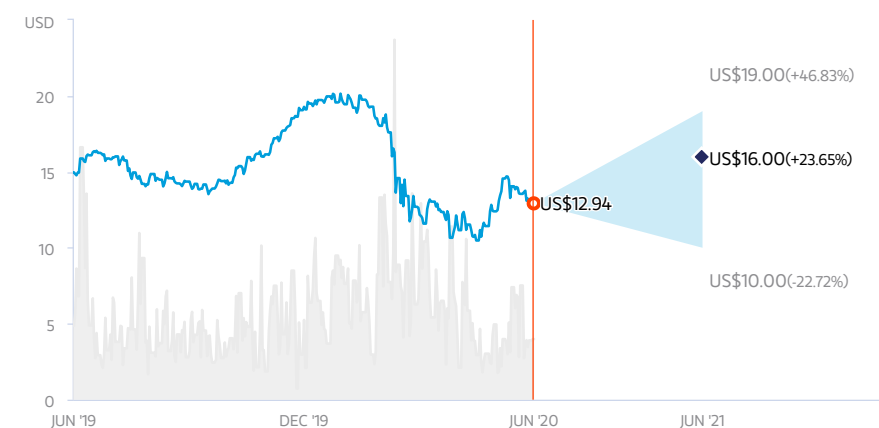
#### Consensus Price Target Distribution



Source: Thomson Reuters, Morgan Stanley Research

◆ Mean ◆ Morgan Stanley Estimates

### RISK REWARD CHART



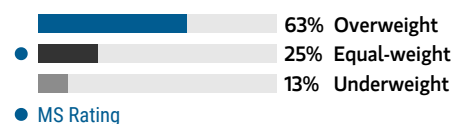
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### EQUAL-WEIGHT THESIS

- We see bigger upside elsewhere in our Telco coverage
- TSU's is moving towards higher value clients (post-paid and broadband) that should support better margins and lower volatility.
- We see very solid execution on the UBB side, a market that should benefit from a secular trends of increase technology adoption on Brazilian households.
- Potential mobile industry consolidation and adequate implementation of network sharing agreements could support operational efficiencies.

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Macroeconomics: *Positive*

Self-help: *Positive*

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

US\$19.00

~5.8x Bull Case NTM EBITDA of BRL9.2b by Mid-2021e

**Consolidation benefits exceed expectations.** The company benefits from increased industry consolidation delivering synergies on its top-notch network.

### BASE CASE

US\$16.00

~5.2x Base Case NTM EBITDA of BRL9.1b by Mid-2021e

**Up-selling continues to pay off.** TSU continues executing its strategy of focusing on high value-added clients (post-paid and TIM Live). Telco reform gradually reduces spectrum costs and efficiency gains support margins.

### BEAR CASE

US\$10.00

~4.0x Bear Case NTM EBITDA of BRL8.7b by Mid-2021e

**Growth disappoints.** Macro headwinds and increased telco competition are important hurdles for revenue acceleration.



## Risk Reward – TIM Participacoes (TSU.N)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Mobile Service Revenue Growth (YoY) (%)	1.9	(2.9)	7.7	3.7
ARPU (BRL/m)	23.6	23.7	25.7	26.2
Post Paid Net Adds ('000) (000s)	1,235	659	880	1,000
Fixed Service Revenue Growth (YoY) (%)	11.3	8.1	18.9	28.2

### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
H2 2020	Brazil 5G Spectrum Auction	
29 Jul 2020	Q2 2020 TIM Participacoes SA Earnings Release	
03 Nov 2020	Q3 2020 TIM Participacoes SA Earnings Release	

### INVESTMENT DRIVERS

- Network sharing agreements
- Potential industry consolidation in Brazil

### GLOBAL REVENUE EXPOSURE



100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Strategic and operational execution from TSU and its parent.
- Execution of strategy to focus on higher value-added clients and stabilize bad debt.
- Synergies from network sharing agreements (e.g., VIV).

#### RISKS TO DOWNSIDE

- Execution of strategic plan below expectations and increased competition in Brazil.
- Brazilian macro trends.
- Reduced appetite for EM and Brazilian equities.

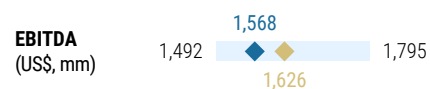
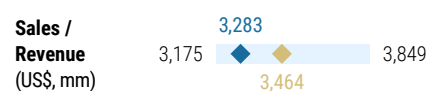
### OWNERSHIP POSITIONING

Inst. Owners, % Active	82.3%	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	2.5x	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	14.3%	<div><div></div><div></div><div></div><div></div><div></div></div>

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### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

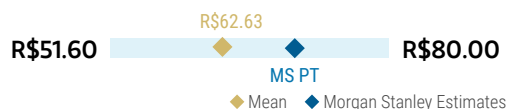
## Risk Reward – Magazine Luiza S.A. (MGLU3.SA)

Omni-Channel Leader, Pivoting to Tech

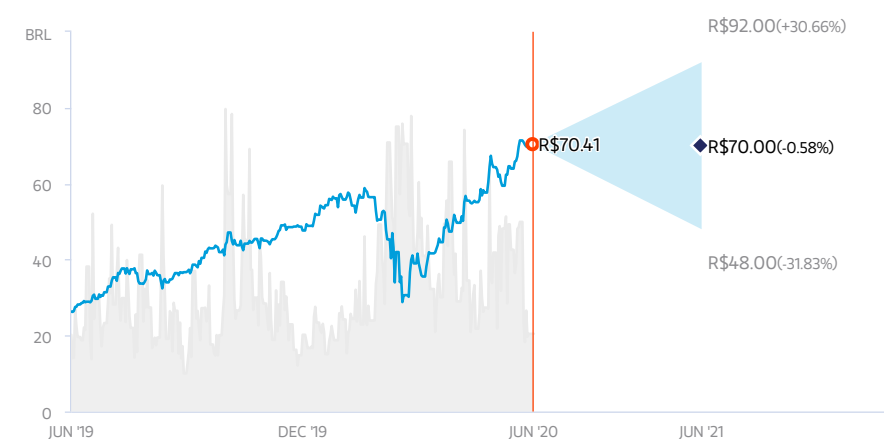
### PRICE TARGET R\$70.00

Our price target is derived from a BRL-denominated DCF that assumes an 11.6% cost of capital, 7.5% terminal growth rate, and 15.1% terminal adj. EBIT margin. PT implies 3.7x 2021e EV/Revenue.

#### Consensus Price Target Distribution



### RISK REWARD CHART

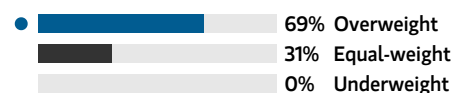


### OVERWEIGHT THESIS

■ Magazine Luiza is a retail company pivoting to become a tech company, through (1) demonstrating omni-channel leadership, (2) developing a robust 3P marketplace, and (3) becoming a seller of software services complementary to the marketplace.

■ Magalu has managed well through the 2020 store closure period, with accelerating eCommerce growth. Magalu's ~50% of 2019 GMV online provides insulation and a meaningful upside driver versus other discretionary goods retailers.

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Disruption: Positive  
Secular Growth: Positive

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

R\$92.00

#### Digitalizing Brazil

MGLU's pivot to tech comes faster than expected. Bull Case implies a 22% stores' revenue CAGR between 2019-2022e, with 12% average SSS growth and an 8% area CAGR. Online GMV grows at a 53% CAGR over the period, reaching 61% of the total. Net revenue grows at a 29% CAGR, while EBITDA margin (ex-IFRS16) expands +70bps, reaching 7.2% in 2022e. Bull Case implies 4.2x EV / 2021e Bull Case Revenue.

### BASE CASE

R\$70.00

#### Pivoting to Tech

MGLU grows above the eCommerce market and increasingly pivots towards becoming a seller of technology. Base Case implies a 12% stores' revenue CAGR between 2019-2022e, with 4% average SSS growth and 8% area CAGR. Online GMV grows at a 43% CAGR over the period, reaching 63% of the total. Net revenue grows at a 21% CAGR, while EBITDA margin (ex-IFRS16) contracts -80bps, reaching 5.7% in 2022e.

### BEAR CASE

R\$48.00

#### Remaining a Retailer

MGLU's tech transition falters, and macro headwinds / store closures persist. Bear Case implies a 3% store revenue CAGR between 2019-2022e, with -3% average SSS growth and a 6% area CAGR. Online GMV grows at a 32% CAGR over the period, reaching 63% of the total. Net revenue grows at a 13% CAGR, while EBITDA margin (ex-IFRS16) contracts -300bps, reaching 3.5% in 2022e. Bear Case implies 3.0x EV / 2021e Bear Case Revenue.

## Risk Reward – Magazine Luiza S.A. (MGLU3.SA)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Stores' SSS Growth (% Y/Y) (%)	7.8	(20.4)	25.0	7.5
EOp Selling Area Growth (% Y/Y) (%)	13.2	4.8	11.2	6.8
Online GMV Growth (% Y/Y) (%)	73.0	80.8	25.4	27.3
Online % of GMV (%) (%)	44.6	62.3	60.3	62.6
EBITDA Margin (% of Revenue) (%)	8.3	3.9	5.8	7.5

### INVESTMENT DRIVERS

- Secular growth in LatAm eCommerce
- Shifting from a developer to a seller of technology
- Online/offline retail integration

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### MS ALPHA MODELS

**4/5**  
MOST  
3 Month  
Horizon

Source: Thomson Reuters, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- MGLU expands into new business lines and adjacent tech-focused TAMs
- Competition in eCommerce and physical retail eases
- Accelerated expansion into new product categories
- Store closures end

#### RISKS TO DOWNSIDE

- Incremental stores' expansion proves to be dilutive
- Software uptake by analog retailers remains slow
- Competitors (including Amazon) meaningfully ramp their focus on LatAm eCommerce
- Store closures persist

### OWNERSHIP POSITIONING

Inst. Owners, % Active 81%

Source: Thomson Reuters, Morgan Stanley Research

### MS ESTIMATES VS. CONSENSUS

FY Dec 2021e

**Sales / Revenue** (R\$, mm) 26,800 **29,781** 32,938  
29,575

**EBITDA** (R\$, mm) 1,387 **1,740** 2,500  
1,976

**EPS** (R\$) 0.17 **0.17** 0.70  
0.54

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

## Risk Reward – StoneCo Ltd. (STNE.O)

Overweight on valuation and secular tailwinds

### PRICE TARGET US\$44.00

Our valuation work is based on Discounted Free Cash Flow (free cash flow defined as EBIT less cash taxes on EBIT, depreciation, capex, and changes in working capital) and Economic Profit model. Our valuation work assumes a WACC of 8.1%. Our year-end 2020 price target of US\$44 implies the shares would be trading at 51x '21e P/E.

