



INSPIRING EDUCATION INSPIRING LIFE

MSc[®] Banking and International Finance

Mergers & Acquisitions

Financial strategy for investing and financing

October 2021



A.

Course Introduction

Background and select transactions

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Chemicals M&A Advisory
Evercore

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- 2006:** TBS Mastere Banking & Corporate Finance
- 2006:** Internship (Relationship Management) ABN AMRO (Paris), Internship M&A ABN AMRO, (Amsterdam)
- 2007:** Analyst, M&A, ABN AMRO (Amsterdam)
- 2009:** Associate M&A, RBS
- 2011:** Industrials Sector Advisory, RBS (London)
- 2012:** Associate, The Valence Group (Chemicals)
- 2013:** Vice President, The Valence Group
- 2014:** Vice President, Industrials, Jefferies
- 2015:** Vice President, Chemicals Advisory, Evercore
- 2018:** Director, Chemicals Advisory, Evercore
- Since 2021:** Managing Director, Chemicals Advisory
- Since 2015:** Member of TBS Foundation Executive Committee

n/a	2013		Advised Tessenderlo Group on the sale of its Compounds Business to Mitsubishi Chemical	n/a	2015		INTERNATIONAL CHEMICAL INVESTORS	Advised Ineos and Solvay on Sale of certain chlorovinyl businesses as a remedy to secure European commission approval of INOVYN, their planned PVC JV	€600m	2015		Polymer Intermediates & Composite Resins	Advised DSM on the JV of its PI & CR business with CVC	Terms not disclosed	2015		COMPO EXPERT to XIO GROUP	Advised Triton on the sale of COMPO Expert to XIO Group
€485m	2016		Exclusive financial advisor to Den Braven on its sale to Arkema	c.\$500m	2018		OCEANWOOD CAPITAL MANAGEMENT	Advised Norske Skog on its sale to Oceanwood	n/a	2020		ARDIAN-backed kersia to HOLCHEM	Financial advisor to Ardian-backed Kersia on its acquisition of Holchem from Ecolab	n/a	2020		Kersia to IK Investment Partners	Financial advisor to Ardian on the sale of its portfolio company Kersia to IK Investment Partners
€150m	2021		Financial advisor to Cementos Molins on its acquisition of Calucem	n/a	2021		APOLLO	Sole financial advisor to Alain de Krassny and Kem One on its sale to funds managed by Apollo Global Management	>\$1bn	2021		ARDIAN	Financial advisor to Ardian on its >\$1bn majority stake acquisition in Florida Food Products from MidOcean Partners	Ongoing	Project Falcon		Advising PE owner of a French technical textiles and thermoplastics composites company on its potential sale	

Sell-Side: 17 (Closed: 12, WIP: 2)
Buy-Side: 14 (Closed: 4, WIP: 1)
Public Offer: 7 (Closed: 2)
Others: 7 (Closed: 5)

1 Introduction to Investment Banking

2 Improve knowledge of M&A goals and processes

3 Understand valuation methodologies

4 Provide tools to understand and assess M&A transactions

5 What to include in an M&A Presentation for a Client

Readings:

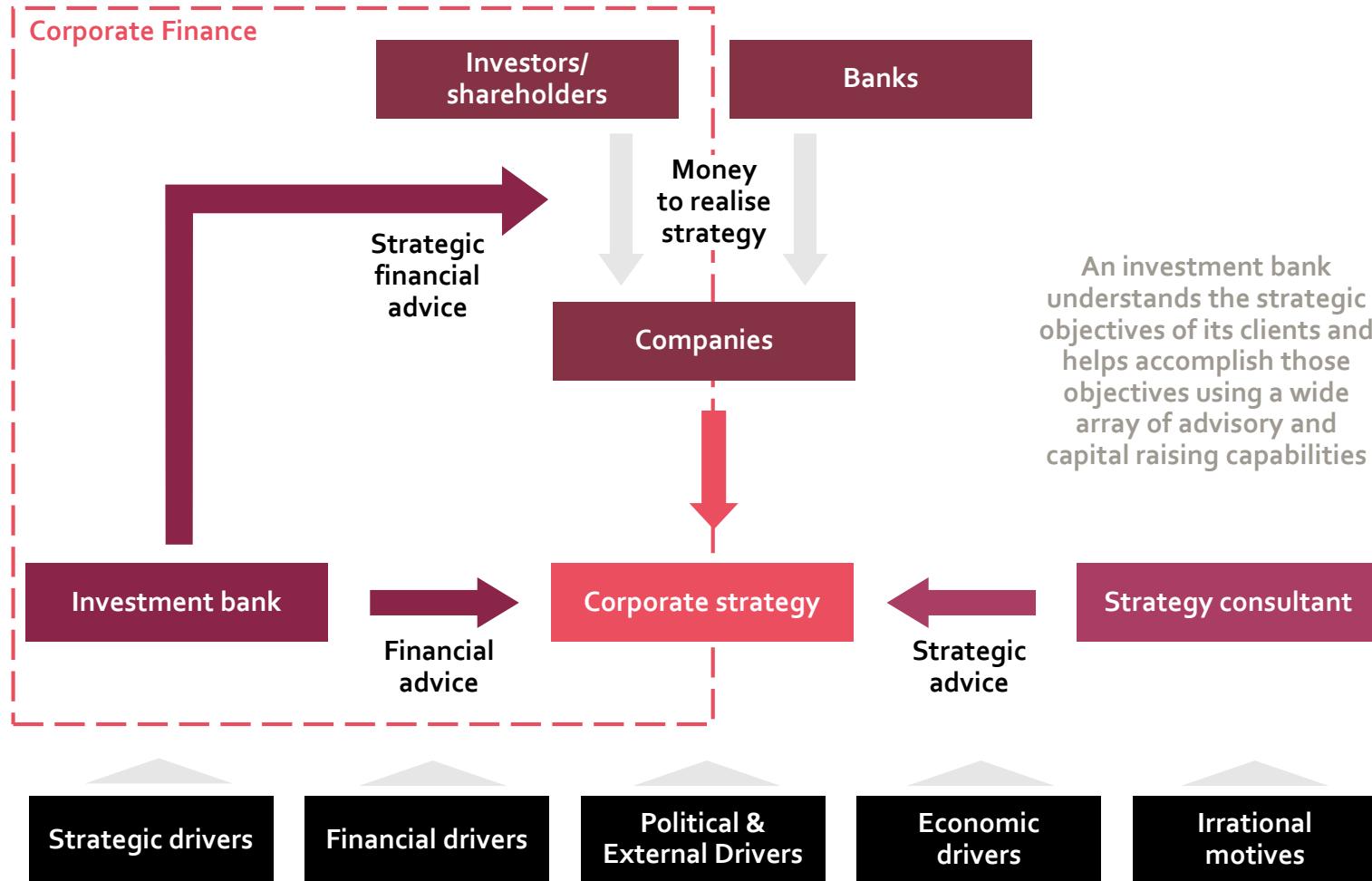
- Valuation: Measuring and Managing the Value of Companies, 6th Edition, by McKinsey & Company Inc.
- Investment Banking: Valuation, Leveraged Buyouts, and Mergers & Acquisitions, Joshua Rosenbaum, Joshua Pearl
- Ten Ways to Create Shareholder Value, Alfred Rappaport
- Journal Of Applied Research In Accounting And Finance (JARAF)

- A. Course Introduction
 - B. What is Investment Banking?
 - C. M&A: Rationale & Transaction Type
 - D. M&A Processes (Private & Public)
 - E. Valuation Considerations
 - F. How M&A Transactions are Financed?
 - G. Acquisition Modelling
 - H. Wrap Up
- ## Appendices

B.

What is Investment Banking?

What is an Investment Bank?



An investment bank understands the strategic objectives of its clients and helps accomplish those objectives using a wide array of advisory and capital raising capabilities

Which services do Investment Banks offer?

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INVESTMENT BANK							
FRONT OFFICE							
Investment Banking Division		Sales and Trading Division		Asset Management Division	Research Division		
Product Group	Industry Group	Sales Group	Trading Group	AM Group	Research group		
Mergers and Acquisitions (M&A) Financing / Global Capital Markets Debt Capital Market Equity Capital Market Leveraged Finance Capital Market	Financial Institutions	Equity Fixed Income Derivatives	Equity Fixed Income Derivatives	Institutions and Individuals Private Clients	Equity Research Fixed Income Research Macro Research		
	Technology						
	Healthcare						
	Real Estate						
	Transportation						
	Utility and Energy						
	Natural Resources						
	Industrials						
	Consumer Retail						
	Media and Telecommunication						
MIDDLE OFFICE							
Risk Management		Treasury		Others			
BACK OFFICE							
Accounting	IT	Human	Compliance	CMBD	Others		

Who are the players?

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Bulge Brackets



Commercial Banks

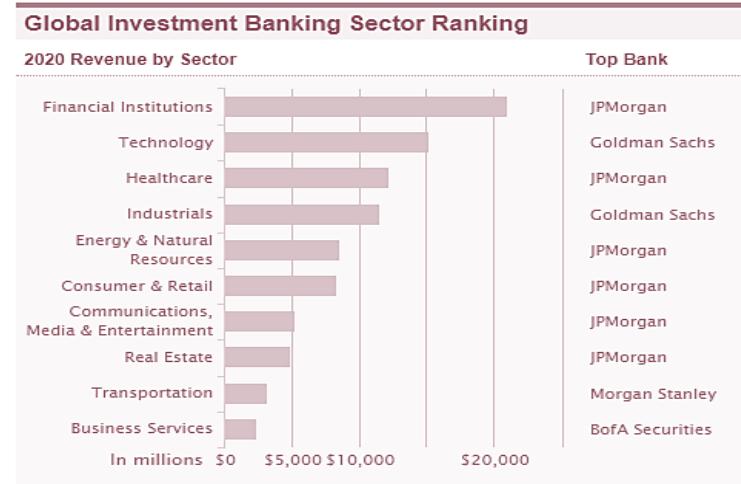


Elite / Independent Investment Banks



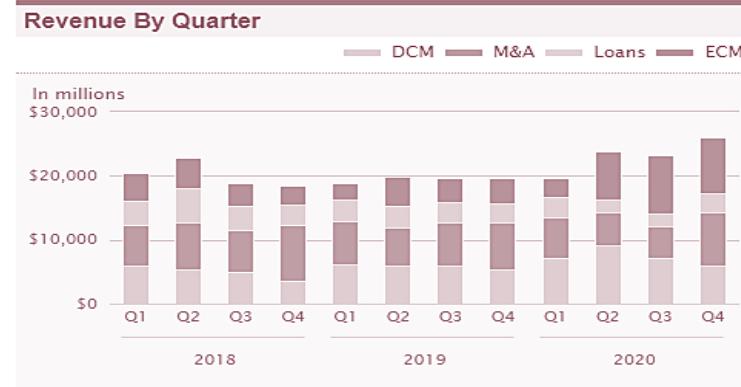
Investment Banking revenue breakdown and league table

