A Work Project, presented as part of the requirements for the Award of a Master Degree in Finance from the NOVA – School of Business and Economics.

EQUITY RESEARCH REPORT ON AT&T - MEASURING THE VALUE CREATION OF THE LEADING US TELECOM COMPANY

RODRIGO SANTOS BRÁZ GOMES
29001

A Project carried out on the master's in finance Program, under the supervision of:
Professor Nuno Vasconcellos e Sá

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Abstract
In this report, it was performed an equity valuation of the leading telecom company in the US, AT&T. The company is in a mature stage of its life-cycle. In order to sustain business growth, they might have to capture competitors market share or expanding their activities, which in fact they are doing with Warner Media. The report aims at finding the value of the company through a DCF valuation method.

Keywords
AT&T, Telecommunications, Equity Research, Valuation

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This report is part of the … report (annexed) and should be read has an integral part of it.

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Intrinsic Valuation

Revenues growth

Although the analysts valued the company as a whole, each segment was valued separately in what concerns its contribution to overall EBITDA. That is, revenues and expenses (both operational and support expenses) were estimated by each of the 4 segments reported by AT&T, as previously determined. The *revenues* caption is by far the most relevant one, since it embeds the capability of a business to deliver growth year-on-year, and most of the remaining captions are directly or indirectly influenced by it. Regarding revenue projection, an analysis by segment was performed.

▪ Communications

The main value drivers of the *communications* segment are the **industry value** (i.e., within each specific segment) aiming at answering the following questions: *How much is the industry value? How much has it been growing? How much is it expected to grow in the upcoming years?*; and the **market share** of ATT whose value is obtained from the position of the company within the industry and through the ability to maintain and increase the customer base. The value is then assessed by how much the industry is worth and the share of which ATT captures on its own, and not by how much prices will increase since this is quite a competitive sector, and although it is not impossible to add value through differentiation, it is extremely difficult to do so.

Therefore, segment revenues were computed by multiplying the two aforementioned value drivers, and a comprehensive analysis of each *communication segment* is going to be addressed on an individual basis while keeping the core strategy of forecasting the revenues steady across all sub-segments.

▪ Mobility

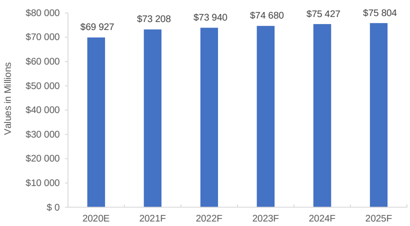

Figure 48 – Mobility Revenues (2020-2025)
Source: Analyst's Computations

The revenues generated by *mobility* come mainly from the US market, thus the main reference to project the overall value was based on assessing the behavior of the business versus the US real GDP growth. The analysis focused on understanding whether the business can top the economy's evolution or not, considering the recent technological development and its impact on value. Given the major importance of *mobility services*, 2020 industry revenues are estimated to decrease 0.3% (decreased 0.3% in the 2020 six-month period vs. the homologous period). In 2021 there is already a recovery with an industry growth of

3.34% mainly due to the emergence of 5G, and from 2022 to 2025 with a YoY growth of about 1%, and a 0.5% growth onwards.

The market share is a more sensitive input. Although it depends on both AT&T strategy and consumer preferences, coming up with the market share on the years to come is a real challenge. Up until 2019, AT&T´s market share was on a growing trend, reaching 39% which made it the leader in the US market. The alignment between the brand value, the service quality and the investment made by the company which enabled to be the first Telco to have 5G coverage nationwide represent a sound background to sustain the leadership position, and as such maintain a market share of 38-40% in the projection period.

- Business Wireline

The *business wireline* is indeed the most difficult segment to make the revenue projection. The nature of the revenues makes it very hard to determine an industry value since each of the three biggest telecos in the US treat this segment differently[4], as such the approach followed by the analysts was done towards different drivers: (1) subscriber base; and (2) *average revenue per user* (ARPU). Moreover, segment revenues were divided into: (1) *strategic and managed services;* (2) *legacy voice and data services;* and (3) *other service and equipment*[5].

The ***other service and equipment*** sub-segment is projected to be around $1,500 million (on each year projected year) since it has been quite constant between 2016 and 2019, and no major change on the value it generates is expected. Also, since it only represents 5% of this segment, it is a non-material caption.

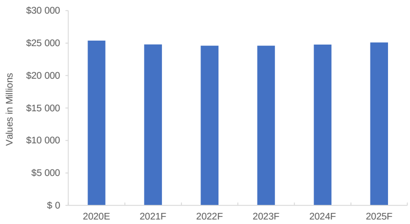

Figure 49 – Business Wireline Revenues (2020-2025)
Source: Analyst's Computations

Strategic and managed services are the most promising revenue source whose weight is currently larger than 60% of *business wireline* total sales, and the team foresees this unit to overcome the 90% threshold going forward, hence being responsible for the survival of the wireline offering to business customers. The team projects a continuing growth of about 5% each year due to an increasing number of connections and a robust ARPU. However, projections were not done using the two already mentioned drivers, for simplification purposes the team assumed that the number of connections will continuously improve at a rate greater than 10%[6], and AT&T's market share in the *business wireline* is projected to evolve according to the performance of the communications BU as a whole (38.5% market share in the US). As such, AT&T's connections evolving in line with the market prospects, and a ARPU which is robust, but is going to decrease inevitably due to