#### Consensus Price Target Distribution

US\$25.73

US\$35.96

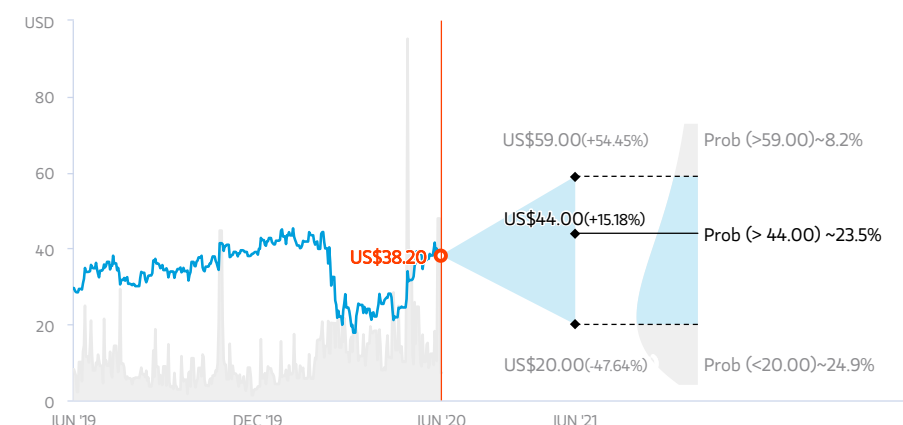
US\$44.53

MS PT

Source: Thomson Reuters, Morgan Stanley Research

◆ Mean ◆ Morgan Stanley Estimates

### RISK REWARD CHART AND OPTIONS IMPLIED PROBABILITIES (12M)



Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research, Morgan Stanley Institutional Equities Division. The probabilities of our Bull, Base, and Bear case scenarios playing out were estimated with implied volatility data from the options market as of 29 Jun, 2020. All figures are approximate risk-neutral probabilities of the stock reaching beyond the scenario price in either three-months' or one-years' time. View explanation of Options Probabilities methodology, [here](#)

### OVERWEIGHT THESIS

We expect STNE to be negatively impacted by a decline in total industry volumes and a rise in merchant mortality over the next 12-18 months on the back of Covid-19 disruptions to PCE. However, we believe two powerful global secular trends -- the ongoing shift to plastic from cash and the rise in e-commerce -- should provide some offset. In addition, we expect STNE to continue taking share from incumbents, allowing for above-industry growth. Moreover, the company's unique distribution model, proprietary platform, and superior quality products and services continue to represent key competitive advantages. We see plenty of value in the stock: STNE is trading at 74x 2020 P/E and 48x 2021 P/E.

#### Consensus Rating Distribution

● 50% Overweight  
● 44% Equal-weight  
● 6% Underweight

● MS Rating

Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Disruption: Positive  
Secular Growth: Positive  
Share Gain: Positive

View descriptions of Risk Rewards Themes, [here](#)

#### BULL CASE

US\$59.00

##### Faster Recovery, Sizable Share Gain

Economic recovery surprises to the upside and personal consumption expenditure and card usage stabilize faster than expected. Incumbents are highly unsuccessful in competing with Stone and industry pricing becomes more rational. The company is able to resume hub expansion rapidly and picks up meaningful market share. We expect 3-Yr EPS CAGR of 80% and ROE reaching 28% by 2022.

#### BASE CASE

US\$44.00

##### Cyclical Downturn, Secular Tailwinds

Total industry volumes decelerate on the back of lower personal consumption expenditure. Shift to plastic from cash and rise of e-commerce provide some offset. STNE navigates competitive environment effectively and gains market share, allowing for above industry growth. Merchant mortality picks up and hub expansion strategy is put on hold. As a result, net adds decelerate in 2020, but stabilize in 2021. We expect 3-Yr EPS CAGR of 32% and ROE reaching 20% by 2022.

#### BEAR CASE

US\$20.00

##### Economic Slump Persists, Competition Intensifies

Tough macro conditions last longer than expected. Unemployment, consumption, and overall macro activity double dip. Incumbents and new entrants adopt more aggressive pricing, eroding profitability. Stone isn't able to grow its client base, expand its market share, nor deploy new products as rapidly as expected. We expect 3-Yr EPS CAGR of 27% and ROE reaching 17% by 2022.

## Risk Reward – StoneCo Ltd. (STNE.O)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Total Payment Volume Growth (YoY) (%)	54.7	29.3	37.2	32.5
Combined Take Rate (%)	1.9	1.8	1.8	1.8
Active Merchants Annual Net Adds (MM Units) (mm)	0.2	0.2	0.3	0.2
Total Revenue Growth (YoY) (%)	56.2	24.7	35.4	32.1
Operating Expenses Growth (YoY) (%)	35.4	34.3	19.4	22.4

### INVESTMENT DRIVERS

- Merchant base expansion
- Volume growth
- Take rate
- M&A
- Regulation

### GLOBAL REVENUE EXPOSURE



100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Stronger than expected TPV growth
- Successful implementation of distribution strategy
- Acceleration in active merchants
- Banking and lending initiatives add significant value
- New products/software added to the ecosystem
- Micromerchant solution grows faster than expected

#### RISKS TO DOWNSIDE

- Recession/unemployment impact PCE
- Regulatory decisions impact earnings and value
- Aggressive price competition from incumbents

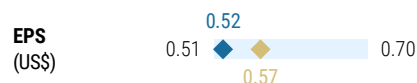
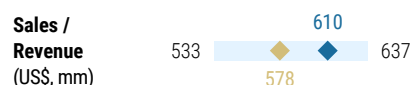
### OWNERSHIP POSITIONING

Inst. Owners, % Active	97.3%	<div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	2.4x	<div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	32.3%	<div><div></div><div></div><div></div><div></div></div>

Thomson Reuters; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

## Risk Reward – PagSeguro Digital (PAGS.N)

Overweight on valuation and relative defensiveness

### PRICE TARGET US\$48.00

Our valuation work is based on Discounted Free Cash Flow (free cash flow defined as EBIT less cash taxes on EBIT, depreciation, capex, and changes in working capital) and Economic Profit model. Our valuation work assumes a WACC of 8.4%. Our year-end 2020 price target of US\$48 implies the shares would be trading at 34x prospective P/E.

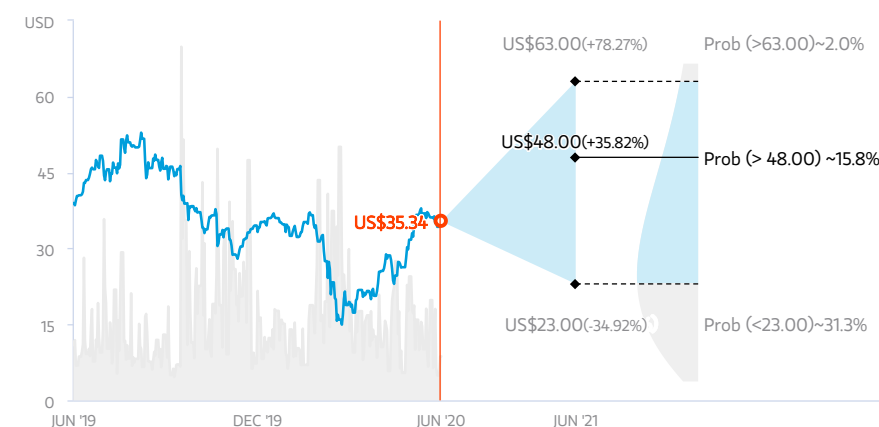
#### Consensus Price Target Distribution

US\$27.71 US\$37.39 US\$48.00

Source: Thomson Reuters, Morgan Stanley Research

Mean Morgan Stanley Estimates

### RISK REWARD CHART AND OPTIONS IMPLIED PROBABILITIES (12M)



Source: Thomson Reuters, Morgan Stanley Research, Morgan Stanley Institutional Equities Division. The probabilities of our Bull, Base, and Bear case scenarios playing out were estimated with implied volatility data from the options market as of 30 Jun, 2020. All figures are approximate risk-neutral probabilities of the stock reaching beyond the scenario price in either three-months' or one-years' time. View explanation of Options Probabilities methodology, [here](#)

### OVERWEIGHT THESIS

The powerful global secular trend of substituting cash for plastic should help offset weaker industry volumes over the next 12-24 months. We believe PAGS will benefit from a more defensive business model relative to other payments players, as focus on micro merchants provides relative resiliency, an opportunity to gain outsized share of wallet and high margins. We expect PAGS to continue to take share from the incumbents going forward, which should allow for faster than industry growth. Also, the PagBank initiative can add value over the medium term. Earnings growth and valuation look attractive: We see 3-year EPS CAGR of 33%. PAGS is trading at 37x 2020 P/E and 27x 2021 P/E.

#### Consensus Rating Distribution

78% Overweight  
17% Equal-weight  
6% Underweight

MS Rating

Source: Thomson Reuters, Morgan Stanley Research

#### Risk Reward Themes

Disruption: Positive  
Secular Growth: Positive  
Share Gain: Positive

View descriptions of Risk Rewards Themes, [here](#)

### BULL CASE

US\$63.00

#### Faster Macro Recovery, Meaningful Share Gain

Economic recovery surprises to the upside and personal consumption expenditure and card usage stabilize faster than expected. PAGS picks up meaningful market share, operational leverage expands and the merchant base continues to grow rapidly. Industry pricing becomes more rational. For PAGS, we expect a 3-year CAGR of 38% for payment volume, 30% for revenues, 34% for prepayment, and 33% for EPS.

### BASE CASE

US\$48.00

#### Cyclical Pause, Secular Offset

PCE declines sharply over the next 12-18 months on the back of Covid-19 disruptions. Total industry volumes decelerate as a result, up 1% in 2020 and 10% in 2021, vs 18% in 2019. Shift to plastic from cash and relative defensiveness of PAGS' business model provide some offset. PAGS navigates competition effectively and gains market share, allowing for faster than industry growth. We expect a 3-year CAGR of 27% for TPV, 24% for net revenues, 27% for prepayment, and 33% for EPS.

### BEAR CASE

US\$23.00

#### Extended Economic Slump, Competition Intensifies

Tough macro conditions last longer than expected. Unemployment, consumption, and overall macro activity double dip. Incumbents and new entrants adopt more aggressive pricing, eroding profitability. For PAGS, we expect 3-yr CAGR of 22% for payment volume, 18% for net revenues, 20% for prepayment, and 18% for EPS.

## Risk Reward – PagSeguro Digital (PAGS.N)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Total Payment Volume Growth (YoY) (%)	50.8	22.1	35.0	27.1
Combined Take Rate (%)	4.8	4.8	4.7	4.6
Active Merchants Annual Net Adds (MM Units) (mm)	1.1	0.8	1.0	0.9
Total Revenue Growth (YoY) (%)	36.9	20.4	32.9	25.3
Operating Expenses Growth (YoY) (%)	14.7	28.8	22.6	10.8

### INVESTMENT DRIVERS

- Merchant base expansion
- Volume growth
- Take rate
- M&A
- Regulation

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- Stronger than expected TPV growth
- Acceleration in active merchants
- Banking and lending initiatives add significant value
- New products/software added to the ecosystem

#### RISKS TO DOWNSIDE

- Recession/unemployment impact PCE
- Tougher pricing competition
- Regulatory decisions impact earnings and value
- Potential conflicts of interest between the controlling and minority holders

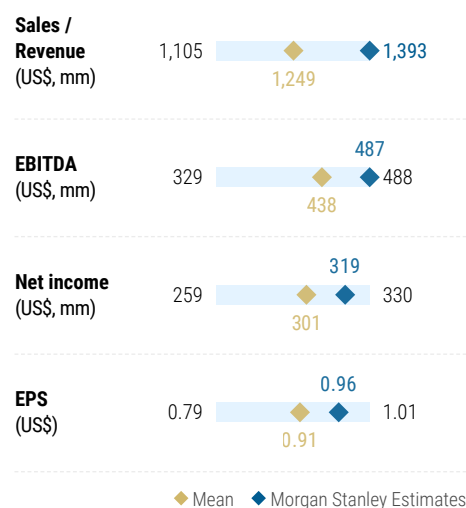
### OWNERSHIP POSITIONING

Inst. Owners, % Active	95.7%	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	2.4x	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	32.3%	<div><div></div><div></div><div></div><div></div><div></div></div>

Thomson Reuters; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



Source: Thomson Reuters, Morgan Stanley Research

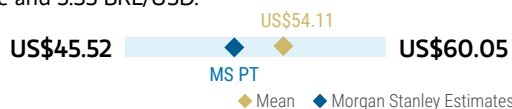
## Risk Reward – Arco Platform Ltd (ARCE.O)

### Arco Risk Reward

#### PRICE TARGET US\$51.40

Our R\$51.40 PT is derived from DCF analysis in our base case scenario, assuming a 9.5% WACC (9.8% Ke), 6% terminal growth rate and 5.33 BRL/USD.

