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The Logistic Giant Emerge Amid the Pandemic

The Value Creation of FedEx Corporation

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Abstract

This dissertation aims to provide an independent view of the future of FedEx Corporation. Despite the recent sell-off after ground margins fell short of investors' expectations, FedEx is benefiting from interesting trends across all the business segments. Those trends include the shift towards online shopping accelerated by the pandemic, a recovery in the economy around the world and the constraint of passenger capacity. Therefore, this report points towards a buy recommendation with a target price of $286.50 as of December 31st, 2021, translating into an 11.4% total shareholder return over the next 12-months.

Keywords: e-commerce, efficiency, valuation, recovery

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This thesis closes an important chapter in my life. Firstly, I would like to thank Professor Nuno Vasconcellos e Sá for all the support and availability during this semester. Secondly, to my colleague, Maria Carolina Marafona, for all the hard-work and commitment. Thirdly, to my girlfriend, Tânia Costa, for all the support during the tough times. Last but not least, it is worth mentioning all my friends and family that were there for me when I needed.

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This report is part of the “The Logistic Giant Emerge Amid the Pandemic – The Outstanding Case of FedEx Corporation” report (annexed) and should be read as an integral part of it.

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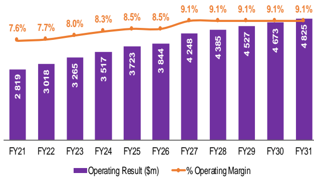
Valuation

Operating Margins

▪ FedEx Express

Graph 1: FedEx Express Operating Performance



Source: Own Estimates

After a tough year, with the pandemic and a costly TNT integration, we expect a sharp express margins recovery in the short-term. The integration of TNT (expected to be concluded by FY22) and the services optimization across FedEx segments (with the ground lower cost structure bearing some of Express package volume) will contribute positively to a margin improvement. In our perspective, with TNT, FedEx will have the best opportunity to enhance its margins in Europe. Furthermore, as B2B transactions recover so does the Express margins. Lastly, most of the world's cargo is guaranteed by passenger planes and those were interrupted by the current pandemic. Along with the fact that we expect air cargo demand to recover faster than passenger capacity (FY21 vs FY23/24), it will enable FedEx to keep gaining pricing power. For the long-term, the strategy is to focus on small and medium business (rather than resellers) that will keep longer relations with FedEx even after the full passenger capacity recover. In our opinion, these factors will contribute for a 9.1% sustainable FedEx Express margin.

We expect the salaries and employee benefits to be 38.5% of express total revenues in FY21 and, afterwards, slowly decrease to 37.5%, as FedEx fully integrates TNT and see its investments paying off. With Boeing 757 and Boeing 767-300F being added to the fleet, in FY08 and FY13, respectively, FedEx started demonstrating a commitment to reduce energy consumption and gas emission. The latter one has reduced the operating costs by 20% when compared to the old aircraft. Besides the addition of more fuel- and cost-efficient airplanes, FedEx Express improved the in-flight planning and adopted other strategies to reduce fuel costs and gas emission. Note also that FedEx hedges fuel cost through surcharges indexed to fuel prices. Although oil prices reached the bottom line during the pandemic, with all FedEx investments and changes, we forecast this cost to represent 6.9% (as a % of express revenues) in the long-run, higher than in FY21 (6.5%) but lower than in the past.

Other costs, such as purchase transportation and rental expenses, are either expected to maintain or slightly decrease as a % of revenues to reflect the margin improvement.

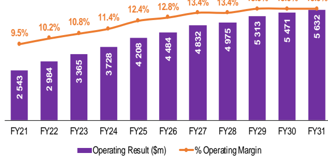
To sum up, FedEx Express margins are expected to recover in FY21 to reflect all the opportunities mainly in the international environment (7.6%). Afterwards, the improvement in margins is sustainable for the foreseeable period, reaching an 9.1% operating margin by FY27 and maintaining during the remaining forecasting period. Although our long-term margin expectation is lower when compared to the Wall Street consensus[1], we prefer to be caution on our estimate as there still is a lot of uncertainty on the pace of air passenger recovery and on FedEx ability to sustain double-digit margin for this segment after the end of the constraint capacity.

▪ FedEx Ground

The pandemic raised restrictions to physical shopping, thus, the boom in e-commerce led to increasing demand for residential deliveries. In this regard, FedEx Ground is investing in order to turn ground operations more efficient and increase margins. Firstly, FedEx implemented 7-day week delivery to increase firm's capacity and smooth the logistics process, thus, currently, FedEx serves nearly 95% of the US population. Secondly, FedEx created the SameDay Bot called Roxo,

[1] Reuters

Graph 2: FedEx Ground Operating Performance



Source: Own Estimates

an autonomous robot that replaces USPS in last-mile deliveries, enabling more cost-efficient shipments. Thirdly, the FedEx SmartPost is being integrated within FedEx Ground network, increasing its density and diluting fixed costs per package by 9% in 2Q21 (YoY). In line with this, FedEx Ground has been investing in both internal partnerships to handle the peak demand, namely with FedEx Express to deliver certain packages and with FedEx Freight to transport heavier packages, and in external partnerships with well-established retail firms as Dollar General and Walmart to increase drop-off/pick-up locations.

Therefore, assuming a broader and dense network, we believe that FedEx Ground will become more cost-efficient, thus, we forecast margin improvements until FY31. The SmartPost integration within FedEx Ground implies the expansion of ground network with 28 SmartPost facilities, thus, we estimate the rental costs to increase in the short-term (from $989 million in FY20 to $1 243 million in FY23), tending to 3.8% of ground revenues by FY31.

Concerning salaries and employee benefits, we estimate them to be 18.3% of ground revenues until FY22, ranging from $4 881million in FY21 to $5 335 million in FY22. This is explained by the fact that we believe that FedEx will increase its workforce in the near-term and we do not expect FedEx Ground will lay off the 70 000 employees hired last year to overcome e-commerce "rush" and holiday peak. From FY24 onwards, we forecast this caption to decrease in percentage of sales, reaching 17% of ground revenues in FY31. On the other hand, we will keep purchased transportation at 47.5% and 47% of revenues until FY23, due to the increased independent services providers contracts settled to deal with the ground volume expansion. Thereafter, these costs will tend to 45.5% of revenues by FY31. Note that when comparing with UPS, which relies more on its own workforce, FedEx registers lower costs with salaries as percentage of revenues since it subcontracts independent drivers.