[4] Verizon and T-Mobile do not segment their revenues having a *business wireline* unit as AT&T does.
[5] More detailed info about these segments can be found in the *sector overview* chapter (page 9).
[6] The 2016-2019 CAGR was 12.38%.

more competition as this is the only source in terms of wireline segment telecos are able to generate income from their non-residential customers. The decrease in prices is forecasted not to undermine the overall growth rate of 5% because the number of connections is the main source of value, and its impact is marginal. Last but not least, there are the ***legacy voice and data services*** which have been the value destruction unit within *business wireline*. This intra-segment will experience a contraction in the two value drivers:

- A decrease in the subscription number (as business customers are shifting to *strategic and managed services* options) at a CAGR of 15% (in line with the observed last three-year CAGR). This type of offer is considered obsolete, meaning an attempt to compensate the loss of existing subscribers with new ones is not expected. The company is expected to close this intra-segment of the *business wireline*, since consecutive negative growth rates are not feasible, and the only reason it is kept is due to commercial commitments to existing customers.
- The lower interest in this service has a little impact on the ARPU. The abrupt decrease of value generation makes AT&T unwilling to keep up with the offering of the service, hence the company is expected to maintain the ARPU at $1000[7], an amount the company practiced in the past, and is going to practice in the future such that this offering is discontinued between the next 5 and 10 years[8].

Summing up, in 2020 overall revenues are estimated to decrease 2.5% (in the 2020 six-month period decreased 2.9% vs. homologous period). Then, the 2021-2025 CAGR is -2.5%, and 3% until 2030. From 2030 onwards, the extinction of the *legacy voice and data services* is going to take place, which allows an overall growth rate attached to the 5% of the *strategic and managed services*. Therefore, this segment represents huge potential in the long-term.

- Mexico

The *Mexico segment* is quite similar to the *mobility segment* since both focus on offering *wireless* services and equipment, and the major difference is a geographical one. However, the approach followed to forecast the revenues is identical, as the team determined the value of the industry through research and projected this value on a YoY basis tying it to the evolution of real GDP in Mexico.

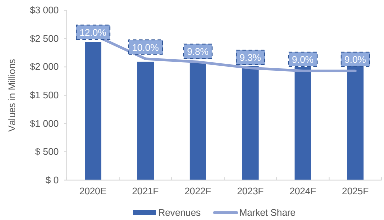

Figure 50 – Mexico Revenues (2020-2025)
Source: Analyst's Computations

[7] The analysts have made this assumption, as the ARPU has up and downs, and for the purpose of the exercise it is not determinant to do a deeper analysis on its behavior because projections were established according to a shutdown of the business.
[8] Fierce Telecom. Retrieved from https://www.fiercetelecom.com/telecom/at-t-pleads-fcc-to-streamline-legacy-data-voice-retirement-processes

Then, assess what is the market share of AT&T in this business. Revenues are estimated to decrease 14% in 2020 (decreased 14% in the 2020 six-month period compared with the homologous period), which represents a more severe contraction than that of the 9.8% in the Mexican economy. In 2021 there is already a recovery with a growth of 2% at an industry level, mainly due to the emergence of 5G, and from 2022 to 2024 with a CAGR of 2,5%, evolving to 2% in 2025-2028, and 1.5% onwards.

The market share is a more complex input. Although it depends on both AT&T strategy and consumer preferences, coming up with the market share in the years to come is a real challenge. Up until 2019, AT&T´s market share was on a consolidation trend, reaching 12.5%. The alignment between the brand value, the service quality and the investment made by the company which enabled to be the first Telco to have 5G coverage nationwide represent a sound background to sustain the company position, and as such maintain a market share of 11-13% in the projection period.

Media & Entertainment

▪ Entertainment Group

This group comprises different segments of the market. Each segment has his own forecast in order to more accurately predict revenues. The **video entertainment revenues** have decreased, for instance, 3.7% last year, and the trend is expected to keep up. The behavior is supported by market forecasts which sustain an annual decrease of nearly 1% until 2024. US market revenues are driving this analysis as assumed to be representative for the company operations. Revenue forecasts are projected based on market prospects and market share of AT&T. The last was quite constant, 34%. Given the maturity of the market and significant share of the company, the team believes on the 33.5% as the market share for the next years. It is implicit an overall revenue loss driven by market trends.

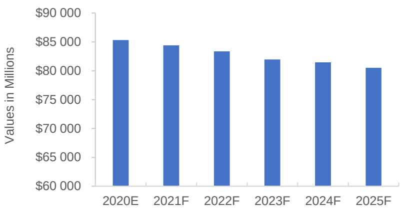

Figure 51 – Traditional TV and Home Entertainment Market Revenues in the US (2020-2025)
Source: Statista

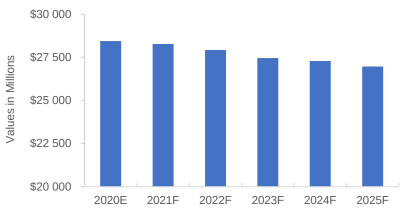

Figure 52 – Entertainment Group Revenues (2020-2025)
Source: Statista

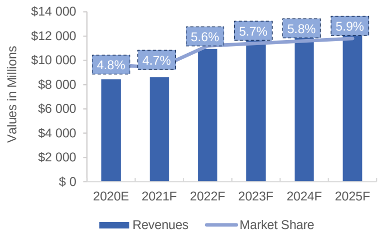

Figure 53 – High Speed Internet Revenues in the US (2020-2025)
Source: Statista

Regarding **high-speed internet**, cash flows are becoming more significant to the Entertainment Group as it is the sole segment contributing to a positive trend. Regarding the market share, the team observed a declining trend of 6 p.p. from 2016 to 2019. The team believes the next years market share will increase YoY slightly until 2025. The belief is backed up both by AT&T intention to expand high-speed offerings but also costumers' demand. Side by side with HBO penetration in US households, high-speed network guarantees streaming quality. Furthermore, a pandemic situation brought people home, and consequently higher standards of internet demand. Afterwards, and for the long-term prediction, the market share is going to be 5.9%, driven by the belief that AT&T is going to force high-speed

