STERN IAG

Board of Advisors Meeting

Apr 30th, 2021

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Letter from Portfolio Managers

Dear Board of Advisors,

First and foremost, we would like to congratulate all of our current Seniors who will be going off and graduating in the next few weeks here. Thank you to Chen Zhou, Larry Wang, Mateo Panjol Tuflija, Liam Coohil, and Michael Giese for dedicating countless hours over your past 4 years here in the organization. Your hard work has been greatly appreciated, and we all look forward to seeing what you accomplish in your careers in the near future!

Secondly, we have completed our second group of IAG trainees, and would like to congratulate Haojun Yang, Alexander Kovalchuk, Mikhail Talib, Akhil Aggarwal, and Pranav Kanchi, who will be presenting their final semester-long pitch deliverable this upcoming weekend.

As for internal developments we have implemented since the last oversight meeting, we have incorporated the Devil's Advocate position within our internal pitch reviews. For this oversight cycle, we applied the idea to several of our late-stage pitches and found the resulting discussions quite insightful.

In the last 12-months, we happy to report that IAG has outperformed the S&P by 41.03%, resulting in an ending AUM of ~$67.7K. Additionally, we have run several performance benchmark regressions on our LTM performance, the results of which can be seen below. As seen here we cannot confidently conclude we have generated meaningful alpha, despite the widening spread between our performance and the S&P.

Regession Method	Single Factor	Fama-French Factors	S&P Sector Factors	Best Subset Factors
Alpha (95% CI)	13.11% ± 16.6%	2.70% ± 4.5%	15.39% ± 17.4%	3.43% ± 9.25%

As for market developments which we have all been watching closely over the past several months, the recent infrastructure spending bill introduced has piqued our interest. Several of our industrial positions within the portfolio have meaningfully appreciated in value since the announcement of the new government spending, for example URI and BBCP to name a few.

Next, we are closely watching the vaccine rollout here in the US, which several of our positions are favorably exposed to. We believe the upcoming increases in consumer confidence and spending will bode well for our positions in PCOM, TDG, and HOME.

Today, we are pleased to share our proposals to add a stake in JD.Com (NASDAQ: JD) and Exelon Corporation (NASDAQ: EXC).

This meeting marks the end of our academic school year here at NYU, and we will make sure to continuously monitor our positions within the portfolio over the summer. Additionally, each portfolio team member will be responsible for sourcing and researching one investment idea, to be presented internally at the start of the next school year, beginning in August. We are very pleased with everyone's work this past year and hope to maintain our portfolio's momentum going forward into the next year.

Best,

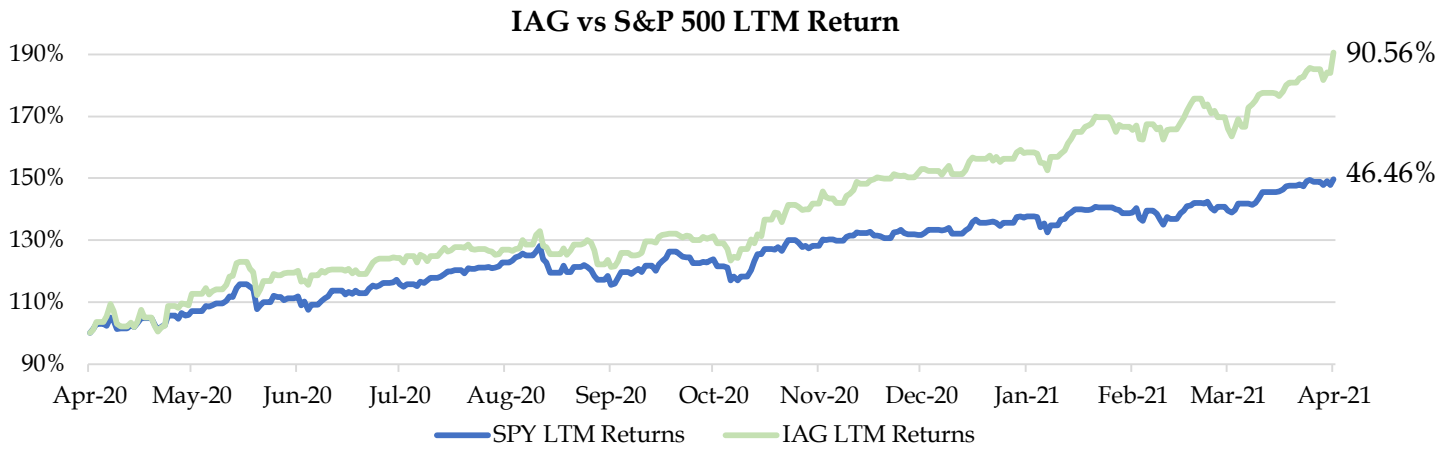
Caleb Nuttle & Tony Wang

Portfolio Managers

II. Performance Analysis

Holdings Summary *(as of Apr 28th, 2021)*

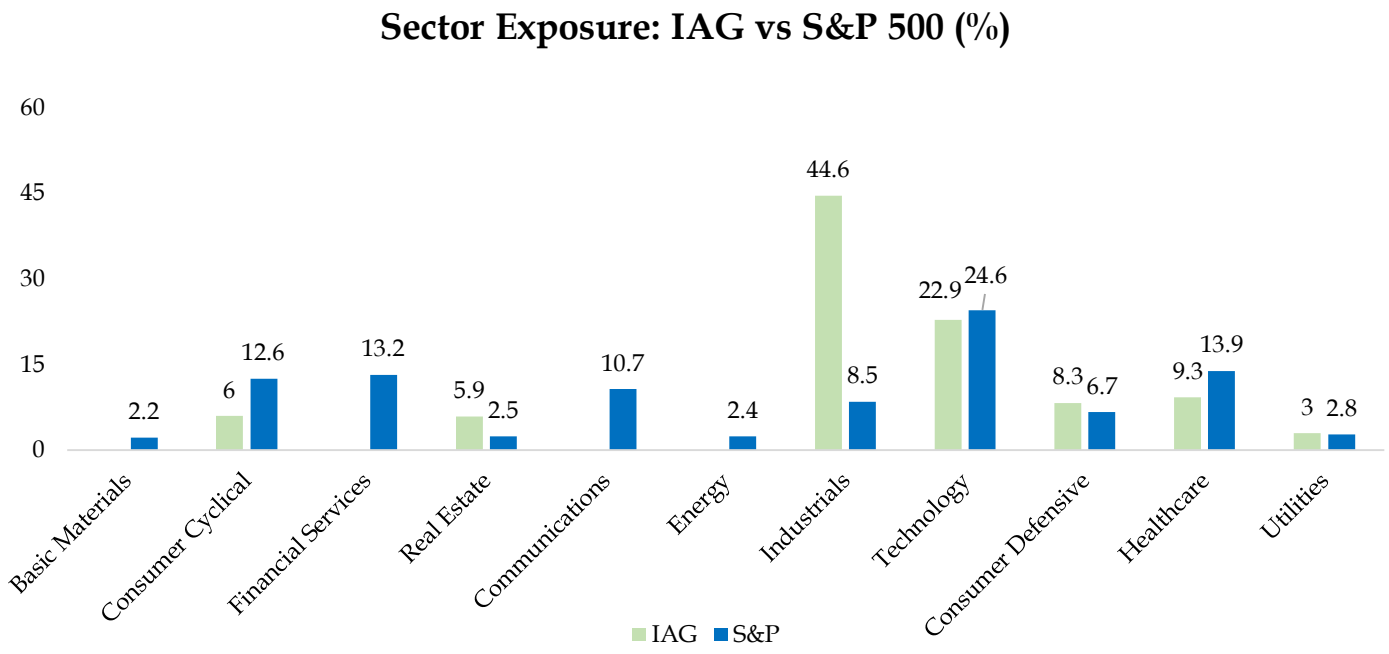
Current Holdings										
Company Name	Ticker	Coverage	Date of Purchase	% of Portfolio	Share Count	Price At Purchase	Share Price	Current Return	Morningstar Industry	Holding Type
Allison Transmissions	ALSN	Cody Fang	12/3/19	3.2%	50	$47.42	$42.96	(9.4%)	Industrials	Core
APi Group	APG	Srikar Alluri	9/24/20	5.0%	160	$14.23	$21.29	49.6%	Industrials	Core
At Home Group	HOME	Caleb Nuttle	2/19/21	5.4%	110	$26.89	$33.59	24.9%	Consumer Cyclical	Core
Berry Global	BERY	Sophie Pan	12/3/20	4.6%	50	$54.60	$62.00	13.6%	Consumer Staples	Core
Brundage-Bone Concrete Pumping	BBCP	Cody Fang	3/29/21	3.5%	300	$7.08	$7.86	11.0%	Industrials	Core
Methode Electronics	MEI	Achyut Seth	2/19/21	5.7%	85	$38.56	$45.55	18.1%	Industrials	Core
CVS Health Corp	CVS	Michael Giese	12/6/16	2.2%	20	$77.28	$75.40	(2.4%)	Healthcare	Core
First Energy	FE	Liam Coohill	10/29/19	2.8%	50	$47.30	$37.42	(20.9%)	Utilities	Core
Grocery Outlet	GO	Larry Wang	5/14/20	3.0%	50	$36.45	$40.42	10.9%	Consumer Staples	Core
HCA	HCA	Srikar Alluri	9/26/19	5.6%	19	$119.20	$198.49	66.5%	Healthcare	Core
Identiv	INVE	Tony Wang	9/24/20	9.9%	400	$6.26	$16.81	168.5%	TMT	Oppt.
Office Properties Income Trust	OPI	Cody Fang	10/29/20	5.3%	130	$17.73	$27.82	56.9%	Real Estate	Oppt.
Palo Alto Networks	PANW	David Zhou	9/24/20	5.3%	10	$244.75	$360.16	47.2%	TMT	Core
Points International	PCOM	Tony Wang	10/29/20	5.6%	240	$9.95	$15.85	59.3%	TMT	Oppt.
Recro Pharma	REPH	Srikar Alluri	10/29/19	0.7%	160	$13.20	$2.85	(60.2%)	Healthcare	Oppt.
TransDigm Group	TDG	Jaro van Diepen	4/9/20	2.7%	3	$360.46	$605.26	67.9%	Industrials	Core
United Rentals	URI	Caleb Nuttle	3/14/19	6.7%	14	$118.07	$324.85	175.1%	Industrials	Core
XPO Logistics	XPO	Chen Zhou	10/20/19	9.0%	45	$74.41	$136.55	83.5%	Industrials	Core
ZTO Express	ZTO	David Zhou	3/14/19	4.8%	100	$19.28	$32.51	68.6%	Industrials	Core
SPDR S&P 500 ETF Trust	SPY			4.9%	8		$417.40			Core
Total Equity Holdings				95.8%			$65,051.19			
Cash				4.2%			$2,850.00			
Total Portfolio Holdings				100.0%			$67,901.19			

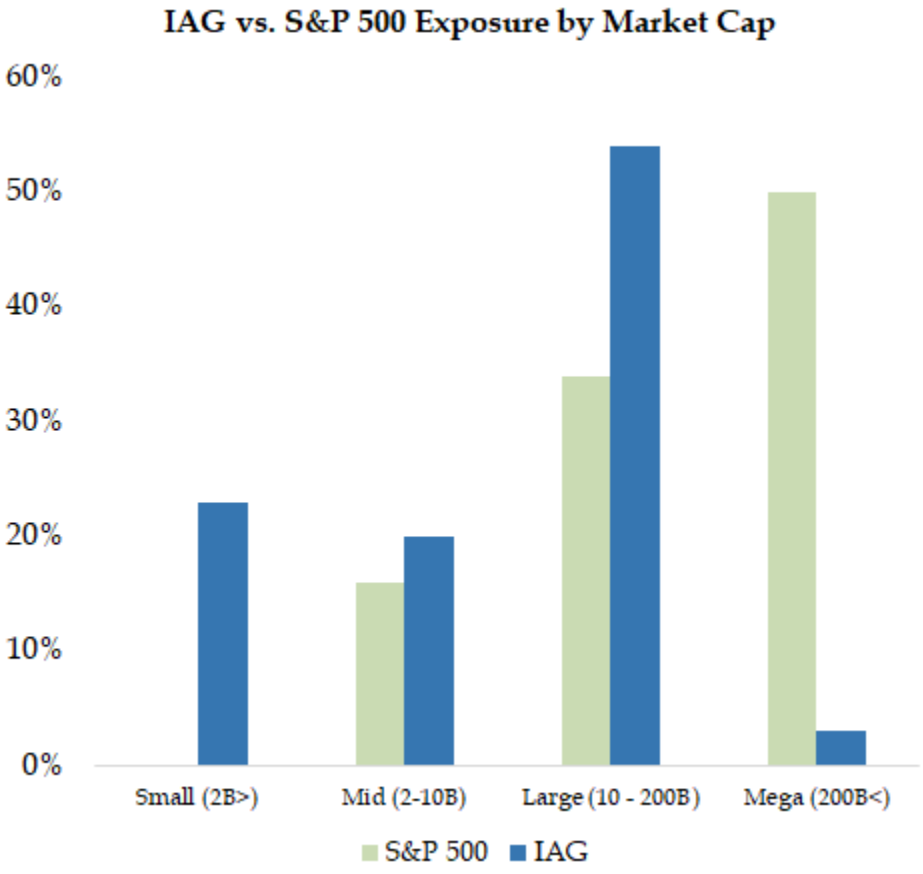


On a last twelve-month basis, **IAG's portfolio has returned 90.56%** while the S&P 500 returned 46.46%. This outperformance is partially due to the portfolio being positively skewed to an economic re-opening due to heavy industrial weighting. Since the last oversight meeting, **the spread between IAG's portfolio and the S&P 500 contracted from 15% (3/26/21) to 41.03% (4/28/21).**

Our opportunistic positions now represent ~20% of our portfolio which is in line with our expectations.

Portfolio Exposure vs. Benchmark





IAG continues to use the S&P 500 as the core benchmark as specified in the fund mandate. While our industrial exposure is still substantially overweight, the two proposed positions today will help improve the composition.

IAG continues to be underexposed to mega-cap positions, yet drastically overexposed to small-cap companies. We will continue to look at the mega cap space for potential opportunities but do not think that the underexposure poses a major issue.

Pitch Log Since Mar 2021 Meeting

Internal Pitches Since Mar 2021 Meeting				
	Company	Stage	Date	Analysts
1	Tronox Holdings	Quick Screen	3/29/21	Rahul Parikh, Amy Chen
2	Aston Martin	Quick Screen	3/29/21	Jaro van Diepen
3	Aston Martin	First Update	4/5/21	Jaro van Diepen
4	Exelon Corporation	Quick Screen	4/5/21	Larry Wang
5	Tractor Supply Company	Quick Screen	4/5/21	Achyut Seth, Sophie Pan, Rhys Berezny
6	JD.com Inc.	Quick Screen	4/5/21	David Zhou, Bobby Yang
7	Intellicheck Inc.	Quick Screen	4/5/21	Alice Yu, Alex Isaac
8	Pushpay Holdings Ltd.	Quick Screen	4/12/21	Vinny Ye, Niranjan Narasimhan, Akhil Aggarwal
9	Gym Group	Quick Screen	4/12/21	Simran Korpal
10	Tronox Holdings	First Update	4/12/21	Rahul Parikh, Amy Chen, Pranav Kanchi
11	Exelon Corporation	First Update	4/12/21	Larry Wang, Rhys Berezny
12	Renren Inc.	Quick Screen	4/12/21	Jaro van Diepen
13	Aston Martin	Devil's Advocate	4/21/21	Achyut Seth
14	JD.com Inc.	First Update	4/21/21	David Zhou, Bobby Yang
15	JD.com Inc.	Devil's Advocate	4/21/21	Sophie Pan, Akhil Aggarwal
16	Gym Group	First Update	4/21/21	Simran Korpal
17	Exelon Corporation	Second Update	4/21/21	Larry Wang, Rhys Berezny
18	Tronox Holdings	Devil's Advocate	4/21/21	Vinny Ye, Mikhail Talib
19	Intellicheck Inc.	First Update	4/21/21	Alice Yu, Alex Isaac

Active Pipeline				
	Company	Stage	Date	Analysts
1	Aston Martin	Second Update	4/5/21	Jaro van Diepen
2	GYM Group	First Update	4/21/21	Simran Korpal
3	Tronox Holdings	Second Update	4/21/21	Rahul Parikh, Amy Chen
4	Intellicheck Inc.	First Update	4/21/21	Alice Yu, Alex Isaac
5	RenRen Inc.	First Update	4/21/21	Jaro van Diepen

Oversight Meeting				
	Company	Stage	Date	Analysts
1	JD.com	First Update	4/21/21	David Zhou, Bobby Yang
2	Exelon Corporation	Second Update	4/21/21	Larry Wang, Rhys Berezny