Consequently, although the decrease in ground's operating margin to 8.9% in FY20, we expect a fast margin recovery from FY21 onwards. As we believe that B2C transactions will dominate the market, we estimate the operating margin to be 10.8% by FY23, because these transactions are less profitable to FedEx as they imply raising costs to increase substantially the volume. However, FedEx aims to improve efficiency in this regard, thus, it has been investing in a broaden and consolidated FedEx Ground network to raise operating margin. On the other hand, from FY24 onwards, we expect FedEx Ground margins to recover to levels prior to the pandemic, reaching 13.9% by FY31, mostly due to the recovery of B2B transactions, which are more profitable to FedEx Ground.

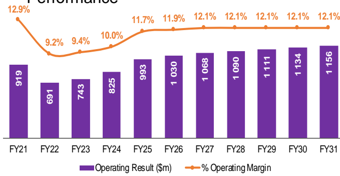
Within the ground segment, FedEx has the higher operating margin compared to UPS and DHL, since in FY19 FedEx reached 13% of ground operating margin, while UPS (US Domestic Package) and DHL (Post and Parcel) reached 9% and 8%, respectively. As this trend has been sustained throughout the latest years, we expect FedEx to keep the highest operating margin as it has been the most efficient logistics firm providing ground services.

- FedEx Freight

FedEx Freight strategy relies on enhancing revenue quality through processes optimization and cost reduction measures. Following the pandemic, we believe that FY21 will be an abnormal year for FedEx Freight whose significant recovery is justified by its collaboration with FedEx Ground to deliver bulkier packages to residences during the pandemic. Therefore, in general, in FY21, we estimate operating expenses to decrease as percentage of revenues due to the decline in B2B transactions. In turn, we expect an abnormal year regarding fuel costs that will decrease to

prior levels near 4.5% of revenues, in line with 2Q21 results and the low oil prices associated with the decline in services provided to businesses. Consequently, FedEx Freight operating margin will reach 12.9% in FY21.

Graph 3: FedEx Freight Operating Performance



Source: Own Estimates

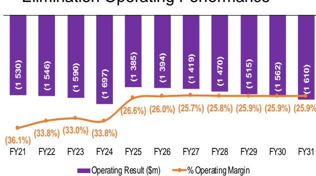
From FY21 onwards, we consider that FedEx Freight will approach last years' performance and decrease costs in percentage of freight revenues until FY31 as efficiency increases. Regarding fuel costs, as we believe that FY21 was an one-off year, we estimate fuel costs to increase from $320 million to $502 million in FY22 to further reach 6.7% to 6.5% of revenues until FY31, as we do not expect oil prices to remain as low as during the pandemic.

Accordingly, we forecast FedEx Freight operating margin to reach 12.1% by FY31, reflecting the increasing cost efficiency and productivity gain throughout the years.

- FedEx Services, Other and Elimination

This business segment will comprise ShopRunner activity, thus, we estimate slightly higher costs with salaries and amortization from FY21 onwards (97% and ranging from 20.7% to 16.1% of revenues until FY31, respectively).

Graph 4: FedEx Services, Other and Elimination Operating Performance



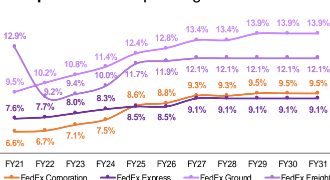
Source: Own Estimates

Nonetheless, as a residual FedEx's segment, we forecast this business unit considering the past trend and the need to balance each business unit costs with the consolidated statement. Hence, due to the adjustments in elimination caption, we estimate an operating margin ranging from -36.1% to -25.9% until FY31.

- Operating Margins Summary

To sum up, FedEx management team targets a double-digit margin for the future years. However, we believe that FedEx will tend to a lower figure, reaching 9.5% operating margin by FY31. This operating margin improvement is mostly associated with efficiency gains and scale effects within Express segment as well as with ground margin recovery. However, there is still a lot of uncertainty regarding the express margin after the end of the constraint international airfreight and the trajectory of the ground margin with the new online shopping habits, with the management team not providing any guidance for ground margin in the last quarter.

Graph 5: FedEx Operating Performance



Source: Own Estimates

Net Working Capital Requirements (NWCR)

We forecast all the components of the NWCR as a number of days, except operating cash that we forecast to be 2% of revenues, as it is a good proxy of the amount that firms need, on average, to run their core business[2].

Table 1: Operating Current Assets in Days

	FedEx			UPS		DHL	
	FY18	FY19	FY20	FY18	FY19	FY18	FY19
Accounts Receivables (Days)	47	48	53	45	47	49	49
Inventories (Days)	10	10	10	13	15	12	11
Other Current Assets (Days)	6	6	4	4	5	14	15

Source: Own Estimates

During FY20, customers were given more days to pay its credits since COVID-19 crises put pressure on liquidity in general. However, we do not expect this to occur in the foreseeable future. Thus, we forecast this caption to be back to pre-COVID levels (48 days), closer to the number of days of its main peers (UPS and DHL), and to slightly decrease to 47 days later in the future (FY25), as FedEx becomes more efficient in collecting from its clients, converging to past levels and UPS figures.

We forecast the other operating current assets (spare parts, supplies and fuel, and prepaid expenses and others) to be the same as in the past since it is a standard when comparing to its closer peers (UPS and DHL). We expect to slightly decrease over the years, as we do not expect any meaningful changes in the industry and in FedEx's policies in this regard.

[2] T. Opler, et al. 1999. "The Determinants and Implications of Corporate Cash Holdings", *Journal of Financial Economics* 52 (1): 3–46

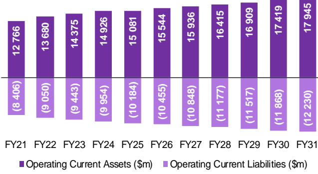
Table 2: Operating Current Liabilities in Days

	FedEx			UPS		DHL	
	FY18	FY19	FY20	FY18	FY19	FY18	FY19
Accounts Payable (Days)	58	55	59	158	164	183	181
Accrued Wages (Days)	33	26	23	30	24	31	33

Source: Own Estimates

The number of days that it takes FedEx to pay to its suppliers is almost a third (55 in FY19) when compared to UPS (164 in FY19) and DHL (181 in FY19). However, the mix of business among these three firms is different. For example, FedEx has a much higher proportion of express-type of service (51.3% in FY20) and less ground-based deliveries when compared to UPS. Consequently, FedEx is more capital intensive, spending more on fuel, landing fees and rental expense, and it depends more on sub-contractors, while UPS has its own labor force. For those reasons, FedEx has fewer days, on average, to pay its suppliers and we do not expect major changes in the future. Therefore, we estimate the average payable period to remain relatively stable, with a small increase in the forecast in line with all the efforts FedEx has made to become more efficient and improve their supplier policies.