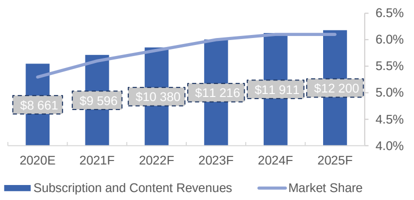

Figure 54 – Subscription and Content Revenues in the US, Values in Millions (2020-2025)
Source: Statista

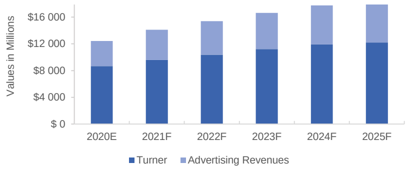

Figure 55 – Turner Revenues (2020-2025)
Source: Analysts' Computations

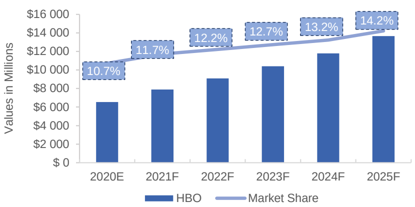

Figure 56 – HBO Revenues (2020-2025)
Source: Analysts' Computations

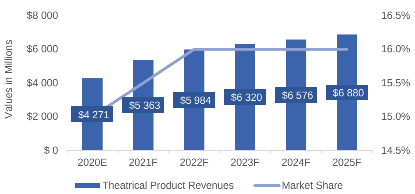

Figure 57 – Theatrical Product Revenues (2020-2025)
Source: Analysts' Computations

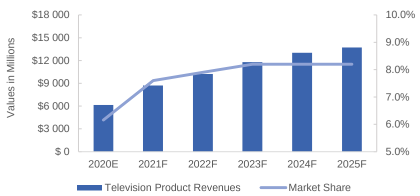

Figure 58 – Television Product Revenues (2020-2025)
Source: Analysts' Computations

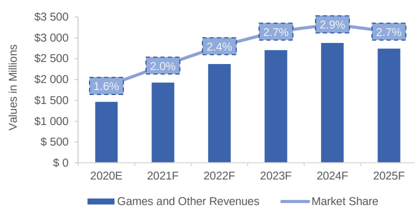

Figure 59 – Games and Other Revenues (2020-2025)
Source: Analysts' Computations

internet contracts as an attempt to reinforce the entertainment group after the opportunity rise described above.

- Warner Media

Inside Warner Media, the **Turner** business unit is split between advertising; content and other; and subscription. The two last were grouped given the difficulty to find a suitable market for Content and Other. The broadcasting industry has been used to calculate the market share of Turner, accounting for 4.9% in 2019. 2020 is estimated to be 5.4% and from that onwards, it is expected to reach 6.1%, in 2024 and stabilize. The advertising segment of Turner is a promising unit representing 4.5 $bn of the 13 $bn revenue in 2019. In 2020 the estimated cash flow is 23% down on the previous year due to the large impact of the pandemic in the entertainment sector. In the following years, it has been considered a market share of 2.3% reaching 2.6% in 2024. The Ad unit has plenty of room for growth driven by digital advertising growth. The output is a revenue growth of over 8% until 2024 which is a significant movement.

HBO had a market share of 12.7% in 2019 and it expects a slight increase yearly given that pricing influences negatively consumers. In 2025 the team forecasts a larger share based on offer improvement. The research made suggests that in the future the industry will be driven by content popularity and quality. HBO is offering one of the best libraries in the market and will continue to offer in the future. It is expected that people start shortening the number of SVoD subscriptions and start opting for the best one in content. In the short term, we expect that price influence is larger than the content quality effect and therefore the low market share growth. The market share is multiplied by Video-on-demand market revenue worldwide to predict revenues of HBO.

Warner Bros is divided in Theatrical, Television and Games. According to estimates, the **theatrical product** will lose 30% in revenues compared to last year. The industry and market share forecasts are the drivers of these revenues. Market share for this segment cannot change dramatically once the sector is highly concentrated on a few film studios such as Walt Disney, Sony/ Columbia, Universal Pictures and so on. Together they represent 89% and it is not anticipated changes. The market share is forecasted to be around 16%, consequently, segment revenues will be mainly driven by the market growth. The CAGR forecasted for 2019-2024 of those revenues is 1.9%. The **television product** is estimated to grow 25% during the pandemic year. This segment is expected to enlarge his emphasis, increasing the share in the market up to 8.2% in the long term. **Games** segment is estimated to lose 25% by this year going against the market trend.