Global Investment Banking Bank Ranking					
FY 2020			FY 2019		
Bank	Revenue \$m	% share	Rank	Revenue \$m	% share
JPMorgan	8,474.0	9.1	1	6,903.7	8.9
Goldman Sachs	7,668.7	8.3	2	5,831.2	7.5
BofA Securities	6,239.6	6.7	4	4,734.0	6.1
Morgan Stanley	6,126.9	6.6	3	4,792.2	6.1
Citi	4,738.1	5.1	5	3,819.7	4.9
Credit Suisse	3,979.4	4.3	7	2,900.7	3.7
Barclays	3,329.2	3.6	6	3,238.0	4.2
Deutsche Bank	2,286.8	2.5	8	2,076.1	2.7
Jefferies LLC	2,176.3	2.3	12	1,510.0	1.9
UBS	1,768.3	1.9	11	1,617.8	2.1
Subtotal	46,787.3	50.5		37,423.4	48.0
Total	92,694.3	100.0		77,994.9	100.0



Top Earners by Product					
Product	Revenue \$m	% cge	Y-o-Y	Top Bank	% share
Equity Capital Markets	28,330.0	90	▲	Goldman Sachs	11.0
Follow-On	12,675.3	75	▲	Goldman Sachs	11.3
IPO	12,739.7	117	▲	Goldman Sachs	10.0
Mergers & Acquisitions	24,567.9	8	▼	Goldman Sachs	10.0
Debt Capital Markets	29,443.1	25	▲	JPMorgan	8.9
Corporate Bond-Inve...	16,220.4	34	▲	JPMorgan	8.0
Corporate Bond-High...	6,834.7	23	▲	JPMorgan	12.1
Syndicated Lending	10,354.2	19	▼	JPMorgan	11.1
Investment Grade	1,381.4	23	▼	JPMorgan	13.9
Leveraged	8,972.7	18	▼	JPMorgan	10.7

Dealogic Revenue analytics are employed where fees are not disclosed



Debt Capital Markets (DCM), M&A (Mergers & Acquisitions), Loans (Syndicated Loans), ECM (Equity Capital Markets)

Source: Thomson DBI

Global M&A league tables

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2019

	Global	Deal Value
1	Evercore	\$661.3
2	Centerview	222.9
3	PJT	219.0
4	Lazard	209.1
5	Rothschild	130.5
6	Houlihan Lokey	119.1
7	Dyal	106.8
8	Moelis	98.8
9	Guggenheim	86.1
10	Perella Weinberg	76.8

Independents

	Global	Deal Value
1	Goldman Sachs	\$1,331.8
2	JP Morgan	1,068.6
3	Morgan Stanley	1,045.9
4	Citi	796.7
5	BAML	706.6
6	Evercore	661.3
7	Credit Suisse	417.0
8	Barclays	302.4
9	Centerview	222.9
10	PJT	219.0

All Firms

2020

	Global	Deal Value
1	Evercore	\$285.2
2	Lazard	248.6
3	Rothschild	206.5
4	Centerview	169.3
5	Moelis	133.5
6	LionTree	84.4
7	Perella Weinberg	66.6
8	PJT	61.8
9	Qatalyst	52.2
10	Houlihan Lokey	42.2

Independents

	Global	Deal Value
1	Goldman Sachs	\$997.8
2	Morgan Stanley	857.1
3	JP Morgan	752.3
4	BofA Securities	536.6
5	Citi	509.0
6	Credit Suisse	377.6
7	UBS	335.8
8	Deutsche Bank	300.4
9	Evercore	285.2
10	Barclays	268.4

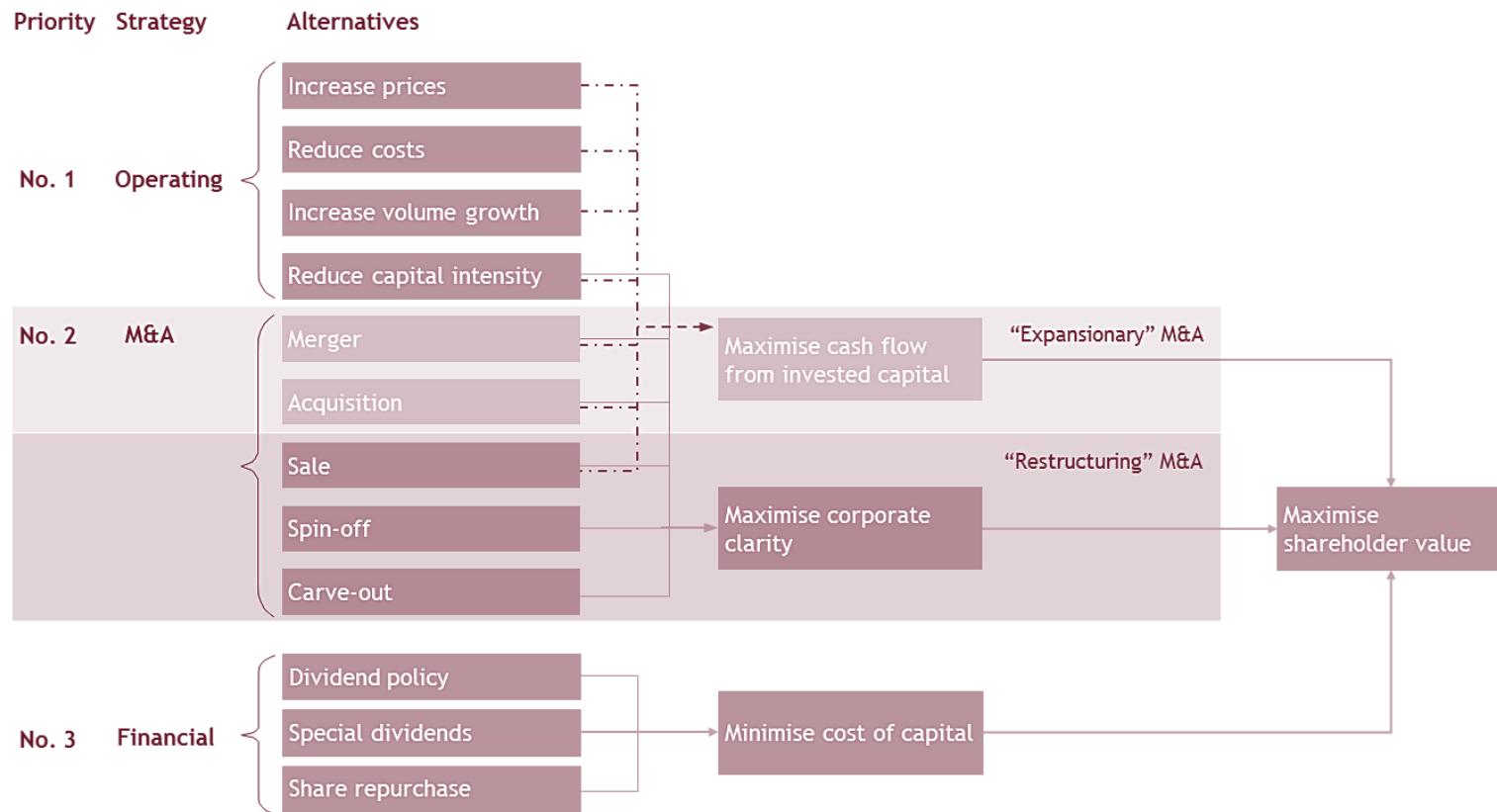
All Firms

Source: Refinitiv

C.

M&A: Rationale & Transaction Type

Firms turn to M&A to achieve/increase competitive advantage where standalone strategy is insufficient...or to restructure



Objectives

- Add scale faster than through organic investment (capex, marketing, R&D)
- Create value: pay less than value of business including synergy value



Reasons

- Achieve competitive advantage
- Achieve economies of scale
- Add countries—regionalise } quicker and lower risk than organic investment
- Add regions—globalise
- Add complementary products
- Most product/service markets are global/pan-region
- Increase supply of capital—investors prefer larger firms/index members
- Reduce cost of capital—lower risk than smaller firms

Objectives

- Reduce operations to more viable core
- Create value: sell for more than value (i.e. seek “control” premium)



Reasons

- Firm can't achieve strategic ambitions for all existing businesses due to capital constraints/inability to use stock to grow by acquisition—so divests weakest/poorest-positioned/non-core businesses
- Firm needs to raise cash—re-invest in core business, make acquisitions in core business over pay down debt, meet unexpected needs
- Firm's business mix unpopular with equity markets—complex firms/conglomerates trade at 20—40% discounts to sum-of-parts
- Business to be divested does not cover its cost of capital
- Another firm offers attractive premium over (estimated) trading value of business to be divested
- Another firm is better able to manage business to be divested

Share-Deal Transaction types

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Target	Seller(s)	Buyer	Transaction Type	Consideration Paid to Seller(s)	Commentary	Process	Transaction Example
Corporate	Private Shareholder(s)	Public/ Private Corporate	Acquisition	Cash/ Shares		Private Auction Exclusive Process	Acquisition of Fona by McCormick
		Financial Sponsor(s)	Leveraged Buy-Out (LBO)	Cash			Ardian's LBO of France-Based DRT
		Public Shareholders	Initial Public Offering (IPO)	Cash	Could also involve acquisition by Special Purpose Acquisition Company (SPAC)	Public Listing Process	Facebook IPO
	Financial Sponsor(s)	Public/ Private Corporate	Acquisition	Cash		Private Auction Exclusive Process	Sale of DRT by Ardian to Firmenich
		Financial Sponsor(s)	LBO	Cash			Sale of Iberchem to Eurazeo by Magnum Capital
		Public Shareholders	IPO	Cash	Could also include listing via SPAC	Public Listing Process	Listing of Apollo's Verallia, Listing of Carlyle's Atotech
	Public Shareholders	Public/ Private Corporate	Public Take-Over/ Acquisition Merger	Cash Shares	Merger can be considered as equal if both Buyer and Target are of similar size Can be friendly or hostile Buyer uncertain to be able to acquire 100% of stock	Public Auction Unsolicited approach	Acquisition of Naturex by Givaudan Dow/Dupont Merger Attempted PTO of Suez by Veolia
		Financial Sponsor(s)	Take-Private / LBO	Cash	Can be friendly or hostile Buyer uncertain to be able to acquire 100% of stock		Amplitude Surgical by PAI Latecoere by Searchlight (only acquired 65%)
Division, carved-out from larger organisation	Corporate (may be private, private or owned by Financial Sponsor)	Public/ Private Corporate	Acquisition/ Carve-Out	Cash	Joint-Venture could also fall in this category if the division is combined with division of the Buyer into a new vehicle	Private Auction Exclusive Process	Sale of DSM's Resins Business to Covestro Sale of Arkema's PMMA business to Trinseo
		Financial Sponsor(s)	LBO/ Carve-Out	Cash		Private Auction Exclusive Process	Sale of Akzo Nobel's Specialty Chemicals Division
		Public Shareholders	IPO	Cash	In an IPO, the shares of the division are sold to new investors	Listing Process	France Telecom's IPO of Pages Jaunes
			Spin-Off	Shares	In a spin-off, the shares of the division are distributed to the Company's own shareholders and the division will trade separately (or can be exchanged, we refer to a split-off)	Listing Process	Ingevity spin-off from WestRock Company Fortive spin-off from Danaher DOW's spin-off of its chlorine business, followed by a merger with Olin (Reverse Morris Trust transaction)

Other transactions may also include asset deals (e.g. sale of tangible assets, client list) joint-ventures

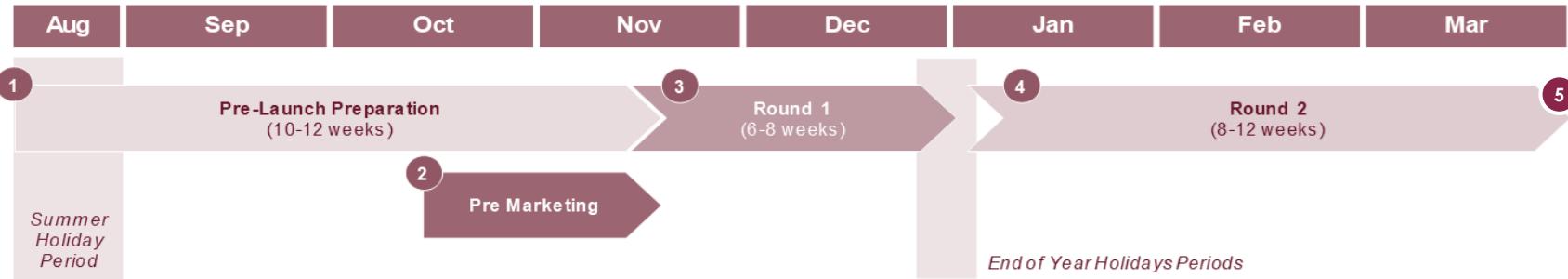
D.