Graph 6: Operating Current Assets vs Operating Current Liabilities Forecast



Source: Own Estimates

Lastly, we assume that the number of days it takes for FedEx to pay its employees for their monthly work to remain stable in 23 days, as this is the new trend for the sector. If we look at UPS, it has also paid its employees in 24 days during 2019, instead of paying for their monthly work in the next month as in the past. Lastly, we estimate accrued expenses to converge to past levels, following past recovery trends.

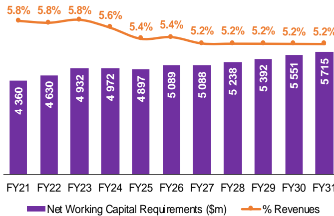
Table 3: Cash Conversion Cycle

	FedEx			UPS		DHL	
	FY18	FY19	FY20	FY18	FY19	FY18	FY19
Working Capital (Days)	17	22	24	6	9	3	4

Source: Own Estimates

In conclusion, FedEx has the worst cash conversion cycle when compared to UPS and DHL. This can be justified by the fact that FedEx has a different mix of business, with higher proportion of express-type services and less ground-based deliveries, that mainly affects the number of day it takes for FedEx to pay its suppliers. Nevertheless, with the new strategy to become more efficient, FedEx has some margin to converge the net working capital, but we do not believe it will fully catch up that of UPS and DHL.

Graph 7: Net Working Capital Requirements Forecast



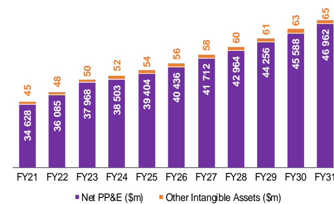
Source: Own Estimates

To sum up, we assume the net working capital to be 5.8% of revenues in the first years and to converge to 5.2% at the end of the forecasting period.

Capital Expenditures (CapEx)

FedEx is a capital-intensive firm due to the reliance on the Express segment that owns an extensive aircraft fleet. Consequently, compared to its peers, FedEx is more dependent on fixed assets to generate revenues with 44% of net PP&E as percentage of revenues by FY19 (UPS 40% and DHL 34% by FY19). However, regarding capital expenditures, FedEx's investments are slightly lower than its peers (with $5 564 million compared to UPS $5 981 million and DHL $5 922 million in FY19).

Graph 8: Fixed Assets Forecast



Source: Own Estimates

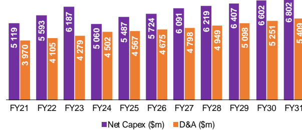
According to firm's recent announcements and the pandemic economic effects, FedEx will decrease its capital expenditure (as a % of revenues) in the following years. On the one hand, FedEx has already made significant investments to increase its network coverage to 95% of the US population. On the other hand, due to the current pandemic, the firm will postpone larger investments in facilities and focus on smaller investments to increase capacity and capabilities to help FedEx smoothing its logistics process during peak, mainly to smooth ground services. At the same time, FedEx has been acquiring appropriate equipment for residential deliveries to handle non-conveyable packages.

FedEx Express is the operating segment with the major weight on FedEx business, then, aircrafts and related equipment also corresponds to the majority of net PP&E. Following FedEx's fleet investment plan, we believe that the total fleet pounds and the cost per thousand pounds are the best drivers to assess the value of aircrafts and equipment throughout the years. Note that, within our forecasts, we considered the retirement of MD-10 fleet until FY22 as well as the retirement of

the inefficient aircrafts A310, as announced in FedEx 2020 Annual Report.

Moreover, the boom in e-commerce has been accelerating the investment in ground equipment to smooth the residential deliveries network. As a consequence, we estimate package handling and ground support equipment to evolve as percentage of package and ground revenues, so that in the next three years the investment in this regard is intensified (from $4 499 million in FY20 to $5 410 million FY23). On the other hand, besides the expected increase in ground facilities due to SmartPost integration and the plans to open more cold chain facilities (adding to the 90 already existent across the world) to deal with critical shipments, FedEx announced a $1.5 billion expansion in FedEx Express Indianapolis hub as well as a $1.5 billion investment to modernize the FedEx Express Memphis World hub. As a result, we forecast the net value of facilities and other to be driven by FedEx Ground and Express revenues, evolving from $7 043 million in FY20 to $9 861 million in FY25. The remaining PP&E will evolve at a similar percentage of revenues as past years, while other intangible assets (net) will be 0.6% of revenues throughout the forecast, in line with the past three years.

Graph 9: Capital Expenditures and D&A Forecast

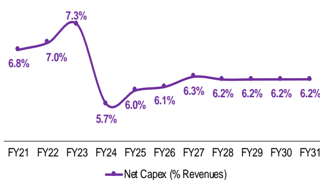


Source: Own Estimates

Regarding depreciation costs and considering the stable trend verified until the present, we forecast them to be a constant percentage equal to the average of the past three years until FY31, corresponding to 11.7% of the prior year PP&E and other intangibles.

Therefore, in FY21, FedEx will decrease its CapEx to $5.1 billion (vs $6.7 billion in FY20) as announced in 2Q2021 earnings call, while we estimate an increase in CapEx by FY22 up to $5.6 billion, due to the investments in the ground facilities and equipment to accommodate the e-commerce growth and automate last-mile deliveries. Thereafter, we believe that CapEx will range from 7.3% to 6.2% of revenues, reaching $6.8 billion by FY31.

Graph 10: Net Capital Expenditures (% Revenues)



Source: Own Estimates

In terms of operating leases, following the US GAAP ASC 842 standard, we adjusted the past FedEx's balance sheets to capitalize the operating leases through their recognition as both an asset and a debt equivalent. By doing so, we are mitigating the capital structure impact on FedEx's valuation, thus, now, its EV, Free Cash Flow and ROIC reflect better FedEx's core business. The FedEx operating leases are directly related to its express segment as they are mainly collateralized by aircrafts, thus, we estimate them to be 45% of FedEx Express revenues until FY31, in line with the last two years weights.