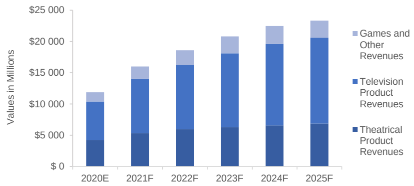

Figure 60 – Warner Bros Revenues (2020-2025)
Source: Analysts' Computations

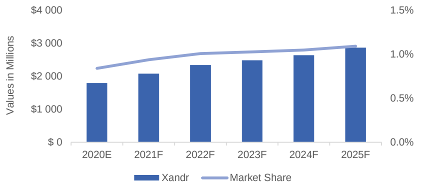

Figure 61 – Xandr Revenues (2020-2025)
Source: Analysts' Computations

Source: Analysts' Computations

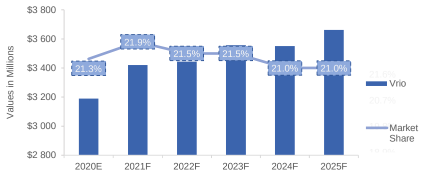

Figure 62 – Vrio Revenues (2020-2025)
Source: Analysts' Computations

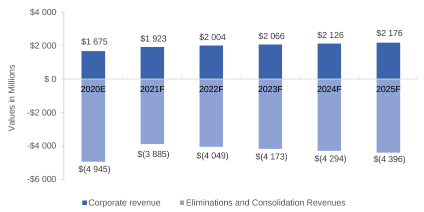

Figure 63 – Corporate and Other Revenues (2020-2025)
Source: Analysts' Computations

Games significance has also increased YoY inside Warner Bros. The team believes in an upward trend of the unit accounting for a CAGR in revenues of 7.4% until 2024. The market share by the time is expecting to be 2.9%. By opposite to the theatrical product, games are immense area to explore and after cancelling the sale of this unit in 2018 it is expected that AT&T try to explore even more the cash flows from the gaming industry.

Xandr revenues for 2020 may decrease by 7%, in line with market expectations. Given recent investments and the launch of Xandr Invest with Disney and AMC as partners, it is expected a growth of Xandr market share until 2028, to 1.2% driven by the credibility of those partnerships. The CAGR of revenues until 2024 is 5.53%.

VRIO is the main segment of AT&T in Latin America, responsible for a 26% market share in traditional TV and OTT Video, branded by Direct TV and SKY. It has been losing market force since 2017 and the tendency is expected to continue, for instance, just lost 2.2 million subscribers after closing operations in Venezuela and 312 thousand due to Covid, according to the company. Until now, the loss is represented by 22% down in revenues, in comparison to last year's 6-month period. It is expected to see a market share decrease in the next years, following these changes but also dissatisfaction with the service. The long-term value will be 21%. This results in a CAGR of 2% until 2024.

- Corporate and Other

The *corporate and other* segment is sub-divided into (1) corporate; (2) acquisition-related items; (3) certain significant items; and (4) eliminations and consolidations. This last segment is rather a consequence of the AT&T business model than an actual business unit of the core activity as the remaining 3 segments[9] are. Even though these captions may suffer several changes from year to year, significantly M&A activity is not expected in the next few years, nor major changes are expected for 2017 and 2018 because in 2016 and 2017 are somehow different from, maybe explained by WarnerMedia acquisition. Furthermore, the overall significance for total revenues is -2% to 1%. Considering those arguments, the analysts decided to use the last two years average percentages of revenue. The following years are the product of that percentage and every business unit revenue. For 2020 revenues are estimated through nine-month results.

Costs

The cost structure was forecasted individually due to two main reasons: (1) understand the margins of each segment – pointing out those that are less cost

[9] Communications, Warner Media, and Latin America.

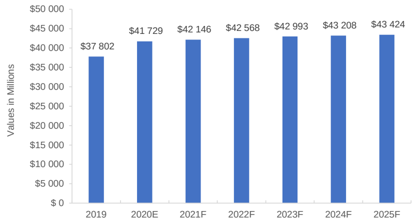

Figure 64 – Mobility Costs (2019-2025)
Source: Analysts' Computations

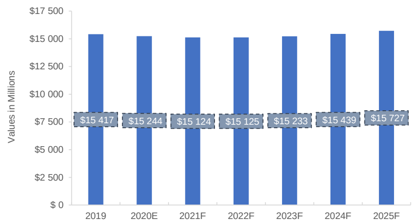

Figure 65 – Business Wireline Costs (2019-2025)
Source: Analysts' Computations

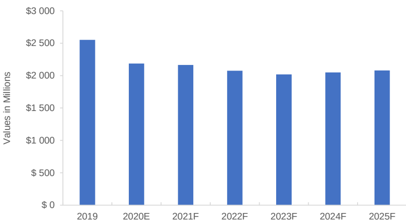

Figure 66 – Mexico Costs (2019-2025)
Source: Analysts' Computations

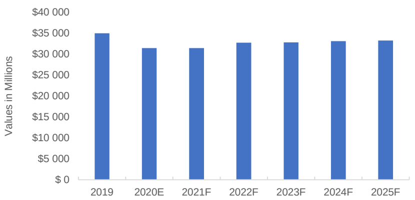

Figure 67 – Entertainment Group Costs (2019-2025)
Source: Analysts' Computations

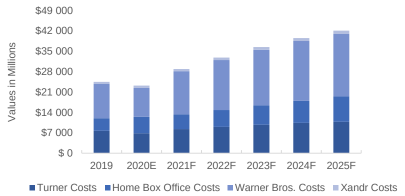

Figure 68 – Warner Media Costs (2019-2025)
Source: Analysts' Computations

intensive, thus generating more value through higher margins; and (2) to be able to make better projections as the nature of cost is not "constant" across all segments. In practice, the captions "cost of revenues" and "selling, general and administrative expenses" were aggregated originating the caption "operations and support expenses" which works as the overall costs, and under which there is an information segment wise. Those captions are forecasted through a percentage of sales. The 2020 operating expenses are estimated through the nine-month report.