#### Consensus Price Target Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### RISK REWARD CHART



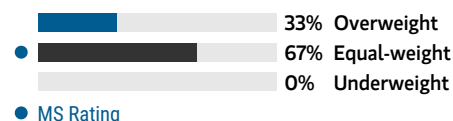
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

#### EQUAL-WEIGHT THESIS

- **Competitive advantages:** Focus, technological DNA, track record of academic results and selective commercial strategy from its origin is reflected in strong pricing power and product reputation.
- **High growth:** Arco is a market share story. It is accelerating the incorporation of new clients and has a consistent track record of upselling and cross selling to those clients.
- **High profitability:** We expect 37-38% margin level while in the growth phase, with potential room to reach >40% at maturity.
- **International School acquisition price uncertain.** The former owner filed a request for arbitrage and local news mentioned a potential value of BRL1bn (vs. BRL298m booked on the BS).

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

#### BULL CASE

US\$66.90

##### 49x 2021e Adj. EPS

Arco reaches 25% market share in 2025e (on adjusted addressable market): +35% revenue CAGR 2019-25e, adj. EBITDA margin at 44% in 2025e and 43% ROIC.

#### BASE CASE

US\$51.40

##### 41x 2021e Adj. EPS

Arco reaches 22% share in 2025e (on adjusted addressable market): +31% revenue CAGR 2019-25e, adj. EBITDA margin at 42% in 2025e and 36% ROIC.

#### BEAR CASE

US\$26.70

##### 25x 2021e Adj. EPS

Arco reaches 17% share in 2025e (on adjusted addressable market): +23% revenue CAGR for 2019-25e, adj. EBITDA margin at 37% in 2025e and 21% ROIC.



## Risk Reward – Arco Platform Ltd (ARCE.O)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
ACV Bookings Growth (% YoY) (%)	36.8	129.3	33.0	24.3
Students growth (% YoY) (%)	22.8	173.2	25.7	16.1
Avg. Net ticket growth (% YoY) (%)	11.4	(16.1)	5.8	7.1
Revenues Growth (% YoY) (%)	50.4	90.8	30.4	23.4
Adj. EBITDA margin (%) (%)	36.5	37.1	37.7	38.3

### INVESTMENT DRIVERS

- **Annual Contract Value (ACV) booking growth:** quarterly results are seasonal and volatile, what matters we think is ACV bookings guidance.
- **Guidance:** ACV booking prices, volume and margins.
- **M&A announcements:** still room to do "transformational" deals.

### GLOBAL REVENUE EXPOSURE



● 100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- **Learning system penetration increase.**
- **Private K12 education increasing penetration over public.**
- **Fx:** Arco business and financials are in BRL, but ARCE trades in USD.

#### RISKS TO DOWNSIDE

- **Competition increasing.**
- **M&A adds risks to margins:** temporary impact.
- **Brazil macro/political risk:** including changes in regulation and Fx (Arco business and financials are in BRL, but ARCE trades in USD).

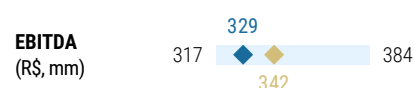
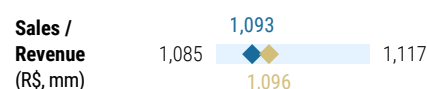
### OWNERSHIP POSITIONING

Inst. Owners, % Active	99.1%	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Long/Short Ratio	1.9x	<div><div></div><div></div><div></div><div></div><div></div></div>
HF Sector Net Exposure	14.3%	<div><div></div><div></div><div></div><div></div><div></div></div>

Thomson Reuters; MSPB Content. Includes certain hedge fund exposures held with MSPB. Information may be inconsistent with or may not reflect broader market trends. Long/Short Ratio = Long Exposure / Short exposure. Sector % of Total Net Exposure = (For a particular sector: Long Exposure - Short Exposure) / (Across all sectors: Long Exposure - Short Exposure).

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e



◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

## Risk Reward – YDUQS PART (YDUQ3.SA)

Attractive risk-reward

### PRICE TARGET R\$41.00

Derived from our base case scenario, which is based on a discounted free cash flow to firm, assuming an average WACC of 11.0% (nominal, in R\$) and a terminal growth rate of 4.5%.

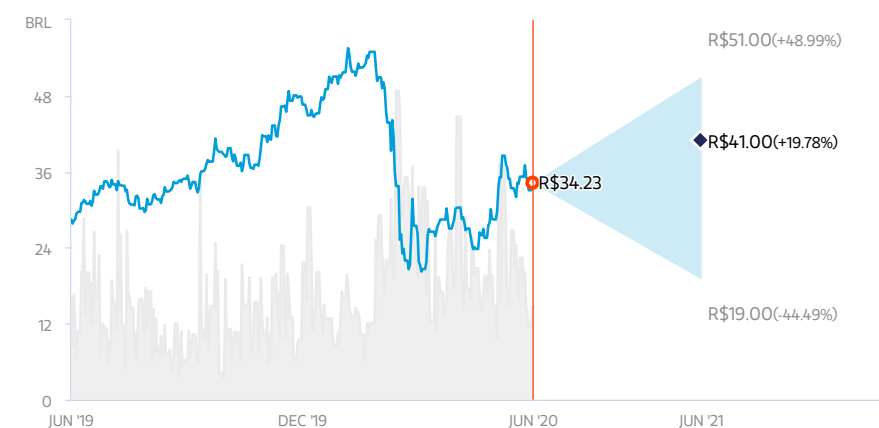
#### Consensus Price Target Distribution

R\$20.70 R\$41.58 R\$53.00

Source: Thomson Reuters, Morgan Stanley Research

MS PT  
◆ Mean ◆ Morgan Stanley Estimates

### RISK REWARD CHART



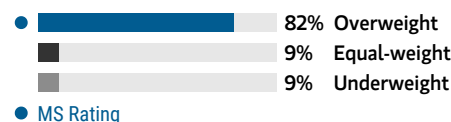
Key: — Historical Stock Performance ● Current Stock Price ◆ Price Target

Source: Thomson Reuters, Morgan Stanley Research

### OVERWEIGHT THESIS

- **Consolidation of Adtalem.** Likely to continue supporting strong growth and margin expansion in the mid-term.
- **Exposure to the medical market.** We think this is the "value" company to play the best post-secondary education segment.
- **Margin expansion potential in the mid-term** (i) teaching costs, with hybridity, DL and efficiency; (ii) dropout, probably where Yduqs has more low hanging fruit to capture; (iii) marketing expenses, normalizing; and (iv) better PDA control.
- **FIES pressuring on-campus:** exposition to RJ, one of the weakest markets during the crisis, could increase leverage to the cyclical recovery.
- **M&A upside:** 17 regions mapped, two of them already executed.

#### Consensus Rating Distribution



Source: Thomson Reuters, Morgan Stanley Research

### BULL CASE

R\$51.00

#### 21x Bull Case '21e EPS

**Long-term margins of ~41%.** Revenue growing at a 15% 2019-21e CAGR, driven by volumes at +19% (+13% on-campus, 26% in distance learning) and prices at -3% (mix). MS EBITDA margin keeps expanding to a longer term sustainable level of 41%.

### BASE CASE

R\$41.00

#### 23x Base Case '21e EPS

**Long-term margins of ~39%.** Revenue growing at a 9% 2019-21e CAGR, driven by volumes at 17% (+9% on-campus, 26% in distance learning) and prices at -6%. MS EBITDA margin expand to 37% on 2021, stabilizing long term at a sustainable level of 39%.

### BEAR CASE

R\$19.00

#### 17x Bear Case '21e EPS

**Long-term margins of ~36%.** Revenue growing at a 5% 2019-21e CAGR, driven by +14% volumes (+4% on-campus, +25% in distance learning) and prices at -8%. MS EBITDA margin increases to 33% on 2021, stabilizing at a sustainable level of 36%.

## Risk Reward – YDUQS PART (YDUQ3.SA)

### KEY EARNINGS INPUTS

Drivers	2019	2020e	2021e	2022e
Students growth (%) (%)	10.2	21.7	12.3	12.1
Intake growth (YoY %) (%)	21.9	19.1	18.5	8.5
Drop-out rate (%) (%)	23.4	28.4	23.0	21.5
Average Net Ticket Growth (YoY %) (%)	(6.5)	(6.9)	(5.0)	(0.8)
EBITDA margin (%) (%)	35.4	33.1	36.9	38.6

### CATALYST CALENDAR

Date	Event	Source: Thomson Reuters, Morgan Stanley
10 Aug 2020	Q2 2020 YDUQS Earnings Release	
11 Aug 2020	Q2 2020 YDUQS Earnings Call	
09 Nov 2020	Q3 2020 YDUQS Earnings Release	
10 Nov 2020	Q3 2020 YDUQS Earnings Call	

### INVESTMENT DRIVERS

- **Quarterly earnings:** focus on margins.
- **Distance Learning** the plan is to double capacity.
- **On-Campus** launches.
- **New M&A activity:** with all eyes on prices.

### GLOBAL REVENUE EXPOSURE



100% Latin America

Source: Morgan Stanley Research Estimate  
View explanation of regional hierarchies, [here](#)

### MS ALPHA MODELS

2/5  
MOST 3 Month  
Horizon

Source: Thomson Reuters, FactSet, Morgan Stanley Research; 1 is the highest favored Quintile and 5 is the least favored Quintile

### RISKS TO PT/RATING

#### RISKS TO UPSIDE

- **Long-term margins.**
- **Top-line evolution** (both intakes and prices).
- **M&A** depending on the price paid.

#### RISKS TO DOWNSIDE

- **EBITDA adjustments.**
- **Delinquency** (and its impacts on provisions and dropouts).
- **DIS receivables.**

### OWNERSHIP POSITIONING

Inst. Owners, % Active 94.5%

Source: Thomson Reuters, Morgan Stanley Research

### MS ESTIMATES VS. CONSENSUS

FY Dec 2020e

**Sales / Revenue** (R\$, mm) 3,397 **3,856** 4,346  
3,881

**EBITDA** (R\$, mm) 1,158 **1,278** 1,493  
1,281

**Net income** (R\$, mm) 297 **297** 908  
589

**EPS** (R\$) 0.96 **0.96** 3.02  
1.94

◆ Mean ◆ Morgan Stanley Estimates

Source: Thomson Reuters, Morgan Stanley Research

# Financial Summaries

## TOTVS Summary Base Case Metrics

### Exhibit 88:

#### TOTVS Summary Base Case Metrics

PL&CF (BRLm)	2019A	2020E	2021E	2022E	2019-22 CAGR
Net Revenue	2,282.1	2,522.5	3,200.0	3,803.2	18.6%
Software	2,282.1	2,366.2	2,674.4	3,027.6	9.9%
TECHFIN (Organic)	-	16.5	153.7	297.0	NM
M&A	-	139.8	371.9	478.6	NM
Gross Profit	1,538.3	1,712.2	2,163.4	2,550.3	18.4%
EBIT	325.5	356.0	600.5	819.1	36.0%
EBITDA	472.5	534.1	796.2	1,012.3	28.9%
Net Financial Expense	(1.2)	22.5	9.6	16.4	NM
Pre-Tax Income	324.0	378.4	610.2	835.5	37.1%
Tax Expense	(70.1)	(119.5)	(189.2)	(259.0)	54.6%
Net Income	253	259	421	577	31.6%
Diluted Shs Out. (m)	574.6	574.6	574.6	574.6	0.0%
EPS	0.4	0.5	0.7	1.0	31.6%
Op. Cash Flow	345.3	415.5	608.6	753.5	29.7%
Capex (Organic)	60.4	76.7	104.0	123.6	27.0%
OCF (EBITDA - CAPEX)	412.1	457.4	692.2	888.7	29.2%
NOPAT	255.0	243.6	414.4	565.2	30.4%
<b>Balance Sheet (BRLm)</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
Cash & Cash equivalents	1,538.2	1,193.6	1,153.7	1,408.9	
Other Assets	1,997.8	2,749.7	3,080.3	3,099.1	
Total Assets	3,535.9	3,943.3	4,234.0	4,508.0	
ST Debt	265.9	472.0	472.0	472.0	
Other Current Liabil.	439.7	466.6	546.8	619.1	
Current Liabil.	705.6	938.6	1,018.8	1,091.1	
LT Debt	200.9	226.8	226.8	226.8	
Other LT Liabilities	151.1	152.6	152.6	152.6	
Total Liabilities	1,057.5	1,318.0	1,398.2	1,470.5	
Shareholder Equity	2,478.4	2,625.2	2,835.7	3,037.5	
Minority Interest	1.2	-	-	-	
Majority Shareholders Interest	2,477.2	2,625.2	2,835.7	3,037.5	