Free Cash Flow

Table 4: FedEx Free Cash Flow Map

(in million dollars, as of May, 31st)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
NOPLAT (capitalizing operating leases)	3 465	2 651	3 758	4 211	4 677	5 119	5 998	6 322	6 908	7 107	7 463	7 685
Depreciation and Amortization	3 353	3 615	3 970	4 105	4 279	4 502	4 567	4 675	4 798	4 949	5 098	5 251
Gross Cash Flow	**6 818**	**6 266**	**7 729**	**8 316**	**8 955**	**9 621**	**10 566**	**10 997**	**11 706**	**12 057**	**12 561**	**12 936**
Changes in NWCR	(1 012)	(404)	156	(270)	(302)	(40)	75	(192)	1	(150)	(154)	(159)
Capex, Net	(5 564)	(6 700)	(5 119)	(5 593)	(6 187)	(5 060)	(5 487)	(5 724)	(6 091)	(6 219)	(6 407)	(6 602)
Change in Rep. Operating Leases	0	(13 917)	13 917	0	0	0	0	0	0	0	0	0
Remove Change in Rep. Operating Leases	0	14 118	(14 118)	0	0	0	0	0	0	0	0	0
Changes in Capitalized Operating Leases	(30)	1 382	(1 158)	(950)	(725)	(702)	(642)	(643)	(655)	(677)	(700)	(724)
Change in Other Assets, Net Other Liabilities	3	229	(69)	65	50	44	38	35	34	35	36	38
Change in Goodwill, Net	89	512	0	0	0	0	0	0	0	0	0	0
Unlevered Operating FCF	**304**	**1 486**	**1 338**	**1 567**	**1 792**	**3 863**	**4 550**	**4 472**	**4 995**	**5 046**	**5 335**	**5 488**

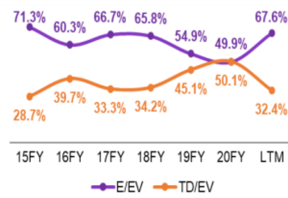
Source: Own Estimates

The cash flow growth is a consequence of three key drivers: business growth, operating margins improvement, and lower investment requirements (as a % of revenues) compared to the past. FedEx prepared itself well in the last years to now reap the benefits, with all the investments and transformation it has made, from new hubs, optimizing all business segments to extending the operating days and other improvements. It is now better positioned in the market, making its business even more attractive and with an even better value proposition.

Cost of Capital

▪ Capital Structure

Graph 11: FedEx Historical Capital Structure



Source: Bloomberg, FedEx Annual Report and Own Estimates

Table 5: FedEx Target Capital Structure (in millions of $, except otherwise stated)

Target Capital Structure	
Operating Leases	16 498
Debt	23 318
Excess Cash	6 844
Debt and Debt Equivelents	**32 972**
Price per Share	$259.62
Shares Outstanding (Millions)	265
Market Cap	**68 818**
EV	**101 790**
TD/EV	32.4%
E/EV	67.6%

Source: Bloomberg, FedEx Annual Report and Own Estimates

In recent years, FedEx saw its leverage ratios rising, reaching more than 50% total debt (includes net debt and operating leases) to enterprise value in FY20 (see graph 11). Regarding the last twelve months (LTM), FedEx has a total debt to enterprise value of 32.4% (see table 5) and we believe that FedEx will implicitly target this ratio. FedEx has been reducing its leverage ratio otherwise it could jeopardize its credit rating of BBB for the S&P and of Baa2 for Moody's. It is important for FedEx to preserve this credit rating to keep the ability to raise debt in the future at attractive conditions. Note that since we estimate operating leases apart, the net debt to enterprise value will fluctuate but it will be such that the total debt to enterprise value will be equal to 32.4%. This will lead to different discount rates each year, although they are very similar. It is also worth mentioning that we consider the total book value of debt as a fair proxy of market value of debt. Also, in line with Damodaran's article[3], we valued the operating leases as the present value of future rents on leases, discounted at an appropriate discount rate (RoI). We calculated the value of operating leases to uniformize ROICs across its comparable firms, but this must not have an impact on valuation.

▪ Cost of Equity

Table 6: Unlevered Beta Computation

(in millions of $, except DHL)	FDX	UPS	DHL	XPO	JBHT	ZTO	**Average**
be	1.29	0.95	1.15	2.30	1.02	0.70	
ND	16 474	16 879	15 002	6 870	984	0	
E	68 818	145 560	50 461	10 900	14 440	25	
OL	16 498	3 033	-	-	-	-	
EV	101 790	165 472	65 463	17 770	15 424	25	
OL/E	24.0%	2.1%	-	-	-	-	
D/E	23.9%	11.6%	29.7%	63.0%	6.8%	-	
implied bd	0.09	0.05	0.08	0.27	0.14	-	
implied bol	0.08	0.08	-	-	-	-	
bu	0.90	0.84	0.91	1.52	0.97	0.70	**0.88**

Source: Bloomberg and Own Estimates

Since most of FedEx investors are American (79.7%), we assume that the FedEx marginal investor is also American. Thus, we use the S&P500 index as the market portfolio against which we regressed the FedEx historical stock returns to compute the levered beta (βe) that we unlevered afterwards. We repeated this methodology for the selected peers and regressed using the respective market portfolio (e.g., in the case of DHL that most investors are European it was used as a market portfolio the STOXX 600) to compare the estimated systematic risk across the sector. The parameters for each firm and the respective unlevered betas (βu) are summarized in table 6.

To determine the cost of equity we used the CAPM model. Firstly, by re-levering the βu of 0.88 obtained through the average of the unlevered betas of FedEx, UPS and DHL (to reduce the statistical error of using only FedEx unlevered beta), we estimated a βe of 1.26. Note that, considering the smaller size and the implied different service provided, we excluded XPO Logistics, J.B Hunts Transportation and the ZTO Express as from the 1st tier of FedEx's comparable firms. Secondly, and to match the duration of FedEx's cash flows duration, we used the 0.92% yield of a 10-year US government bond as a fair proxy for the risk-free rate. Thirdly,

[3] Damodaran, Aswath. 1999. "Dealing with operating leases in valuation." *NYU Working Paper*

according to Damodaran's article[4], we considered a 6.5% expected risk premium. In the end, we estimated an expected cost of equity (Re) of 9.13% each year.