Regarding the *communications* segment, the EBITDA margins evolved positively, due to higher efficiency in the costs incurred. Across all units within the segment, in 2019, *mobility* with 57% of turnover consumed in expenses was the most efficient, followed by *wireline* with 61.5% of turnover. In the 2016-2019 term, both the mobility and *wireline* increase their efficiency in approximately 3 p.p., being this shift essentially undertaken from 2017 to 2018. Considering this trend, the cost burden is forecasted to remain aligned with the ratios set by the company in 2019. Between 2018 and 2019, AT&T slowed down its cost reduction strategy in these two units, which is explained by: (1) necessity to remain competitive among their peers; (2) pressure to maintain its market leadership position; (3) cost-intensive industry limits the ability to implement cost-cutting schemes. As such, within the forecasted period, *mobility* costs represent 57% of turnover, and *wireline* cost represent 61,5% of turnover. Lastly, *Mexico* has an unparalleled behavior in comparison with the remaining two units in the *communications* segment. Currently, *Mexico* has a negative operating contribution, meaning the costs incurred surpasses turnover (the costs-to-turnover ratio is greater than 1, consequently EBITDA margin is below zero). However, the cost structure improved 18 p.p. in 2016-2019, and the negative EBITDA margin decelerated proportionally. The huge cost employment is a consequence of: (1) early stage in the Mexico mobility market; (2) since the company is based in the US, competitive advantages capabilities are not in place; and (3) low market share comparing with the market leader. As such, a continuous improvement is expected, fixed costs incurred are already materialized and are going to start being offset by variable costs.

In what concerns *media & entertainment* units even though COVID-19 impacts may change costs prospects for 2020, it has been decided not to consider 2020 as a proper year for analysis. Having this said, an average of past years percentage to total revenues was calculated for those business units and considering the mature structure of those BU, the team considers a plausible assumption. Warner Media is a revenue source in development within the company, consequently, the cost structure is not as easily predictable. Furthermore, the complexity of units such as Turner, which include subscription,

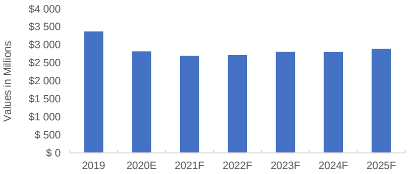

Figure 69 – Vrio Costs (2019-2025)
Source: Analysts' Computations

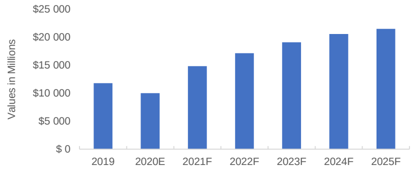

Figure 70 – Warner Bros Costs (2019-2025)
Source: Analysts' Computations

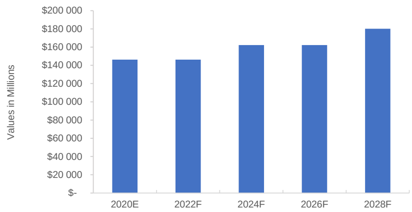

Figure 71 – Goodwill Evolution (2020-2027)
Source: Analysts' Computations

content, and advertising revenues difficult costs forecast. Next years' costs will account for 58.8% of Turner Revenues. For HBO, the need for content recognition is expected to drive next years' costs, which the team assumed to reach 64% of HBO revenues and decrease after, assuming a steady-state in the future with 62%. The Warner Bros cost structure lies around 82% of revenues, and this percentage is kept constant. The assumption follows segment maturity and does not predict changes in the sector. Vrio's costs fluctuate more than in remaining units. The team believes that costs account for 79% in the forecasted years as Direct TV fix costs remain. The Corporate and other is the most volatile segment given the nature abovementioned. In the forecasting period costs are based on last three years percentage of costs and forecasted based on the other business units' costs.

Goodwill

This caption depends on the acquisitions made by AT&T. In the last years, it went from $105,207 in 2016 to $146,241 million in 2019, being Time Warner acquisition, the driver of that rise. The capital need for that acquisition drove debt levels up and rating agencies classified debt riskier. Even though AT&T has a repayment plan for the additional capital raised, the analyst's team believes that there cannot happen so significant acquisitions in the next years such as the previously remarked. The debt levels and US regulation of the competitive environment are some of the causes for that opinion. Following this reasoning, the group is assuming acquisitions from 4 to 4 years. The model incorporates an increase in goodwill of 11% in 3 years from now. Summing up, the goodwill was kept constant until 2023 and grows after in accordance with the beliefs.

Capital Expenditures (CAPEX)

The capital expenditures (CAPEX) are key in industries with a high technological component such as telecom and media & entertainment. The need to be on the front-end of technological innovation is explained by the competitive landscape in these industries, where the top 5 players together have more than 95% market share. As such, this sector is a capital intensive one, and in the case of AT&T, the company YoY deploys huge amounts of gross capital investment around $20Bn[10], and thus, it is the amount expected to remain in the foreseeable future[11]. Therefore, the analysts have projected this caption according to this expectation. It is believed the company will commit to its strategy, the 5G investment required despite having been done in the previous years, the year of 2020 and the subsequent years, are still a crucial stage for the successful implementation of this technology. As a result,

[10] In 2019, AT&T had a gross capital investment of $23,7Bn according to the 2019 annual report.
[11] Based on the 3-year plan (2020-2022) established by the company in 2019.

the core investing capital from 2020-2022 was estimated accordingly. After 2022, capital expenditures were projected with turnover as a driver. This is a realistic assumption in this underlying period, as major investments are nor expected, with the company investing in line with the business activity.