III. Key Holdings Update

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
Allison Transmissions	**ALSN**	Since the last oversight meeting, there has not been any additional corporate communication. We continue to closely monitor the company, especially North America On - Highway demand. In February, the company guided to 2021 Net Sales in the range of $2,265 to $2,415 million and adjusted FCF in the range of $390 to $450 million. We have updated our estimates to match guidance and believe that the company still has room to take share. The company has continued to gain share in the class 4-5 truck market and we are quite pleased with how the business has been able to successfully navigate through the pandemic.
APi Group	**APG**	In looking at API, we remain confident despite the higher valuation. Our thesis points are in the process of playing out. Margin improvements have been present, but we are waiting to see if that is sustained. With the increasingly likely infrastructure bill, this may be a tailwind. However, we remain cautious as we wait for the contents of the legislation. The company has raised its goals again by aiming for 13% EBITDA margins in 2025. Leverage looks comfortable, and the european expansion is promising as there does seem to be opportunity. We are still waiting for a larger deal to be announced, but do understand those price points may be too expensive. The Industrial segment improvements are underway, and specialty services looks to be rebounding. We would like to propose a hold.
At Home	**HOME**	We propose to hold our stake in HOME. There has been no new financial information released since the last meeting. The company released their annual report on March 24th and beat street expectations for Q4 earnings. Since then, the share price has increased from $25.94 to $33.31, representing a 28.41% increase in that time, and a 22.33% increase from the start of our position on February 19th. We see the investment thesis continuing to play out. The company announced the opening of two new stores in April, including one in New York City which is replacing a closed down Kohl's, supporting our thesis that the company is well positioned to take advantage of competitor closures.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
Berry Global	**BERY**	We propose to hold our stake in Berry Global as the thesis of deleveraging and organic growth in attractive packaging substrates is still intact. From the previous oversight meeting, the company has not released earnings. There have been several other developments that continue to reinforce Berry as a leading global manufacturer. In the nonwovens space, Berry announced its second investment in the wipes segment fueled by long-term consumer behavior shift toward health and hygiene consciousness and infection prevention, amplified by the pandemic. The European-based investment contributes to Berry's global production footprint. Furthermore, many of Berry's customers have publicly stated sustainability goals, and the company invested over $70 million in consumer packaging films, namely for e-commerce, food, and beverage applications, which will support infrastructure upgrades and the demand for recycled content. The company will incorporate renewably sourced raw materials into its shrink and flexible films. Berry is the first North American headquartered plastic packaging converter to have a 1.5 degree Celsius target validated by the Science-Based Target Initiative (SBTi), in line with the Paris Agreement and their goal of achieving a 25% cut in emissions. Berry is demonstrating awareness of the growing ESG climate by increasing its sustainable product offerings and investment into circularity, which boosts investor sentiment.
Brundage Bone Concrete Pumping	**BBCP**	We propose a hold on BBCP with no additional financial information since last meeting. The stock has ticked up on the basis of reopening timelines and improved sentiment regarding the impending infrastructure bill by the current administration. Additionally, the company has appointed 3 new members of the board, and now 6 out of 12 members are affiliated with Argand Partners, the SPAC sponsor. We believe that the sponsor is taking a more active role in the business with a key focus on M&A. We will continue to monitor the situation throughout the summer, especially regarding any potential new M&A activities.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
CVS Health	**CVS**	We propose to hold our stake in CVS as the business has continued to integrate Aetna and take steps to balance the profitability between its retail, pharmacy benefit manager, and managed care segments. In previous updates, the Aetna merger was largely focused on cost synergies. In 2021, the company is testing out Aetna health plans built around the retail clinics. Aetna Connected patients are offered no copay visits to HealthHUB and MinuteClinic locations with discounts on health-related items at CVS stores. This plan was piloted in late 2020 in Kansas City - the company saw MinuteClinic visits up by 25% in its small group plans where this benefit was offered, and overall membership increased from 4 to 6 million entering 2021. In April 2021, this plan also expanded into Southern California, promising convenient access to services to over 500 CVS Pharmacy locations. With successful rollout in some of CVS's physical network, estimates to add 15 markets, and expansion of the plan to Medicare patients this year, we believe these are signs of the Aetna acquisition leveraging CVS's retail strength. CVS plans to re-enter the ACA Marketplace in 2022, with CEO Karen Lynch citing market stabilization as the driving force behind this decision. While CVS previously exited the ACA exchanges in 2018 due to higher costs and political uncertainty, going into 2021, enrollment increased 6.6% on the federal exchanges relative to the previous year. This plan is the first co-branded CVS Health-Aetna product. President Biden's proposal to increase subsidies which lower premium costs for Americans buying ACA marketplace coverage also reinforces the decision to re-enter the space. The ACA 10-15 million people marketplace is an attractive opportunity for CVS to add lives covered with the advantage of its physical network.
First Energy	**FE**	We propose holding FirstEnergy at $36.67. Corruption investigations in Ohio continue to be a primary focus for the company. Recent internal probes have found no new material issues as FE continues to work with federal and state-level investigations. FirstEnergy is in discussions with the Department of Justice with the potential for fines or penalties, indicating the possibility of settlement or a deferred prosecution agreement. Additionally, FE has stopped all contributions to 501(c)(4)s, political disbursements, and their political action committee, with plans to increase disclosures surrounding political spending. Looking at the operating fundamentals, FirstEnergy reported GAAP earnings of $0.62 per share and operating earnings of $0.69, the upper end of their guidance range. Quarterly performance has been driven by higher residential usage on an actual and weather-adjusted basis alongside growth from incremental riders and rate increases. The absence of Ohio decoupling revenues and the forgoing of collection on lost distribution revenues offset earnings by $0.10 per share. Regarding management, President and former-acting CEO Steven Strah has been permanently appointed as CEO. During the quarter, FE sold JCP&L's 50% interest in the Yards Creek pump-storage hydro plant, receiving proceeds of $155 million. Concerning future operating plans, the Pennsylvania PUC has approved FE's five-year 390mm energy efficiency and conservation plan. Additionally, FE is planning to sell Penelec's Waverly New York distribution assets. The FE Forward project's first phase has identified multiple areas for increased operating efficiencies through automation and advanced technology implementation, such as drones and satellite imagery, while streamlining operating expenditures. FE has announced second-quarter earnings guidance of $0.48 to $0.58 with FY2021 earnings guidance of 2.4 to 2.6 per share.
Grocery Outlet	**GO**	Since the last oversight meeting, there have not been any additional releases for Grocery Outlet. We continue to monitor the company and key drivers including the company's new store openings and overall grocery spending trends. Though US grocery store sales peaked in March 2020 with $73.71 billion in sales, the current levels in 2021 hovering around $63 billion per month continue to match the average monthly sales of $62-63 billion in 2020. Despite the initial jump in sales due to Covid, this trend shows sustained demand for increased grocery spending. During 2020, the company had sales increase 21%, comparable store sales jump 12.7%, and gross margin increase 2% - all higher than expected. With Covid in consideration, we have factored these into our model and will continue to monitor the company. Management also plans to continue developing east infrastructure, with 3-5 store openings planned along the east coast for 2021. This is in line with our original thesis. Overall, we are pleased with Grocery Outlet's performance through the pandemic and its aims for 2021.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
HCA Healthcare	**HCA**	The company is continuing to recover from the depths of the COVID-19 pandemic as they have vaccinated their staff. Looking forward, while the stock has gotten more expensive, our thesis remains intact as the company acquires many smaller operators and surgery centers. They have also continued to acquire hospitals in key markets and have acquired a portion of Brookdale Senior Living's home health care business. The company has done well to be a part of the shift away from hospitals and higher acuity settings. We remain patient for a full recovery of surgery volume, and may be in a trough period as Covid cases and hospitalizations decline. Nevertheless, we would like to hold.
Identiv	**INVE**	We propose a hold on Identiv. Although the stock has appreciated considerably from our cost basis of $6.26 per share, we still believe the runway for RFID growth to be quite long. Since the past meeting, when the business reported 100%+ delta in volumes shipped and 20% ASP delta, Identiv has issued roughly $40mm in equity to reinvest in growth assets amidst RFID order ramps. Trading at roughly 3.3x EV/Sales with double-digit topline guidance and underlying NFC adoption by Apple and Kraft-Heinz (among others), Identiv has the potential to increase share and penetration in markets of billions of transponder units annually. We will continue to closely monitor the competitive dynamics and management execution, both of which pose the greatest risk to the business' 2-3 year horizon. However, despite the substantial appreciation, we still find the valuation attractive and thus propose a hold.
Methode Electronics	**MEI**	We would like to hold MEI at $45.46 that currently has an upside of 18.3%. From our last meeting in March, there are no significant changes or updates to report. The company's strong fundamentals continue to persist despite the ongoing semiconductor shortage headwind. EV exposure is expected to reach mid-teens quicker than expected, which should increase top-line growth, while the company's growing industrial and data segments should offset any negative impact from the automotive segment in the short-term. At 8.31x forward EBITDA, MEI continues to trade at a discount to peer average of 13.6x, despite continuing to maintain strong growth prospects, a healthy balance sheet, and ~10-11% FCF yield. Thus, we believe MEI is a hold.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
Office Property Income	**OPI**	We remain confident in the thesis behind OPI. The company seeks to continue with its capital recycling program, guiding to $100m - $300m of asset sales this year. In Q4 2020, the company acquired a $35.1 million corporate headquarters and reached an agreement to acquire a $27 million property in Boston. Leasing activity has also been stronger than expected with 3.7mm square feet in discussion (19% increase QoQ). Lease expiration of 4 properties totaling 7.0% of ABR was already expected with the company expecting to dispose of 2 properties, renovate one, and release the last property. Additionally, the company expects to pay out the maximum fee to its external manager (RMR Group) given superior price performance relative to the broader office REIT index. With that being said, the fund has locked the stock at a high dividend yield well under the company's desired CAD payout ratio.
Palo Alto Networks	**PANW**	We propose to hold our share in PANW at $358.4 per share. Not much has happened since the last update. We have mentioned that the firm recorded better-than-expected 2Q21 performance. Quarterly billings grew 22% to $1.2 billion, revenue grew 25% to $1 billion, and FCF margin remained strong at 32.7%. In the last 6 months, PANW's stock appreciated 51%, well-above a comps average of 36%. In the recent market pullback, the company trading price fell significantly less than CRWD and ZS. This shows PANW continues to offer superior risk-reward compared to the industry. Fundamentally speaking, PANW's strategy to enter emerging growth segments in cybersecurity is well-executed. The company is cross-selling new products to existing customers and acquiring new ones at the same time. We expected the business to continue to lead the industry as the innovating incumbent player and gain market share in key growth segments.
Points International	**PCOM**	We propose a hold on PCOM. Given the business has not communicated with shareholders, there have been no significant updates from the company since previous oversight. The business remains attractively valued at 7x 2019 EBITDA, a highly conservative proxy for long-term earnings power. We will continue to monitor their cross-selling initiatives and see opportunities for them to win new business.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
Recro Pharma	**REPH**	Recro's struggles continue to hamper business. One positive sign is they have solidified management by hiring David Enloe, who has over twenty years in pharmaceutical experience, including running a CDMO in the past. Some of the business development efforts have had direction as they have been able to win over small clients. They have restructured their credit agreement with Athyrium Capital Management which will reduce their interest expenses. We do see a slowdown in clinical trials which we hope will rebound as covid abates. At this price point, we will remain vigilant on the business and will take another look in terms of continuing our investment.
TransDigm Group	**TDG**	We propose holding our position in TransDigm at 605.26 USD, a current return of ~67.9%. Since our last meeting, nothing notable has changed on a company level. TDG completed a refinancing of its 6.5% senior subordinated notes to 4.875%. We think that as the economy opens, consumers will demand in person experiences and will want to travel again and TDG is a secondary beneficiary of this through its aftermarket segment. As such, we expect TDG to perform very well at the beginning of this opening as its aftermarket business is a function of the number of planes and how frequently they fly. Therefore, with the macro environment improving for TDG, we propose holding our position as a way to get exposure to the economy reopening.
United Rentals	**URI**	We would like to propose holding our stake in United Rentals (URI) at $324.85, up 175.1% since inception in March 2019. There have not been any significant changes to the company's operating performance since our last update on the position during the previous oversight cycle. Overall, we see the company's improving liquidity position and fleet utilization rates as positive signals on the company. That being said, management guiding lower FCF and EBITDA margins for 2021 is a point for concern, however considering the ground the company is making up YTD from COVID's impact, we don't see this as being the only important metric to look at.

Portfolio Updates Since Mar 2021 Meeting

Company	Ticker	Update
XPO Logistics	**XPO**	We propose to maintain our hold on XPO, pending revaluation in 2H2021 when the planned spinoff occurs. The Q1 earnings date is in early May, so there are no significant updates since the last writeup. The stock price has risen to ~$137 (78%) a share since we added it to our portfolio. To reiterate our position from the last meeting, the business is still enjoying upside from european segment recovery, as well as large-scale macro factors. We will continue to monitor the situation throughout the summer, specifically focusing on its automation shift.
ZTO Express	**ZTO**	After reviewing the pros and cons, we propose to hold ZTO at $32 per share. The price war has intensified in 2020 with J&T's entry to the market. J&T is rapidly expanding by recruiting network partners and competitive pricing (15-20% below other players). It has reached parcel volume of approximately 20 million per day (vs. ZTO 46 million) and targets 30 million in 2021. As a result, ZTO's ASP dropped by around 20% yoy from $1.7 to $1.4, while unit costs dropped by only 13%. Although parcel volume grew 40% yoy to 17 billion, revenue grew only 14% and net income decreased 24%. Looking at 2021, we estimated that there will be a supply glut of 21+ million parcels per day in the industry, as all players prioritize volume growth and set ambitious volume targets. For the first time, ZTO has not given earnings guidance in its 4Q earnings call. We believe that there's significant uncertainty for ZTO's short-to-medium-term income. With Sequoia and Hillhouse' investment in J&T at valuation of $1.8 billion (second only to ZTO in the network delivery space) and potential IPO (might be as early as 4Q21) providing additional source of funding, we are cautious about the medium-long term prospect as well. On the bright side, ZTO is still positioned to become the future monopoly in the long term. Delivery businesses compete on costs, and ZTO is the industry cost leader given its scale and operating efficiency. We remain confident in the thesis that as the price war goes on, unprofitable businesses will either exist or get bought out and the industry would ultimately consolidate. Specifically on J&T, the company still has a long way ahead before making profit and it's burning cash fast (est. 70 sorting hubs to be profitable = 30 billion RMB total). In addition, fast expansion also means low quality of service, as many network partners are chosen in haste. In our public opinion reviews, J&T is notorious for missing parcels, parcel mix-ups, irresponsible couriers, etc. We continue to view ZTO as the best business in the industry and the ultimate winner. Given that the long-term thesis has not changed, we propose to hold the business and continue to monitor developments in the competitive landscape.

IV. New Position Proposal

STERN IAG

JD.com (NASDAQ: JD)

Largest Chinese Online Direct Retailer Expanding Market Share

David Zhou, Bobby Yang
Senior Analyst, Trainee
rz1353@stern.nyu.edu, haojun.yang@stern.nyu.edu

Price Target: $110.91, Implied Upside=49% Apr 26th, 2021

Business Description:

JD is China's largest online retailer with an in-house logistics infrastructure. The company sources directly from 240+ thousand suppliers, holds inventory, and delivers the products itself (within 24h for 90% of orders/99% of population). With tighter quality control, faster delivery, and better customer services, JD differentiates with superior product quality and e-shopping experience, targeting the higher end market. This makes JD a market share gainer as consumers are increasingly demanding premium experiences as their income level rises (~20.2% 2020). In FY20, JD generated product sales of 652 billion RMB; 61.5% came from electronics and home appliances, 38.5% came from general merchandise.

Investment Thesis:

- **1P Business: Gaining market share through better product quality and superior logistics and customer service**
  1. The major attractiveness of JD's business model is its operating efficiency & lower cost structure. Through its warehouse-delivery model and investments in AI platforms, JD achieves DIO=31 days (comparable to Costco) and CCC=-15. The model reduces complexity in the supply chain and invests cost savings into warehouses which generates economies of scale. All this is achieved while providing a more well-rounded e-shopping experience.
  2. Thus, as the premium e-commerce retailer, JD is rapidly taking market share from Taobao (10.5% 2015 to 20.5% 2020 vs. 51% 2015 to 35% 2020). Even with Ali's investments in Tmall, JD remains the preferred platform for products where quality/brand is paramount and by customers who are more rational and wealthy.
  3. Competition in e-commerce is ultimately competition on cost structure and service. As China's GDP/Capita rises, JD is on track to become the ultimate winner in the industry.
- **3P Business: "JingXi" (JX) new business division accelerates user acquisition in lower tier cities and drives higher margin revenue**
  1. The JX business division is recently created to expand JD's SKU and penetrate into the lower tier cities (3rd-6th). The JX app is a 3P app that applies PPD's community purchase model and leverages WeChat's user traffic. It's experiencing phenomenal success since its launch in late 2019 (~MAU=250M in June 2020, up from 140M in Feb). Among the 110 M AAC JD acquired in 2020, 80% is from lower tier.
  2. Itself being a source of high margin revenue, we view JX more as a supplementary to JD that acquires users in lower tier and retains and converts them to loyal JD customers, while gradually increasing their ARPU (JD premium member=20 million, with 3x ARPU). This accelerates JD's growth curve & market share expansion process, and makes JD's ecosystem more compelling.
- **Economies of scale drives robust earnings power**
  1. Growing from 12.2% gross margin in 2015 to 15.4% in 2020, JD exhibits a steady track of margin expansion. Fulfillment expense% is also narrowing (7.1% in 2017 vs 6.4% in 2019), resulting from scale economies and employment automation technology.
  2. In the short-term, gross margin is subject to product mix changes. But in the long-term, lower invoice prices, higher percentage of service revenue, and unit economics & automation in the fulfillment process would drive continuous margin expansion.