- Cost of Debt

To compute FedEx's expected cost of debt (Rd), we considered a FedEx corporate bond that matures in 2030 and with a principal of $750m and a yield-to-maturity of 1.70%. Then, based on Moody's report, we assumed a loss given default of senior unsecured bonds of 68.18% and an annualized 10-years Baa2 probability of default of 0.31%, which led us to a Rd of 1.49%. Consequently, the implied βd was 0.09.[5] [6]

- Cost of Operating Leases

FedEx's total debt is also composed by operating leases, mainly associated with aircrafts within FedEx Express. Until FY20, operating leases represented nearly half of total debt, hence, we believe that FedEx's WACC must include the expected cost of operating leases (RoI) separately from the expected cost of debt in order to appropriately reflect this risk.

According to Damodaran article, once operating leases are secured by a collateral (aircrafts), a yield of AA US composite bond is used as a fair proxy to determine the cost of operating leases (RoI). Therefore, considering a yield-to-maturity of 10-year AA US corporate bonds (1.45%), a loss given default of 40.24% and an annualized 10-years Aa2 probability of default of 0.08%, we estimate a RoI of 1.42%. Consequently, we reach to an implied βol of 0.08.[3] [5] [6]

- WACC

Table 7: WACC Computation (Long-Term)

WACC	
Rf	0.9%
be	1.26
MRP	6.5%
Re	**8.2%**
E/EV	67.6%
Rd	**1.5%**
ND/EV	17.8%
RoI	**1.4%**
OL/EV	14.6%
Marginal Tax Rate	24.15%
WACC	**6.53%**

Source: Own Estimates

Firstly, we will consider a marginal tax rate of 24.15% (21% of corporate tax rate plus 3.15% of state and local income tax), assuming that Biden's proposal to raise the corporate tax rate to 28% will not be approved by the US Senate. Secondly, from FY20 onwards, as mentioned before, FedEx will decrease its leverage ratio to the LTM level, thus, we expect that the equity-to-enterprise value ratio will be kept at 67.6%, while the net debt to enterprise value and the operating leases to enterprise value ratios will tend to 17.8% and 14.6%, respectively, in the long-term. Finally, with the after-tax cost of debt and operating leases, the cost of equity and the weights of debt-to-enterprise value which slightly vary across years, we computed a relatively stable WACC of 6.53%.

Discount Cash Flow (DCF)

Table 8: Discounted Cash Flow Model

Operating EV	**120 425**
Net Debt	(21 567)
Operating Leases	(17 216)
Postretirement Pensions	(5 699)
Equity Value	75 944
Shares Outstanding (millions)	265
Price Per Share (December 31st, 2021)	**$286.50**

(in million dollars, as of 31st may)	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30
Unlevered Operating FCF	**1 567**	**1 792**	**3 863**	**4 550**	**4 472**	**4 995**	**5 046**	**5 335**	**5 488**
WACC	**6.53%**	**6.53%**	**6.53%**	**6.53%**	**6.53%**	**6.53%**	**6.53%**	**6.53%**	**6.53%**
Periods of Discount	*0.42*	*1.42*	*2.42*	*3.42*	*4.42*	*5.42*	*6.42*	*7.42*	*8.42*
Discount Factor	*0.97*	*0.91*	*0.86*	*0.81*	*0.76*	*0.71*	*0.67*	*0.63*	*0.59*
PV Unlevered Operating FCF	**1 526**	**1 638**	**3 316**	**3 666**	**3 381**	**3 546**	**3 363**	**3 337**	**3 222**
Terminal Value	159 134								
Present Value Terminal Value	**93 430**								

Source: Own Estimates

To determine FedEx's equity value as of December 31st, 2021, we deduct to the enterprise value both the total debt (including operating leases) and the postretirement liabilities, a non-core item that we estimate to be a percentage of salaries and employee benefits (tending to 14% by FY31). Consequently, we reach to an equity value of $75 944 million.

[4] Damodaran, Aswath. 2020. "Equity Risk Premiums (ERP): Determinants, Estimation and Implications – The 2020 Edition" *NYU Working Paper*
[5] Moody's Annual Default Study 2020
[6] Bloomberg

As summarized in table 8, using a DCF model, we estimate a price per share as of December 31st, 2021 of $286.50.

Terminal Value (TV)

Table 9: Growth Rate, RONIC and RR

(in million dollars, as of 31st May)	FY19	FY20	FY21	FY22	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	FY31
NOPLAT	3 465	2 651	3 758	4 211	4 677	5 119	5 998	6 322	6 908	7 107	7 463	7 685	7 914
Invested Capital	58 002	59 167	61 588	64 232	67 116	68 372	69 820	71 670	73 583	75 644	77 772	79 968	82 236
FCF	304	1 486	1 338	1 567	1 792	3 863	4 550	4 472	4 995	5 046	5 335	5 488	5 646
ROIC (excl Goodwill)	7.2%	5.2%	7.1%	7.6%	8.1%	8.4%	9.7%	10.0%	10.6%	10.6%	10.8%	10.8%	10.8%
ROIC	6.3%	4.6%	6.4%	6.8%	7.3%	7.6%	8.8%	9.1%	9.6%	9.7%	9.9%	9.9%	9.9%
FCF g	**-279.0%**	**389.0%**	**-10.0%**	**17.0%**	**14.0%**	**116.0%**	**18.0%**	**-2.0%**	**12.0%**	**1.0%**	**6.0%**	**3.0%**	**3.0%**
RONIC	4.3%	-25.7%	95.0%	18.7%	17.6%	15.3%	70.0%	22.3%	31.7%	10.4%	17.3%	10.4%	10.4%
RR	91.2%	44.0%	64.4%	62.8%	61.7%	24.5%	24.1%	29.3%	27.7%	29.0%	28.5%	28.6%	28.7%
g	**3.9%**	**-11.3%**	**61.2%**	**11.7%**	**10.9%**	**3.8%**	**16.9%**	**6.5%**	**8.8%**	**3.0%**	**4.9%**	**3.0%**	**3.0%**
NOPLAT g	**4.5%**	**-23.5%**	**41.7%**	**12.0%**	**11.1%**	**9.5%**	**17.2%**	**5.4%**	**9.3%**	**2.9%**	**5.0%**	**3.0%**	**3.0%**

Source: Own Estimates

We computed the growth rate (g) to be the one that corresponds to a steady-state growth, in which the FCF growth (FCF g) matches the growth resulted from the product of the reinvestment rate (RR) and the return on new invested capital (RONIC). Therefore, we estimated g as a product of RONIC and RR. Moreover, the RR is relatively stable in the last years of the forecast period, thus, we can use the perpetuity formula.[7] Note that, the 3% growth rate estimation is a fair estimation since it is between the US long-term inflation rate (2%) and the nominal US GDP growth (3.8%).