Source: Company Data, Morgan Stanley Research estimates

Growth, Margins, Returns	2019A	2020E	2021E	2022E	Median
Net Revenue Y/Y	-1.6%	10.5%	26.9%	18.8%	14.7%
EBITDA Growth	81.8%	13.0%	49.1%	27.1%	38.1%
EBIT Growth	156.8%	9.4%	68.7%	36.4%	52.6%
Net Income Growth	325.0%	2.3%	62.6%	36.9%	49.8%
EPS Growth	265.5%	2.3%	62.6%	36.9%	49.8%
NOPAT Growth	187.8%	-4.5%	70.1%	36.4%	53.3%
Gross Profit Margin	67.4%	67.9%	67.6%	67.1%	67.5%
EBITDA Margin	20.7%	21.2%	24.9%	26.6%	23.0%
Pre-Tax Margin	14.2%	15.0%	19.1%	22.0%	17.0%
Tax Rate	-21.6%	-31.6%	-31.0%	-31.0%	-31.0%
Net Income Margin	11.1%	10.3%	13.2%	15.2%	12.1%
OCF Margin	18.1%	18.1%	21.6%	23.4%	19.9%
Return on Capital	10.8%	7.8%	12.1%	15.5%	11.4%
Return on Assets	8.5%	6.9%	10.3%	13.2%	9.4%
Return on Equity	13.4%	10.2%	15.4%	19.6%	14.4%
Capex/Sales	2.6%	3.0%	3.3%	3.3%	3.1%
<b>Operating Metrics</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
As a percentage of Revenues					
Software	100.0%	93.8%	83.6%	79.6%	
TECHFIN	0.0%	0.7%	4.8%	7.8%	
Hardware	0.0%	0.0%	0.0%	0.0%	
M&A	0.0%	5.5%	11.6%	12.6%	
Software Recurring Revenue	1,729.2	1,858.4	2,104.4	2,399.1	
As a percentage of Software Revenues	75.8%	78.5%	78.7%	79.2%	
<b>Leverage (BRLm)</b>	<b>2019E</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
Net Debt	(1,071.4)	(494.8)	(454.9)	(710.1)	
Gross Debt	466.7	698.8	698.8	698.8	
Net Debt/EBITDA	NM	NM	NM	NM	

## LINX Summary Base Case Metrics

### Exhibit 89:

#### LINX Summary Base Case Metrics

PL&CF (BRLm)	2019A	2020E	2021E	2022E	2019-22 CAGR
Net Revenue	788	926	1,211	1,428	21.9%
Gross Profit	576	669	878	1,036	21.6%
EBIT	81	53	147	182	31.0%
EBITDA	194	194	297	364	23.3%
Net Financial Expense	(17)	(1)	4	(17)	-0.3%
Pre-Tax Income	64	52	151	165	37.2%
Tax Expense	(25)	(15)	(35)	(38)	14.9%
Net income	39	37	116	127	48.5%
Diluted Shs Out. (m)	189	189	189	189	0.0%
EPS	0.21	0.20	0.61	0.67	48.5%
Op. Cash Flow	131.8	148.5	221.1	269.3	26.9%
Capex	195.8	301.4	414.1	362.6	22.8%
OCF (EBITDA - CAPEX)	(1.4)	(107.2)	(117.5)	1.6	NM
NOPAT	49	38	113	140	41.7%
<b>Balance Sheet (BRLm)</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
Cash & Cash equivalents	978	705	460	309	
Other Assets	1,586	1,854	2,186	2,428	
Total Assets	2,564	2,559	2,646	2,737	
ST Debt	132	165	165	165	
Other Current Liabil.	238	246	270	291	
Current Liabil.	370	411	435	456	
LT Debt	287	267	267	267	
Other LT Liabilities	117	110	110	110	
Total Liabilities	774	788	811	832	
Shareholder Equity	1,790	1,771	1,835	1,905	

Source: Company Data, Morgan Stanley Research estimates

Growth, Margins, Returns	2019A	2020E	2021E	2022E	Median
Net Revenue Y/Y	15.0%	17.4%	30.8%	18.0%	17.7%
EBITDA Growth	16.0%	0.0%	52.7%	22.8%	19.4%
EBIT Growth	-9.9%	-34.2%	175.5%	24.0%	7.1%
Net Income Growth	-45.3%	-3.7%	210.1%	9.6%	3.0%
EPS Growth	-52.0%	-3.7%	210.1%	9.6%	3.0%
NOPAT Growth	-29.0%	-22.4%	195.7%	24.0%	0.8%
Gross Profit Margin	73.0%	72.3%	72.5%	72.5%	72.5%
EBITDA Margin	24.7%	21.0%	24.5%	25.5%	24.6%
Pre-Tax Margin	8.1%	5.6%	12.5%	11.6%	9.8%
Tax Rate	-39.2%	-28.3%	-23.0%	-23.0%	-25.6%
Net Income Margin	4.9%	4.0%	9.6%	8.9%	6.9%
OCF Margin	-0.2%	-11.6%	-9.7%	0.1%	-4.9%
Return on Capital	2.7%	1.7%	5.1%	6.1%	3.9%
Return on Assets	1.8%	1.5%	4.5%	4.7%	3.2%
Return on Equity	2.7%	2.1%	6.4%	6.8%	4.6%
Capex/Sales	24.8%	32.6%	34.2%	25.4%	29.0%
<b>Operating Metrics</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
As a percentage of Revenues					
Linx Digital	12.6%	12.7%	18.2%	18.2%	
Linx Pay	12.3%	16.0%	14.9%	14.0%	
Core + Other	75.1%	71.3%	67.0%	67.8%	
<b>Leverage (BRLm)</b>	<b>2019A</b>	<b>2020E</b>	<b>2021E</b>	<b>2022E</b>	
Net Debt	(558.9)	(273.1)	(27.9)	122.6	
Gross Debt	419.3	431.9	431.9	431.9	
Net Debt/EBITDA	NM	NM	NM	0.3x	

## LWSA Summary Base Case Metrics

### Exhibit 90:

#### LWSA Summary Base Case Metrics

PL&CF (BRLm)	2019A	2020E	2021E	2022E	2019-22 CAGR
Net Revenue	386	476	640	788	26.9%
Gross Profit	161	219	365	489	44.7%
EBIT	53	39	71	98	22.6%
EBITDA	107	113	165	206	24.4%
Net Financial Expense	(29)	6	3	(5)	-44.4%
Pre-Tax Income	24	45	74	93	56.3%
Tax Expense	(6)	(8)	(20)	(28)	65.2%
Net income	18	37	54	65	53.0%
Av. Basic Shares Outstanding	99	125	125	125	8.2%
EPS	0.18	0.30	0.43	0.52	41.4%
Op. Cash Flow	82.8	(13.2)	100.8	117.6	12.4%
Capex - Organic	47.7	40.6	42.5	46.8	-0.6%
OCF (EBITDA - CAPEX)	59.2	72.3	122.9	158.9	39.0%
NOPAT	39	32	52	68	20.0%
Balance Sheet (BRLm)	2019A	2020E	2021E	2022E	
Cash & Cash equivalents	25	419	234	157	
Other Assets	489	732	1,040	1,256	
Total Assets	514	1,150	1,273	1,414	
ST Debt	69	53	53	53	
Other Current Liabil.	169	258	340	432	
Current Liabil.	238	311	393	485	
LT Debt	163	152	152	152	
Other LT Liabilities	25	24	24	24	
Total Liabilities	426	486	569	660	
Non-controlling shareholders	-	-	-	-	
Shareholder Equity	88.3	664.0	704.8	753.3	
Leverage (BRLm)	2019A	2020E	2021E	2022E	
Net Debt	206	(214)	(29)	48	
Gross Debt	232	205	205	205	
Net Debt/EBITDA	1.9x	-1.9x	-0.2x	0.2x	

Source: Company Data, Morgan Stanley Research estimates

Growth, Margins, Returns	2019A	2020E	2021E	2022E	Median
Net Revenue Y/Y	22.5%	23.3%	34.6%	23.1%	23.2%
EBITDA Growth	46.1%	5.7%	46.5%	24.4%	35.3%
EBIT Growth	45.6%	-26.9%	83.9%	37.1%	41.4%
Net Income Growth	66.0%	105.1%	46.7%	19.0%	56.4%
NOPAT Growth	100.2%	-18.6%	62.7%	30.7%	46.7%
Gross Profit Margin	41.8%	46.0%	57.0%	62.0%	51.5%
EBITDA Margin	27.7%	23.7%	25.8%	26.1%	26.0%
Pre-Tax Margin	6.3%	9.4%	11.6%	11.8%	10.5%
Tax Rate	-25.6%	-17.2%	-26.7%	-30.2%	-26.2%
Net Income Margin	4.7%	7.8%	8.5%	8.2%	8.0%
OCF Margin	15.3%	15.2%	19.2%	20.2%	17.3%
Return on Capital	16.3%	5.4%	5.9%	7.3%	6.6%
Return on Assets	4.6%	4.5%	4.5%	4.8%	4.5%
Return on Equity	24.19%	9.85%	7.95%	8.88%	9.4%
Capex/Sales	12.4%	8.5%	6.6%	5.9%	7.6%
Operating Metrics	2019A	2020E	2021E	2022E	
Gross Revenue growth by segment					
BeOnline & SaaS	17%	8%	5%	6%	
Commerce	47%	45%	42%	32%	
As a percentage of Net Revenues					
BeOnline & SaaS	79%	70%	54%	47%	
Commerce	21%	25%	26%	28%	
M&A	0%	6%	20%	25%	

## VIV Summary Base Case Metrics

### Exhibit 91:

#### VIV Summary Base Case Metrics

Profit/Loss & CF (BRLm)	2019A	2020E	2021E	2022E	19-22 CAGR
Net Revenue	44,267	42,498	44,804	47,063	2.1%
EBITDA	18,132	17,887	18,957	20,937	4.9%
D&A	-10,921	-11,037	-10,844	-10,603	-1.0%
EBIT	7,211	6,850	8,113	10,334	12.7%
Net Financial Cost	-819	-491	-169	124	NM
Pre-Tax Income	6,393	6,359	7,944	10,458	17.8%
Tax Expense	-1,393	-1,464	-1,740	-2,290	18.0%
Net income	5,000	4,895	6,204	8,167	17.8%
Shs Outstanding (m)	1,691	1,691	1,691	1,691	0.0%
EPS (BRL)	2.96	2.89	3.67	4.83	17.8%
EPADR (USD)	0.75	0.57	0.69	0.88	5.7%
Dividend / Share (BRL)	3.65	3.59	2.70	3.52	-1.3%
Operating Cash Flow	17,721	18,058	18,904	19,018	2.4%
Capex	8,843	7,688	8,955	8,471	-1.4%
Free Cash Flow	9,289	10,199	10,002	12,465	10.3%
NOPAT	5,640	5,273	6,336	8,071	12.7%
Balance Sheet (BRLm)	2019A	2020E	2021E	2022E	
Cash & ST Invest.	3,393	8,319	13,698	18,297	
Total Assets	108,289	108,232	110,614	113,515	
Short Term Debt	4,127	4,015	4,015	4,015	
Other Current Liabil.	13,606	15,051	15,799	16,480	
Long Term Debt	9,698	9,368	9,368	9,368	
Other LT Liabilities	10,404	10,913	10,913	10,913	
Total Liabilities	37,834	39,346	40,094	40,775	
Shareholder Equity	70,456	68,885	70,520	72,739	
Leverage (BRLm)	2019A	2020E	2021E	2022E	
Net Debt	10,886	5,536	157	-2,354	
Total Debt	13,825	13,383	13,383	13,383	
Net Debt/EBITDA	0.6x	0.3x	0.0x	NM	