Discount Rates

▪ Cost of Equity

The cost of equity financing was calculated through the Capital Asset Pricing Model. The risk-free rate considered was the 10 Y US government bond, 0.91%. Because it is a long-term rate denominated in the same currency as cash flows; it is highly liquid; maturity should ideally match cash flow, however, 10Y is the most common proxy[12]. To calculate the beta two alternatives were pursued. Firstly, AT&T's returns were regressed against S&P500 returns. Secondly, the median of AT&T's and its peers' betas. The summary of the Beta Regression for AT&T is given in the Figure 72. The very low standard error, and therefore, a short confidence interval aligned with the minimal p-value backs up Beta reliability. The equity beta of 0.69 is the median of AT&T and comparable companies. Considering this, the team decided to use AT&T's beta instead of industry's median. This approach was taken considering the highly levered capital structure of AT&T and strong confidence in the individual Beta presented. A lower value than 1 was expected given the regulated market of telecom services.

Confidence Interval Metrics	
Beta	**0.86**
Standard Error	0.0590064
t Stat	14.541918
P-value	1.97E-33
Lower 95%	0.7417329
Upper 95%	0.9744008
Observations	208

Figure 72 – Confidence Interval Metrics
Source: Analysts' Computations

Betas from the Regression				
T US Equity	**VZ US**	**TMUS US**	**TU US**	**TDS US**
0.86	0.51	0.85	0.59	0.91
BCE US	**RCI US**	**USM US**	**SHEN US**	
0.69	0.58	0.72	0.69	

Figure 73 – Betas from the Regression of AT&T Against the Peers
Source: Analysts' Computations

Cost of Equity	
Re	**6.48%**
Risk Free (Rf)	0.92%
MRP	6.75%
Adjusted βe	0.82

Figure 74 – Cost of Equity Metrics
Source: Analysts' Computations

The capital structure is not constant throughout the years, which is translated into a changing D/EV, the ratio increased almost 10 p.p. from 2017 to 2018 followed by the debt issue with the acquisition of Warner Media, being 48% in that year. In 2019, the company entered into a debt repayment scheme, and it was able to deliver a D/EV of 44%. As such, according to AT&T's debt repayment, the estimated D/EV going forward, and incorporated into the re-leveraging of the beta, was of 40%. This represents a conservative approach since the company is going to have investment needs, which will require debt issues.

For the Market Risk Premium (MRP), 6.75% was embodied in the model based on KPMG's research report[13]. The inputs mentioned result in a cost of equity of 6.48%.

Issuer Name	Ticker	Amt Out	Cpn	Maturity	Series	BBG Composite	Maturity Type	Semi-annual
AT&T Inc	T	7 500	3.500%	15/09/2053	144A	BBB	CALLABLE	3.458%
AT&T Inc	T	7 500	3.550%	15/09/2055	144A	BBB	CALLABLE	3.539%
AT&T Inc	T	6 500	3.650%	15/09/2059	144A	BBB	CALLABLE	3.622%
AT&T Inc	T	1 500	3.500%	01/02/2061		BBB	CALLABLE	3.537%
AT&T Inc	T	3 000	4.350%	01/03/2029		BBB	CALLABLE	1.823%
AT&T Inc	T	2 500	3.100%	01/02/2043		BBB	CALLABLE	3.016%
AT&T Inc	T	2 250	3.300%	01/02/2052		BBB	CALLABLE	3.330%
AT&T Inc	T	1 955	4.300%	15/12/2042		BBB	CALLABLE	3.275%
AT&T Inc	T	2 500	2.250%	01/02/2032		BBB	CALLABLE	2.100%
AT&T Inc	T	4 175	4.500%	09/03/2048		BBB	CALLABLE	3.388%
AT&T Inc	T	1 794	5.250%	01/03/2037		BBB	CALLABLE	2.945%
AT&T Inc	T	2 250	1.650%	01/02/2028		BBB	CALLABLE	1.343%
AT&T Inc	T	3 000	2.750%	01/06/2031		BBB	CALLABLE	2.040%
AT&T Inc	T	3 000	3.650%	01/06/2051		BBB	CALLABLE	3.376%
AT&T Inc	T	2 325	3.400%	15/05/2025		BBB	CALLABLE	0.788%
AT&T Inc	T	3 144	4.300%	15/02/2030		BBB	CALLABLE	1.963%
AT&T Inc	T	1 896	4.350%	15/06/2045		BBB	CALLABLE	3.388%
AT&T Inc	T	7 500	3.500%	15/09/2053	1444A	BBB	CALLABLE	3.458%
AT&T Inc	T	2 500	2.300%	01/06/2027	#N/A	BBB	CALLABLE	1.248%

Yield	2.93%

Figure 75 – AT&T's Bond Issues Information and Yield Computation
Source: Bloomberg and Analyst's Computations

▪ Cost of Debt

12 Tim Koller, Marc Goedhart, David Wessels (2010). Measuring and Managing the Value of Companies (5th edition). Chapter 6: Frameworks for Valuation.
13 KPMG. Equity market risk premium. Retrieved from https://assets.kpmg/content/dam/kpmg/nl/pdf/2020/services/equitiy-market-risk-premium-research-summary-march-2020.pdf