Regarding RONIC, we consider it is going to stabilize in 10.4%, meaning that ROIC will tend to that value in the long run. FedEx has invested well in recent years to improve its efficiency, and it is possible to see its effects in a margin improvement in the last two quarters. Thus, we believe a 10.4% ROIC in the long-term is obtainable with all new investments as FedEx can converge its ROIC and margins to those of UPS, although it is very unlikely to fully reach UPS's ROIC. Moreover, in our view, FedEx ROIC cannot converge to its cost of capital (WACC), given the tremendous high barriers there is to replicate FedEx business. Despite there is some competition in the logistics sector, there is no other company that offers the same services and coverage around the world as FedEx does, aside from UPS and DHL. Therefore, with a ROIC higher than WACC, FedEx will keep creating value to its shareholders. We want to highlight that ROIC was considered adjusted for operating leases as we want to isolate capital structure choices from the core business performance.

Relative Valuation

Table 10: Relative Valuation Multiples

(as of December 31st, 2020)	EV/Revenues	EV/EBITDA	EV/EBIT
Tier 1			
FDX	1.3x	9.6x	25.1x
UPS	2.1x	14.4x	21.2x
DHL	0.9x	7.3x	14.1x
Tier 2			
XPO	1.1x	13.6x	48.7x
JBHT	1.6x	12.0x	21.7x
Tier 1 Average	**1.4x**	**10.4x**	**20.1x**
Tier 1 + 2 Average	**1.4x**	**11.4x**	**26.2x**
FedEx Implied Multiple by DCF	**1.5x**	**12.7x**	**22.4x**

Source: Own Estimates

Regarding relative valuation, we consider that there are two groups of comparable firms. The Tier 1 is composed by FedEx's close comparable firms namely FedEx itself, UPS and DHL, due to similarities with FedEx in terms of business model, world presence and operating performance. In turn, the Tier 2 composed by XPO Logistics and J.B. Hunt Transport Services was selected according to their US presence and core business akin to FedEx's.

Therefore, using the last twelve months data of the Tier 1, we reached an EV-to-EBIT ranging from 17.6x to 23.2x, which corresponds to a price per share ranging from $190.67 to $303.88 as of December 31st, 2021. On the other hand, combining both peer groups we got to an enterprise value between 21.2x and 25.1x EV-to-EBIT, thus, we estimate the price per share to range from $264.02 to $343.74 as of December 31st, 2021. Nonetheless, we excluded from our analysis the second approach using both Tier 1 and Tier 2, because we believe that FedEx value should be

[7] Koller, Goedhart and David Wessels. 2015. *Valuation: Measuring and Managing the Value of Companies*. McKinsey & Co.

$$TVt = \frac{NOPLATt(1+g)(1-\frac{g}{RONIC})}{WACC-g}$$

assessed using the biggest logistics firms as peers, due to its dimension and strong market positioning. We used the EV-to-EBIT as the most accurate metric to assess FedEx value (instead of EV-to-EBITDA) due to the high depreciations within the logistics industry. We consider that they are a good proxy for future capital expenditures, since most of the upcoming investments are already planned (especially regarding aircraft fleet).

Finally, we believe that the median multiple reached falls short of the fair multiple for FedEx since it has been outperforming the market (and we expect it to continue) during the pandemic crisis, exceeding investors' expectations as a result of its efficient management during peak. On the other hand, the FedEx current multiple accounts for the stock sell-off, following the lower-than-expected ground margin. Consequently, the market is heavily punishing FedEx for these results. However, we consider it an overreaction as FedEx has been beating all the estimates regarding the overall business. Accordingly, we believe that FedEx should be traded near 22.4x EV-to-EBIT, the multiple implicit in our DCF valuation, to reflect FedEx's fair market value.

Sensitivity Analysis

Table 11: Cost of Equity (Re) Sensitivity Analysis

βe	0.994	1.129	1.264	1.399	1.534
Re	7.38%	7.34%	8.22%	9.09%	9.97%
WACC	5.35%	5.32%	5.91%	6.51%	7.10%

Source: Own Estimates

Firstly, we conducted a sensitivity analysis to the βe and, consequently to the Re. Considering an interval of confidence at 95% for FedEx, UPS and DHL βe[8], we unlevered and then averaged their extreme values on that interval and re-levered for our sensitivity analysis, using FedEx future capital structure ratios. Therefore, we believe the possible values for βe ranges from 0.99 to 1.53, translating into a cost of equity ranging from 7.38% and 9.97%, as it is summarized in table 11.

Table 12: Cost of Debt (Rd) Sensitivity Analysis

Rd	1.38%	1.46%	1.54%	1.62%	1.70%
WACC	6.52%	6.53%	6.54%	6.55%	6.56%

Source: Own Estimates

Table 13: WACC Sensitivity Analysis

		Re				
		7.38%	7.34%	8.22%	9.9%	9.97%
Rd	1.38%	5.33%	5.33%	5.90%	6.49%	7.08%
	1.46%	5.34%	5.34%	5.91%	6.50%	7.09%
	1.54%	5.35%	5.35%	5.92%	6.51%	7.10%
	1.62%	5.36%	5.36%	5.93%	6.52%	7.12%
	1.70%	5.37%	5.37%	5.94%	6.53%	7.13%

Source: Own Estimates

Secondly, we performed a sensitivity analysis on Rd, in which the range of possible values fell within the FedEx YTM and an Rd estimation in the case of FedEx dropping from its current credit rating (Baa2 for its senior unsecured debt) to Baa3. As shown in table 12, the possible range for Rd has almost no impact on WACC.