M&A Processes

1- How to Sell a Private Company?

Overview of a typical sale process

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1 Preparation

- Engage other advisors as appropriate (legal, environment etc.)
- Develop investment case
- Develop financial forecasts and model; review value implications
- Prepare teaser and information memorandum
- Review potential buyers and agree parties to be contacted
- Draft process letter
- Initiate contact with selected buyers and send out teaser

2 Pre-Marketing

- Engage with selected buyers and present the opportunity
- Assess the seriousness and commitment from potential buyers
- Evaluate initial feedback and anticipate issues
- Distill implications for process design and timing

3 Round 1

- Sign confidentiality agreements with interested buyers and distribute information memorandum and process letter
- Prepare virtual data room
- Start preparation of Management Presentation materials and start rehearsals
- Prepare for site visits
- Request 1st round bids
- Legal workstream (SPA, TSAs⁽¹⁾ etc)

4 Round 2

Due Diligence

- Management Presentation
- Open Data Room
- Q&A / Due Diligence
- Expert sessions (e.g. legal, finance, industrial, IT)
- Site Visits
- Send SPA to buyers, clarify and discuss SPA mark-ups so they are as close to fully agreed as possible before binding bids are submitted
- Receive binding bids

5 Negotiations / Signing

- Review final proposals and contracts
- Plan for end game tactics
- Final negotiations, final buyer selection
- Sign fully financed, definitive agreement
- Announce transaction

Overview of a typical sale process (continued)

	Suggested Duration	Key Activities	Objectives	Key Considerations
Preparation & Early Buyer Engagement	1 – 3 months	<ul style="list-style-type: none"> ▪ Agree business plan ▪ Prepare VDD ▪ Draft teaser and Information Memorandum ▪ Agree buyers list ▪ Negotiate and sign NDAs ▪ Engage with selected buyers 	<ul style="list-style-type: none"> ▪ Ignite buyer interest ▪ Prompt initiation of work and decision-making ▪ Anticipate all key issues and address in process architecture 	<ul style="list-style-type: none"> ▪ A longer period of early engagement permits more unstructured, tailored interactions with buyers ▪ Important to give impression of special attention
1st Round	3 – 5 weeks	<ul style="list-style-type: none"> ▪ Release IM and Phase I process letter ▪ Draft Management Presentation ▪ Assess and compare Non-Binding Offers ("NBOs") ▪ Finalise data room 	<ul style="list-style-type: none"> ▪ Facilitate down selection of buyers based on formal indication of value and qualitative factors ▪ Assess the seriousness and commitment of bidders who submit NBOs 	<ul style="list-style-type: none"> ▪ There is a lot more to interpret in an NBO than just the written letter
2nd Round	5 – 7 weeks	<ul style="list-style-type: none"> ▪ Open VDR, release VDD, SPAs and Phase II process letter ▪ Management presentations ▪ Q&A from bidders ▪ Site visits and expert sessions ▪ Negotiate SPAs ▪ Negotiate mgmt. incentives with buyers 	<ul style="list-style-type: none"> ▪ Resolve all outstanding due diligence issues ▪ Clarify and discuss early SPA mark-ups so they are as close to fully agreed as possible ▪ Continue to build competitive tension 	<ul style="list-style-type: none"> ▪ Optimal number of participants: 3 – 6 ▪ Stalking horses are required, don't discourage them ▪ Sellside posture should be perceived as more accommodating than belligerent
Final Negotiations	0 – 5 days	<ul style="list-style-type: none"> ▪ Final negotiations with parties that submitted a binding offer ▪ Complete and sign SPA 	<ul style="list-style-type: none"> ▪ Maintain competitive tension throughout the 'end game' ▪ Negotiate the SPAs into an acceptable form ▪ Push price up as far as possible 	<ul style="list-style-type: none"> ▪ Fear and greed are powerful motivators ▪ Keep the negotiating period as short as possible ▪ Precise, nuanced messages are critical to optimising outcome

Overview of key sale process documents

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Teaser	Pre-marketing materials	Information memorandum (Round 1)	Mini management presentation (Round 1)
<ul style="list-style-type: none"> ■ Description and marketing materials to be distributed to potential trade buyers admitted to pre-marketing phase (followed by sponsors) ■ Will only be provided upon strong enough indication of interest in initial phone call ■ Should allow potential trade buyers to form reasonably firm view on interest and price sensitivity 	<ul style="list-style-type: none"> ■ Very brief descriptive materials (incl. selected historic financials) to be distributed to all parties admitted to formal process ■ Does not include sensitive or confidential information, no CA required ■ Should allow buyer universe to confirm participation in process 	<ul style="list-style-type: none"> ■ In-depth business and market description including financial information ■ Key marketing document ■ Sent out after pre-marketing materials and teaser to all parties who signed CA ■ Main document potential buyers will base non-binding bid upon 	<ul style="list-style-type: none"> ■ Document to further educate potential buyers (primary financial sponsors) and increase appetite ■ Presented "live" by CEO/CFO ■ Presentation format, usually 1–2 hrs ■ Allows for two-way interaction between management and potential financial buyer
Vendor due diligence reports (Round 2)	Detailed financial model (Round 2)	Management presentation (Round 2)	Data room (Round 2)
<ul style="list-style-type: none"> ■ Usually covers financial information, market and environmental ■ Detailed financial information package including historic and forecast data ■ Also includes planning process, controlling procedures, detailed segment information (by business line, geography etc.) ■ Market report covers competitive environment and growth 	<ul style="list-style-type: none"> ■ Bottom up model of main activities with Sales, EBITDA/EBIT and key cash-flow items ■ Forecast period of five years ■ Requires input from divisional management ■ Built by divisions and regions/product lines ■ Top-line driven by price and volumes ■ Identification of fixed and variable costs 	<ul style="list-style-type: none"> ■ Key document in due diligence phase to market equity story ■ Presented "live" to final bidders by full management team, usually $\frac{1}{2}$ to full day ■ Allows for two-way interaction between management and potential buyer 	<ul style="list-style-type: none"> ■ Contains comprehensive business, operational, legal and financial information ■ Level of detail beyond other information and marketing materials ■ Requires most thorough check in relation to disclosure of potentially sensitive information ■ Withhold very sensitive information in "Lock Box" for final selected bidder

Several types of auction processes

Sale strategy	Description	Advantages	Disadvantages
Pre-emptive bid (1 buyer invited)	<ul style="list-style-type: none"> Screen and identify most likely buyer 	<ul style="list-style-type: none"> ✓ Efforts focused on one buyer ✓ Maximum confidentiality ✓ Speed of execution ✓ Minimum business disruption 	<ul style="list-style-type: none"> * May not maximise value due limited competitive tension * Seller in strong negotiating position
Targeted solicitation (2-5 buyers invited)	<ul style="list-style-type: none"> High-level approach to selected potential buyers Customised executive summary-type presentation No pre-established guidelines or formal process No public disclosure 	<ul style="list-style-type: none"> ✓ Speed of execution ✓ Confidentiality maintained ✓ Limited business disruption ✓ Sense of competition enabled ✓ Avoids perception that asset is being "shopped" ✓ High flexibility 	<ul style="list-style-type: none"> * Risks missing interested buyers * May not maximise value if less obvious buyer is very keen * Potential for disruption * Reasonable management commitment
Controlled auction (5-15 buyers invited)	<ul style="list-style-type: none"> Range of logical potential buyers contacted Typically involves formal guidelines on sale process Public disclosure may be made 	<ul style="list-style-type: none"> ✓ Accurate test of market price ✓ High degree of control over process ✓ Creates strong sense of competition 	<ul style="list-style-type: none"> * Requires substantial management commitment * Lack of confidentiality * May "turn off" logical buyers
Public auction (15+ buyers invited)	<ul style="list-style-type: none"> Widest range of potential buyers contacted General public disclosure through press release 	<ul style="list-style-type: none"> ✓ May identify unexpected buyers ✓ Increases sense of competition among buyers 	<ul style="list-style-type: none"> * Delay in execution * Greater risk of access to confidential information by "tyre-kickers" * May result in "high traffic" that interferes with business



- The Sale & Purchase Agreement is the legally binding contract between the Seller and the Buyer indicating the price and the conditions at which the Buyer acquires the shares of a business
- It also includes a range of clauses protecting the Buyer from potential risks which have not materialised yet and can not be quantified but could happen in the future (having in mind that all other quantifiable risks have been incorporated in the value)

Key Contents

- Timing
- Clauses
 - ▶ Interpretation
 - ▶ Sales and purchase of the shares (including mechanics of transaction)
 - ▶ Warranties
 - ▶ Non-compete
 - ▶ Confidential information
 - ▶ Announcements
- Conditions to closing: regulatory (antitrust, employee, etc)
- Detailed schedules
 - ▶ Seller and seller structure
 - ▶ Properties
 - ▶ Tax deed
 - ▶ Warranties and indemnities
 - ▶ Completion requirements and Completion Accounts
 - ▶ Limitations on liability
- Appendices
- Agreed form documents

D.