Key Ratios and Statistics:

Price Target	$110.91
Upside	49%
Share Price (04/23/21)	$76.75
Market Cap (MM)	119652
52-Week Low	$40.58
52-Week High	$108.29
Cash	22491
Debt	4839
EV/Sales NTM	0.74x
EV/EBITDA NTM	28.98x
EV/EBIT core business est.	22x

RMB:MM	2019A	2020A	2021E	2022E
Revenue	576888	745801	939309	1161798
Growth		29.3%	25.9%	23.7%
EBIT	783.7	1640	2175	2642.8
Margin	0.9%	1.4%	1.4%	1.65%

Figure 1 – Share Price 1-year

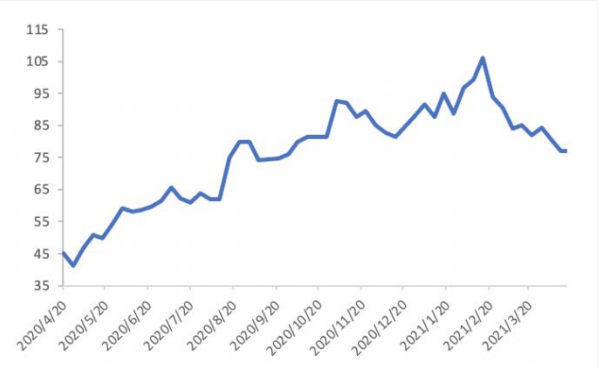
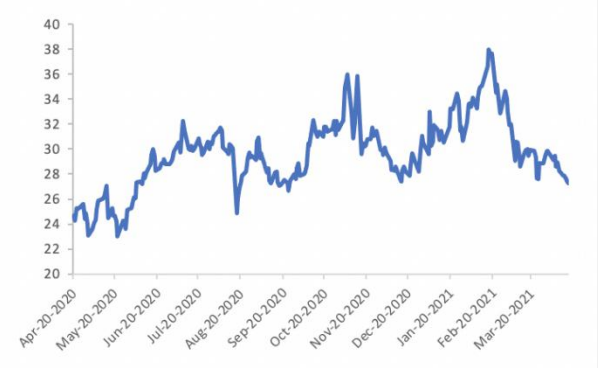


Figure 2 – NTM EV/EBITDA 1-year



3. JDL unit cost = 16.8 RMB in 2019 at parcel volume = 2.7 billion vs. SF unit cost = 15.8 RMB at parcel volume = 8.1 billion. Volume expected to grow to SF's level by 2022, at which point unit cost est. = 13.5, or 7% drop yoy.

- **Secular Tailwinds:**
  1. Race to the lower-tier cities (3-6 tier): cities with low e-commerce penetration and high GDP/Capita growth that are considered the next stage of e-commerce growth. In 2018, GDP/Capita was approx. 160,000 RMB in 1st tier cities, 110 thousand in 2nd tier, 75 thousand in 3rd tier (=year 2009 in 1st tier), 55 thousand in 4th tier (=year 2004 in 1st tier). 3rd and 4th tier accounts for 53% of the population.
  2. Decentralization of e-commerce platforms. With new social media and short video platforms like Tiktok, Kuaishou, Red, etc. entering the e-commerce space, platforms like Taobao and Tmall are subject to fiercer competition for user traffic and GMV in key areas like apparel and cosmetics. As traffic decentralizes, SKUs in the mid-to-tail spectrum also decentralize, but JD remains largely intact. We believe demand will increasingly polarize: higher-end, branded, rational purchases go to JD, while lower-end, non-branded, niche, impulsive purchases are made on platforms. We view the end game as involving JD as the elephant in the room verses a fragmented space of third-party platforms.

Supplement: Competitive Landscape

First Dimension: number of SKUs and assortments

Taobao: C2C, approx. 10 million merchants, leverages the long-tail spectrum of merchandises. Based primarily on search and to an increasing extent on recommendation. Major selling point is the variety of product assortments—you get virtually everything there. Major disadvantage is quality control and customer service; no pricing advantage as well.

Tmall: B2C, approx. 360 thousand merchants (SMEs), leverages the median-to-high spectrum of merchandises. Seeks to improve product authenticity, quality, customer service while maintaining the range of SKU selections. Based primarily on search and increasingly on recommendation.

JD: Direct retailer & B2C. JD + 270 thousand merchants (2019 data). Best authenticity & product quality, uniform customer service, and lowest cost structure through lower invoice price by scaling and savings on marketing vs. an SME merchant. SKU is limited, thus launch 3P business as a supplement. Based primarily on search.

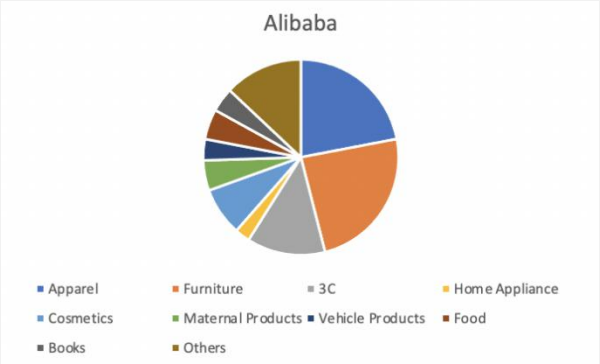
Second Dimension: Social e-commerce (community purchase & C2M)

PDD: B2C. Leverages social media/word of mouth to share and group orders, thus creates huge order sizes and saves marketing expense which goes to price cuts. C2M (customer-to-manufacturer) is essentially a form of pre-sale where order is first gathered by the merchant and then sent to the producer, so that demand is 100% predictable and supply chain efficiency is achieved. SKU consciously limited. Key selling point is price and impulsive shopping behavior. Major disadvantage is product quality, authenticity, and customer service. Based solely on recommendation (there's no shopping cart on PDD, it's now or never).

Third Dimension: Decentralized e-commerce (social media)

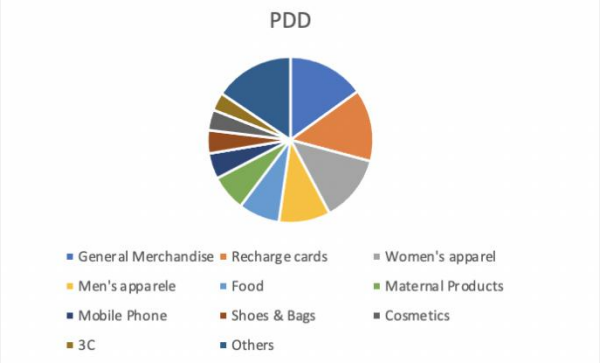
TikTok/Kuaishou/Little Red Book/ BILI: One assumption of an e-commerce platform's network effect is that user, or traffic, is drawn by the number of merchants, forming a virtuous circle. However, with of rise of these new social media, traffic is increasingly directed to their own e-commerce platforms. They have KOLs and ads which functions as traffic directory, and merchants are increasingly attracted to these platforms to avoid competition on Taobao/Tmall and harness the traffic here. The fight

Figure 3 – Alibaba GMV Structure – 2020



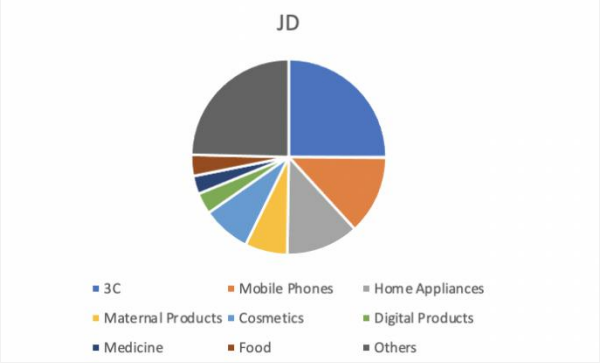
Key segments: apparel, furniture, 3C, cosmetics

Figure 4 – PDD GMV Structure – 2020



Key segments: general, recharge cards, apparel, food

Figure 5 – JD GMV Structure - 2020



Key segments: electronics, maternal, cosmetics + general stuff

is especially fierce in apparel and cosmetics, and to a less extent electronics. **The central idea is that those platforms are the new matcher-makers between tail spectrum products and consumers.** Thus, Ali's GMV is subject to the emerging competition and JD is largely shielded.

E-commerce Marker Share:

	2015	2016	2017	2018	2019	2020
PDD			1.9%	5.2%	9.5%	12.9%
JD	10.5%	16.9%	17.6%	18.4%	19.7%	20.2%
Tmall	19.2%	21.9%	21.3%	23.4%	24.3%	24.8%
Taobao	51.0%	45.9%	44.3%	39.5%	36.9%	35.2%

Supply Chain Models Explained

Network delivery: Standard delivery. Goods move from merchant to a network partner that gathers products, then to a sorting hub that gathers products from network partners, then delivered through line-haul transportation (core operation of the delivery firm) to another sorting hub, another network partner, and finally to the merchants. Consists of 6 stations and 5 intermediary steps, thus lowest level of efficiency. However, per ticket cost at 2.3RMB average (ZTO=RMB 0.8 per ticket) is currently lowest among all models because 1) no rent, 2) labor cost transferred to partner, 3) easily scales. Representative firms: the TongDa delivery businesses.

Warehouse model: Delivery + Warehousing. Goods move from merchant to a local warehouse, then distributed to delivery outlets, and from there to the consumer. Consists of 4 stations and 3 steps, thus higher efficiency. Per ticket cost (JDL) = 12 yuan, a result of rent, high labor cost, and 1/15 the ticket scale currently of traditional delivery businesses. Primarily serves the premium market. Representative firms: JDL, Caoniao (Ali sub)

Front warehouse model: Delivery + Warehousing. The front warehouse brings the warehouse closer to the end consumers. They are smaller in size and more numerous in number, serving households within a 1-3km perimeter. Per ticket cost = 11 yuan at 1000 tickets per day. Consists of 4 stations and 3 steps. This model is widely used by online fresh food markets to increase delivery speed and save delivery costs related to moving perishables. Representative firms: Hema Fresh Food (Ali sub), Dingdong

Community group purchase: Leverages convenient stores as outlets/front warehouses and consumers go pick up themselves. Widely used in fresh food and supermarket goods in lower tier cities. Representative firms: Meiri Youxuan, Meituan.

Summary of models:

Delivery process under different models						
Delivery Models	node	node	node	node	node	node
Network delivery	Seller	Network partner	Sorting hub	Sorting hub	Network partner	Customer
Warehouse model	-	-	Factory/Seller	Warehouse	Terminal warehouse	Customer
Front warehouse model			Factory/Seller	Sorting warehouse	Front warehouse	Customer
Community group purchase			Factory	Central warehouse	Network warehouse	Customer
1-hour delivery					Seller	Customer

Strength of JDL's supply chain model:

- Vs. network delivery: especially apt for merchandise with higher ticket size and predictable sales (i.e. those in the higher end spectrum); higher efficiency; lower whole supply chain cost structure.
- Vs. other warehouse model variants: better square footage utility rate; serves different product segments

JD Logistics (JDL) cost analysis:

Unit cost = 16.8 RMB per parcel (2019) vs. SF 15.8 RMB (2020).

Parcel volume = 2.76 billion (2019) vs. SF 8.1 billion (2020).

Thus, although JDL has a lower cost structure, it has a higher unit cost due to smaller scale. As the company goes public and starts to serve third-party customers, there is significant economies of scale of gain. Also worth noting that the unit cost for JDL's core warehouse-delivery business is estimated at 12RMB, as JDL also offers more costly services such as cold chain & heavy-cargo transportation.

Unit cost analysis:

Billions	2019	2022E	Note
Revenue	49.8	139.6	3-year CAGR = 41%
Cost	46.4	120.4	Gross Margin = 14%
Parcels	2.76	8.9	72%, 45%, 30%. SF grew 68% in 2020
Cost per parcel	16.8	13.5	Annual change = -7%
Revenue per parcel	18.1	15.6	5% decline annually
Unit cost:			
Employee Benefits	7.13		
Outsourcing Costs	5.91		
Rent Expense	1.69		
D&A	0.43		
Other	1.66		
Grouped Unit cost:			
Employee	7.13	6.52	Benchmark SF 2020 level, volume=8.1B
Outsourcing	5.91	4.83	Benchmark ZTO 2018 cost, volume=8.5B
Fixed Asset	2.11	1.5	
Miscellaneous	1.66	0.61	Benchmark SF

The analysis shows that when JDL reaches roughly the scale of SF 2020 by the end of 2022, its unit cost is estimated to drop to 13.5RMB, or a 7% annual decline. Revenue per parcel projected to decline 5% (vs. 8-10% decline in lower-end delivery market). This leads to gross margin=14% in 2022, up from 6.9% in 2019, 10.9% in 2020Q1-3. **JDL is only delivery company that has maintained a gross margin expansion record in the price war, a result of premium market positioning and strong unit economics.**

Lower per parcel cost + assumption: JD revenue per parcel unchanged = lower fulfillment expense%.

SOTP: Core business valued at 22x EV/EBIT LTM

JD retail	2020 Revenue	2020EBIT	EV/Sales	Val to JD	EV/EBIT	Val to JD
Electronics and home applia	400927					
General Merchandise	250952					
Others	51050					
less:inter-segment	-725					
less:JD health	-131784	-396				
Total	**570421**	**19089**	**0.74**	**422,112**	**22**	**419,954**

New businesses	2020 Revenue	EV/Sales	Val to JD	Notes
JD logistics	40449.93	1.5	60674.89	ZTO Express 4.5 STO Express 0.5, YTO Express 0.72, SF 1.54
JD Property	2341.03	4	9364.10	
Total	**42790.95**		**70039.00**	

Subsidiaries	Valuation	JD's stake	Val to JD	Notes
JD digits	74987.74411	37%	27745.47	Based on recent transactions
JD health	276657.84	68%	186744.04	Market Value
less:JD health discount		15%	-28011.61	
Total			**186477.90**	

Key investments	Valuation	JD's stake	Val to JD	Notes
Dada Nexus	39291.76	44%	17288.37	All entries at market value
Farfetch	123056.88	3%	3558.80	
Vipshop	127972.60	3%	4246.13	
Kingdee International Software	68413.20	6%	3947.44	
Yonghui Superstores Co., Ltd.	60061.80	5%	3052.94	
Yixin Group Limited	13365.36	17%	2287.62	
China National Gold Group Go	32088.00	4%	1435.30	
China Logistics Property Holdi	11585.28	10%	1145.32	
China Dili Group	15657.44	5%	841.43	
Tuniu Corporation	2357.56	19%	438.62	
Beijing Digital Telecom Co., L	2179.84	17%	363.31	
less: discount	10.00%		-3860.53	
Total	**34744.76**			

Valuation	EV/Sales	EV/EBIT
Total implied EV	713373.19	711215.35
Cash	146662.00	146662.00
Total Debt	(31554.00)	(31554.00)
Minority interest	(34075.80)	(34075.80)
Total Equity Value	**794405.39**	**792247.55**
Shares Outstanding	1551.70	1551.70
Implied Share Price (RMB)	**511.96**	**510.57**
Current Share Price	510.00	510.00
Implied Upside	0.38%	0.11%

COMPS: Average retailer valued at 20x EV/EBIT LTM, but JD exhibits much higher growth