Table 14: Price Per Share - Sensitivity Analysis to WACC

WACC				
5.33%	5.78%	6.53%	6.98%	7.13%
$526.08	$412.38	$286.50	$233.99	$219.34

Source: Own Estimates

Thus, the WACC values could range from 5.33% to 7.13%, implying a price per share ranging from $526.08 to $219.34.

Table 15: Terminal Value (TV) Sensitivity Analysis

g	2.5%	2.98%	3.5%	4,0%	4.5%
RONIC	9.9%	10.4%	10.9%	11.4%	11.9%
RR	25.2%	28.7%	32.1%	35.1%	37.8%
FCF	5 890	5 646	5 402	5 191	4 997
TV	146 106	159 146	178 218	205 053	245 971

Source: Own Estimates

Then, we conducted a sensitivity analysis to the Terminal Value. By varying the RONIC and RR, it was possible to come up with a reasonable range of values for the terminal value (table 15). It is worth to note that by varying the RONIC and RR, the Free Cash Flow that goes to the terminal value formula is different from the one determined by multiplying the free cash flow in the last year of the forecasting period by a (1+g) factor, making this sensitivity more accurate and consistent. Nevertheless, it is possible to observe how sensible the terminal value is to its key inputs (RONIC, RR and g).

Table 16: Growth (g) Sensitivity Analysis

		RONIC				
		6.53%	8.47%	10.41%	11.27%	12.13%
RR	28.25%	1.8%	2.4%	2.9%	3.2%	3.4%
	28.45%	1.9%	2.4%	3.0%	3.2%	3.4%
	28.65%	1.9%	2.4%	3.0%	3.2%	3.5%
	28.89%	1.9%	2.4%	3.0%	3.3%	3.5%
	29.12%	1.9%	2.5%	3.0%	3.3%	3.5%

Source: Own Estimates

In addition, we assessed how sensitive g is, when we change RONIC and RR assumptions. The RR was varied by two times standard deviation of the last four years of the forecasting period. On the other hand, RONIC was varying from the WACC (6.53%) estimation (assuming in this case that RONIC was equal to WACC and, consequently, ROIC would tend to WACC, meaning that FedEx would not create nor destroy value) and the average of RONIC (12.13%) for the last 3 years of the forecasting period. From this it is possible to obtain a plausible range for the perpetual growth rate (g), from 1.8%, slightly lower than the long-term goal for inflation in the US, to 3.5%, higher than the long-term inflation rate for the world but still lower than the nominal GDP growth for US and world.

[8] Confidence interval at 95%: [βe - 2 x Standard Error; βe + 2 x Standard Error]

Table 17: WACC and Growth (g) Sensitivity Analysis

g	WACC 5.33%	5.78%	6.53%	6.98%	7.13%
1.8%	$390.06	$322.41	$238.40	$200.06	$189.00
2.4%	$445.01	$359.97	$259.27	$215.03	$202.45
3.0%	$526.13	$412.41	$286.50	$234.00	$219.34
3.3%	$580.72	$445.86	$302.90	$245.07	$229.13
3.5%	$651.76	$487.32	$322.16	$257.83	$240.35

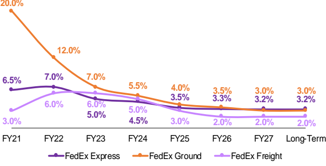
Source: Own Estimates

Lastly, a sensitivity analysis to price per share disclosed how sensible the price was to changes in WACC and g. Note that the range of values we used for WACC and g was determined previously by sensitivity analysis made to these two inputs. It is likely that the price per share would be concentrated in the intervals where g is above 2%, in line with US long-term inflation rate. However, the impact on share price is still high (see table 17), showing once again how sensible the DCF model is to its inputs.

Scenario Analysis

▪ Best-Case Scenario

Graph 12: Best-Case Scenario Revenues Growth

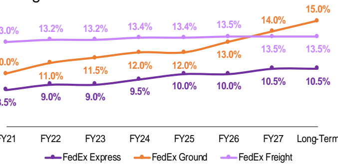


Source: Own Estimates

In our "blue sky" scenario, we incorporate 7 main different assumptions: faster and higher than expected economic recovery; a more favorable international trade; FedEx would be also responsible for distributing the vaccine around the world; the e-commerce demand would be higher and the high growth rate would last more years; greater operating margin efficiency in the 3 main business segments; lower capital requirements (as a % of revenues); and higher RONIC in the long-run.

Despite we expect GDP levels to be back to pre-COVID by 2021, in this scenario we assume a faster reopening of the economies around the world that would translate into higher B2B transactions. This along with a more favorable international trade would benefit FedEx in 2 ways: increasing its revenues and increasing its operating margins (given that B2B segment tends to be more profitable than B2C segments).

Graph 13: Best-Case Scenario Operating Margins

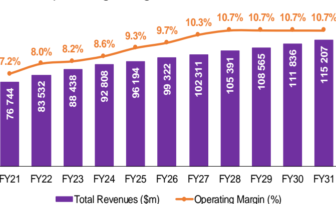


Source: Own Estimates

Secondly, FedEx would be responsible for the worldwide distribution of the vaccine, increasing revenues and enhancing the FedEx's reputation.

Furthermore, we assume that ground segment would continue to grow at double-digit due to e-commerce lasting growth. E-commerce still only represents a small fraction of retail sales and so FedEx can still benefit from this huge upside potential. With all investments FedEx has made along with the future ones, extending FedEx's capacity, the ground segment can benefit from a lasting e-commerce growth. Thus, we forecast 9.6% $CAGR_{20\text{-}25}$ (vs 8.3% in the base-case).

Graph 14: Best-Case Scenario Revenues and Operating Margin Forecast



Source: Own Estimates

Additionally, in this scenario, we assume that the management team could deliver their long-term goal: more than 10% EBIT Margin. For this, we assumed FedEx Express would exceed a 10% margin, surpassing investors' expectations for this segment. Also, we assume FedEx Ground would increase its operating margin to historical levels, in the mid-teens and at a faster pace. This would be possible as a mix of B2B transaction recovery and increased B2C segment efficiency. Lastly, the results achieved in the last quarters for Freight segment would not be a "one-off" thing. Meaning that FedEx Freight "push for revenue quality" strategy would extend to the whole forecasting period, with margins always above 13%.