M&A Processes

2. How to Acquire a Public Company in France

- Public Offers generally starts by a CEO-to-CEO approach between Acquirer and Target. Objective is to engage and obtain a certain number of information in order to prepare the offer
- Access to information/ due diligence is key, even though all material information should be public
- In general, hostile take-overs (without the support of the Target) are not successful and abandoned by the Acquirer (example: Attempted take-over of Elementis by Minerals Specialties)
- Uncertain outcome until result from the Public Offer (different from private auctions)
- Supports of key large existing shareholders paramount before launching a public offer
- In general, Public Take Overs are conditional upon minimum acceptance threshold, comprised between 51% and 67%
- Impossible to force a minority squeeze-out and delist in case total shares contributed to the Acquirer are below 90%

Typical overview of public take-overs

Preparation

Internal organisation

- Appoint advisors (legal advisors, financial advisor)

Analysis and info gathering

Sign Confidentiality and standstill agreement

Valuation and preliminary (high level) due diligence

Build compelling business proposition

- Transaction rationale
- Attractive business proposition of the Company and way forward
- Corporate governance (incl. minority protection)
- Transaction structures, financing structure

Valuation

- Make a preliminary stand-alone valuation (incl. LBO analysis) and develop expected offer price range

Analysis of non-financial issues

Contact main shareholder(s)

→ In principle: go / no go

Approach and Negotiation

Indicative proposal

- Indicative proposal offeror
- Receive and review letter of interest

Preliminary (high level) due diligence

- Dataroom
- Q&A meetings, management presentations

Offer consideration and negotiations

- Refinement valuation
- Analysis of consideration and financing structure (both equity and debt financing)
- Transaction structuring
- Arrange financing by offeror ('certainty of funds')
- Agreement on corporate governance issues (managing board, supervisory board, tag along drag along provisions, minority protection, etc)

Documentation

- Prepare Merger Protocol

Obtain irrevocable main shareholders

Public offer

Announcements

- Public announcement (conditional) agreement
- Public announcement that Offer Memorandum will become available

Competition approval / works council advice (if necessary)

Confirmatory due diligence

Offer Memorandum

- Draft Offer Memorandum to AFM (including 'certainty of funds' statement and position statement Target Boards)
- Obtain approval AFM

Tender period

- Start of tender period
- Informative shareholders' meeting
- End of tender period

Closing

- Public announcement unconditional / failed / extension
- Delisting
- Squeeze out or sell out
- Other legal action (if necessary)

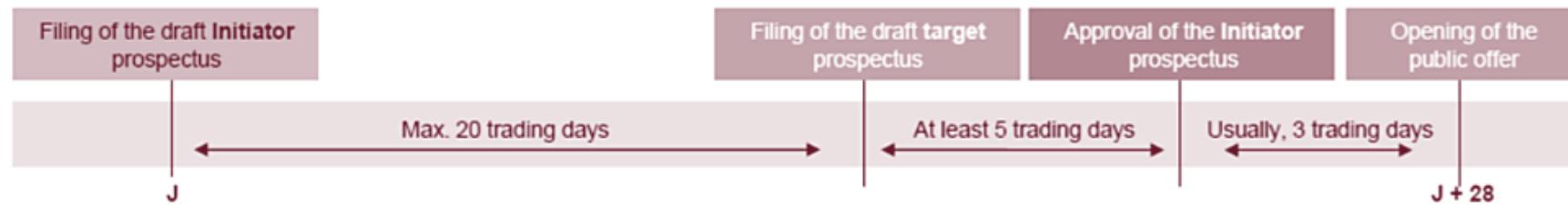
An attractively priced offer, which also takes into account non-financial (stakeholder) issues, will be difficult for Boards to ignore

Process up to the opening of the public offer

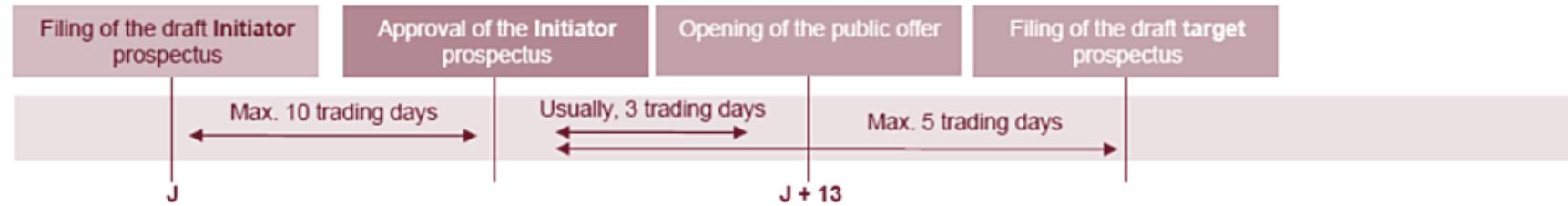
Friendly + No Conflict of Interest = Joint Prospectus



Friendly + Conflict of Interest = Separate Prospectus

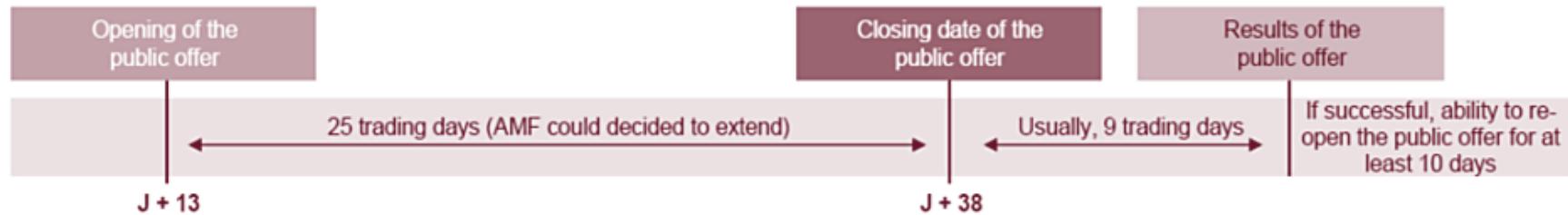


Hostile = Separate Prospectus

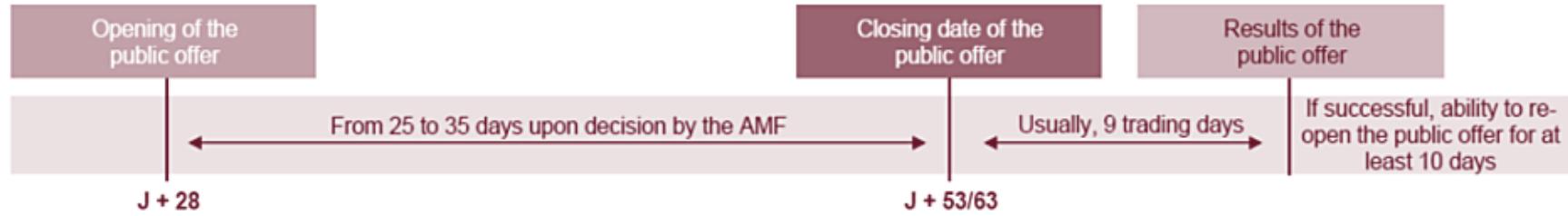


Process from the opening of the public offer to the results

Friendly + No Conflict of Interest = Joint Prospectus



Friendly + Conflict of Interest = Separate Prospectus



Hostile = Separate Prospectus



- **Poison Pills:** Structural manoeuvre taken by the Target to make the acquisition more complex or less attractive for the hostile bidder
 - Issue of preference shares to a foundation or existing shareholders, rendering the acquisition more complex due to dilution of voting rights
 - Sale of a specific division which was particularly targeted by the bidder
 - *Sale of LaSalle Bank for \$21bn to Bank of America by ABN Amro in 2007 to fend-off RBS/Fortis/Santander consortium hostile take-over*
- **White Knight:** target proposes a deal with another bidder which is perceived more advantageous to the Target and its Management
 - *Suez talks with Aridian/ GIP vs Veolia take over attempts*
- **Pac Man Defense:** hostile takeover defense tactic that involves the target company attempting to acquire control of the company that bid for it by purchasing large amounts of its stock. This retaliatory measure is designed to deter the prospective buyer, complicating its mission and giving it a taste of its own medicine.:
 - *Beginning in 2005, Porsche attempted to purchase Volkswagen by buying a considerable amount of its stock. When Porsche suffered financial difficulty during the 2008 financial crisis, Volkswagen implemented a Pac-Man defense and bought shares of Porsche that had dropped in price, eventually outright buying Porsche in 2012*

D.

M&A Processes

3. PPG / AkzoNobel

- **2 March 2017:** Unsolicited, non-binding and conditional proposal made to AkzoNobel Board by PPG, rejected by AkzoNobel
- **9 March:** PPG press release confirming that a proposal to AkzoNobel was made:
 - €54.00 in cash and 0.3 PPG shares per AkzoNobel share, corresponding to a value of €83.00 per share (cum final dividend 2016),
 - 29% premium compared to unaffected price
 - AkzoNobel Shares jumped 13% to €72.79, PPG shares up 13% to \$103.09
- **9 March:** AkzoNobel Press release confirming rejection of PPG proposal to AkzoNobel and announcement of review of strategic options with separation into two companies: Coatings and Specialty Chemicals
 - "PPG Offers substantially undervalues our company and contains serious risks and uncertainties. The proposal is not in the interest of AkzoNobel's stakeholders, including its shareholders, customers and employees, and we have unanimously rejected it. Along with my colleagues on our Boards, our executive team and our thousands of employees, I firmly believe that AkzoNobel is best placed to unlock the value within our company ourselves"
- **14-20 March:** Confidential talks between AkzoNobel and key shareholders, pressure mounting to engage with PPG and evaluate combination

- **22 March:** 2nd improved proposal from PPG, with 8 pages addressing AkzoNobel concerns
 - €90.00 (cum dividend) via cash of €57.50 and 0.331 PPG share representing a 40% premium to unaffected AkzoNobel stock price representing TEV of €24.5bn
- **22 March:** Rejection of the 2nd proposal by AkzoNobel
- **22 March:** Public statement by Elliott (Activist Investor) that AkzoNobel should engage with PPG
 - Further communication between AkzoNobel and shareholders
 - Investors study conducted which shows that 94% of shareholders representing 25% of AkzoNobel capital supports the talks)
- **28 March:** AkzoNobel indicates that new financial guidance and date for strategic plans on the two new companies to be provided on 19 April
- **31 March:** interview by AkzoNobel CEO, Ton Büchner, replies by PPG CEO Michael McGarry
- **5 April:** PPG reiterates invitation to enter into talks, confirms intention to make an hostile offer
- **5 April:** 45min later, AkzoNobel rejects PPG approach
- **12 April:** Elliott calls for EGM to dismiss AkzoNobel Chairman (and Management) with threat of legal actions. AkzoNobel strongly supports Supervisory Board

- **12 April:** Elliott Advisors accidentally copies in Akzo on an internal email outlining its tactic to push the PPG deal (email chain published on the FT), Complaint filed by Akzo with the Dutch financial regulator (Wiktor you should call PPG and let them know that we have sent the EGM request and that now may be an opportune time for PPG to reach out and try to engage)
- **19 April:** New strategy to accelerate growth and value creation, with creation of two focused, high-performing businesses with sustainable growth plans and separation of Specialty Chemicals within 12 months: the vast majority of net proceeds will be returned to shareholders
- **24 April:** Third unsolicited and conditional proposal from PPG
 - €96.75 (cum dividend) via €61.50 in cash and 0.357 shares of stock of PPG per ordinary share of AkzoNobel
- **25 April:** Request for an EGM to dismiss Chairman of the Board rejected as it does not meet required standards under Dutch law. Start of legal proceedings
- **3 May:** Support in favour of a standalone entity from employees
- **8 May:** Rejection by Akzo of PPG's third offer
- **22 May:** Court case at the Enterprise Chamber
- **29 May:** Decision in favour of Akzo
- **30 May:** New letter from PPG, final attempt
- **1 June:** Withdrawal from PPG, commitment for standalone strategy