Growth, Margins, Returns	2019A	2020E	2021E	2022E	Median
Net Revenue Growth	1.9%	-4.0%	5.4%	5.0%	3.4%
EBITDA Growth	1.7%	-1.4%	6.0%	10.4%	3.9%
EBIT Growth	-23.7%	-5.0%	18.4%	27.4%	6.7%
Net Income Growth	-44.0%	-2.1%	26.7%	31.6%	12.3%
EPS Growth	-44.0%	-2.1%	26.7%	31.6%	12.3%
NOPAT Growth	-24.7%	-6.5%	20.2%	27.4%	6.8%
EBITDA Margin	41.0%	42.1%	42.3%	44.5%	42.2%
EBIT Margin	16.3%	16.1%	18.1%	22.0%	17.2%
Pre-Tax Margin	14.4%	15.0%	17.7%	22.2%	16.3%
Tax Rate	-21.8%	-23.0%	-21.9%	-21.9%	-21.9%
Net Margin	11.3%	11.5%	13.8%	17.4%	12.7%
FCF Margin	21.0%	24.0%	22.3%	26.5%	23.2%
Return on Capital	7.0%	6.3%	7.6%	9.5%	7.3%
Return on Assets	4.7%	4.5%	5.7%	7.3%	5.2%
Return on Equity	7.0%	7.0%	8.9%	11.4%	8.0%
Capex/Sales	20.0%	18.1%	20.0%	18.0%	19.0%
Operating Metrics	2019A	2020E	2021E	2022E	
Fixed Svc Rev. Y/Y	-3.2%	-5.8%	2.4%	5.8%	
Mobile Svc Rev Y/Y	2.1%	-0.4%	4.6%	4.6%	
Mobile ARPU (BRL)	29.3	28.7	29.5	30.0	
Fixed ARPU (BRL)	63.3	68.6	75.1	78.6	
Mobile Subs Y/Y	1.9%	1.0%	2.7%	3.2%	
RGU's Y/Y	-13.6%	-12.5%	0.4%	1.8%	
Mobile Net Adds (000)	1,422	717	2,000	2,500	
Postpaid Net Adds (000)	2,768	1,901	2,400	2,400	
Prepaid Net Adds (000)	-1,346	-1,184	-400	100	
Fixed Net Adds (000)	-2,986	-2,371	60	300	
Fixed Voice Net Adds (000)	-2,188	-1,908	-400	-200	
Broadband Net Adds (000)	-550	-367	400	440	
Pay-TV Net Adds (000)	-247	-97	60	60	

Source: Company Data, Morgan Stanley Research estimates

## TSU Summary Base Case Metrics

### Exhibit 92:

#### TSU Summary Base Case Metrics

Profit/Loss & CF (BRLm)	2019A	2020E	2021E	2022E	19-22CAGR	Growth, Margins, Returns	2019A	2020E	2021E	2022E	Median
Net Revenue	17,377	16,727	18,480	19,468	3.9%	Net Revenue Growth	2.3%	-3.7%	10.5%	5.3%	3.8%
EBITDA	9,644	7,990	8,881	9,373	-0.9%	EBITDA Growth	51.4%	-17.2%	11.2%	5.5%	8.3%
D&A	(5,129)	(5,658)	(5,330)	(5,067)	-0.4%	EBIT Growth	86.8%	-48.4%	52.3%	21.3%	36.8%
EBIT	4,515	2,332	3,551	4,306	-1.6%	Net Income Growth	42.3%	-78.9%	133.3%	39.7%	41.0%
Net Financial Cost	21	(1,269)	(1,177)	(990)	NM	EPS Growth	42.3%	-78.9%	133.3%	39.7%	41.0%
Pre-Tax Income	4,536	1,062	2,374	3,316	-9.9%	NOPAT Growth	10.2%	-53.5%	59.0%	21.3%	15.7%
Tax Expense	(914)	(299)	(594)	(829)	-3.2%	EBITDA Margin	55.5%	47.8%	48.1%	48.1%	48.1%
Net income	3,622	763	1,781	2,487	-11.8%	EBIT Margin	26.0%	13.9%	19.2%	22.1%	20.7%
Shs Outstanding (m)	2,421	2,421	2,421	2,421	0.0%	Pre-Tax Margin	26.1%	6.4%	12.8%	17.0%	14.9%
EPS (BRL)	1.50	0.32	0.74	1.03	-11.8%	Tax Rate	-20.1%	-28.2%	-25.0%	-25.0%	-25.0%
EPADR (USD)	1.90	0.31	0.69	0.94	-20.8%	Net Margin	20.8%	4.6%	9.6%	12.8%	11.2%
Dividend per Share (BRL)	0.32	0.46	0.58	0.80	36.1%	FCF Margin	33.3%	26.7%	27.1%	27.1%	27.1%
Operating Cash Flow	7,065	5,589	7,205	7,724	3.0%	Return on Capital	13.0%	5.1%	7.8%	9.3%	8.5%
Capex	3,853	3,532	3,881	4,088	2.0%	Return on Assets	10.0%	1.9%	4.4%	6.0%	5.2%
Free Cash Flow	5,790	4,458	5,000	5,285	-3.0%	Return on Equity	17.2%	3.4%	7.8%	10.7%	9.2%
NOPAT	3,605	1,675	2,663	3,230	-3.6%	Operating Metrics					
Balance Sheet (BRLm)						2019A	2020E	2021E	2022E		
Cash & ST Inv.	2,939	4,129	6,038	7,732		Mobile Svc. Revenue Y/Y	1.9%	-2.9%	7.7%	3.7%	
Total Assets	40,349	40,635	41,219	41,965		Mobile ARPU Y/Y	5.8%	0.1%	8.7%	1.8%	
Short Term Debt	2,257	2,840	2,851	2,853		Mobile ARPU (BRL)	23.6	23.7	25.7	26.2	
Other Curr. Liabil.	5,860	4,273	4,449	4,634		Mobile Subs Y/Y	-2.6%	-3.4%	1.7%	1.9%	
Long Term Debt	7,553	8,520	8,552	8,558		Mobile Net Add (000)	-1,476	-1,871	920	1,040	
Other LT Liabilities	2,247	2,361	2,361	2,370		Fixed Svc. Revenue Y/Y	11.3%	8.1%	18.9%	28.2%	
Total Liabilities	17,917	17,994	18,213	18,414		Fixed ARPU Y/Y	-11.3%	-4.5%	2.5%	2.8%	
Shareholder Equity	22,432	22,640	23,006	23,550		Fixed ARPU (BRL)	80.0	76.4	78.4	80.6	
Leverage (BRLm)						2019A	2020E	2021E	2022E		
Net Debt	6,799	6,887	5,020	4,026		Fixed Subs Y/Y	20.3%	7.3%	24.2%	25.0%	
Total Debt	9,810	11,361	11,403	11,410		Fixed Net Add (000)	182	79	280	360	
Gross Debt	9,738	11,016	11,058	11,066							
Net Debt/EBITDA	0.7x	0.9x	0.6x	0.4x							

Source: Company Data, Morgan Stanley Research estimates



# Appendix I: Product TAM

## Exhibit 93:

MS proprietary bottom-up estimate for the Brazilian ERP TAM

ERP Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of firms in Brazil ('000)	5,009	19	67	537	4,386
A. Number of formal employees (m)	52	24	7	10	11
B. ERP Penetration - DM	36%	80%	59%	31%	20%
C. Employees using ERP - DM	36%	18%	27%	56%	56%
D. Average price per user in Brazil (BRL/mo)	195	283	234	165	13
<b>Brazil ERP - TAM (BRLm p.a.) (A*B*C*D*12)</b>	<b>18,412</b>	<b>11,891</b>	<b>3,005</b>	<b>3,324</b>	<b>192</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

## Exhibit 94:

MS proprietary bottom-up estimate for the Brazilian POS TAM

POS Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of formal employees in retail (m)	13	3	1	4	5
B. POS Penetration - DM	98%	100%	100%	97%	97%
C. Employees using POS - DM	23%	20%	20%	25%	25%
D. Average price per user in Brazil (BRL/mo)	93	170	102	89	57
<b>Total POS TAM (BRLm p.a.) (A*B*C*D*12)</b>	<b>3,289</b>	<b>1,046</b>	<b>336</b>	<b>1,001</b>	<b>906</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 95:**

MS proprietary bottom-up estimate for the Brazilian CRM TAM

CRM Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of firms in Brazil ('000)	5,009	19	67	537	4,386
A. Number of formal employees (m)	52	24	7	10	11
B. CRM Penetration - DM	31%	60%	45%	27%	18%
C. Employees using CRM - DM	24%	17%	16%	67%	67%
D. Average price per user in Brazil (BRL/mo)	138	215	127	72	39
<b>Total CRM TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>9,465</b>	<b>6,539</b>	<b>743</b>	<b>1,546</b>	<b>636</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 96:**

MS proprietary bottom-up estimate for the Brazilian BI TAM

BI Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of firms in Brazil ('000)	5,009	19	67	537	4,386
A. Number of formal employees (m)	52	24	7	10	11
B. BI Penetration - DM	40%	55%	46%	39%	25%
C. Employees using BI - DM	8%	7%	10%	10%	10%
D. Average price per user in Brazil (BRL/mo)	209.3	328.8	197.3	118.4	39.4
<b>Total BI TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>4,901</b>	<b>3,502</b>	<b>724</b>	<b>538</b>	<b>137</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 97:**

MS proprietary bottom-up estimate for the Brazilian TEF TAM

TEF Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of stores in Brazil ('000)	2,504	87	58	455	1,903
B. TEF Penetration - DM	97%	100%	100%	97%	97%
C. Average price per store in Brazil (BRL/mo)	150.0	150.0	150.0	150.0	150.0
<b>Total TEF TAM (BRLm p.a) (A*B*C*12)</b>	<b>4,380</b>	<b>157</b>	<b>105</b>	<b>795</b>	<b>3,323</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 98:**

MS proprietary bottom-up estimate for the Brazilian E-Billing TAM

E-Billing Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of stores in Brazil ('000)	2,504	87	58	455	1,903
B. E-Billing Penetration - DM	97%	100%	100%	97%	97%
C. Average price per store in Brazil (BRL/mo)	50.0	50.0	50.0	50.0	50.0
<b>Total E-Billing TAM (BRLm p.a) (A*B*C*12)</b>	<b>1,460</b>	<b>52</b>	<b>35</b>	<b>265</b>	<b>1,108</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 99:**

MS proprietary bottom-up estimate for TOTVS Credit

**TOTVS Credit Brazil - TAM 2019** **Total**

A. Total Client Revenues (BRLb)	1,600
B. SME Target Credit	30%
C. Debt/Revenue ratio (%)	25%
D. Interest Rate	45%
E. Company Revenue Share	25%
<b>Total TOTVS Credit TAM (BRLm p.a) (A*B*C*D*E)</b>	<b>13,500</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 100:**

MS proprietary bottom-up estimate for TOTVS Service

**TOTVS Service Brazil - TAM 2019** **Total**

A. Total Client Revenues (BRLb)	1,600
B. Share of Wages	35%
C. Share on Payroll System	60%
D. Share of Employees with Payroll Loan Anywhere	20%
E. Loan Relative to Wages	30%
F. Interest Rate on Private Payroll	35%
G. Company Revenue Share	5%
<b>Total TOTVS Service TAM (BRLm p.a) (A*B*C*D*E*F*G)</b>	<b>353</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 101:**

MS proprietary bottom-up estimate for TOTVS Payments

**TOTVS Payments Brazil - TAM 2019****Total**

A. Total TPV Managed (BRLm)	68,000
B. Payments Take Rate	0.1%
<b>Total TOTVS Payments TAM (BRLm p.a) (A*B)</b>	<b>68</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 102:**