Market Multiples Analysis of Selected Companies in E-Commerce Industry

($ in millions, except stock price)	Stock price	Market value	Enterprise	Enterprise value / LTM			2019-2020 Growth		LTM Margins			Net debt /
Company	As of: 4/3/2021	of equity	Value	EBIT	EBITDA	GMV	Revenue	EBITDA	Gross	EBITDA	EBIT	EBITDA
The E-Commerce Industry												
Alibaba Group Holding Limited (NYSE:BABA)	$224.32	$608,146.00	$581,151.00	35.6x	24.3x	0.6x	31.8%	23.8%	43.2%	23.8%	16.6%	NM
Pinduoduo Inc. (NasdaqGS:PDD)	$143.90	$180,300.00	$169,639.00	NM	NM	0.7x	97.4%	-14.7%	67.6%	-14.7%	-15.8%	NM
Amazon.com, Inc. (NasdaqGS:AMZN)	$3,161.00	$1,591,768	$1,608,601	74.9x	31.5x	3.4x	37.6%	12.5%	39.6%	12.5%	5.9%	0.3x
eBay, Inc. (NasdaqGS:EBAY)	$63.11	$42,942	$47,433	17.6x	13.6x	1.3x	18.9%	32.4%	75.9%	32.4%	26.5%	1.4x
Mean	$898.08	$605,789.00	$601,706.00	42.7x	23.2x	1.5x	46.4%	13.5%	56.6%	13.5%	8.3%	0.8x
Median	$184.11	$394,223.00	$375,395.00	35.6x	24.3x	1.0x	34.7%	18.2%	55.4%	18.2%	11.3%	0.8x
JD.com, Inc. (NasdaqGS:JD)	**$77.04**	**$118,962.50**	**$106,550.70**	**46.4x**	**24.7x**	**0.4x**	**29.30%**	**52.1%**	**8.2%**	**2.2%**	**1.6%**	**NM**

Market Multiples Analysis of Selected Companies in Retailer Industry

($ in millions, except stock price)	Stock price	Market value	Enterprise	Enterprise value / LTM			2019-2020 Growth		LTM Margins			Net debt /
Company	As of: 4/3/2021	of equity	Value	Sales	EBITDA	EBIT	Revenue	EBITDA	Gross	EBITDA	EBIT	EBITDA
The Retailer Industry												
Walmart (NTSE:WMT)	$135.62	$382,051	$434,618	0.8x	10.8x	16.6x	1.9%	6.8%	24.7%	6.2%	4.1%	1.6x
Costco Wholesale Corporation (NasdaqGS:COST)	$354.94	$157,115	$158,606	0.9x	19.3x	25.5x	9.2%	4.6%	13.2%	4.6%	3.6%	0.2x
Target Corporation (NYSE:TGT)	$200.72	$100,082	$106,680	1.4x	14.0x	23.0x	3.7%	9.4%	29.8%	9.4%	6.1%	1.0x
The Kroger Co. (NYSE:KR)	$35.95	$27,034	$45,908	0.4x	6.9x	14.8x	0.4%	4.4%	22.8%	4.4%	2.2%	3.6x
Mean	$181.81	$166,570.60	$186,453.10	0.9x	12.7x	20.0x	3.8%	6.3%	22.6%	6.2%	4.0%	1.6x
Median	$168.17	$128,598.60	$132,643.10	0.9x	12.4x	19.8x	2.8%	5.7%	23.8%	5.4%	3.9%	1.3x
JD.com, Inc. (NasdaqGS:JD)	**$77.04**	**$118,962.50**	**$106,550.70**	**0.9x**	**24.7x**	**46.4x**	**29.30%**	**52.10%**	**8.2%**	**2.2%**	**1.6%**	**NM**

DCF:

	Tax Rate	WACC
DISCOUNTED CASH FLOW	15.0%	7.65%

(rmb in millions, except per share figures)	2020A	Projected Fiscal Year Ending December 31									
		2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Top-Down Unlevered Free Cash Flow (UFCF) Calculations											
EBITDA											
Less: Depreciation & Deductible Amortization											
EBIT	**¥10,693**	**¥12,809**	**¥19,213**	**¥27,033**	**¥37,160**	**¥49,269**	**¥64,152**	**¥80,945**	**¥99,180**	**¥117,139**	**¥135,948**
Taxes	1,604	1,921	2,882	4,055	5,574	7,390	9,623	12,142	14,877	17,571	20,392
NOPAT	**¥9,089**	**¥10,888**	**¥16,331**	**¥22,978**	**¥31,586**	**¥41,879**	**¥54,529**	**¥68,803**	**¥84,303**	**¥99,568**	**¥115,555**
Plus: Depreciation & Deductible Amortization	6,068	6,896	7,894	9,035	10,285	11,656	13,121	14,685	16,356	18,141	20,048
Plus: Working Capital Surplus / (Deficiency)	3,726	0	0	0	0	0	0	0	0	0	0
Less: Capital Expenditures	-10,919	(14,325)	(16,474)	(18,945)	(20,840)	(22,924)	(24,529)	(26,246)	(28,083)	(30,049)	(32,152)
Unlevered Free Cash Flow		**¥3,458**	**¥7,750**	**¥13,067**	**¥21,031**	**¥30,611**	**¥43,121**	**¥57,242**	**¥72,576**	**¥87,661**	**¥103,452**
Discount Periods		0.5	1.5	2.5	3.5	4.5	5.5	6.5	7.5	8.5	9.5
Present value of ULFCF		¥3,333	¥6,939	¥10,867	¥16,246	¥21,965	¥28,742	¥35,442	¥41,741	¥46,832	¥51,339
Sum of present value of ULFCF		¥263,446									
NPV		¥253,908									
Invested Capital (Equity+Debt+Lease)	253,173	¥267,499	¥283,973	¥302,918	¥323,758	¥346,682	¥371,211	¥397,456	¥425,539	¥455,588	¥487,740
ROIC	4.9%	4.2%	5.9%	7.8%	10.1%	12.5%	15.2%	17.9%	20.5%	22.6%	24.5%
Adjusted IC (IC-longterm investments-cash-NWC)	8,925	23,250	39,724	58,670	79,510	102,434	126,962	153,208	181,291	211,339	243,491
Adj. ROIC	101.8%	46.8%	41.1%	39.2%	39.7%	40.9%	42.9%	44.9%	46.5%	47.1%	47.5%

VALUATION METHODOLOGY

Valuation Method	Low	High
Terminal EBITDA	$587.7	$821.9
Perpetuity	$449.1	$743.2
Median	**$518.4**	**$782.6**

Terminal EBITDA method		
Exit Year EBITDA	$155,996	
Multiple	10.0x	
Terminal Value	**¥1,559,959**	
WACC / Discount rate	7.65%	
Discount period	9.50	
Net Present Terminal Value	**¥774,138**	
Present value of ULFCF	$263,446	
Implied Enterprise value	**¥1,037,584**	
Current debt	¥31,554	
Cash	(146,662)	
Minority interest	¥34,076	
Net debt	**¥-81,032**	
Implied Equity Value	**¥1,118,616**	
Diluted shares outstanding	1,551.70	
Implied share price	**¥721**	$110.91
Implied upside	**49%**	

Sensitivity Analysis Terminal EBITDA Multiple					
¥721	8.0x	9.0x	10.0x	11.0x	12.0x
6.7%	¥658	¥713	¥767	¥822	¥876
7.2%	¥639	¥691	¥744	¥796	¥848
7.7%	¥621	¥671	¥721	¥771	¥821
8.2%	¥604	¥652	¥700	¥747	¥795
8.7%	¥588	¥633	¥679	¥725	¥771

Perpetuity method		
Unlevered Free Cash Flow	¥51,339	
Growth Rate	3.0%	
Terminal Value	**¥1,136,148**	
WACC / Discount rate	7.65%	
Discount period	9.50	
Net Present Terminal Value	**¥563,820**	
Present value of ULFCF	¥263,446	
Implied Enterprise value	**¥827,266**	
Current debt	¥31,554	
Cash	(146,662)	
Minority interest	$34,075.8	
Net debt	¥-81,032	
Implied Equity Value	**¥908,298**	
Diluted shares outstanding	1,551.70	
Implied share price	**¥585**	$90.05
Implied Upside	**21%**	

Sensitivity Analysis Perpetuity Growth Method					
¥585	1.9%	2.0%	3.0%	3.1%	3.2%
6.7%	¥607	¥616	¥728	¥743	¥759
7.2%	¥555	¥562	¥648	¥659	¥671
7.7%	¥513	¥519	¥586	¥594	¥603
8.2%	¥478	¥483	¥536	¥543	¥550
8.7%	¥449	¥453	¥496	¥501	¥507

Weighted Average Cost of Capital WACC		
Stock Price	¥527	
Fully diluted Shares Outstanding	1,552	
Equity Value	**817,575**	
Current debt	31,554	
Cash	(146,662)	
Minority interest	34,075.8	
Enterprise value	**¥736,543**	
		Cap %
Equity	817,575.2	96.3%
Debt	31,554.0	3.7%
Total capitalization	**¥849,129**	**100.0%**

CAPM		
10 year bond - Risk Free Rate	1.68%	LT S&P500
Equity Risk Premium	5.32%	rate of return
Beta	1.16	7.00%
Cost of Equity	**7.85%**	
Tax rate	15.0%	
Cost of Debt	3.00%	
Cost of Preferred Stock	0.00	
WACC	**7.65%**	

Revenue Projection

(RMB MN)	2020	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Electronics and home appliances revenues	400,927	473,094	544,058	617,506	694,694	774,584	855,915	935,800	1,009,625	1,074,689	1,132,723
General merchandise revenues	250,952	338,785	445,036	565,195	702,890	849,528	1,001,273	1,151,464	1,293,094	1,409,472	1,501,088
Net product revenues (1P)	**651,879**	**811,879**	**989,094**	**1,182,701**	**1,397,584**	**1,624,112**	**1,857,188**	**2,087,264**	**2,302,719**	**2,484,162**	**2,633,811**
yoy	*28%*	*24.5%*	*21.8%*	*19.6%*	*18.2%*	*16.2%*	*14.4%*	*12.4%*	*10.3%*	*7.9%*	*6.0%*
GMV-1P Revenue (3P GMV)	1,961,121	2,443,040	2,956,079	3,517,734	4,115,749	4,733,111	5,372,081	6,016,731	6,648,487	7,246,851	7,855,587
Marketplace and marketing revenues (3P)	**53,473**	**66,613**	**82,080**	**101,193**	**118,396**	**138,522**	**157,222**	**182,106**	**207,875**	**233,831**	**261,328**
Logistics and other service revenues	40,450	58,653	81,695	109,704	141,832	176,277	210,273	240,312	262,626	275,758	289,546
Net service revenues	93,923	125,266	163,775	210,897	260,228	314,798	367,495	422,417	470,502	509,589	550,874
Total Net Revenues	**745,802**	**937,145**	**1,152,868**	**1,393,598**	**1,657,811**	**1,938,910**	**2,224,683**	**2,509,682**	**2,773,220**	**2,993,750**	**3,184,685**
yoy	***29.3%***	***25.7%***	***23.0%***	***20.9%***	***19.0%***	***17.0%***	***14.7%***	***12.8%***	***10.5%***	***8.0%***	***6.4%***
KEY STATS & ASSUMPTIONS											
By Category:											
3C growth	22%	18%	15.0%	13.5%	12.5%	11.5%	10.5%	9%	8%	6%	5%
General merchandise growth	38%	35%	31%	27%	24%	21%	18%	15%	12%	9%	7%
3P GMV growth	25%	25%	21%	19%	17%	15%	13.5%	12.0%	10.5%	9.0%	8%
Take Rate	2.7%	2.7%	2.8%	2.9%	2.9%	2.9%	2.9%	3%	3%	3%	3%
3P revenue growth	*25%*	*25%*	*23%*	*23%*	*17%*	*17%*	*14%*	*16%*	*14%*	*12%*	*12%*
Logistics and others	72%	45%	39%	34%	29%	24%	19%	14%	9%	5%	5%
Top Down:											
China e-commerce growth	20%	17.5%	15.5%	14.0%	12.5%	11.0%	9.5%	8.0%	6.5%	5.0%	4.0%
Market Size	12,919,608	15,180,539	17,533,523	19,988,216	22,486,743	24,960,285	27,331,512	29,518,033	31,436,705	33,008,540	34,328,882
JD GMV (1P+3P)	2,613,000	3,254,919	3,945,173	4,700,435	5,513,332	6,357,223	7,229,269	8,103,995	8,951,206	9,731,013	10,489,397
JD Market Share	**20.2%**	**21.4%**	**22.5%**	**23.5%**	**24.5%**	**25.5%**	**26.5%**	**27.5%**	**28.5%**	**29.5%**	**30.6%**
User:											
Total AAC	472	545	599	647	696	731	762	792	824	857	891
GMV/AAC	5,536	5,972	6,581	7,260	7,921	8,699	9,490	10,229	10,864	11,356	11,770
Total AAC/Internet User	47.7%	53.4%	57.0%	59.9%	62.6%	63.7%	65.1%	66.4%	67.7%	69.1%	70.6%
China Internet User	989	1020	1052	1081	1113	1148	1170	1193	1216	1239	1262
Internet Penetration	69%	70.7%	73%	75%	77%	79%	80%	82%	83%	85%	86%
Population	1439	1443	1447	1447	1450	1458	1459	1460	1462	1463	1464
yoy		0.3%	0.3%	0.3%	0.3%	0.3%	0.1%	0.1%	0.1%	0.1%	0.1%

Income Statement

(RMB Millions)	2020	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E
Total net revenues	745,801	939,309	1,161,798	1,415,562	1,690,853	1,983,247	2,275,402	2,567,220	2,837,553	3,077,615	3,303,169
Cost of revenues	(636,694)	(800,953)	(989,509)	(1,204,225)	(1,436,725)	(1,683,190)	(1,927,730)	(2,171,109)	(2,395,475)	(2,593,520)	(2,778,640)
Gross Profit	109,107	138,356	172,290	211,337	254,128	300,057	347,672	396,111	442,078	484,096	524,529
Fulfillment	(48,700)	(62,934)	(76,679)	(92,493)	(108,823)	(125,727)	(142,084)	(157,902)	(171,911)	(183,658)	(194,162)
Fulfilled Gross Profit	60,407	75,422	95,611	118,844	145,305	174,330	205,587	238,209	270,167	300,437	330,367
Marketing	(27,156)	(34,202)	(41,722)	(50,128)	(59,031)	(68,247)	(77,163)	(85,776)	(93,389)	(99,751)	(105,410)
Research and development	(16,149)	(20,339)	(24,924)	(30,085)	(35,598)	(41,357)	(46,994)	(52,508)	(57,186)	(62,024)	(66,570)
General and administrative	(6,409)	(8,072)	(9,751)	(11,598)	(13,516)	(15,456)	(17,278)	(18,981)	(20,412)	(21,523)	(22,440)
Total Operating Expenses	(49,714)	(62,613)	(76,398)	(91,811)	(108,144)	(125,061)	(141,436)	(157,264)	(170,987)	(183,298)	(194,420)
Operating Income	10,693	12,809	19,213	27,033	37,160	49,269	64,152	80,945	99,180	117,139	135,948
NOPAT		10,888	16,331	22,978	31,586	41,879	54,529	68,803	84,303	99,568	115,555
Tax Rate		15%	15%	15%	15%	15%	15%	15%	15%	15%	15%
Net Income	49,337										
KEY STATS & ASSUMPTIONS											
Gross Margin	14.6%	14.7%	14.8%	14.9%	15.0%	15.1%	15.3%	15.4%	15.6%	15.7%	15.9%
Fulfillment Expense%	6.5%	6.7%	6.6%	6.5%	6.4%	6.3%	6.2%	6.2%	6.1%	6.0%	5.9%
Marketing%	3.6%	3.6%	3.6%	3.5%	3.5%	3.4%	3.4%	3.3%	3.3%	3.2%	3.2%
R&D%	2.2%	2.2%	2.1%	2.1%	2.1%	2.1%	2.1%	2.0%	2.0%	2.0%	2.0%
G&A%	0.9%	0.9%	0.8%	0.8%	0.8%	0.8%	0.8%	0.7%	0.7%	0.7%	0.7%
Operating Margin	1.4%	1.4%	1.7%	1.9%	2.2%	2.5%	2.8%	3.2%	3.5%	3.8%	4.1%
Net Margin	6.6%										

JD BUSINESS OVERVIEW

The largest Chinese online direct retailer with an in-house logistics infrastructure

Business Description

A fundamentally different e-commerce business model:

JD sources directly from 240+ thousand suppliers, holds inventory, and delivers the products itself (within 24h for 90% of orders/99% of population).

Superior services:

Tighter quality control & product authenticity, better customer services, faster delivery with fewer missing packages & transparent delivery process, post-sale return/change, etc.