- **19 July:** Akzo's CEO steps down
- **8 September:** Akzo's New CFO on leave of absence
- **27 October:** Rumours regarding Akzo and Axalta combination.
- **30 October:** Confirmation of existing talks regarding Akzo and Axalta combination
- **21 November:** Confirmation of end of merger discussions
- **29 November:** Axalta close to a merger with Nippon Paint
- **30 November:** Axalta end merger discussions with Nippon Paint
- **27 March 2018:** Akzo sells Specialty Chemicals to Carlyle for €10.1bn

- **9 October 2018:** Trian Partners, a hedge fund, announced to have taken a take in PPG, asking for CEO replacement and break-up of the Company
- **November 2019:** Trian exits and sales its stake in PPG after his demands were rebuffed

- **18 December 2020:** PPG announces a voluntary recommended public cash tender offer for all the shares in Tikkurila Oyj (public, €25.00 per share representing €1.1bn equity value)
 - 66.2% premium compared to the closing price of the Shares on December 17, 2020, the last trading day prior to the announcement of the Tender Offer
 - 70.3% premium compared to the volume-weighted average trading price (VWAP) of the Shares during the three-month period prior to and up to the date of the announcement of the Tender Offer
 - 77.8% premium compared to the volume-weighted average trading price (VWAP) of the Shares during the 12-month period prior to and up to the date of the announcement of the Tender Offer
 - Certain major shareholders of Tikkurila, i.e. Oras Invest Oy, Varma Mutual Pension Insurance Company, Mandatum Life Insurance Company Limited and Kaleva Mutual Insurance Company, representing in aggregate approximately 29.34% of the shares and votes in the Company, have, subject to certain customary conditions, irrevocably undertaken to accept the Tender Offer
- **5 January 2021:** PPG and Tikkurila have agreed on an amendment to the combination agreement to increase the offer price to €27.75 per share
 - In response to a proposal regarding a competing offer received by the Company
 - Voluntary recommended public cash tender offer for all the shares in Tikkurila Oyj expected to commence on or about January 15, 2021
- **13 January 2021:** The Board of Directors of Tikkurila unanimously recommends that the shareholders of the Company accept the Tender Offer
- **18 January 2021:** Non-Binding proposal from AkzoNobel for Tikkurila at €31.25 (+13% vs PPG's offer), incl. agreement around some disposals (to manage anti-trust concerns)

- **28 January 2021:** Binding proposal from Akzo Nobel to acquire all shares of Tikkurila, subject to the Board of Tikkurila recommending the offer and Oras Invest undertaking to accept the offer at €31.25 per share
- **4 February 2021:** PPG to increase the offer price to €34.00 per share and amend certain other terms of the offer; PPG and Tikkurila Oyj have agreed on an amendment to the combination agreement
 - 8% premium vs AkzoNobel Offer 66.2% premium compared to the closing price of the Shares on December 17, 2020, the last trading day prior to the announcement of the Tender Offer
 - To increase deal certainty, the Offeror has changed the condition for completion of the Improved Tender Offer concerning the minimum acceptance level by lowering the relevant threshold from more than 90 per cent to more than 66.7 per cent.
 - Certain major shareholders of Tikkurila, Varma Mutual Pension Insurance Company, Mandatum Life Insurance Company Limited and Kaleva Mutual Insurance Company, representing in the aggregate approximately 9.32 per cent of the shares in the Company, have unconditionally agreed to sell their Shares to the Offeror. In addition, Oras Invest Oy has agreed to an unconditional irrevocable undertaking to accept the Improved Tender Offer and has also unconditionally agreed to sell its Shares to the Offeror upon the receipt by the Offeror of the necessary regulatory approvals
- **8 February 2021:** Akzo no longer intends to acquire Tikkurila and continues to focus on Grow & Deliver strategy

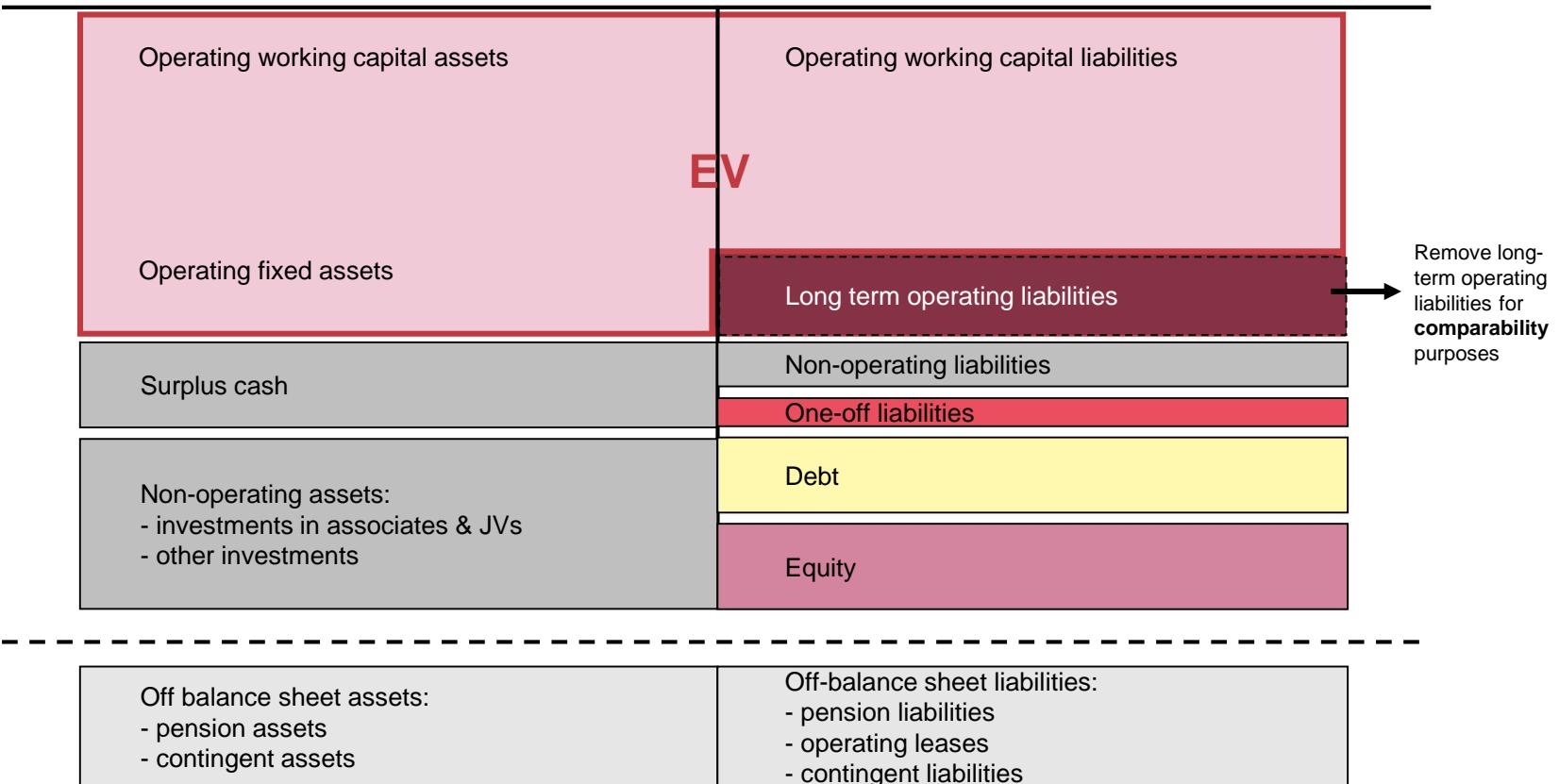
E.

Valuation Considerations

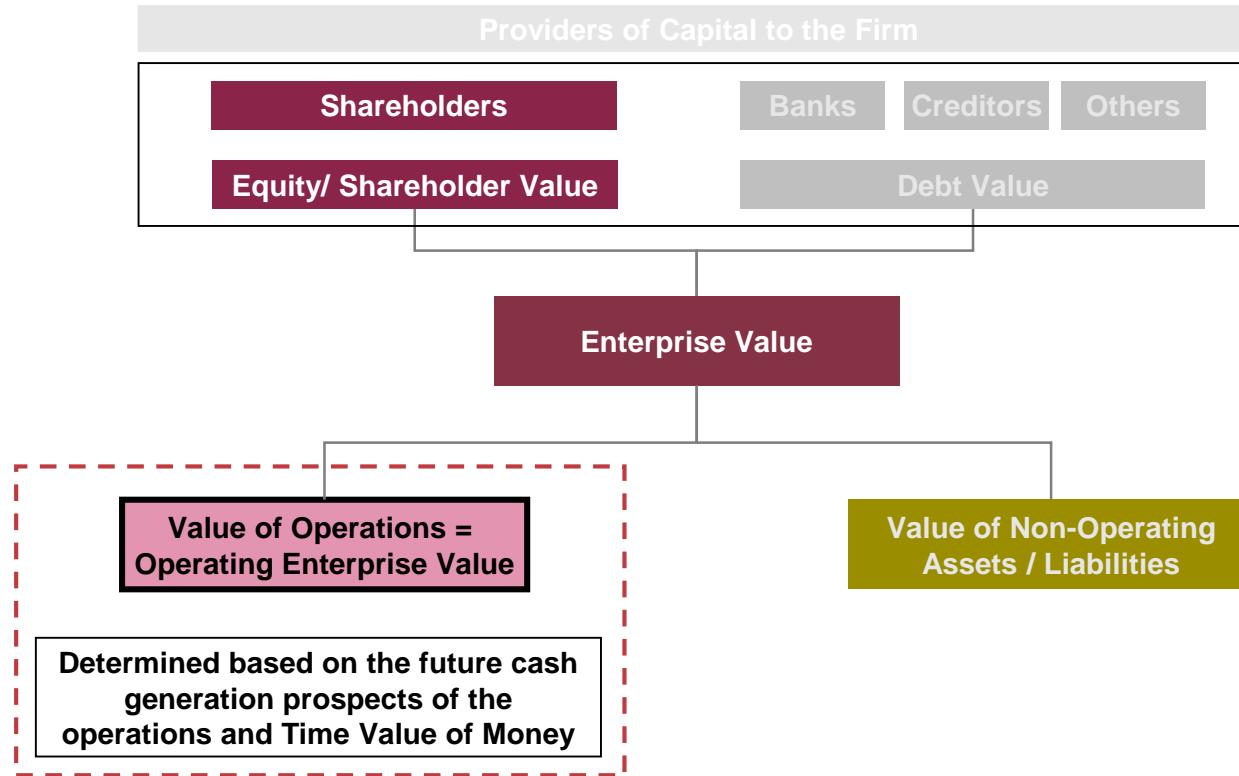
1. Which Value are we measuring?