MS proprietary bottom-up estimate for the Brazilian OMS TAM

<b>OMS Brazil - TAM 2019</b>	<b>Total</b>	<b>Large Firms (+250 employees)</b>	<b>Medium (50 to 249 emp.)</b>	<b>Small (10-49 emp.)</b>	<b>Micro (1-9 emp.)</b>
A. Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
2019 Total E-commerce Sales (BRLbn) 7.2% of retail sales	86	45	10	25	7
B. Total E-commerce Sales - DM (BRLbn) 14.6% of retail sales	171	89	19	49	13
C. E-commerce Penetration - DM	34%	50%	40%	32%	30%
D. OMS Penetration - DM	12%	15%	12%	10%	9%
E. Average price OMS platform in Brazil (BRL/mo)	434	9,406	2,956	1,306	300
F. Take Rate (% of GMV)	0.7%	0.3%	0.5%	1.0%	1.0%
Brazil OMS - Platform (BRLm p.a.) (A*D*E*12)	1,049	37	62	340	610
Brazil OMS - Take rate (BRLm p.a.) (B*(D/C)*F)	292	80	29	145	39
<b>Total OMS TAM (BRLm p.a)</b>	<b>1,341</b>	<b>116</b>	<b>91</b>	<b>485</b>	<b>648</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 103:**

MS proprietary bottom-up estimate for the Brazilian Retail ERP TAM

Retail ERP Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of formal employees in retail (m)	13	3	1	4	5
B. ERP Penetration - DM	36%	80%	59%	31%	20%
C. Employees using ERP - DM	36%	18%	27%	56%	56%
D. Average price per user in Brazil (BRL/mo)	132.3	282.9	234.3	165.0	12.5
<b>Total Retail ERP TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>3,288</b>	<b>1,257</b>	<b>621</b>	<b>1,318</b>	<b>92</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 104:**

MS proprietary bottom-up estimate for the Brazilian Retail CRM TAM

Retail CRM Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of formal employees in retail (m)	13	3	1	4	5
B. CRM Penetration - DM	31%	60%	45%	27%	18%
C. Employees using CRM - DM	24%	17%	16%	67%	67%
D. Average price per user in Brazil (BRL/mo)	91.8	214.8	126.9	72.3	39.0
<b>Total Retail CRM TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>1,764</b>	<b>691</b>	<b>154</b>	<b>613</b>	<b>306</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 105:**

MS proprietary bottom-up estimate for the Brazilian Retail BI TAM

Retail BI Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
A. Number of formal employees in retail (m)	13	3	1	4	5
B. BI Penetration - DM	40%	55%	46%	39%	25%
C. Employees using BI - DM	8%	7%	10%	10%	10%
D. Average price per user in Brazil (BRL/mo)	134.7	328.8	197.3	118.4	39.4
<b>Total Retail BI TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>799</b>	<b>370</b>	<b>150</b>	<b>213</b>	<b>66</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 106:**

MS proprietary bottom-up estimate for the Brazilian Domain TAM

Domain Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Website Penetration - DM	77%	95%	89%	75%	49%
C. Average price domain in Brazil (BRL/mo)	6.3	6.3	6.3	6.3	6.3
<b>Total Domain TAM (BRLm p.a) (A*B*C*12)</b>	<b>198</b>	<b>1</b>	<b>4</b>	<b>30</b>	<b>162</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 107:**

MS proprietary bottom-up estimate for the Brazilian Webhosting TAM

Webhosting Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Webhosting Penetration (Website Penetration minus Cloud Penetration) - DM	62%	67%	69%	61%	40%
C. Average price webhosting in Brazil (BRL/mo)	15	85	44	26	13
<b>Total Webhosting TAM (BRLm p.a) (A*B*C*12)</b>	<b>415</b>	<b>13</b>	<b>25</b>	<b>102</b>	<b>275</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 108:**

MS proprietary bottom-up estimate for the Brazilian Cloud TAM

Cloud Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Cloud Penetration - DM	15%	28%	19%	14%	9%
Spend per company - DM (USD/mo)	483.4	55,000	8,250	825	83
C. Target spend per company (BRL/mo)	1,907.5	217,021	32,553	3,255	326
<b>Total Cloud TAM (BRLm p.a) (A*B*C*12)</b>	<b>23,566</b>	<b>14,103</b>	<b>5,066</b>	<b>2,858</b>	<b>1,538</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 109:**

MS proprietary bottom-up estimate for the Brazilian Email Marketing TAM

Email Marketing Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
B. Digital Marketing Penetration - DM	62%	97%	93%	84%	56%
C. Average price Email Marketing in Brazil (BRL/mo)	36.2	1,094	257	65	30
<b>Total Email Marketing TAM (BRLm p.a) (A*B*C*12)</b>	<b>601</b>	<b>28</b>	<b>42</b>	<b>148</b>	<b>382</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 110:**

MS proprietary bottom-up estimate for the Brazilian Email TAM

Email Brazil - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Number of formal employees (m)	52	24	7	10	11
C. Employees with a computer and internet - DM	54%	55%	53%	51%	51%
D. Average price Email in Brazil (BRL/mo, per user)	3.9	6.9	2.2	1.0	0.7
<b>Total Email TAM (BRLm p.a) (B*C*D*12)</b>	<b>1,320</b>	<b>1,115</b>	<b>93</b>	<b>63</b>	<b>48</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 111:**

MS proprietary bottom-up estimate for the Brazilian Productivity Software TAM

Productivity Software - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Number of formal employees (m)	52	24	7	10	11
C. Productivity Software Penetration - DM	95%	100%	80%	64%	42%
D. Employees with a computer - DM	62%	64%	61%	59%	39%
E. Average price Productivity Software in Brazil (BRL/mo, per user)	28.0	34.5	30.8	19.7	19.7
<b>Total Productivity Soft. TAM (BRLm p.a) (B*C*D*E*12)</b>	<b>8,923</b>	<b>6,433</b>	<b>1,192</b>	<b>864</b>	<b>435</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research



**Exhibit 112:**

MS proprietary bottom-up estimate for the Brazilian SSL TAM

SSL - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
B. E-commerce Penetration - DM	34%	50%	40%	32%	30%
C. End-to-End Encryption Penetration - DM	61%	95%	91%	82%	55%
D. Average price SSL in Brazil (BRL/mo)	11.2	35.5	24.6	20.0	10.0
<b>Total SSL TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>54</b>	<b>0.4</b>	<b>2</b>	<b>14</b>	<b>37</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 113:**

MS proprietary bottom-up estimate for the Brazilian Site Builder TAM

Site Builder - TAM 2019	Total	Large Firms (+250 employees)	Medium (50 to 249 emp.)	Small (10-49 emp.)	Micro (1-9 emp.)
A. Number of firms in Brazil ('000)	5,009	19	67	537	4,386
B. Website Penetration - DM	77%	95%	89%	75%	49%
C. Companies using DIY Site Builder - DM	37%	0%	0%	38%	38%
D. Average price Site Builder in Brazil (BRL/mo)	25.9	NA	NA	64.0	21.7
<b>Total Site Builder TAM (BRLm p.a) (A*B*C*D*12)</b>	<b>330</b>	<b>NA</b>	<b>NA</b>	<b>117</b>	<b>213</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 114:**

MS proprietary bottom-up estimate for the Brazilian E-commerce TAM

<b>E-commerce Brazil - TAM 2019</b>	<b>Total</b>	<b>Large Firms (+250 employees)</b>	<b>Medium (50 to 249 emp.)</b>	<b>Small (10-49 emp.)</b>	<b>Micro (1-9 emp.)</b>
A. Number of Retail, Wholesale and Food firms in Brazil ('000)	2,148	2	15	228	1,903
2019 Total E-commerce Sales (BRLb) <i>7.2% of retail sales</i>	86	45	10	25	7
B. Total E-commerce Sales - DM (BRLb) <i>14.6% of retail sales</i>	171	89	19	49	13
C. E-commerce Penetration - DM	34%	50%	40%	32%	30%
D. Average price E-commerce platform in Brazil (BRL/mo)	96	650	384	232	77
E. Take Rate (% of GMV)	0.7%	0.3%	0.5%	1.0%	1.0%
Brazil E-commerce - Platform (BRLm p.a.) (A*C*D*12)	766	9	27	204	526
Brazil E-commerce - Take rate (BRLm p.a.) (B*E)	983	268	97	488	130
<b>Total E-commerce TAM (BRLm p.a)</b>	<b>1,749</b>	<b>277</b>	<b>124</b>	<b>692</b>	<b>656</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 115:**

MS proprietary bottom-up estimate for the Brazilian Broadband TAM

<b>Broadband - TAM 2019</b>	<b>Total</b>	<b>High income</b>	<b>Mid Income</b>	<b>Low income</b>
A. Total Brazilian Households (m)	69	9	33	28
B. Current ARPU (BRL/mo) at country average of 60MBPS, adjusted by Income Level	63	94	70	46
C. Broadband Penetration - DM	79%	100%	98%	49%
D. Target ARPU (BRL/mo) at DM country average of 130Mbps, adjusted by income level	80	112	82	54
<b>Total Broadband TAM (BRLm p.a.) (A*C*D*12)</b>	<b>52,529</b>	<b>11,926</b>	<b>31,763</b>	<b>8,839</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 116:**

MS proprietary bottom-up estimate for the Brazilian Mobile TAM

<b>Mobile - TAM 2019</b>	<b>Total</b>
A. Total Brazilian Population (m)	210
B. Current ARPU (BRL/mo) at country average of 4.5GB/mo, 38% Postpaid Share	27
C. Mobile Penetration - DM	83%
D. Target ARPU (BRL/mo) at DM level of 7GB/mo, 79% Postpaid Share	46
<b>Total Mobile TAM (BRLm p.a.) (A*C*D*12)</b>	<b>95,669</b>

Source: GSMA, IBGE, US Census, ERC, OECD and Morgan Stanley Research

**Exhibit 117:**

MS proprietary bottom-up estimate for the Brazilian Pay TV TAM

<b>Pay TV - TAM 2019</b>	<b>Total</b>	<b>High income</b>	<b>Mid Income</b>	<b>Low income</b>
A. Total Brazilian Households (m)	69	9	33	28
B. Pay TV Penetration Target	50%	50%	50%	50%
C. Target Revenue per User (BRL/mo) Brazil average, adjusted by Income Level	108	167	116	80
<b>Total Pay TV TAM (BRLm p.a.) (A*B*C*12)</b>	<b>44,849</b>	<b>8,909</b>	<b>22,757</b>	<b>13,184</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