Cost of Debt	
Rd	**2.73%**
YTM	2.93%
AT&T Rating	Baa2
PD	3.60%
Annualized PD	0.35%
LGD	55.00%

Figure 76 – Cost of Debt Metrics
Source: Analysts' Computations

To achieve the cost of debt of AT&T, it was calculated the Yield to maturity through AT&T's bonds. A set of bonds was chosen to be representative of the financial conditions in the fixed income market. Therefore, different maturities, coupons and outstanding amounts were considered. Probability of default and loss given default are reflected given Moody's rating of Baa2. The result of the estimation is 2.73% as the cost of debt (Figure 76).

- WACC

Weighted Average Cost of Capital - WACC	
WACC	**4.75%**
Tax Rate	21.00%
Cost of Debt (Rd)	2.73%
Cost of equity	6.48%
D/EV Target	40%

Figure 77 – WACC Metrics
Source: Analysts' Computations

The average weighted cost of capital is an important input for the DCF model used in the valuation. It uses as inputs the cost of equity, debt and the D/E ratio in market values as discussed. The output is a WACC estimation of 4.75% (Figure 77).

Value Creation Analysis

Considering the sector and company maturity side by side with recent evolvement within complementary activities, the analysts expected value creation drivers, such as ROIC and RONIC somewhat consistent with the WACC. The recent investments in the entertainment activities are expected to drive RONIC up. ROIC is slightly below the WACC (4.4% in 2040), which means the invested capital is returning less than what it costs. Although, the RONIC is 7.5% in the steady-state, leading us to conclude that AT&T is more efficient in new investments than in overall booked projects. It points us towards the very controlled and competitive communication sector, which is where the main capital is allocated to.

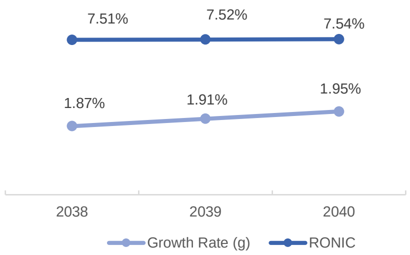

Figure 78 – Value Creation Metrics
Source: Analysts' Computations

We believe the company will grow at 1.95% in perpetuity, which is aligned with the real GDP growth levels. The last, according to the OECD[14] will be 2.00% in the future (2060) for the US and World economy. Summing up, the lower growth assumption for AT&T is backed up on sector growth restrictions and company maturity fostered by complementary investments in entertainment. After establishing the growth rate, the DCF model outputs 459,116 million dollars as the enterprise value. The target share price is $34.02.

Multiples Valuation

Net Debt to Market Capitalization Ratio		
Company	**D/E Current**	**Market Cap**
AT&T	94.8%	$204 870.00
Verizon Communications Inc.	53.2%	$243 980.00
T-Mobile US, inc	58.5%	$164 120.00
Telus Corp	54.8%	$25 690.00
Centurylink Inc	299.0%	$10 861.00
BCE Inc	59.5%	$38 500.00
Rogers Communications Inc	61.3%	$23 660.00
Telephone and Data Systems Inc	182.5%	$2 060.00
Shenandoah Telecommunications Co	25.5%	$2 160.00
US Cellular Corp	86.3%	$2 550.00

Figure 79 – Key Indicators of Size and Leverage of AT&T and Selected Comparable Companies
Source: Analysts' Computations

With the objective of doing a valuation of AT&T based on multiples, it has been selected peer companies who are similar in capital structure, functions and action are. For that purpose, Centurylink, Telephone and Data Systems and Shenandoah Telecommunications were removed from the analysis (Figure 79). Regarding

[14] OECD, Real GDP long-term forecast; retrieved from https://www.oecd-ilibrary.org/economics/real-gdp-long-term-forecast/indicator/english_d927bc18-en

Multiples Valuation			
	EV/EBITDA	P/E	P/SALES
AT&T	6.64x	15.06x	1.12x
Verizon Communications	7.67x	11.72x	1.84x
T-Mobile US, inc	9.69x	42.04x	2.28x
Telus Corp	8.49x	20.29x	1.60x
BCE Inc	7.97x	16.34x	1.62x
Rogers Communications	8.08x	15.35x	1.62x
US Cellular Corp	4.58x	17.15x	0.63x
Median	7.97x	16.34x	1.62x
Implied Share Price	$ 36.79	$ 54.43	$ 41.69

Figure 80 – Multiples Valuation Output
Source: Analysts' Computations

operations, it is difficult to find similar companies because AT&T is a Telco company, but also operates in the SVoD and film industry, although representing a much lower proportion of revenues. All the companies used in the process belong to the telecommunication industry being their operations focused on the US. It has been considered the median of their multiples, to reduce outliers' impacts. Three different valuations were calculated as observed (Figure 80). EV/EBITDA is considered to be the best multiple for telecom company because it is a capital-intensive industry, with high operating costs, preferred to P/E or P/Sales. Considering the $ 28.76 the stock was trading at 2nd January, the multiple valuation gives BUY recommendation for P/E and P/Sales and HOLD for EV/EBITDA, however, investors may be cautious as the valuation lacks accuracy.