When looking at a Business' Financial Statements, one needs to isolate the value of the OPERATING BUSINESS and treat other items separately

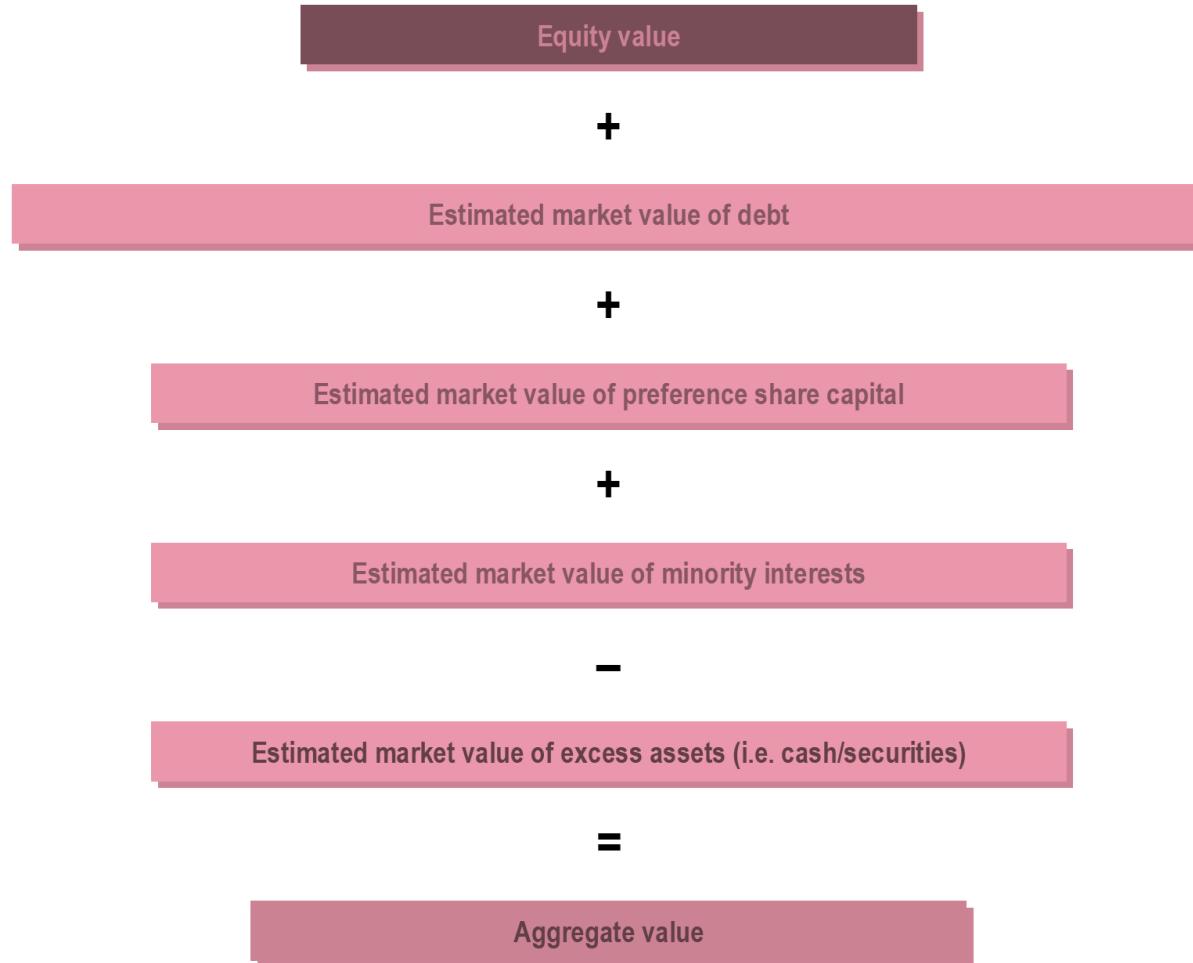
“Market Value Balance Sheet”



Which value are we measuring?

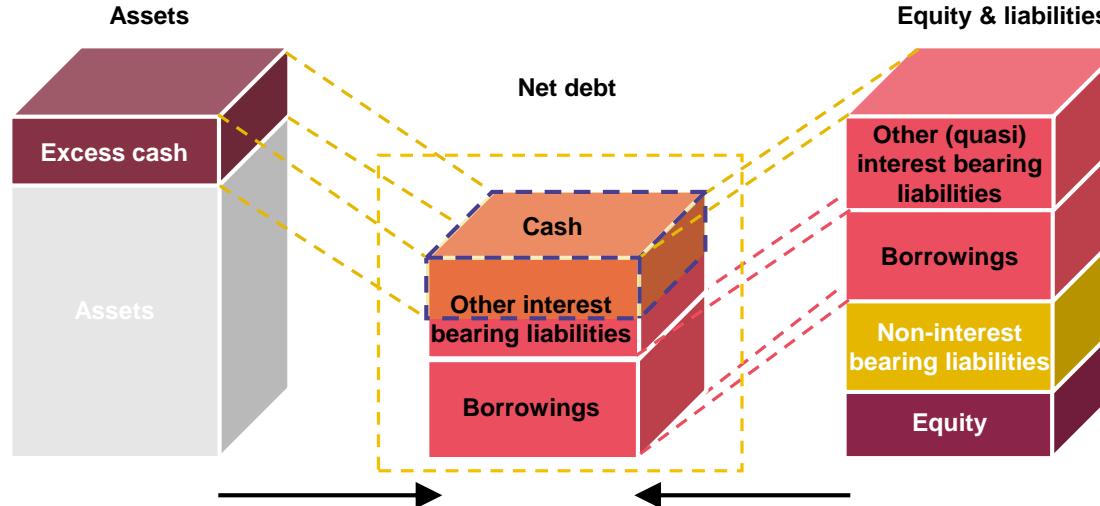


Enterprise (=Aggregate) Value



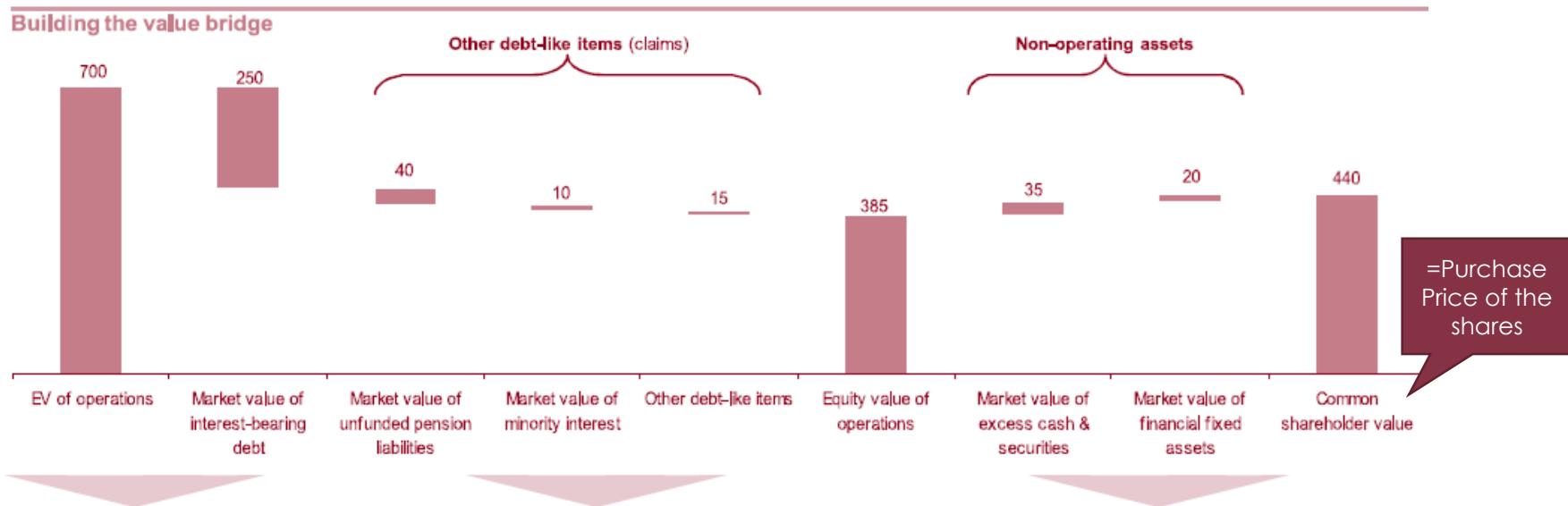
Net debt & Net Debt-Like Items: Key constituents

Composition & key constituents



Category	Examples
Cash / Cash equivalents	Short-term deposits, commercial paper, treasury bills, marketable securities
Other non-operational assets	Tax accruals, assets due to financial derivatives (foreign exchange swaps, non-hedging option contracts), over funded defined benefit pension schemes, assets held for sale, loans to joint ventures, a lease to another company (e.g. a client), long term receivables
Borrowings	Loans, bonds, notes, commercial paper, overdrafts, redeemable preference shares, finance leases, operating leases (off-balance sheet asset financing), convertibles, interest rate swaps
Other (quasi) non-operational liabilities	Tax accruals, assets due to financial liabilities, unfunded defined benefit pension obligations, industry specific liabilities, litigation, provisions, employee stock options, golden parachutes, contingent liabilities

Valuation Framework: From Enterprise Value to Equity Value



- The DCF gives the **Enterprise Value of Operations**, which includes neither non-operating nor financial assets and liabilities

- In addition to interest-bearing **debt**, **other capital providers and claims** must be subtracted from the EV of operations because they represent claims on the company assets; the result will be the **Equity Value of Operations**
- Other debt-like items include:
 - Both Capitalised and Operating Leases
 - Unfunded pension and Environmental liabilities
 - Minority interests
 - Derivatives instruments (Convertibles, Options)
 - Other Provisions and Contingent Claims

- To reach the **Common Shareholder Value** (or Total Equity Value), the last step is to add **financial and non-operating assets** in order to consider all the assets of the company

- Non-operating assets include:
 - Excess cash & securities
 - Associate investments
 - Deferred tax assets
 - Assets held for sale

IF you divide this common shareholder value by # of shares, you would obtain price per share

Illustration: Selected Transactions

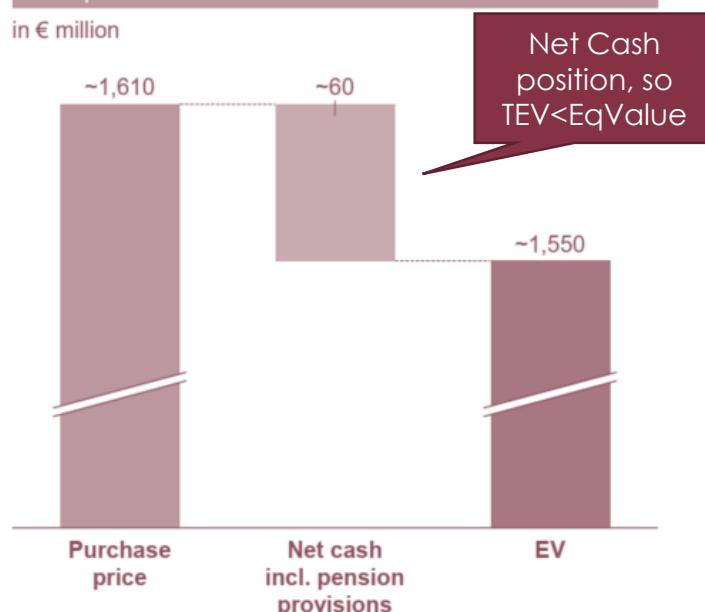
Covestro / DSM's Resins Business

Considering cash equivalents at RFM, the total purchase price of EUR 1.61 billion corresponds to a net enterprise value of approximately EUR 1.55 billion, representing a valuation of RFM at about 5.7x EV/EBI.