Lower cost structure (particularly in 3C):

Warehouse model reduces transportation costs and generates unit economies, lower invoice prices from larger scale, spread marketing expenses & avoid in-platform competition

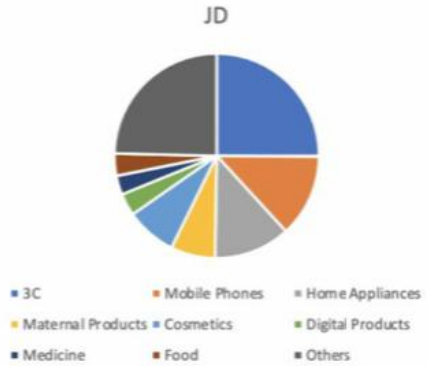
Financial Overview

Trading Statistics	
Share price as of 4/22/2021	$76.8
52-week Range	$40.58 - $108.29
% of 52-week high	-29.08%
Outstanding shares (mm)	1543.9
Equity Value	**$118,494.33**
Net Debt	($17,719.0)
Minority Interest	$5,245.4
Enterprise Value	**$106,020.7**

Balance Sheet Summary	
Short-Term Debt	$1,350.5
Long-Term Debt	$3,506.7
Total Debt	**$4,857.2**
Cash & Equivalents	($22,576.2)
Net Debt	**($17,719.0)**
Minority Interest	$5,245.4
Equity Value	$118,494.33
Total Capitalization	**$106,020.8**

FY 12/31	2018	2019	2020	EV/2020
Net Sales	$71,120.4	$88,802.6	$114,804.1	0.9X
% growth	27.5%	24.9%	29.3%	
EBITDA	$456.1	$1,683.8	$2,580.2	41.1X
% margin	0.6%	1.9%	2.2%	
Net Income	-$383.5	$1,875.6	$7,605.1	13.9X
% margin	NM	2.1%	6.6%	

JD's GMV Structure



- Total product sales of 652 billion RMB in 2020.
- 61.5% came from electronics and home appliances.
- 38.5% came from general merchandise.
- 3P GMV is estimated at 1961 billion, revenue at 53.5 billion.

JD.COM

INDUSTRY OVERVIEW

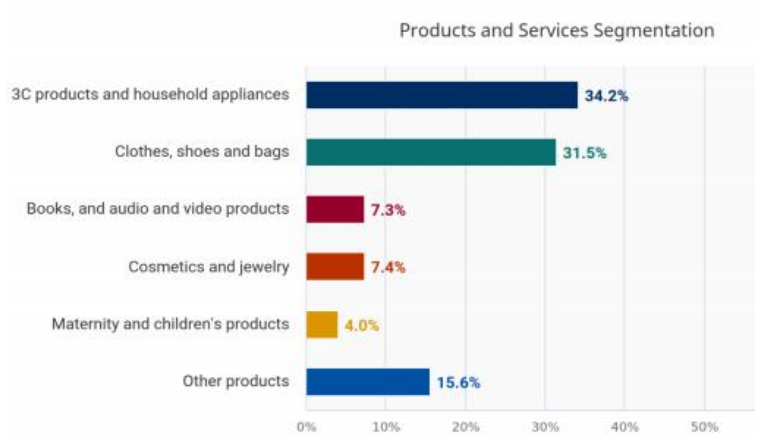
A fast-growing industry with high market share concentration and fierce competition

Online Shopping In China

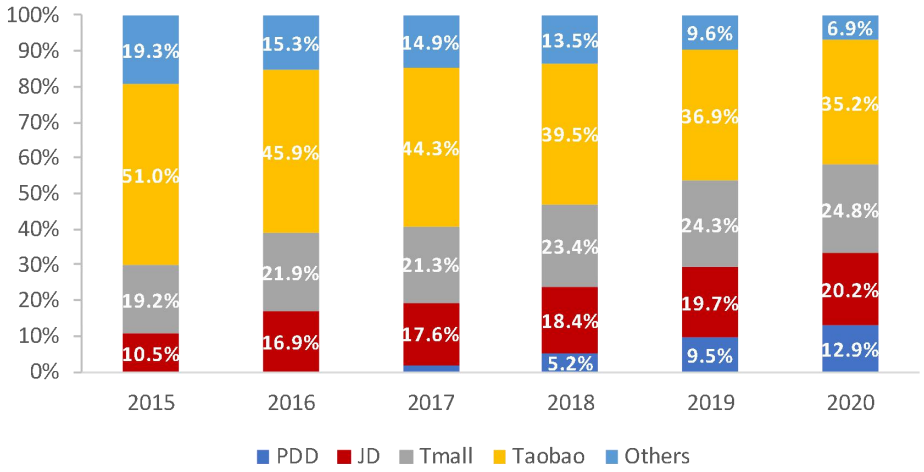
E-commerce industry in China:

Market Size: **$1.8 Trillion** CAGR 2015 - 2020: **22.5%**

Profit Margin: **8.5%** CAGR 2020 - 2025: **17.1%**



Oligopolistic Competition



- This industry displays high market share concentration, with the three largest companies accounting for **93%** of China's total e-commerce GMV.
- JD is rapidly taking market share from Taobao **(10.5% 2015 to 20.5% 2020 vs. 51% 2015 to 35%).**
- **Core product segments:**
- JD: electronics, home appliances, maternal, cosmetics and general merchandise
- Alibaba: apparel, furniture, 3C, cosmetics
- PDD: general merchandise, recharge cards, apparel, food

JD.COM

COMPETITIVE LANDSCAPE

JD vs Taobao vs Tmall vs PDD

1st Dimension: # of SKUs and Assortments

淘宝网 Taobao.com

Largest # of merchants + Get virtually everything:

- Taobao is a C2C e-commerce platform with over 10 million merchants, which offers great product variety to customers. The major disadvantage is quality control and customer service.

JD.COM

Best product quality & Customer service:

- JD is a direct retailer and B2C platform with +270 thousand merchants. It's known for its product authenticity and superior delivery services. JD's SKU is limited and it's primarily 3C and home appliances. Thus, JD focuses on developing its 3P business as a supplement.

天猫 TMALL.COM

A high-end version of Taobao:

- Tmall is a B2C platform with approximately 360 thousand merchants (SMEs). It leverages the medium-to-high spectrum of merchandises. It also seeks to improve its authenticity, quality, and customer service.

2nd Dimension: Social e-commerce

拼

Social media + Word of mouth:

- PDD leverages social media to create huge order sizes and cuts prices under its C2M model. It recommends products to users, resulting a predictable demand and a more efficient supply chain. Its disadvantages include limited SKU, product quality, authenticity, and customer service.

3rd Dimension: Decentralized e-commerce

TikTok

快手 KUAISHOU TECHNOLOGY

小红书 Xiaohongshu

bilibili

The rise of decentralized social media:

- TikTok, Kuaishou, Red, and Bilibili are increasingly directing more traffic into their own e-commerce platforms. They use KOLs and ads to attract traffic. Merchants are also moving to their platforms to avoid competition on Taobao and JD.
- However, the fight is fierce in apparels and cosmetics, and to a less extent to electronics. Those platforms are new match-makers between tail spectrum products and customers. JD is therefore largely shielded.

UNIT COST ANALYSIS — JDL

A higher unit cost due to a smaller scale, but will be improved with increased scale after JDL goes public

JD Logistics (JDL) vs SF Express Unit Cost Analysis

JDL

- Unit cost 16.8 RMB per parcel (2019)
- Parcel volume 2.76B (2019)

SF Express

- Unit cost 15.8 RMB per parcel (2020)
- Parcel volume 8.1B (2020)

1. Although JD has a **lower cost structure**, it has a **higher unit cost** due to a **smaller scale**.
2. As JDL goes public and starts to serve third-party customers, there's **significant economies of scale of gain**.
3. JDL's core warehouse-delivery business is estimated at **12RMB**, as JDL also offers more costly services such as cold chain & transportation.
4. When JDL roughly reaches the scale of SF 2020 **by the end of 2022**, its unit cost is estimated to drop to **13.5RMB** (a 7% annual decline).
5. JDL is the only delivery company that has maintained a gross margin expansion record in the price war, a result of **its premium market positioning and strong unit economics.**

Billions	JD2019	JD2022E	Note	Billions	SF2019	SF2020	Note	Note
Revenue	49.8	139.6	3-year CAGR = 41%	Revenue	112	154	Growth rate =	37%
Cost	46.4	120.4	Gross Margin = 14%	Cost	93	129	Gross Margin =	16%
Parcels	2.76	8.9	72%, 45%, 30%. SF grew 68% in 2020	Parcels	4.8	8.1		
Cost per parcel	16.8	13.5	Annual change = -7%	Cost per parcel	19.2	15.8	Annual change = -18%	
Revenue per parcel	18.1	15.6	5% decline annually	Revenue per parcel	23.2	18.9	Annual change = -19%	
				Unit cost (RMB):				
Unit cost (RMB):				Employee benefits	2.93	1.92		
Employee Benefits	7.13			Outsourcing cost	13.50	11.87		
Outsourcing Costs	5.91			Transportation cost	2.61	2.09		
Rent Expense	1.69			Office and rental fees	1.62	1.10		
D&A	0.43			D&A	0.94	0.65		
Other	1.66			Packaging and material exp	0.98	0.68		
				Other costs	0.66	0.61		
				Grouped Unit Costs:				
Grouped Unit cost:				Employee&Courier		6.52		
Employee	7.13	6.52	Benchmark SF 2020 level, volume=8.1B	Outsourcing		7.27		
Outsourcing	5.91	4.83	Benchmark ZTO 2018 cost, volume=8.5B	Transportation		2.09		
Fixed Asset	2.11	1.5		Fixed Assets		1.33		
Miscellaneous	1.66	0.61	Benchmark SF	Miscellaneous		0.61		

CASE ANALYSIS

A higher unit cost due to a smaller scale, but will be improved with increased scale after JDL goes public

Bull/Base/Bear Case Analysis

(RMB Millions)	2020A	2021E	2022E	2023E
Revenue				
BULL		961,683	1,216,652	1,516,805
BASE	745,802	939,309	1,160,296	1,411,956
BEAR		916,935	1,105,283	1,312,073
Fulfilled Gross Margin				
BULL		8.2%	8.3%	8.5%
BASE	8.1%	8.0%	8.2%	8.4%
BEAR		7.5%	7.7%	7.9%
EBIT Margin				
BULL		1.8%	2.0%	2.3%
BASE	1.4%	1.4%	1.7%	1.9%
BEAR		0.6%	0.9%	1.2%
EBITDA				
BULL		23,751	32,095	44,298
BASE	16,761	19,705	27,082	35,999
BEAR		12,464	18,409	24,293
NOPAT				
BULL		14,345	20,630	30,103
BASE	9,089	10,888	16,310	22,920
BEAR		4,715	8,877	12,836
EV/EBITDA				
BULL		65.7x	48.6x	35.2x
BASE		52.6x	38.3x	28.8x
BEAR		39.6x	26.8x	20.3x
		BULL	**BASE**	**BEAR**
Target Price		**$162.81**	**$110.78**	**$56.93**
Weight		*30%*	*50%*	*20%*
Expected Price	**$115.62**			

Underlying Factors

Bull Case

- Successful expansion into lower-tier cities drives faster growth in users and ARPU.
- Efficient employment of capital in building fulfillment infrastructure
- COVID-19 steepens e-commerce's growth curve and shifts consumption behavior online

Bear Case

- Higher capital requirement in lower tier and community purchase model pressures short-medium term fulfillment margin.
- Higher marketing expense to accelerate user growth
- Scattered investments outside of core business with opaque ROI.

STERN IAG

Exelon Corp. (NYSE: EXC)

Value creation through the spinoff; an attractive risk/reward bet on nuclear energy

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Sector: Energy & Infrastructure **April 30th, 2021**

Business Description:

Exelon is a diversified utility services holding company engaged in the generation, delivery, and marketing of electricity and gas. The company is divided into two segments: 1) Six fully regulated utility distribution and transmission businesses – ComEd, PECO, BGE, Pepco, DPL, and ACE. 2) Exelon Generation – one of the nation's largest competitive power fleet, comprising 31 GW of generating capacity including nuclear, wind, solar, natural gas and hydro assets. **Exelon has recently announced its plan to spin off its Generation division and become a pure-play regulated utility by 2022.**

Investment Thesis:

1. Value creation of the regulated business through the spin-off

RemainCo owns some of best-quality and fastest-growing transmission and distribution utilities in the country that trade at a deep discount to peers. As natural monopolies, Exelon's utilities businesses are highly stable and fully regulated, with its rate base being approved by state jurisdictions to achieve predictable ~9 to 10% authorized ROE. The segment is expected to grow EPS at 6-8% CAGR through 2024, as aging infrastructure requires more capital investment to enhance reliability & resiliency and modernize electric and gas systems. Moreover, the utilities are positioned in favorable state jurisdictions, where 100% of its rate base growth is recovered through alternative recovery mechanisms that allow for faster cost recovery and higher realized ROE. However, under the existing conglomerate structure that includes the volatile generation business, investors find it hard to appreciate the low-risk, high-growth profile of RemainCo. As a result, Exelon currently trades at 14x P/E 2022 vs. average regulated utilities comps at 18x and high quality pure-play utilities 20x. By spinning off the generation business, the regulated business will experience an immediate multiple expansion. RemainCo will be an attractive IAG core holding that produces a ~3% yield dividend income stream growing at 6-8% YoY.

2. Underappreciated fleet of carbon-free generation assets

Assuming we apply an 18x P/E multiple to the mid-range of 2022 utilities EPS based on management guidance, giving us a share price of $41 for the regulated business, SpinCo is left with almost no value. While there are no direct comps, competitive generation businesses should at least trade at around the 4x - 8x range. This is because the market is heavily discounting the generation business, which consists several nuclear assets that are struggling to make profits due to unfavorable market dynamics. Last year, Exelon announce that it would permanently close two of its nuclear plants by 2021 and may close two more, representing 10% of the nation's total nuclear capacity in total. While nuclear power generators today are losing market share to cheap natural gas and renewable resources, their zero-carbon emissions and high availability factor are significant value propositions, especially as both states and the nation are transitioning toward 100% clean energy by 2050. With battery storage still at its early development stage, nuclear power plants are reliable resources that generate energy 24/7; losing them would risk more natural gas and coal plants coming online. After all, Exelon has some of the best nuclear assets in the country, with industry-leading capacity factor, lowest refueling outage days, and highest energy output. Successful cost management and adequate

Key Ratios and Statistics:

Price Target	$59.45
Upside	32%
Share Price (4/25/21)	$44.91
Market Cap	$43.87B
Average Daily Volume	5.32M
52-Week Low	$33.97
52-Week High	$46.37
Cash	$663.0M
Total Debt	$40.64B
P/E	22.35x
EV/EBITDA	9.79x

FY	2017A	2018A	2019A	2020A
Revenue	$33,558	$35,978	$34,438	$33,039
EBITDA	$9,398	$9,236	$9,528	$9,297
EPS	$2.66	$1.71	$2.42	$2.30

Figure 1 – Stock Performance - Last 5 Years

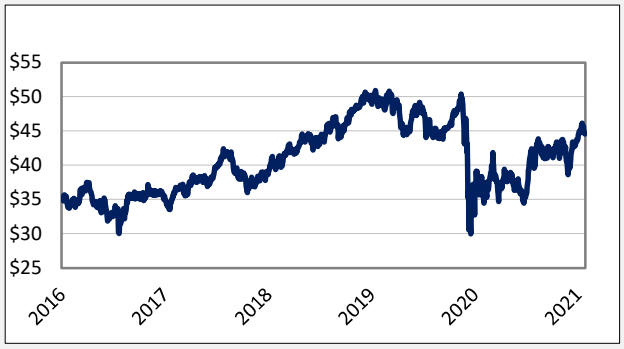
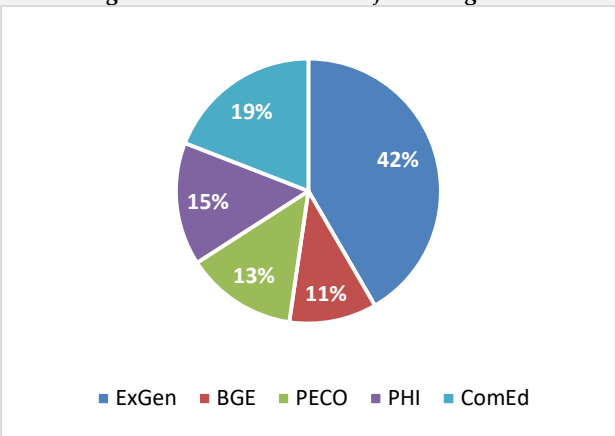


Figure 2 – Exelon's 2021 Adj. Earnings Mix



regulatory supports will drive up the value of SpinCo with limited downside at the current price.

3. Regulatory supports provide upside optionality for SpinCo

The SpinCo will likely benefit from the following scenarios:

1) **Near-term state subsidies** that prevent Exelon's four economically challenged nuclear plants from early retirements. Exelon is currently working with Illinois lawmakers to establish a bailout plan for its closing nuclear plants Dresden and Byron (4.2 GW total capacity, valued at ~2.1bn NPV). At some points in the coming months, we expect that the state of Illinois would have to offer hundred million-dollar subsidies through the Future Energy Jobs Bill to preserve these plants; this is inevitable given that these two plants alone generate ~36% of IL's electricity. Moreover, if all four of Exelon's unsubsidized nuclear plants prematurely retire, IL could lose roughly 87% of its clean energy, $3.46bn in annual GDP, 28k annual jobs, and $149m annual tax revenues.
2) **Mid-term PJM market reforms** that better compensate for the value of its carbon-free nuclear assets. Currently, FERC's order that instructed PJM to expand its minimum offer price rule, or MOPR, to all new and some existing state-subsidized resources unfairly prevents Exelon's nuclear plants from clearing the auction price to win capacity revenues. However, with recent leadership changes, FERC will likely back out of this rule to better accommodate state participants. States such Illinois and New Jersey are also threatening to partially exit the PJM market and have its own state energy procurement process through the Fixed Resourced Requirement Program.
3) **Long-term carbon tax** implemented at either federal or state levels, or both. The Biden admin recently raised the social cost of carbon from $1/ton under Trump to $50/ton, indicating the possibility of a federal carbon tax on carbon resources. With his campaign promising to drive net greenhouse gas emissions to zero in electricity by 2035 and the entire economy by 2050, a carbon tax is increasingly needed and is strongly advocated by his colleagues including Janet Yellen and even by some republicans. Based on conservative assumptions, a $40/ton carbon tax will increase electricity price by 17.4%, representing a $905m increase in EBITDA for Exelon.