Table 18: Best-Case Scenario Results

Best-Case Scenario	
ROIC (FY31)	11.6%
RONIC (FY31)	12.2%
WACC	6.53%
Perpetual Growth	3.0%
Terminal Value	199 560
Enterprise Value (FY21)	149 926
Price Per Share	**$376.27**

Source: Own Estimates

Despite still making large investments, mainly in the ground segment to accommodate the huge e-commerce demand, we assume a better asset efficiency (41% vs 43% PP&E over revenue in the long-run) than in our base-case.

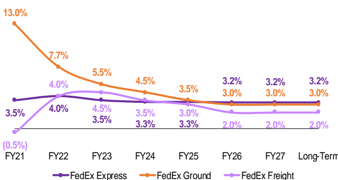
Therefore, due to better operating and capital efficiency, we assume a higher long-term RONIC (12.2% vs 10.4%). For the same WACC, FedEx would create more value to its shareholders than in the base case. Thus, our implied price for this scenario would be $376.27 per share.

▪ Worst-Case Scenario

The worst-case scenario considers the pandemic would extend in the near future, meaning that

more restrictions imposed by governments may be raised to non-essential business activities throughout the world. Allied to an increasing economic uncertainty and investments contraction, these factors could negatively impact the world economic growth as well as the global trade. Furthermore, FedEx's operating costs are greatly driven by fuel costs, especially within FedEx Express, hence, in this adverse scenario we are estimating higher fuel costs as a result of an unsuccessful hedging strategy. In addition, the worst-case scenario considers an increase of the marginal tax rate to 31% (against 24.2% in the base-case), assuming that the electoral proposal of Biden to raise the corporate tax rate to 28% is approved. Accordingly, FedEx may face a heavily decrease in operating margins as a consequence of the lower revenue growth and increased operating and income tax costs.

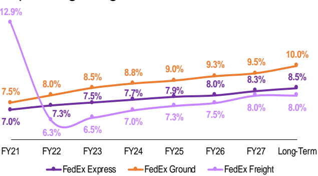
Graph 15: Worst-Case Scenario Revenues Growth



Source: Own Estimates

Regarding FedEx Express, we are assuming that FedEx may not be assigned to the worldwide distribution of the vaccine. On the other hand, we are also assuming that TNT integration within the express network may take longer than projected (FY22) due to the potential pandemic constraints in Europe, affecting the international segments of FedEx Express. Also, considering the 2017 cyberattack to TNT, this scenario weighs the risks of information breaches and failed technological integration within FedEx Express network, that could require additional capital, threatening FedEx investments strategy. Moreover, the pandemic raised restrictions to commercial flights which carried not only passengers but also belly cargo. Consequently, in the worst-case scenario, although the gain in market share until FY23/24, this could not be sustained thereafter, as passenger flights recover their "normal" activity, pressuring margin down. As a result, we expect FedEx revenues to grow at a 3.5% CAGR$_{20\text{-}25}$ (vs 4.3% in base-case) and to have a lower EBIT margin tending to 7.4% by FY31 (vs 9.5% in base-case).

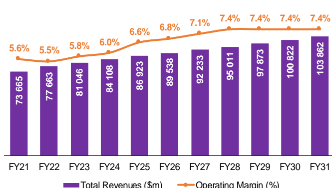
Graph 16: Worst-Case Scenario Operating Margins



Source: Own Estimates

Secondly, the boom in e-commerce may not be sustained in the worst case, hence, FedEx Ground may face a decrease in revenues growth due to a potential decline in projected e-commerce growth and the slowdown in the US economy for the next years. At the same time, as a result of the increasing weight of B2C transactions, we are assuming that labor costs will be kept at a high percentage of sales in the short-term, deteriorating the ground margin. Moreover, the investments in facilities and equipment to optimize the ground network may not be monetized in the short-term. Therefore, we estimate FedEx Ground revenues to grow at a 6.8% CAGR$_{20\text{-}25}$ (vs 8.3% in base-case), while operating margin would not exceed 10% by FY31.

Graph 17: Worst-Case Scenario Revenues and Operating Margin Forecast



Source: Own Estimates

Thirdly, we are varying FedEx Freight's revenues and operating margin forecasts downwards, assuming FY21 as an abnormal year with 12.9% of EBIT margin. Thus, thereafter, we assume FedEx Freight's revenues to grow at a 2.9% CAGR$_{20\text{-}25}$ (vs 3.6% in base-case) while the operating margin would trend to past levels, reaching only an 8% operating margin by FY31.

Table 19: Worst-Case Scenario Results

Worst-Case Scenario	
ROIC (FY31)	6.8%
RONIC (FY31)	7.2%
WACC	6.5%
Perpetual Growth	3.0%
Terminal Value	89 225
Enterprise Value (FY21)	67 898
Price Per Share	**$123.28**

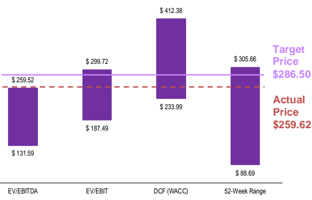
Source: Own Estimates

In addition to the above-mentioned variations, this scenario also foresees a slight deterioration of FedEx's operational efficiency, meaning that we are assuming that FedEx will need to raise capital expenditures and operating leases to reach the planned sales level. Hence, the net PPE will tend to 45% of total revenues, while capitalized operating leases will be 46% of Express revenues by FY31 (compared to 43% and 45% in the base case scenario, respectively).

In the end, this scenario has an implicit long-term ROIC of 6.8% which against a 6.50% WACC (lower than in the base-case due to higher marginal tax rate) reveals that, in our "bear" scenario, FedEx barely creates value to shareholders, assuming that the strong competition will almost eliminate the abnormal return. Therefore, we estimate an implied price per share of $123.28, assuming the same capital structure as the base case scenario.

Final Recommendation

Graph 18: FedEx Football Field



Source: Own Estimates

According to our DCF valuation, FedEx will be traded at $286.50 as of December 31st, 2021. Note that we believe the DCF method is the most appropriate to assess the fair value of FedEx's stock, otherwise we would have to consider a premium to reflect the outstanding market performance of FedEx. Additionally, as a result of the restriction to raise dividends until May 2021 imposed by Credit Agreements, we expect FedEx to pay $0.65 quarterly dividends, which amounts to an annual dividend of $2.60 per share. Therefore, as of January 4th, 2021 our final recommendation is to buy FedEx's stock, with an expected total shareholder return of 11.4% (10.4% of price appreciation and 1.0% of dividend yield) as of December 31st, 2021.