Source: Covestro Press Release

Enterprise valuation

in € million



Source: Covestro Investor Presentation

Croda / Iberchem

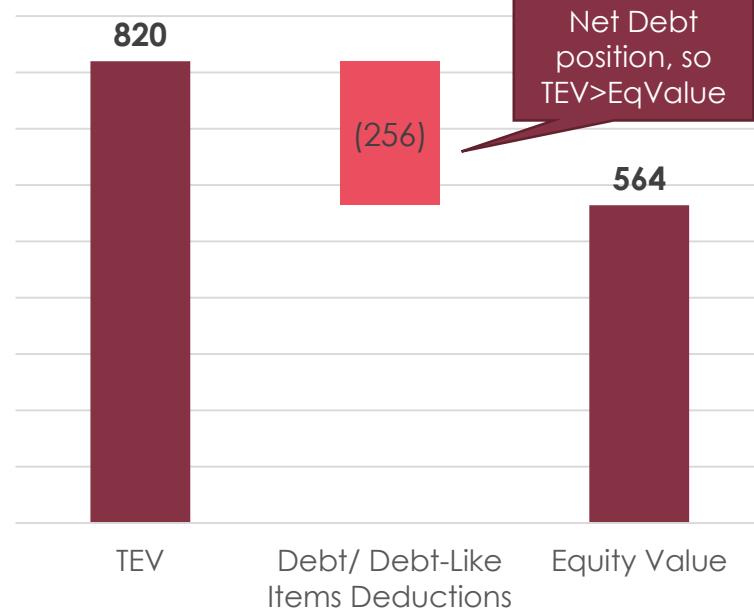
Transaction summary

- €820m total consideration (c.£736m) on a debt-free, cash-free basis;

Source: Croda Investor Presentation

Transaction sales proceeds for Eurazeo and its investors partners total € 564m and € 383m for Eurazeo only, representing a return on its initial investment of 2.1x and an Internal Rate of Return (IRR) of approximately 25%. This price is more than 30% above the one reflected in our NAV as of 30 June 2020 (or about 1.25€ by Eurazeo share).

Source: Eurazeo Press Release



E.

Valuation Considerations

2. Valuation Methodologies

Different Valuation Methods are Used to Establish an Appropriate Valuation Range

Primary Valuation Methods <i>Based on bottom-up cash-flow model</i>		Complementary Valuation Methods <i>Based on multiples applied on certain metrics</i>		Other Methodologies <i>For listed companies</i>								
Discounted Cash Flow Analysis	Leveraged Buy-Out Analysis	Trading Comparables	Transactions Comparables	Share price and premia Brokers consensus								
Principle: Net Present Value of future free cash flows of the Company, discounted at the Company's weighted cost of capital	Valuation is determined by the targeted returns for the equity investor, taking into account (i) expected equity proceeds at exit and (ii) debt structure at entry	Valuation based on trading multiples of comparable (listed) companies and applied to the same metrics of the Target to derive the Implied TEV	Valuation based on the multiples observed in relevant comparable transactions and applied to the same metrics of the Target to derive the Implied TEV	Valuation of listed companies based on control premium paid in the past on take-overs Target price consensus published by equity analysts following the stock								
<p>Example of multiples:</p> <table> <tr> <td>Financials</td> <td>Operating</td> </tr> <tr> <td>EV/EBITDA</td> <td>EV/MW installed</td> </tr> <tr> <td>EV/EBIT</td> <td>EV/Subscribers</td> </tr> <tr> <td>P/E</td> <td></td> </tr> </table>		Financials	Operating	EV/EBITDA	EV/MW installed	EV/EBIT	EV/Subscribers	P/E		<p>Median premium observed for French public take-overs is 30%, therefore this premium should be applied to Target's share price</p>		
Financials	Operating											
EV/EBITDA	EV/MW installed											
EV/EBIT	EV/Subscribers											
P/E												

There is no exact value possible – different methods will yield different outcomes and so will different inputs. Therefore, valuations are usually presented as a range

DCF: How to Compute Free Cash Flows Which are Available to All Claim Providers

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Operating Profit = EBIT

- (Cash taxes)

Net Operating Profit After Tax (NOPAT)

+ Depreciation

- (Capital expenditures)

- (Change in Working Capital)

- (Other cash items)

Free Cash Flows

Free cash flows (FCF) are free from claims and are available to all capital providers of the company, both debt and equity

Free cash flow is therefore cash that is not required to fund the firm and can be used at management's discretion beyond continuing the existing operating strategy

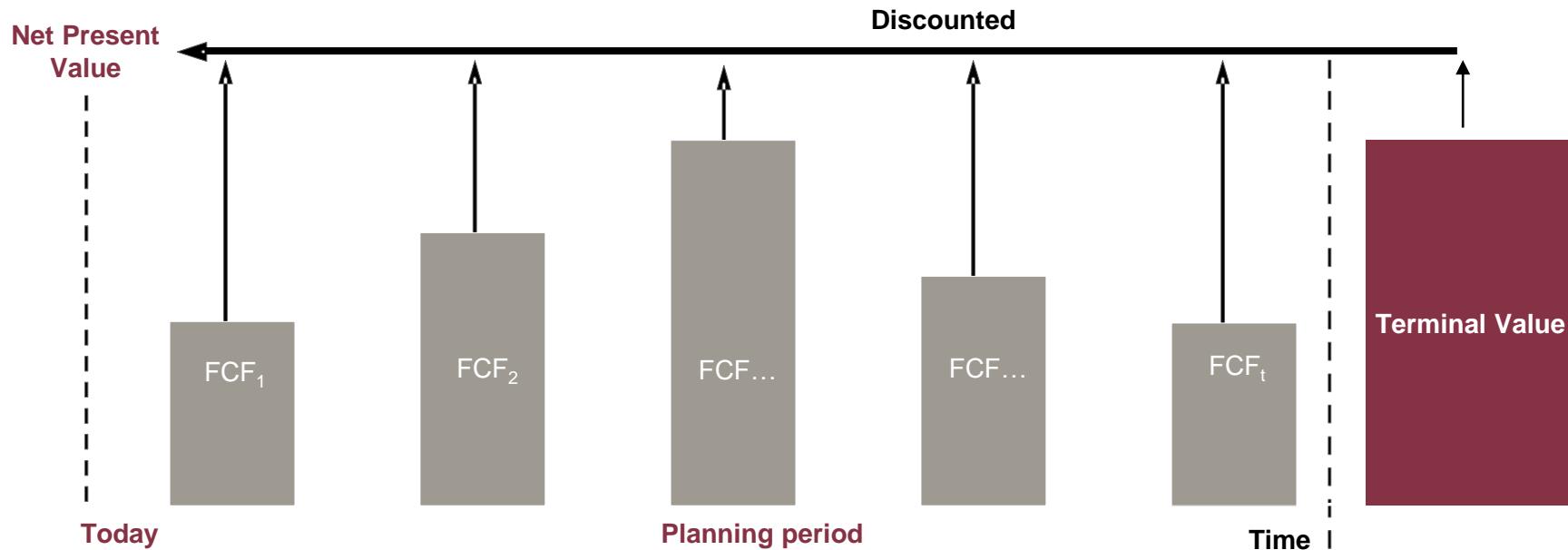
- Objective: Determining a value that a Buyer is prepared to pay today in order to receive anticipated cash flows in future years
- Future FCF are computed and discounted using the WACC, representing the remuneration required by the capital providers (both equity and debt) to the Company for the opportunity cost of investing their funds in one particular business instead of others with equivalent risk
- The Terminal Value is the present value of the free cash flows of the Company after the end of the explicit/forecast period

$$\text{Value} = \sum_{n=1}^t \frac{FCF_n}{(1+r)^n} + \frac{TV_t}{(1+r)^t}$$

where
 FCF = cash flow
 r = discount rate
 n = time periods, time = 1 to t
 TV = terminal value.

$$TV = \frac{FCF_t + 1}{(r - g)}$$

FCF = Free cash flow @ the last year of projected period
 r = Discount rate (Cost of Equity or Cost of Capital)
 g = Expected growth rate (%)



- The terminal value is the present value of the free cash flows (FCF) of the company after the end of the explicit/forecast period
- To estimate this value it is possible to use
 - Perpetuity formula
 - Exit multiples
- The perpetuity formula capitalises the company's FCF after the forecast period as a perpetuity.
 - The Value Driver formula is also used but will not be discussed in this class
 - Perpetuity formula assumes indefinite FCF growth, without necessarily allowing required growth investments
- The estimated terminal value is then discounted back to present day at the company's cost of capital
- Perpetuity formula should be based on a “normalized” FCF, which would represent the normalized FCF that the Company is expected to generate into perpetuity (at a certain growth rate)
- Normalisation may include:
 - Normalised level of revenues and sustainable margin, especially important in a cyclical business: revenues and operating margins should reflect the midpoint of the company's business cycle,
 - Adjusting depreciation = capex, to illustrate that the Company invest enough to sustain its operations at the end of the explicit forecast period
- Terminal value should be discounted using the same discount factor used for the last explicit FCF forecast

Definition

"The WACC represents the weighted average of the returns required by providers of debt and equity finance to a company"

The WACC is:

- the marginal cost of all sources of financing
- calculated after taxes
- based on nominal rates of return
- based on market value weights for each source of financing

- The WACC should be consistent with the type and risk of the cash flows being valued

- The WACC should reflect the capital structure for the company over the time period for which it is used (for valuation purposes, the company's target capital structure in the future)