Risks:

- **Unfavorable Rate Outcomes**
  If PUCs do not accept ROE increases requests or lower rate base increases, this will lower profit margins
- **Commodity and Interest Rate Risk**
  Price of natural gas commodities and changes in interest rates as a result of purchased gas requirements, public bond issuances, and bank debt
- **Nuclear Accident Risk**
  Although unlikely, this risk would halt nuclear development for years due to unfavorable public opinion
- **Spin-Off Risk**
  Less value realization than expected in thesis or issue/delay of actual execution date

Mitigants

- **Diversified Regulated Business**
  Exelon has utilities in five states and DC, making them less sensitive to positive or negative regulations
- **Regulatory Recovery Mechanisms**
  Rate base growth should be covered by alternative recovery mechanisms through formula, multi-year plan, and tracker mechanisms to reduce lag
- **Strong Track Record and Minimal Scandals**
  Will likely be given more favorable rates and project approvals due to longstanding, positive relationships with PUC

Figure 3 – Owned Power Generation Mix by Capacity

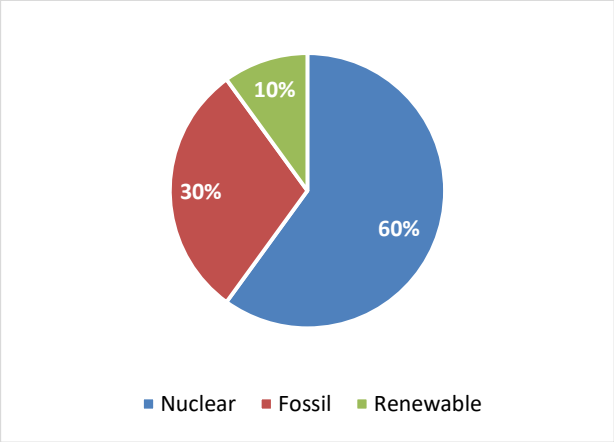


Figure 4 – Utilities EPS Growth

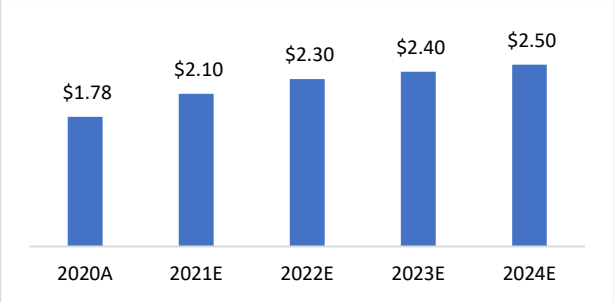


Figure 5 – Utilities Rate Base Breakdown

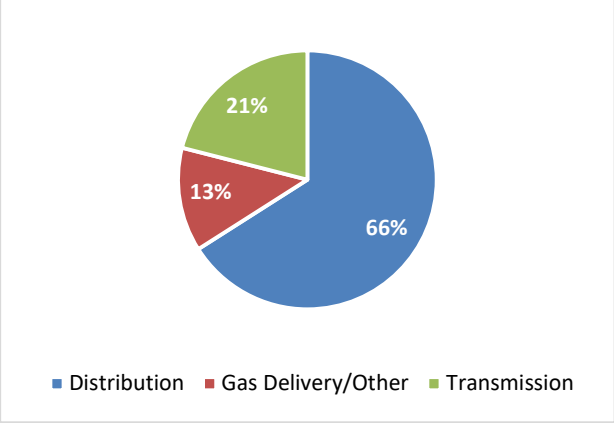
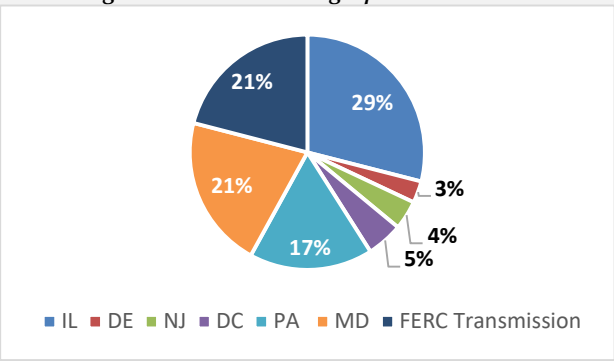


Figure 6 – Utilities Geographic Breakdown



Spin-off Overview

A tax-free transaction targeting Q1 2022 close

Exelon

Company Overview

Exelon Corporation,
ParentCo

Exelon Utilities – RemainCo
~75% of 2020 EPS

BGE	**PECO**
ComEd	**Pepco (PHI)**
ACE (PHI)	**DPL (PHI)**

- 100% regulated transmission and distribution utilities
- High-growth utility targeting 6-8% regulated earnings growth
- Leading operational track record providing one of the lowest utility bills and electricity hazard in the country
- Diversified rate based with 100% of growth covered by alternative rate mechanism
- Committed to dividend payout and ESG principles

Exelon Generation – SpinCo
~25% of 2020 EPS

Mid-Atlantic	**Midwest**
New England	**New York**
ERCOT	**Retail / Other**

- 2x largest U.S. generator of zero-carbon electricity
- Lowest carbon intensity among major investor-owned generators with no coal generation
- Nuclear capacity factor is ~4% better than industry average
- Largest customer-facing retail electricity provider with strong customer renewal rates in price-stable markets
- Committed to debt paydown to maintain investment grade credit ratings and strong balance sheet

Shareholders will retain current EXC shares, while receiving pro-rata distribution of SpinCo shares.

Source: EXC Investor Presentation

Thesis #1: Value Creation of Regulated Utilities

Solid industry poised for future growth

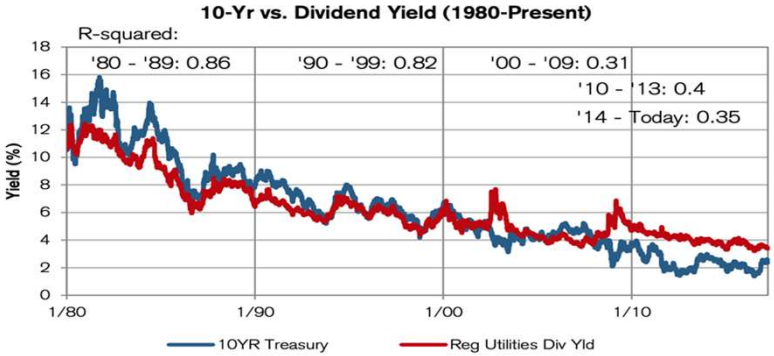
Exelon

Profit Model – Regulated Utilities

ALLOWED RATE BASE	×	EQUITY RATIO	×	ALLOWED ROE	=	NET INCOME
$10 BN		50%		10%		$500 MM

- Net income and profitability are greatly influenced by regulators
- Operating expenses are passed on to customers, while net income is decided through PP&E spending

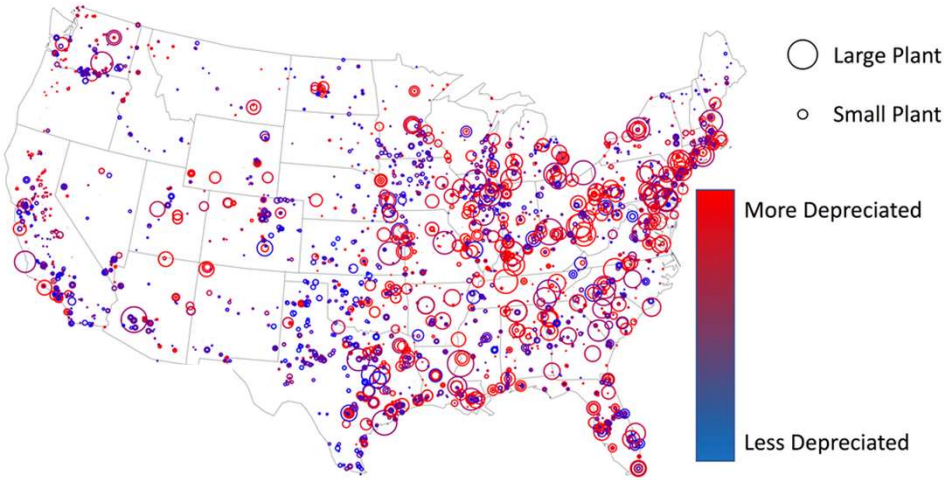
Not a Bond Proxy



- R^2 has decreased from 0.8 to 0.35 over last 30 years
- Utilities have become much more growth oriented ~6-8% EPS yearly increase

Aging Infrastructure

- Aging equipment impacts reliability of the electric grid and requires infrastructure spending
- The estimated gap is the difference between investments in electricity infrastructure with total estimated needs
- The Northeast and Mid-Atlantic has among the oldest utility infrastructure in the United States and represents 43% of the gap despite only representing one quarter of the total US population
- Need greater transmission infrastructure due to more aggressive renewable energy projects
- Greatest growth potential in distribution, transmission, and generation within these regions



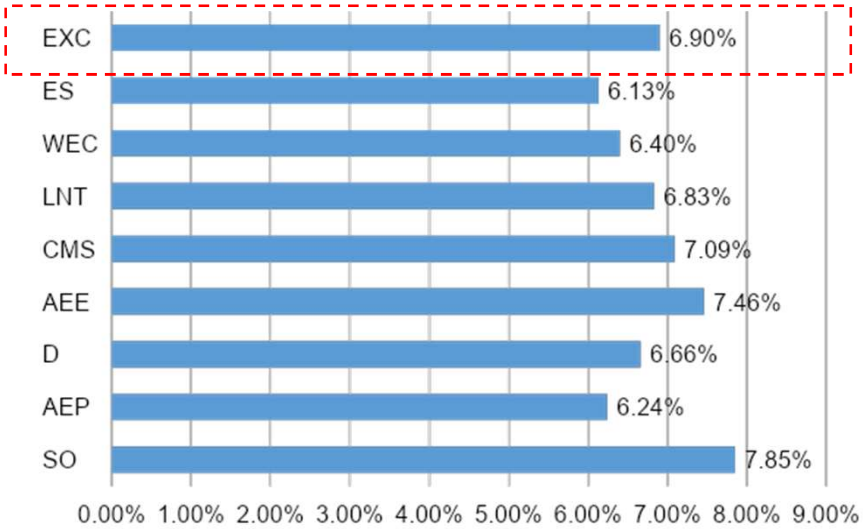
Source: Credit Suisse Power & Utilities, EIA

Thesis #1: Value Creation of Regulated Utilities

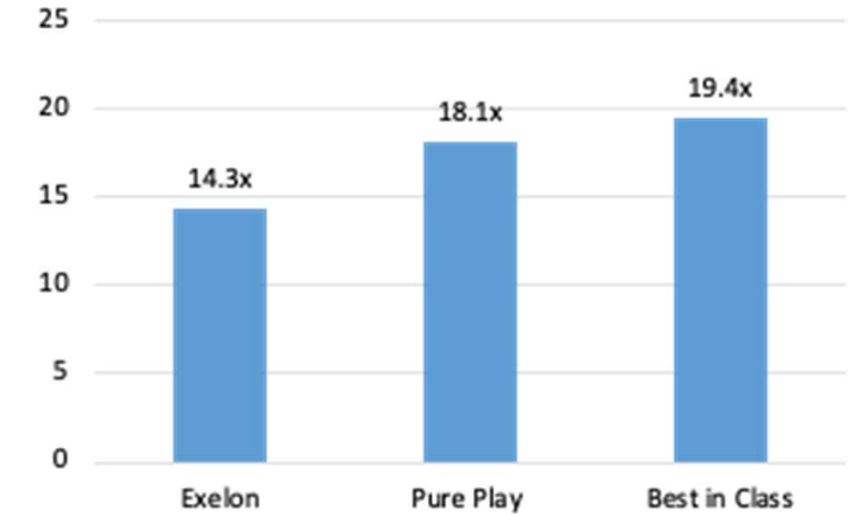
Exelon is cheaply valued despite strong performance and metrics

Exelon

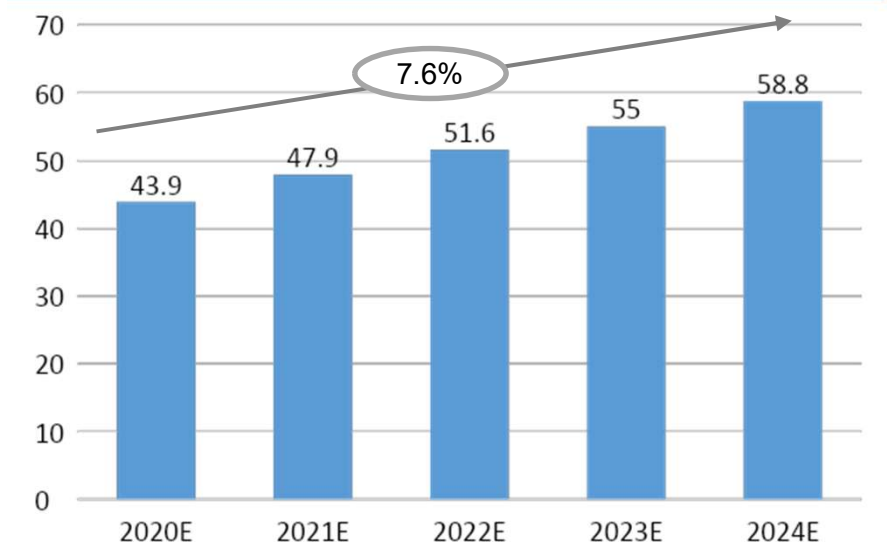
Above Average 2021-2023 EPS CAGR



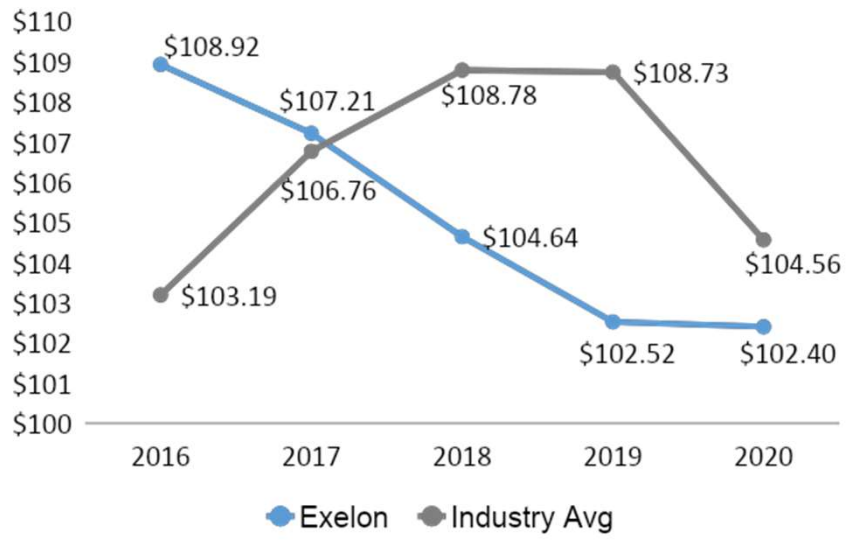
2022 Forecasted P/E Ratios



RemainCo Projected Rate Base (in $B)



Lower Priced Customer Rates



Source: EXC Investor Presentation

Thesis #1: Value Creation of Regulated Utilities

Regulatory tailwinds and expansion efforts allow for 9%+ realized ROE

Exelon

Exelon Regulatory and Expansion News

- Anticipated $27 billion investment over the next four years in electric and natural gas infrastructure improvements and modernization projects
- This includes smart grid technology, storm hardening, advanced reliability technologies, and transmission projects, projected to result in an increase to current rate base of approximately $15 billion by the end of 2024

State-Specific Opportunities:

- **Maryland's** Strategic Infrastructure Development and Enhancement Program (Exelon and BGE) is five year plan calling for capex over 2019-2023 of $732 million with a revenue requirement of $200 million
- **Illinois** Commerce Commission approved a total increased in ComEd's requested energy efficiency revenue requirement in 2020
- **New Jersey's** Advanced Metering Infrastructure Filing (Exelon, PHI, and ACE) is a proposal to build a smart energy network costing 220 million over 3 years
- Requested ROE % increases for PECO – Pennsylvania, Pepco-District of Columbia and Maryland, DPL – Delaware, and ACE - New Jersey