Sensitivity Analysis

The valuation was conducted until 2040, meaning each year's cash flow was forecasted with detail, and from 2040 onwards the terminal value was computed with the perpetuity formula. Being the moment at which the growth rate (g) of the business has stabilized. The continuing value represents a major part of the valuation, usually more than 50% of enterprise value, in our valuation on AT&T it represents 83%. Therefore, it is imperative to conduct a detailed sensitivity analysis of this figure. The critical input to stress in the growth rate, to better infer the impact that a change in g has on the perpetuity. The values attributed to g ranged from 1,5% to 3,5% (considered to be the extreme values to better characterize AT&T's business risks). The approach was based on plotting the sensitivity of g assuming a constant retention ratio (RR), and an evolving RONIC against the sensitivity of g given by the RONIC and allowing the RR to change accordingly **(Figure 81).** In this case it ranged from 19.89% to 53.85%, notice that for a 2% interval on g, the RR has more than doubled. Changing the RR instead of assuming it constant is a more realistic assumption since a business is expected to invest capital based on its strategy, and this may fluctuate over time depending on the investment needs. The conclusion that the higher the invested capital, the higher the RR, the bigger g becomes is straight-forward.

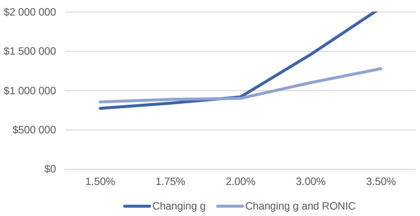

Figure 81 – Sensitivity Analysis on g Output
Source: Analysts' Computations

A sensitivity analysis on both the g and the WACC inputs was also held, namely on the share price, equity value, and enterprise value. The conclusion is trivial, the higher the WACC, the lower the value of any of the outputs (and vice versa), and the lower the g, the lower the value of the outputs (and vice versa). Note that minimal changes in any of the outputs lead to outrageous changes on the outputs. For instance, a 0.2 p.p. increase in the WACC has a negative impact of approximately $6 on the share price, whilst a 0.1 p.p. decreases in the g leads to a $1.9 share price decrease.

		WACC		
		4.6%	4.8%	5.0%
Growth	1.75%	$36.35	$30.38	$25.17
	1.85%	$38.45	$32.14	$26.66
	1.95%	$40.70	**$34.02**	$28.25
	2.05%	$43.14	$36.04	$29.95
	2.15%	$45.77	$38.22	$31.77

Figure 82 – Sensitivity Analysis on the Share Price (changing Growth-g and WACC)
Source: Analysts' Computations

Scenario Analysis

Scenario Analysis - Weighted Result		
	Share Price	Probability
Scenario Analysis - Slower Recovery	$26.70	25%
Scenario Analysis - Base Scenario	$34.02	65%
Scenario Analysis - Faster Recovery	$47.66	10%
Share Price_DCF	**$33.55**	

Figure 83– Scenario Analysis Output
Source: Analysts' Computations

Considering the uncertainty around the American and world economy in the middle of the pandemic situation with infection records occurring on a daily. The analysis had to be taken with the purpose of understanding what the consequences of a larger or shorter effect of the pandemic are, which will depend on vaccines evolvement and people's behavior. Consequently, economic recovery will be faster or slower. A more pessimistic scenario for the market development from 2021 to 2025 drives revenues of those years down and remaining captions dependent on those. The assumption made was in general that market revenue growth would be 50% of the growth predicted in the base case. In markets where revenues are declining, the downward is two times bigger. The analysts considered that after 2025 the market behavior would be approximately the same as in the base scenario. For the optimistic, growth rates until 2025 are optimized, from 25 to 50% upper and afterwards the same assumption hold as in the slow recovery. Even though 2020 results can be estimated based on the quarterly results, which in fact help to predict pandemic impacts, next year result is quite unpredictable. Throughout this project development, pandemic did not give a step back in the most relevant geography, North America consequently led the analyst's team to give a 25% weight on the slow recovery, 65% of the base case and the remaining 10% of the faster recovery. The results can be observed in the Figure 83. The hypothesis' conclusion is that the price should be around $33.55, really close to the base scenario output.

Conclusion/ Final Recommendation

The deep analysis around AT&T and his business units stressed out the leading market position in the most relevant business unit of the company. AT&T has the largest market share in wireless subscriptions and second-largest in the wireline segment, behind Verizon. The company is expanding his operations in the media and entertainment sector and therefore the share of those revenues to the total. Warner Bros had a 14% market share in the box office market, being the second leader behind Disney. HBO had a 12.7% share of streaming revenue, and according to our beliefs, it will compete for the best streaming platform in the future.

The susceptibility of this industry in a pandemic situation creates instability in the company, explaining a last month's price fluctuation whereas peers were less influenced by pandemics.

Next year's ARPU in mobility is expected to decline following increased competition for costumer base which seems to be saturated. Furthermore, FCC control will foment competition and margins down.

Throughout the years the team expects to see media and entertainment segments share of revenues to be more significant.

After drawing to other possible scenarios based on the velocity of the economic recovery the conclusion was that the weighted average price, $33.16 is consistent with the base case price $34.02. (Sensitivity after) The relative valuation suggests a price between $36 to $54, which is a considerable large interval. Based on the DCF method used for the valuation purpose, the output was a share price of $34.02. As of the 2 January, AT&T' stock was trading at $28.76 which is 18.3% below the target price of $34.02. Furthermore, dividend yield represents 7.7% gain. Therefore, following this expectation the recommendation would be a BUY since the expected total return is 25.59%.