# Appendix II: TOTVS TAM

## Exhibit 118:

MS proprietary bottom-up estimate for the TOTVS TAM

### TOTVS: Example of take rate per retail company 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL
i.0	Number of firms in Brazil	19,397	66,602	537,318	4,385,676	5,008,993
i.0.1	Number of retail, wholesale and food firms in Brazil	2,182	14,623	227,522	1,903,432	2,147,759
i.1	Total Revenues Per Company (i.2 x i.3)	40,000,000	2,400,000	800,000	20,000	
i.2	Revenue Per Store (BRL/mo)	1,000,000	600,000	400,000	20,000	
i.3	Avg Stores Per Company	40	4	2	1	
i.4	Employees Per Company (BZ average)	1,249	99	18	3	
i.5	Employees per Retail company	1,173	94	17	3	
i.6	Avg Spend Per Company ERP (BRL/mo) (i.5 x i.6.1 x i.6.2)	59,828	5,981	1,574	20	
i.6.1	ERP Users as % of Company Employees	18%	27%	56%	56%	
i.6.2	ERP - Price Per User (BRL/mo)	283	234	165	13	
i.7	POS (BRL/mo) (i.5x i.7.1 x i.7.2)	39,935	1,915	378	41	
i.7.1	POS Users as % of Company Employees	20%	20%	25%	25%	
i.7.2	POS - Price Per User (BRL/mo)	170	102	89	57	
i.8	TOTAL CORE ARPU. (i.6 + i.7)	99,763	7,896	1,952	61	
i.9	CRM (BRL/mo) (i.5 x i.9.1 x i.9.2)	43,879	1,948	822	74	
i.9.1	CRM Users as % of Company Employees	17%	16%	67%	67%	
i.9.2	CRM - Price Per User (BRL/mo)	215	127	72	39	
i.10	BI (BRL/mo) (i.5 x i.10.1 x i.10.2)	25,482	1,846	202	11	
i.10.1	BI Users as % of Company Employees	7%	10%	10%	10%	
i.10.2	BI - Price Per User (BRL/mo)	329	197	118	39	
i.11	TOTAL PRODUCTIVITY ARPU (i.9 + i.10)	69,360	3,794	1,024	86	
i.12	TEF (BRL/mo) (i.3 x i.12.1)	6,000	600	300	150	
i.12.1	TEF - Price Per Store (BRL/mo)	150	150	150	150	
i.13	E-Billing (BRL/mo) (i.3 x i.13.1)	2,000	200	100	50	
i.13.1	E-Billing - Price Per Store (BRL/mo)	50	50	50	50	
i.15	TECHFIN ARPU (i.12 + i.13)	8,000	800	400	200	
i.16	Gross ARPU (i.8 + i.11 + i.15)	177,123	12,490	3,376	347	
i.16.1	1 - Taxes and discounts	88%	88%	88%	88%	
i.17	Net ARPU (i.16 x i.16.1)	154,982	10,928	2,954	303	
i.18	TOTVS: Example of take rate (% of retail client revenue) (i.17/i.1)	0.39%	0.46%	0.37%	1.52%	

### TOTVS TAM 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL
i.19	ERP (i.0 x i.4/i.5 x i.6 x i.19.1 x 12)	11,891	3,005	3,324	192	18,412
i.19.1	ERP Adoption	80%	59%	31%	20%	
i.20	POS (i.0.1 x i.5 x i.7.1 x i.7.2x i.20.1 x 12)*	1,046	336	1,001	906	3,289
i.20.1	POS Adoption	100%	100%	97%	97%	
i.21	TOTAL CORE TAM BRLm P.A.(i.19 + i.20)					21,701
* TAM based on retail, wholesale and food firms in Brazil						
i.22	CRM (i. 0 x i.4/i.5 x i.9 x i.22.1 x 12)	6,539	743	1,546	636	9,465
i.22.1	CRM Adoption	60%	45%	27%	18%	
i.23	BI (i.0 x i.4/i.5 x i.10 x i.23.1 x 12)	3,502	724	538	137	4,901
i.23.1	BI Adoption	55%	46%	39%	25%	
i.24	TOTAL PRODUCTIVITY TAM BRLm P.A.(i.22 + i.23)					14,366
i.25	TEF (i.12 x i.0.1 x i.25.1 x 12)	157	105	795	3,323	4,380
i.25.1	TEF Adoption (i.20.1 - Same as POS)	100%	100%	97%	97%	
i.26	E-Billing (i.13 x i.0.1 x i.26.1 x 12)	52	35	265	1,108	1,460
i.26.1	E-Billing Adoption (i.20.1 - Same as POS)	100%	100%	97%	97%	
i.27	Credit					13,500
i.28	Service					353
i.29	Payment					68
i.30	TOTAL TECHFIN TAM BRLm P.A.(i.25 + i.26 + i.27 + i.28 + i.29)					19,761
i.31	TOTAL TAM BRLm P.A. (i.21 + i.24 + i.30)					55,828

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

# Appendix III: LWSA TAM

## Exhibit 119:

MS proprietary bottom-up estimate for the LWSA TAM

LWSA: Example of take rate per retail company 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL
i.0	Number of companies in Brazil	19,397	66,602	537,318	4,385,676	5,008,993
-	Number of formal employees	24,220,413	6,614,716	9,795,879	11,333,174	51,964,182
i.1	Number of retail, wholesale and food firms in Brazil	2,182	14,623	227,522	1,903,432	2,147,759
-	Number of formal employees in retail, wholesale and food firms	2,560,575	1,368,057	3,882,761	5,443,730	13,255,123
i.2	Total Revenues Per Company	40,000,000	2,400,000	800,000	20,000	
i.3	E-commerce Sales Per Company (BRL/mo)	6,774,273	273,915	55,573	1,897	
i.4	Employees Per Company (BZ average)	1,249	99	18	3	
i.4.1	Employees per Retail company	1,173	94	17	3	
i.5	Avg Spend Per Company Domain (BRL/mo) (i.5.1)	6.3	6.3	6.3	6.3	
i.5.1	Domain - Price Per Company	6.3	6.3	6.3	6.3	
i.6	Cloud (BRL/mo) (i.6.1)	217,021	32,553	3,255	326	
i.6.1	Cloud - Spend Per Company	217,021	32,553	3,255	326	
i.7	Webhosting (BRL/mo) (i.7.1)	85	44	26	13	
i.7.1	Webhosting - Price Per Company	85	44	26	13	
i.8	BE-ONLINE ARPU* (i.5 + i.6)	217,027	32,559	3,262	332	
*Excludes Webhosting because companies have either Cloud or Webhosting, not both.						
i.9	Email marketing (BRL/mo) (i.9.1)	1,094	257	65	30	
i.9.1	Email marketing - Price Per Company	1,094	257	65	30	
i.10	Email (BRL/mo) (i.4.1 x i.10.1 x i.10.2)	4,503	109	9	1	
i.10.1	Email Users as % of Company Employees	55%	53%	51%	51%	
i.10.2	Email - Price Per User	6.9	2.2	1.0	0.7	
i.11	Productivity Software (BRL/mo) (i.4.1 x i.11.1 x i.11.2)	26,067	1,756	197	22	
i.11.1	Productivity Users as % of Company Employees	64%	61%	59%	39%	
i.11.2	Productivity Soft - Price Per User	35	31	20	20	
i.12	SSL (BRL/mo) (i.12.1)	35	25	20	10	
i.12.1	SSL - Price Per Company	35	25	20	10	
i.13	Site Builder (BRL/mo) (i.13.1)	NA	NA	64	22	
i.13.1	Site Builder - Price Per Company	NA	NA	64	22	
i.14	SAAS ARPU (i.9 + i.10 + i.11 + i.12 + i.13)	31,700	2,147	355	84	
i.15	E-commerce Platform (BRL/mo) (i.15.1)	650	384	232	77	
i.15.1	E-commerce - Price Per Company	650	384	232	77	
i.16	E-commerce Take Rate (BRL/mo) (i.3 x i.16.1)	20,323	1,370	556	19	
i.16.1	E-commerce - Take Rate	0.3%	0.5%	1.0%	1.0%	
i.17	Online Payments Take Rate (BRL/mo) (i.3 x i.17.1)	169,357	6,848	2,217	76	
i.17.1	Online Payments - Take Rate	2.5%	2.5%	4.0%	4.0%	
i.18	COMMERCE ARPU (i.15 + i.16 + i.17)	190,330	8,602	3,005	171	
i.19	Gross ARPU (i.8 + i.14 + i.18)	439,057	43,308	6,622	588	
i.19.1	1 - Taxes and discounts	89%	89%	89%	89%	
i.20	Net ARPU (i.19 x i.19.1)	388,566	38,327	5,861	520	
i.21	LWSA: Example of take rate (% of retail client revenue) (i.20/i.2)	1.0%	1.6%	0.7%	2.6%	

LOCAWEB TAM 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL (SMALL + MICRO)
i.21	Domain (i.0 x i.5 x i.21.1 x 12)	1	4	30	162	192
i.21.1	Website Adoption	95%	89%	75%	49%	
i.22	Cloud (i.0 x i.6 x i.22.1 x 12)	14,103	5,066	2,858	1,538	4,397
i.22.1	Cloud Adoption	28%	19%	14%	9%	
i.23	Webhosting (i.0 x i.7 x i.23.1 x 12)	13	25	102	275	377
i.23.1	Webhosting Adoption (Exc Cloud)	67%	69%	61%	40%	
i.24	TOTAL BE-ONLINE TAM BRLm P.A. (i.21 + i.22 + i.23)					4,965
i.25	Email Marketing (i.1 x i.9 x i.25.1 x 12)	28	42	148	382	531
i.25.1	Digital Marketing Adoption	97%	93%	84%	56%	
i.26	Email (i.0 x i.4/i.4.1 x i.10 x i.26.1 x 12)	1,115	93	63	48	112
i.26.1	Email Adoption	100%	100%	100%	100%	
i.27	Productivity Software (i.0 x i.4/i.4.1 x i.11 x i.27.1 x 12)	6,433	1,192	864	435	1,299
i.27.1	Productivity Soft Adoption	100%	80%	64%	42%	
i.28	SSL (i.1 x i.12 x 28.1 x i.31.1 x 12)	0.4	2	14	37	52
i.28.1	SSL Adoption	95%	91%	82%	55%	
i.29	Site Builder (i.0 x i.13 x i.29.1 x i.29.2 x 12)	NA	NA	117	213	330
i.29.1	Website Adoption	95%	89%	75%	49%	
i.29.2	Site Builder Adoption	0%	0%	38%	38%	
i.30	TOTAL SAAS TAM BRLm P.A. (i.25 + i.26 + i.27 + i.28 + i.29)					2,323
i.31	E-commerce Platform (i.1 x i.15 x i.31.1 x 12)	9	27	204	526	730
i.31.1	E-commerce Adoption	50%	40%	32%	30%	
i.32	E-commerce Take Rate (i.1 x i.16 x i.31.1 x 12)	268	97	488	130	618
i.33	Online Payments (i.1 x i.17 x i.31.1 x 12)			1,947	519	2,466
i.34	TOTAL COMMERCE TAM BRLm P.A. (i.31 + i.32 + i.33)					3,814
i.35	TOTAL TAM BRLm P.A. (i.24 + i.30 + i.34)					11,102