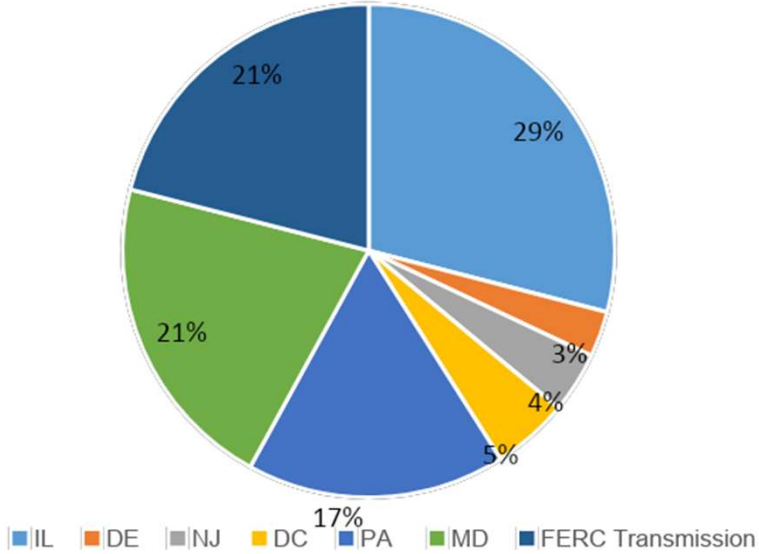
Bottom Line

- Exelon's strong track record across five states and DC, and top quartile performance in numerous operating metrics promotes stronger relationships with regulatory bodies, making them one of the most stable and best-run utilities

Authorized ROE

- Decided by a state's Public Utility Commission and is a determinant of profitability for a utility
- Exelon has a very high authorized ROE for transmission at 10.5% while distribution is average at around 9%
- Favorable treatment in Maryland and Delaware, while unfavorable but improving in Illinois

Rate Base by Location



- Diversified locations for distribution and transmission allow for strong, stable growth
- Represents 2021 rate base (whole pie represents $48 billion)

Source: EXC Investor Presentation, Company 10-K

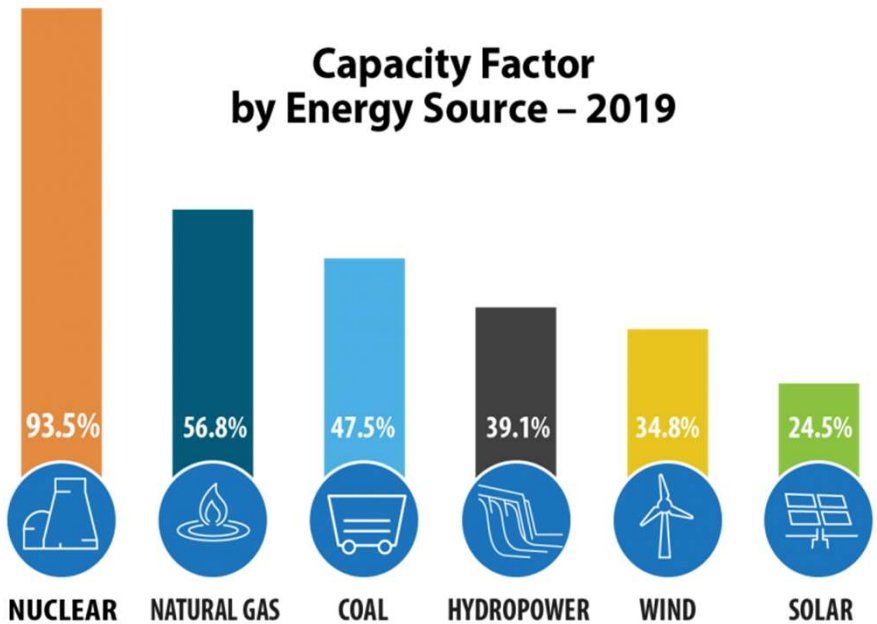
Thesis #2: Underappreciated Carbon-Free Generation Assets

Nuclear plays a pivotal yet overlooked role in global energy transition

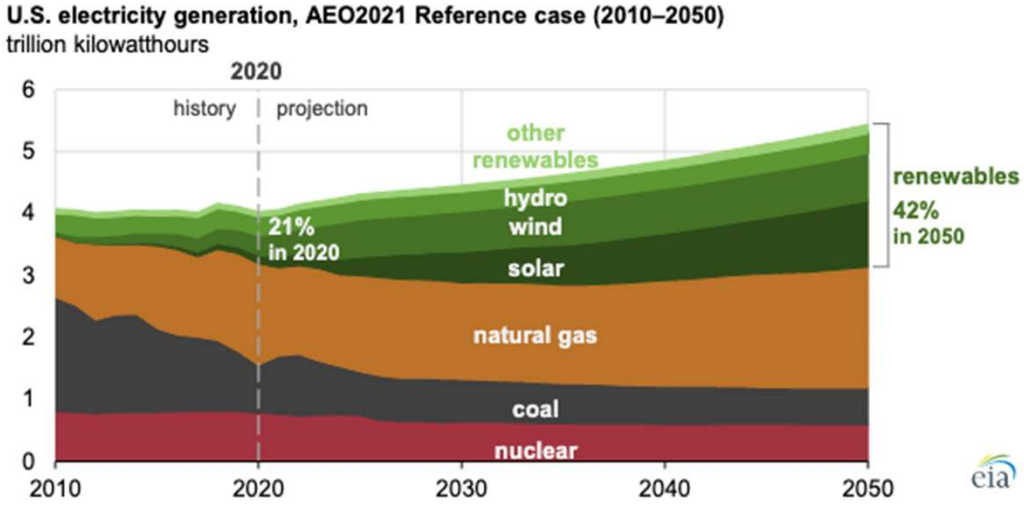
Exelon

Value Propositions of Nuclear

- **20%** of total U.S. electricity; **55%** of U.S. carbon-free electricity come from nuclear
- **0.005%** of the average American's yearly radiation dose comes from nuclear power; **100 times less** than we get from coal
- **Safest energy production** in terms of deaths from accidents and air pollution per TWh, besides solar and wind
- **60+ years** asset lifespan – longest among all power plants



Nuclear's Role in Energy Transition



Case Study

Germany – since abandoning nuclear

36m	50%	1,100
additional carbon dioxide per year	increase in cost of electricity	more deaths per year from respiratory illnesses

France – 70% of electricity from nuclear

$1.5bn	59%	10%
per TWh cheaper to build clean energy	of Germany's electricity price	of Germany's carbon pollution from electricity

U.S. cannot achieve its zero-carbon emission target without the help of Exelon's nuclear power plants.

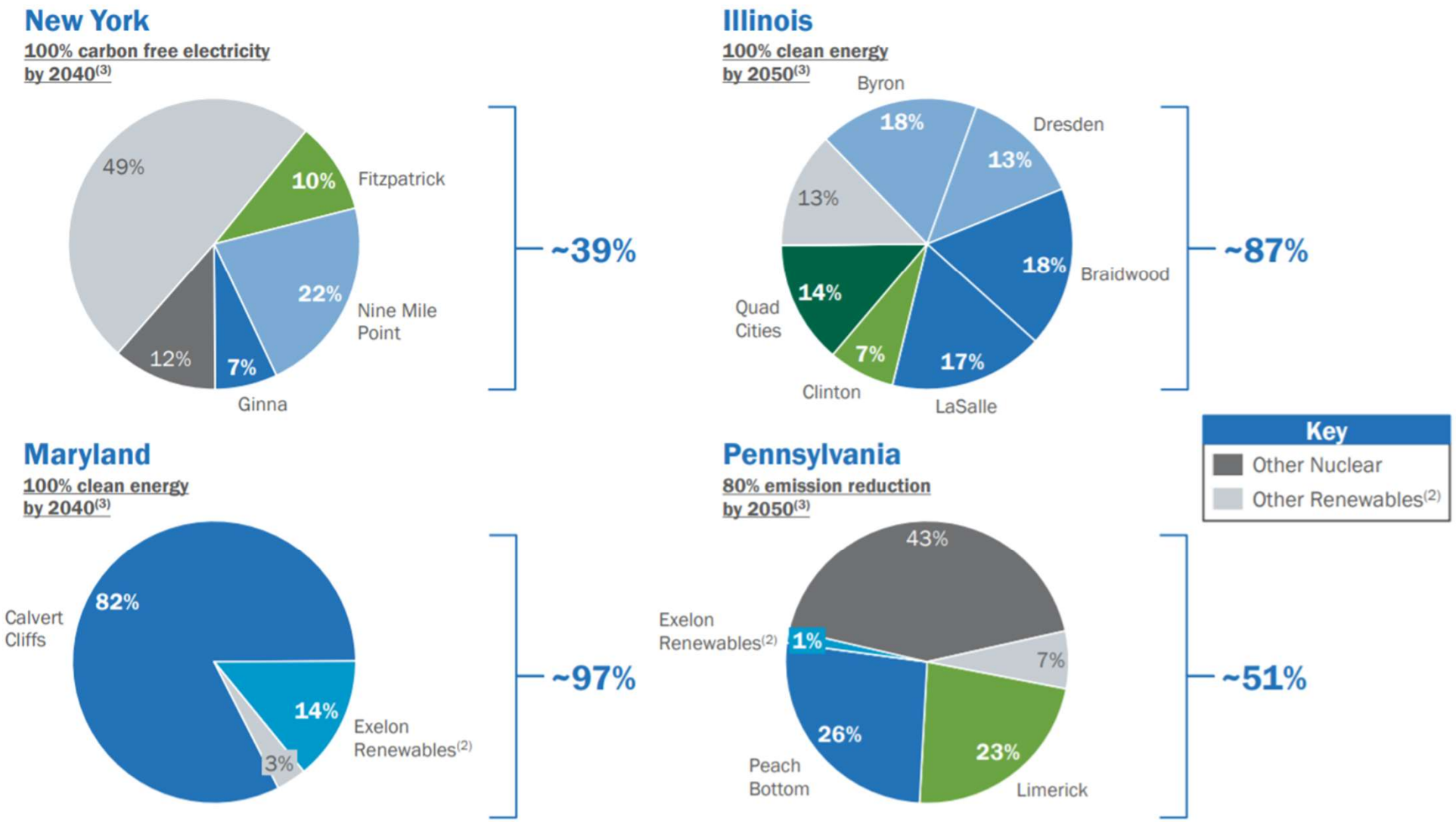
Source: EIA, U.S. Department of Energy, ANS, IEA, Yale Environmental 360, Wired

Thesis #2: Underappreciated Carbon-Free Generation Assets

Nuclear plays a pivotal yet overlooked role in global energy transition

Exelon

Exelon's Contribution to Clean Electricity by State



Source: EXC Investor Presentation

Thesis #2: Underappreciated Carbon-Free Generation Assets

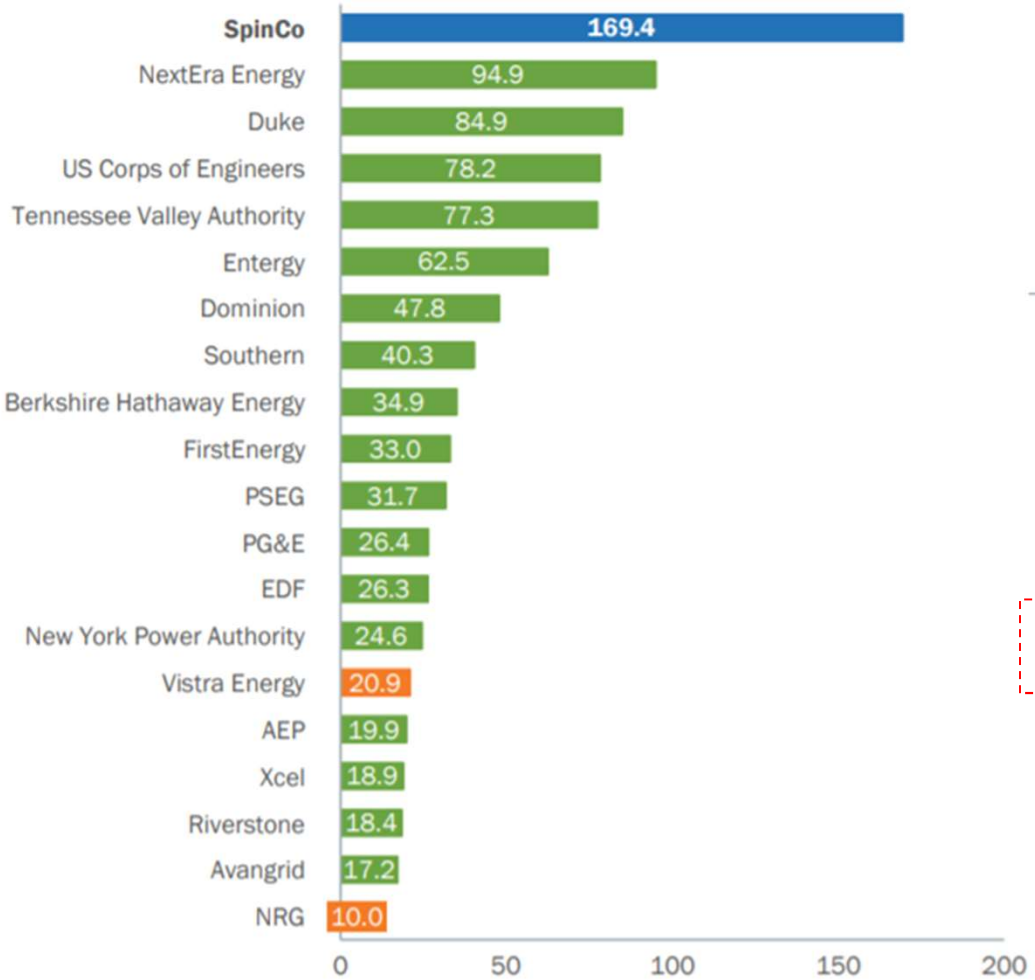
The market is giving almost no value to Exelon Generation (SpinCo)

Exelon

Largest Producer of Zero-Carbon Energy

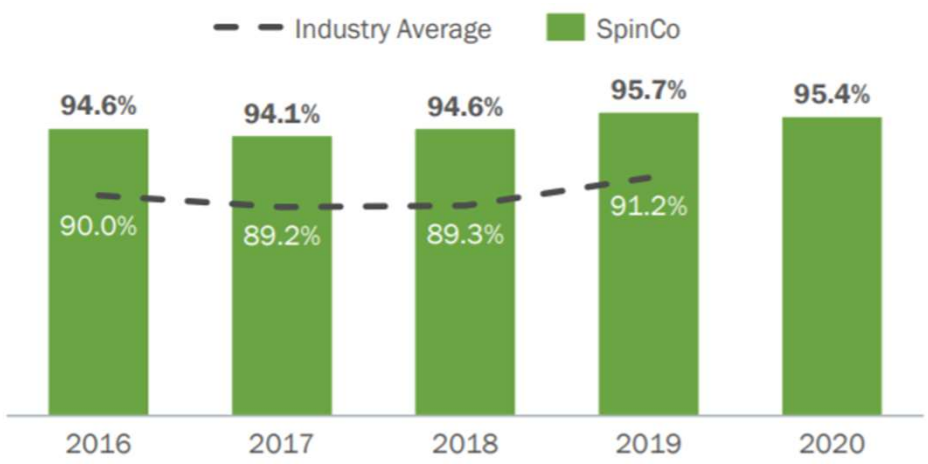
- ExGen produces ~12% of clean electricity in the U.S.
- Lowest CO2 Emission rates among all major investor-owned power producers

Annual Clean Energy Output (million MWh):



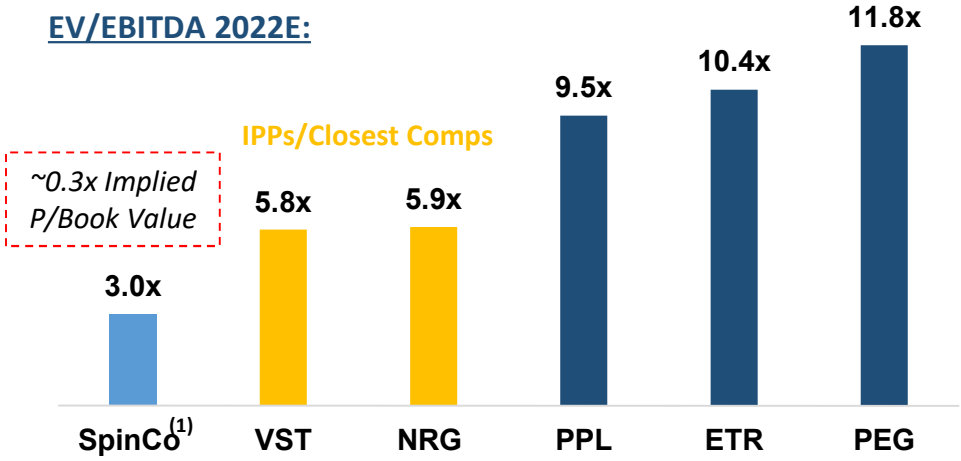
Best-in-Class Operator

Nuclear Capacity Factor:



Steep Discount to Peers

EV/EBITDA 2022E:



(1) Implied SpinCo Value = Current Share Price - RemainCo (18x P/E 2022)

Source: EXC Investor Presentation, Cap IQ

Thesis #3: Regulatory Supports Provide Upside Optionality

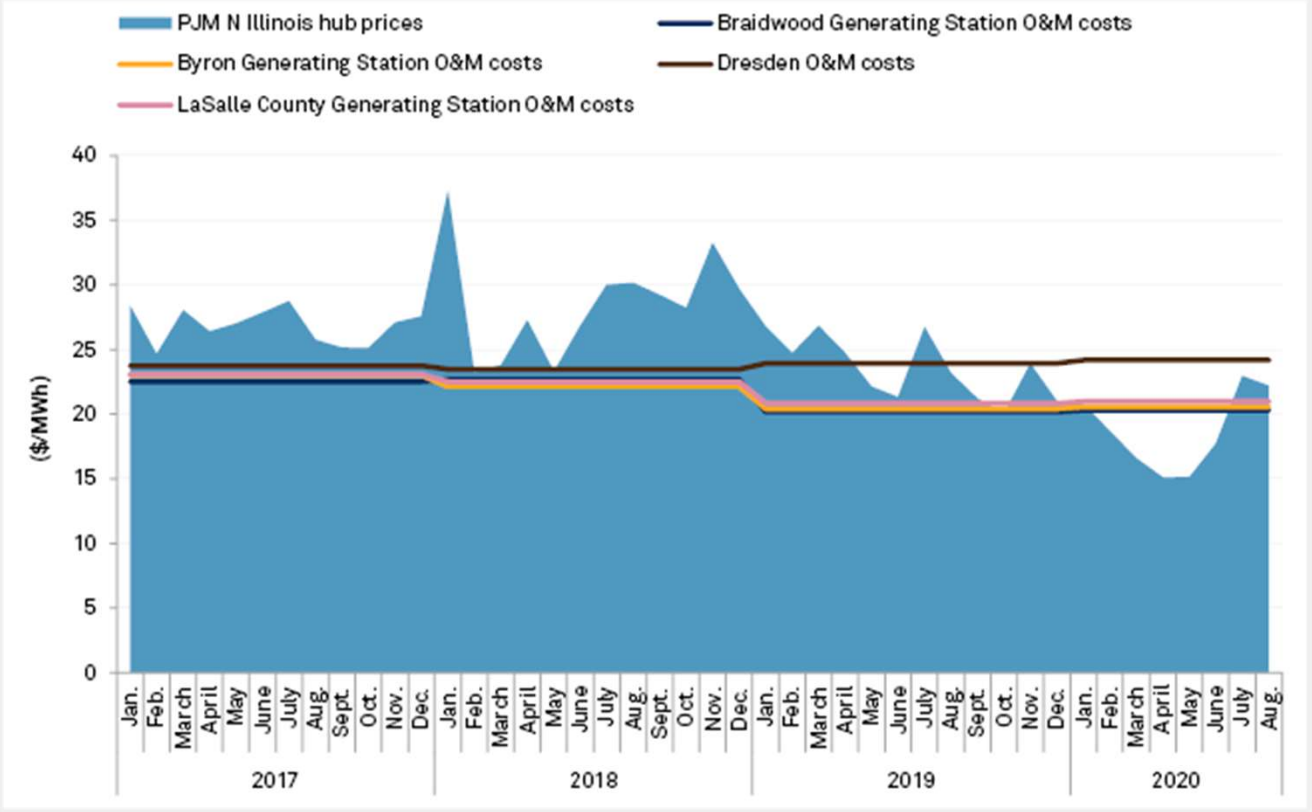
Near-term subsidies add $2+ billion NPV to SpinCo Valuation

Exelon

Near-term State Subsidies

Operating statistics, cost analysis of Exelon's Illinois nuclear plants slated for, at risk of 'premature closure'

Plant	Operating capacity (MW)	2019 operating statistics: Net generation (MWh)	2019 operating statistics: Capacity factor (%)	ISO/RTO	County	Years units in service	License expirations
Braidwood Generating Station	2,384	20,251,140	96.97	PJM	Will	1988	2046, 2047
Byron Generating Station	2,346	20,117,981	97.89	PJM	Ogle	1985, 1987	2044, 2046
LaSalle County Generating Station	2,313	19,435,255	95.92	PJM	LaSalle	1984	2042, 2043
Dresden	1,805	15,081,715	95.38	PJM	Grundy	1970, 1971	2029, 2031
Total	**8,848**	**74,886,091**					



Zero Emission Credits

Illinois $16.50/MWh

+

New Jersey $10.00/MWh

+

New York $17.48/MWh

=

~$564m ZEC Revenue in 2020

+

Potential ~$70m annual subsidies for Byron & Dresden

Source: S&P Global, Company 10-K, GS Investment Research

Thesis #3: Regulatory Supports Provide Upside Optionality

Market reform and carbon tax as mid-to-long-term drivers

Exelon

Mid-term PJM Market Reform

PJM's Proposed Minimum Offer Price Rules (MOPRs):

Resource Type	Default MOPR (new resources) ($/megawatt-day)
Nuclear	$1,451
Coal	$1,023
Combined Cycle	$438
Combustion Turbine	$355
Hydro	$1,066
Solar Photovoltaic	$387
Onshore Wind	$2,489
Offshore Wind	$4,327

Scenario #1: Elimination of MOPR

Scenario #2: Fixed Resource Requirement Alternative

"A similar FRR proposal is now part of the Clean Energy Jobs Act (CEJA), which combines a mandate for 100 percent renewables by 2050 with other carbon reduction, electric transportation and job creation policies. CEJA would give the Illinois Power Agency authority to create a capacity market for the northern half of the state served by PJM, with a tiered structure prioritizing carbon-free capacity before fossil-fueled generators."

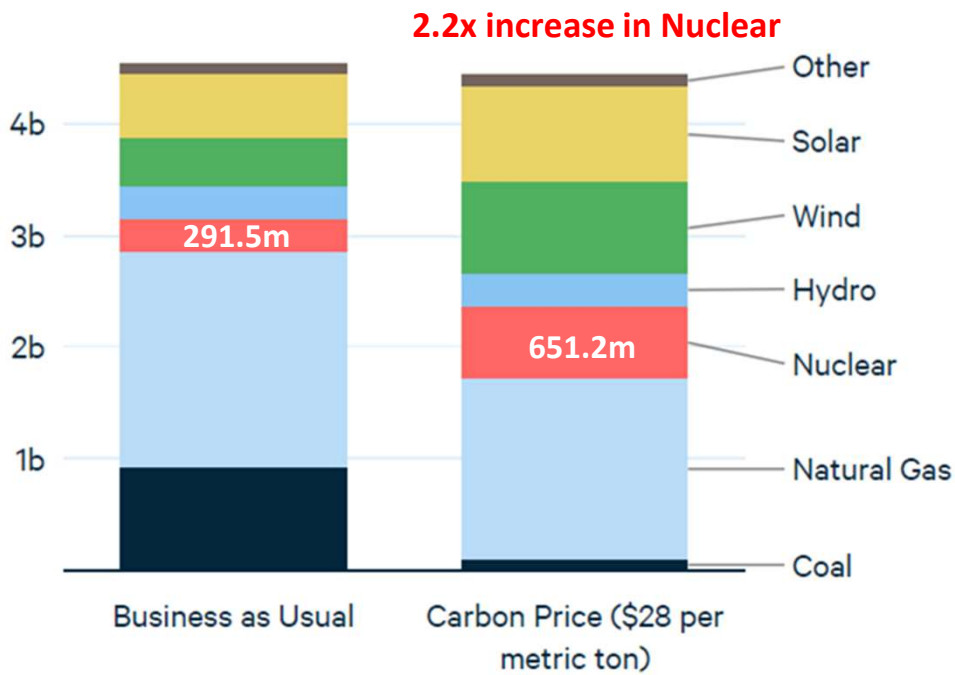
Long-term Carbon Tax

How Does Carbon Tax Work?

- Carbon pricing charges a minimum cost for fossil fuels so that their prices come closer to the real environmental costs ($51/ton under Biden)
- All proceeds of the tax will be distributed back to residents affected by the policy

Clean resources like nuclear do not pay a carbon fee and benefit from higher energy prices in wholesale markets

Projected Electricity Generation in 2035 (MWh):



Source: S&P Global, Resources, GTM, Resources for the Future

Thesis #3: Regulatory Supports Provide Upside Optionality

Carbon tax and market reform as mid-to-long-term drivers

Exelon.

Impact of Carbon Tax on Electricity Price

Retail Electricity Price ($/kWh)	2020	2025	2030
$0/ton	$10.4	$10.6	$10.6
$14/ton	$11.0	$11.3	$11.4
$50/ton	$12.5	$12.9	$12.9
$73/ton	$13.4	$13.7	$13.5

Increase in $/kWh	2020	2025	2030
$14/ton	$0.60	$0.70	$0.80
$50/ton	$2.10	$2.30	$2.30
$73/ton	$3.00	$3.10	$2.90

% in Price Change	2020	2025	2030
$14/ton	6%	7%	8%
$50/ton	20%	22%	22%
$73/ton	29%	29%	27%

% Price Change Per Ton	2020	2025	2030
$14/ton	0.41%	0.47%	0.54%
$50/ton	0.40%	0.43%	0.43%
$73/ton	0.40%	0.40%	0.37%
Average	0.40%	0.44%	0.45%

% Price Change at $40/ton	16.1%	17.4%	18.0%
Implied $ Increase in ExGen EBITDA	$839.3	$905.3	$934.0

Implied Increase in 2022E ExGen EBITDA ($M)	**$872.3**
= Average of 2020 and 2025	

Source: Columbia SIPA – Center on Global Energy Policy

Valuation

Sum-of-the-Parts Analysis

Exelon Valuation	Bear Case	Base Cass	Bull Case
Utilities 2022 EPS	$2.30	$2.30	$2.30
2022 P/E	16.0x	18.0x	20.0x
Utilities Equity/Sh	**$36.80**	**$41.40**	**$46.00**
ExGen 2022 EBITDA	$2,463	$2,463	$2,463
(+) 20% Capacity Revenue			$480
(+) Carbon Tax Effects @ $40/ton			$872
Total ExGen 2022 EBITDA	**$2,463**	**$2,463**	**$3,815**
2022 EV/EBITDA	4.0x	6.0x	8.0x
ExGen Enterprise Value	**$9,854**	**$14,780**	**$30,521**
(+) NPV of Byron @ 8%		$1,767	$1,767
(+) NPV of Dresden @ 8%		$468	$468
(-) ExGen Net Debt	($4,291)	($4,291)	($4,291)
ExGen Equity Value	**$5,563**	**$12,725**	**$28,466**
Share Count	976.8	976.8	976.8
ExGen Equity/Sh	**$5.70**	**$13.03**	**$29.14**
Consolidated Exelon Equity/Sh	**$42.50**	**$54.43**	**$75.14**
Upside / (Downside)	-5.4%	21.2%	67.3%

Bear Case
10% Probability

+

Base Case
60% Probability

+

Bull Case
30% Probability

=

Target Price
$59.45 (~32% upside)

Valuation Waterfall – Equity/Share:

Share Price (4/25/2021) – $44.91

Source: Company 10-K, GS Investment Research

Valuation

Public Comps – All Utilities

Exelon

Electric & Gas Utilities - Broad Universe							
Name	Price	Market Cap - Consolidated	Enterprise Value	P/E TTM	P/E 2021	P/E 2022	Dividend Yield TTM
Entergy Corporation	99.64	20,034	42,592	14.4x	16.8x	15.8x	3.86%
Public Service Enterprise Group Incorpora	59.67	30,139	46,779	15.9x	17.4x	17.0x	3.44%
Xcel Energy Inc.	66.79	35,910	56,463	23.9x	22.5x	21.0x	2.76%
Avista Corporation	47.43	3,288	5,584	24.9x	22.7x	20.8x	3.50%
Black Hills Corporation	66.70	4,194	8,053	18.3x	17.1x	16.4x	3.39%
Chesapeake Utilities Corporation	115.81	2,028	2,722	27.2x	25.5x	23.7x	1.50%
Southwest Gas Holdings, Inc.	68.24	3,909	6,719	16.5x	16.5x	15.8x	3.54%
Atmos Energy Corporation	98.24	12,012	16,679	19.1x	19.4x	18.2x	2.57%
Spire Inc.	73.37	3,813	7,381	39.5x	17.7x	16.8x	3.51%
New Jersey Resources Corporation	39.93	3,843	6,166	20.8x	21.4x	17.6x	3.34%
Mge Energy, Inc.	71.33	2,580	3,130	27.5x	24.9x	21.5x	2.05%
Firstenergy Corp.	34.31	18,665	41,341	18.6x	13.6x	13.1x	4.55%
New Jersey Resources Corporation	39.93	3,843	6,166	20.8x	21.4x	17.6x	3.34%
Sempra Energy	131.80	39,897	67,829	10.2x	16.4x	15.5x	3.33%
Nisource Inc.	24.07	9,432	20,018	NEG	18.0x	17.0x	3.70%
South Jersey Industries, Inc.	23.06	2,328	5,774	14.2x	13.7x	13.5x	5.44%
Northwest Natural Holding Company	53.07	1,624	2,840	23.1x	21.1x	20.3x	3.65%
One Gas, Inc.	76.81	4,090	6,082	20.9x	20.1x	18.6x	3.09%
Alliant Energy Corporation	54.36	13,597	20,909	22.0x	21.2x	19.8x	2.97%
Wec Energy Group, Inc.	93.32	29,436	43,895	24.6x	23.2x	21.8x	2.91%
Eversource Energy	86.47	29,687	47,767	24.4x	22.3x	21.0x	2.81%
The Southern Company	62.33	67,631	120,161	21.3x	18.8x	17.5x	4.15%
American Electric Power Company, Inc.	85.54	42,480	75,843	19.8x	18.3x	17.1x	3.48%
Dominion Energy, Inc.	75.72	61,031	100,604	NEG	19.6x	18.4x	3.33%
Ameren Corporation	81.03	20,696	32,258	23.1x	21.5x	20.1x	2.70%
CMS Energy Corporation	61.02	17,661	33,237	24.3x	21.4x	19.9x	2.86%
Exelon Corporation	**43.91**	**42,890**	**82,761**	**21.9x**	**15.5x**	**14.3x**	**3.51%**
Average				21.3x	19.7x	18.2x	3.30%
Median				20.8x	20.1x	17.6x	3.34%
Max				39.5x	25.5x	23.7x	5.44%
Min				10.2x	13.6x	13.1x	1.50%

Source: Thomson One

Valuation

Public Comps – Best-in-Class Pure-Play Utilities

Exelon.

Best-In-Class Pure Play Utilities									
Name	Price	Market Cap - Consolidated	Enterprise Value	P/E TTM	P/E 2021	P/E 2022	Dividend Yield TTM	EPS CAGR 21'-23'	Authorized 2020 ROE
The Southern Company	62.33	67,631	120,161	21.3x	18.8x	17.5x	4.15%	7.85%	10.25%
American Electric Power Company, Inc.	85.54	42,480	75,843	19.8x	18.3x	17.1x	3.48%	6.24%	9.3% - 10.5%
Dominion Energy, Inc.	75.72	61,031	100,604	NEG	19.6x	18.4x	3.33%	6.66%	9.2% - 9.9%
Ameren Corporation	81.03	20,696	32,258	23.1x	21.5x	20.1x	2.70%	7.46%	8.4% - 10.5%
CMS Energy Corporation	61.02	17,661	33,237	24.3x	21.4x	19.9x	2.86%	7.09%	9.9% - 10.5%
Alliant Energy Corporation	54.36	13,597	20,909	22.0x	21.2x	19.8x	2.97%	6.83%	~10%
WEC Energy Group, Inc.	93.32	29,436	43,895	24.6x	23.2x	21.8x	2.91%	6.40%	~10%
Eversource Energy	86.47	29,687	47,767	24.4x	22.3x	21.0x	2.81%	6.13%	9.3% - 9.9%
Exelon Corporation	**43.91**	**42,890**	**82,761**	**21.9x**	**15.5x**	**14.3x**	**3.51%**	**6.90%**	**10.35% - 10.5%**
Average				**22.8x**	**20.8x**	**19.5x**	**3.15%**	**6.83%**	**9.96%**
Median				**23.1x**	**21.3x**	**19.9x**	**2.94%**	**6.74%**	**10.00%**
Max				**24.6x**	**23.2x**	**21.8x**	**4.15%**	**7.85%**	**10.50%**
Min				**19.8x**	**18.3x**	**17.1x**	**2.70%**	**6.13%**	**8.40%**

Source: Thomson One