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

MORGAN STANLEY RESEARCH

# Appendix IV: LINX TAM

## Exhibit 120:

MS proprietary bottom-up estimate for LINX TAM

LINX: Example of take rate per retail company 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL
i.0	Number of retail, wholesale and food firms in Brazil	2,182	14,623	227,522	1,903,432	2,147,759
-	Number of formal employees	2,560,575	1,368,057	3,882,761	5,443,730	13,255,123
i.1	Total Revenues Per Company (i.2 x i.3)	40,000,000	2,400,000	800,000	20,000	
i.2	Revenue Per Store (BRL/mo)	1,000,000	600,000	400,000	20,000	
i.3	Avg Stores Per Company	40	4	2	1	
i.4	E-commerce Sales Per Company (BRL/mo)	6,774,273	273,915	55,573	1,897	
i.5	Employees Per Retail Company	1,173	94	17	3	
i.6	Avg Spend Per Company ERP (BRL/mo) (i.5 x i.6.1 x i.6.2)	59,828	5,981	1,574	20	
i.6.1	ERP Users as % of Company Employees	18%	27%	56%	56%	
i.6.2	ERP - Price Per User (BRL/mo)	283	234	165	13	
i.7	POS (BRL/mo) (i.5 x i.7.1 x i.7.2)	39,935	1,915	378	41	
i.7.1	POS Users as % of Company Employees	20%	20%	25%	25%	
i.7.2	POS - Price Per User (BRL/mo)	170	102	89	57	
i.8	CRM (BRL/mo) (i.5 x i.8.1 x i.8.2)	43,879	1,948	822	74	
i.8.1	CRM Users as % of Company Employees	17%	16%	67%	67%	
i.8.2	CRM - Price Per User (BRL/mo)	215	127	72	39	
i.9	BI (BRL/mo) (i.5 x i.9.1 x i.9.2)	25,482	1,846	202	11	
i.9.1	BI Users as % of Company Employees	7%	10%	10%	10%	
i.9.2	BI - Price Per User (BRL/mo)	329	197	118	39	
i.10	CORE ARPU (i.6 + i.7 + i.8 + i.9)	169,123	11,690	2,976	147	
i.11	TEF (BRL/mo) (i.3 x i.11.1)	6,000	600	300	150	
i.11.1	TEF - Price Per Store (BRL/mo)	150	150	150	150	
i.12	E-Billing (BRL/mo) (i.3 x i.12.1)	2,000	200	100	50	
i.12.1	E-Billing - Price Per Store (BRL/mo)	50	50	50	50	
i.13	PAY ARPU (i.11 + i.12)	8,000	800	400	200	
i.14	E-commerce Platform (BRL/mo) (i.14.1)	650	384	232	77	
i.14.1	E-commerce - Price Per Company (BRL/mo)	650	384	232	77	
i.15	E-commerce Take Rate (BRL/mo) (i.4 x i.15.1)	20,323	1,370	556	19	
i.15.1	E-commerce - Take Rate (% of GMV)	0.3%	0.5%	1.0%	1.0%	
i.16	OMS Platform (BRL/mo) (i.16.1)	9,406	2,956	1,306	300	
i.16.1	OMS - Price Per Company (BRL/mo)	9,406	2,956	1,306	300	
i.17	OMS Take Rate (BRL/mo) (i.4 x i.17.1)	20,323	1,370	556	19	
i.17.1	OMS - Take Rate (% of GMV)	0.3%	0.5%	1.0%	1.0%	
i.18	DIGITAL ARPU (i.14 + i.15 + i.16 + i.17)	50,701	6,079	2,650	415	
i.19	Gross ARPU (i.10 + i.13 + i.18)	227,824	18,569	6,026	761	
i.19.1	1 - Taxes and discounts	88%	88%	88%	88%	
i.20	Net ARPU (i.19 x i.19.1)	199,346	16,248	5,273	666	
i.21	LINX: Example of take rate (% of retail client revenue) (i.20/i.1)	0.5%	0.7%	0.7%	3.3%	

LINX TAM 2019

CODE	DESCRIPTION	LARGE	MEDIUM	SMALL	MICRO	TOTAL
i.22	ERP (i.0 x i.6 x i.22.1 x i.2)	1,257	621	1,318	92	3,288
i.22.1	ERP Adoption	80%	59%	31%	20%	
i.23	POS (i.0 x i.7 x i.23.1 x i.2)	1,046	336	1,001	906	3,289
i.23.1	POS Adoption	100%	100%	97%	97%	
i.24	CRM (i.0 x i.8 x i.24.1 x i.2)	691	154	613	306	1,764
i.24.1	CRM Adoption	60%	45%	27%	18%	
i.25	BI (i.0 x i.9 x i.25.1 x i.2)	370	150	213	66	799
i.25.1	BI Adoption	55%	46%	39%	25%	
i.26	TOTAL CORE TAM BRLm P.A. (i. 22 + i.23 + i.24 + i.25)					9,140
i.27	TEF (i.0 x i.11 x i.27.1 x i.2)	157	105	795	3,323	4,380
i.27.1	TEF Adoption (i.23.1 - Same as POS)	100%	100%	97%	97%	
i.28	E-Billing (i.0 x i.12 x i.28.1 x i.2)	52	35	265	1,108	1,460
i.28.1	E-Billing Adoption (i.23.1 - Same as POS)	100%	100%	97%	97%	
i.29	TOTAL PAY TAM BRLm P.A. (i.27 + i.28)					5,840
i.30	E-commerce Platform (i.0 x i.14 x i.30.1 x i.2)	9	27	204	526	766
i.30.1	E-commerce Adoption	50%	40%	32%	30%	
i.31	E-commerce Take Rate (i.0 x i.15 x i.30.1 x i.2)	268	97	488	130	983
i.32	OMS Platform (i.0 x i.16 x i.32.1 x i.2)	37	62	340	610	1,049
i.32.1	OMS Adoption	15%	12%	10%	9%	
i.33	OMS Take Rate (i.0 x i.17 x i.32.1 x i.2)	80	29	145	39	292
i.34	TOTAL DIGITAL TAM BRLm P.A. (i.30 + i.31 + i.32 + i.33)					3,090
i.35	TOTAL TAM BRLm P.A. (i.26 + i.29 + i.34)					18,071

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

# Appendix V: VIV & TSU TAM

## Exhibit 121:

MS proprietary bottom-up estimate for VIV TAM

### VIVO TAM 2019

CODE	DESCRIPTION	TOTAL
i.0	Total Households	69,034,597
i.0.1	Total Population	210,147,000

CODE	DESCRIPTION	TOTAL
i.1	<b>Pay TV (i.0 x i.1.1 x i.1.2 x 12)</b>	<b>44,849</b>
i.1.1	Target ARPU (BRL/mo)	108
i.1.2	Pay TV Adoption (% of households)	50%
i.2	<b>Broadband (i.0 x i.2.1 x i.2.2 x 12)</b>	<b>52,529</b>
i.2.1	Target ARPU (BRL/mo)	80
i.2.2	Broadband Adoption (% of households)	79%
i.3	<b>Mobile (i.0.1 x i.3.1 x i.3.2 x 12)</b>	<b>95,669</b>
i.3.1	Target ARPU (BRL/mo)	46
i.3.2	Mobile Adoption (% of population)	83%
i.4	<b>TOTAL TAM BRLm P.A. (i.1 + i.2 + i.3)</b>	<b>193,047</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

## Exhibit 122:

MS proprietary bottom-up estimate for TSU TAM

### TIM TAM 2019

CODE	DESCRIPTION	TOTAL
i.0	Total Households	69,034,597
i.0.1	Total Population	210,147,000

CODE	DESCRIPTION	TOTAL
i.1	<b>Broadband (i.0 x i.1.1 x i.1.2 x 12)</b>	<b>52,529</b>
i.1.1	Target ARPU (BRL/mo)	80
i.1.2	Broadband Adoption (% of households)	79%
i.2	<b>Mobile (i.0.1 x i.2.1 x i.2.2 x 12)</b>	<b>95,669</b>
i.2.1	Target ARPU (BRL/mo)	46
i.2.2	Mobile Adoption (% of population)	83%
i.3	<b>TOTAL TAM BRLm P.A. (i.1 + i.2)</b>	<b>148,198</b>

Source: IBGE, US Census, ERC, OECD and Morgan Stanley Research

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Overweight/Buy	1252	39%	323	43%	26%	565	38%
Equal-weight/Hold	1430	44%	336	45%	23%	690	47%
Not-Rated/Hold	5	0%	0	0%	0%	3	0%
Underweight/Sell	553	17%	84	11%	15%	225	15%
Total	3,240		743			1483	

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**INDUSTRY COVERAGE: Latin American Technology**

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/30/2020)
<b>Cesar A Medina</b>		
Atento SA (ATTO.N)	E (06/05/2019)	US\$1.18
Globant SA (GLOB.N)	O (04/09/2019)	US\$149.85
Linx S.A. (LINX3.SA)	O (07/30/2019)	R\$25.34
Linx S.A. (LINX.N)	O (07/31/2019)	US\$4.58
Locaweb Servicos de Internet SA (LWSA3.SA)	E (03/16/2020)	R\$43.20
Totvs S.A. (TOTS3.SA)	O (07/02/2019)	R\$23.15

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.

**INDUSTRY COVERAGE: Brazil Education Services**

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/30/2020)
<b>Javier Martinez de Olcoz Cerdan</b>		
Afya Ltd (AFYA.O)	O (08/13/2019)	US\$23.44
Anima Educacao (ANIM3.SA)	U (04/07/2020)	R\$24.57
Arco Platform Ltd (ARCE.O)	E (03/15/2020)	US\$43.48
COGNA EDUCACAO (COGN3.SA)	O (03/15/2020)	R\$6.61
Ser Educacional SA (SEER3.SA)	U (05/24/2017)	R\$15.00
YDUQS PART (YDUQ3.SA)	O (04/07/2020)	R\$33.65

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.

**INDUSTRY COVERAGE: LatAm Retail & eCommerce**

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/30/2020)
<b>Andrew R Ruben</b>		
Atacadao S.A. (CRFB3.SA)	E (01/06/2020)	R\$19.75
B2W Companhia Digital (BTOW3.SA)	E (01/06/2020)	R\$107.05
C&A Modas S.A. (CEAB3.SA)	O (12/04/2019)	R\$10.31
Cencosud SA (CENCOSUD.SN)	U (01/06/2020)	Ch\$1,150.00
Cia Hering (HGTX3.SA)	U (01/06/2020)	R\$14.32
Companhia Brasileira de Distribuicao (PCAR3.SA)	E (01/06/2020)	R\$70.98
El Puerto de Liverpool SAB de CV (LIVEPOLC1.MX)	U (01/06/2020)	M\$56.36
Lojas Americanas SA (LAME4.SA)	E (01/06/2020)	R\$32.18
Lojas Renner SA (LREN3.SA)	O (01/06/2020)	R\$41.80
Magazine Luiza S.A. (MGLU3.SA)	O (01/06/2020)	R\$71.65
Mercadolibre Inc. (MELI.O)	O (01/06/2020)	US\$985.77
S.A.C.I. Falabella (FALABELLA.SN)	E (01/06/2020)	Ch\$2,600.00
Via Varejo SA (VVAR3.SA)	E (01/06/2020)	R\$15.31
Wal-Mart de Mexico (WALMEX.MX)	O (01/06/2020)	M\$55.15

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.

**INDUSTRY COVERAGE: Brazil Financial Institutions**

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/30/2020)
<b>Jorge Kuri</b>		

B3 SA BRASIL BOLSA BALCAO (B3SA3.SA)	E (07/21/2017)	R\$55.09
Banco Bradesco (BBD.N)	O (08/07/2019)	US\$3.81
Banco BTG Pactual SA (BPAC11.SA)	O (03/28/2017)	R\$76.50
Banco do Brasil (BBAS3.SA)	O (03/07/2018)	R\$32.15
Banco Inter SA (BIDI4.SA)	U (06/13/2018)	R\$14.40
Banco Pan SA (BPAN4.SA)	O (11/27/2019)	R\$8.80
Banco Santander Brasil (BSBR.N)	O (08/07/2019)	US\$5.22
Banrisul (BRSR6.SA)	O (03/07/2018)	R\$13.55
BB Seguridade Participacoes S.A. (BBSE3.SA)	E (02/12/2019)	R\$27.27
Cielo S.A. (CIEL3.SA)	O (10/08/2012)	R\$4.62
IRB Brasil RE (IRBR3.SA)	O (04/05/2019)	R\$11.00
Itau Unibanco Holding S.A. (ITUB.N)	O (08/07/2019)	US\$4.69
PagSeguro Digital (PAGS.N)	O (02/19/2018)	US\$35.34
Porto Seguro (PSSA3.SA)	U (04/17/2009)	R\$50.42
StoneCo Ltd. (STNE.O)	O (11/19/2018)	US\$38.76
XP Inc (XP.O)	O (01/06/2020)	US\$42.01

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.

## INDUSTRY COVERAGE: Latin America Telecom

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/30/2020)
<b>Cesar A Medina</b>		
America Movil (AMX.N)	O (08/10/2017)	US\$12.69
ENTEL (ENTEL.SN)	U (09/30/2016)	Ch\$5,300.00
Grupo Televisa (TV.N)	O (03/29/2020)	US\$5.24
Liberty Latin America Ltd (LILA.O)	E (01/23/2019)	US\$9.72
Millicom International Cellular SA (TIGOsdB.ST)		SKr 243.80
Oi S.A. (OIBRQ.PK)	NR (08/10/2016)	US\$0.22
Telecom Argentina (TEO.N)	U (04/03/2018)	US\$8.95
Telefonica Brasil SA (VIV.N)	O (06/12/2018)	US\$8.86
Telesites SAB (SITESB1.MX)	U (01/26/2016)	M\$14.57
TIM Participacoes (TSU.N)	E (06/05/2019)	US\$12.94

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