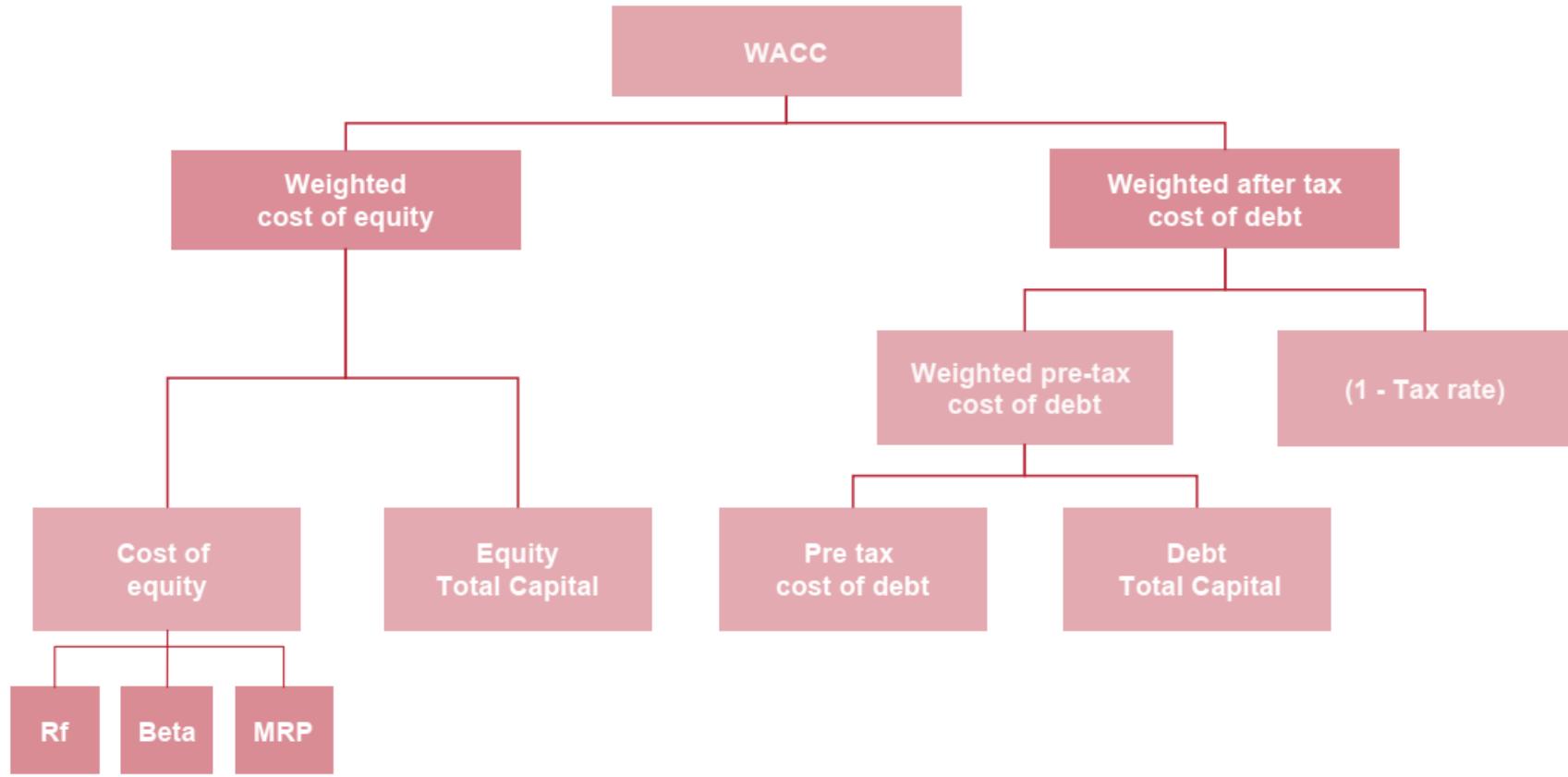
Importance

"The WACC is often used as a key investment criterion since it takes into account that both lenders and shareholders expect to be compensated for the opportunity cost of investing their funds in one particular business instead of others with equivalent risk"

If the WACC is determined incorrectly, this may have a significant impact on Shareholder Value:

- Management invests in non value creating projects or rejects value creating projects because of too high hurdle rates (over / underinvestment)
- Investors value the company too high or low (e.g. in DCF valuations)

DCF: WACC Components (2/3)



Note: Illustration shows main WACC components only. The WACC calculation also needs to incorporate other sources of funding such as preferred equity, leasing arrangements etc.

WACC represents the weighted average of the returns required by providers of debt and equity finance to a company and is critical to the discounted cash flow valuation methodology

The key steps

- The following basic formula is used for estimating the WACC:

$$\text{WACC} = k_d \times (1-Tc) \times \frac{D}{D+E} + k_e \times \frac{E}{D+E}$$

k_d = cost of interest bearing debt

k_e = cost of equity

D = market value of debt

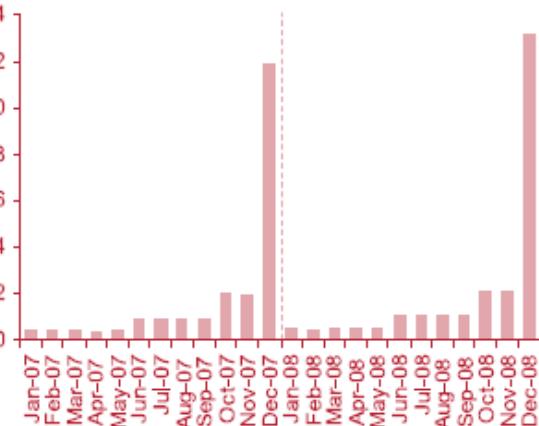
E = market value of equity

Tc = marginal tax rate

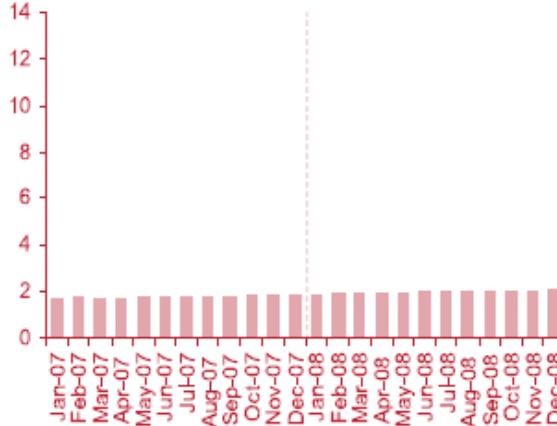
- - 1 – Determine the risk free rate
 - 2 – Estimate cost of equity using a peer group
 - 3 – Estimate cost of debt (and the cost of other sources of financing)
 - 4 – Determine the long-term (target) capital structure
 - 5 – Estimate the WACC
- Note that under the Capital Asset Pricing Model (CAPM) only systematic risk is captured in the WACC with specific, identified risks accounted for in cash flows

DCF: Choosing the correct discounting method

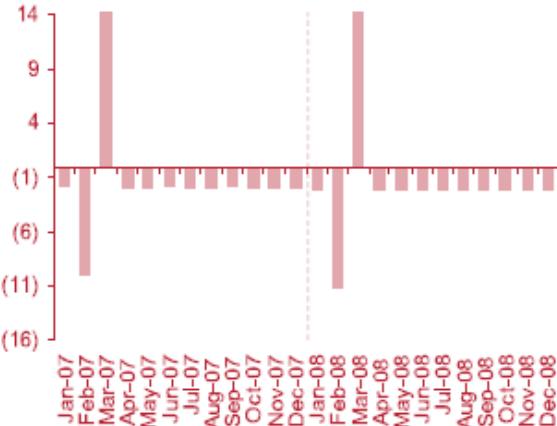
Company 1 – end of year cash flows



Company 2 – even cash flows during year



Company 2 – seasonal cashflows (end March)



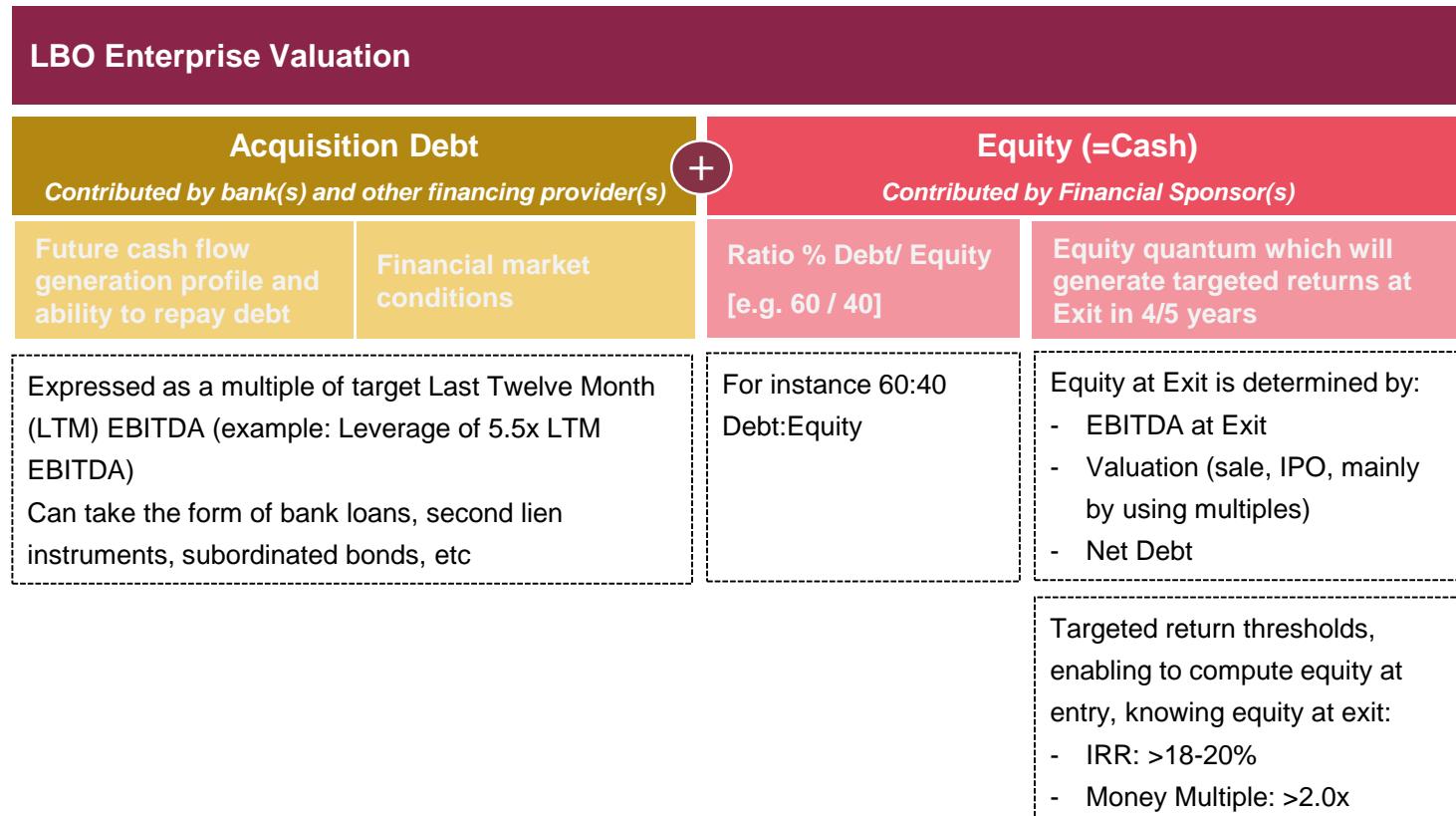
NPV Company 1 with on monthly discounting	41.6	Difference
NPV Company 1 discounted end-of-year	40.9	1.7%
NPV Company 1 discounted at mid-year	42.9	
NPV Company 1 discounted at end of March	43.2	

NPV Company 2 with monthly discounting	41.6	Difference
NPV Company 2 discounted end-of-year	39.8	0.5%
NPV Company 2 discounted at mid-year	41.8	
NPV Company 2 discounted at end of March	42.1	

NPV Company 2 with monthly discounting	41.6	Difference
NPV Company 2 discounted end-of-year	37.6	2.5%
NPV Company 2 discounted at mid-year	39.5	
NPV Company 2 discounted at end of March	40.4	

- Using the incorrect discounting method in terms of timing of cash flows can lead to significant errors
- All three companies have an NPV of 41.6 for the next two years, calculated using monthly discount rates
- Applying three different annual discounting methods (on two years of cash flows) yields differences in valuation of up to 10%!
 - e.g., Company 3: end-of-year 37.6 versus correct monthly of 41.6

A leveraged buyout is the acquisition of a public or private company with a significant amount of debt financing. The LBO valuation is determined by the sum of (i) acquisition debt and (ii) cash contributed by Financial Sponsor(s) (equity)



What is a sensitivity Table?

- Provides an overview of outcomes based on 2 input variables, e.g. could show what the implied DCF values is if volumes growth or Cost of Goods Sold (as % of revenue) change according to new values, could show new implied DCF values if WACC change

When to use?

- To analyze the relative impact of (small) changes of business drivers
 - to better understand the company's business dynamics
 - to challenge the projections/ business case

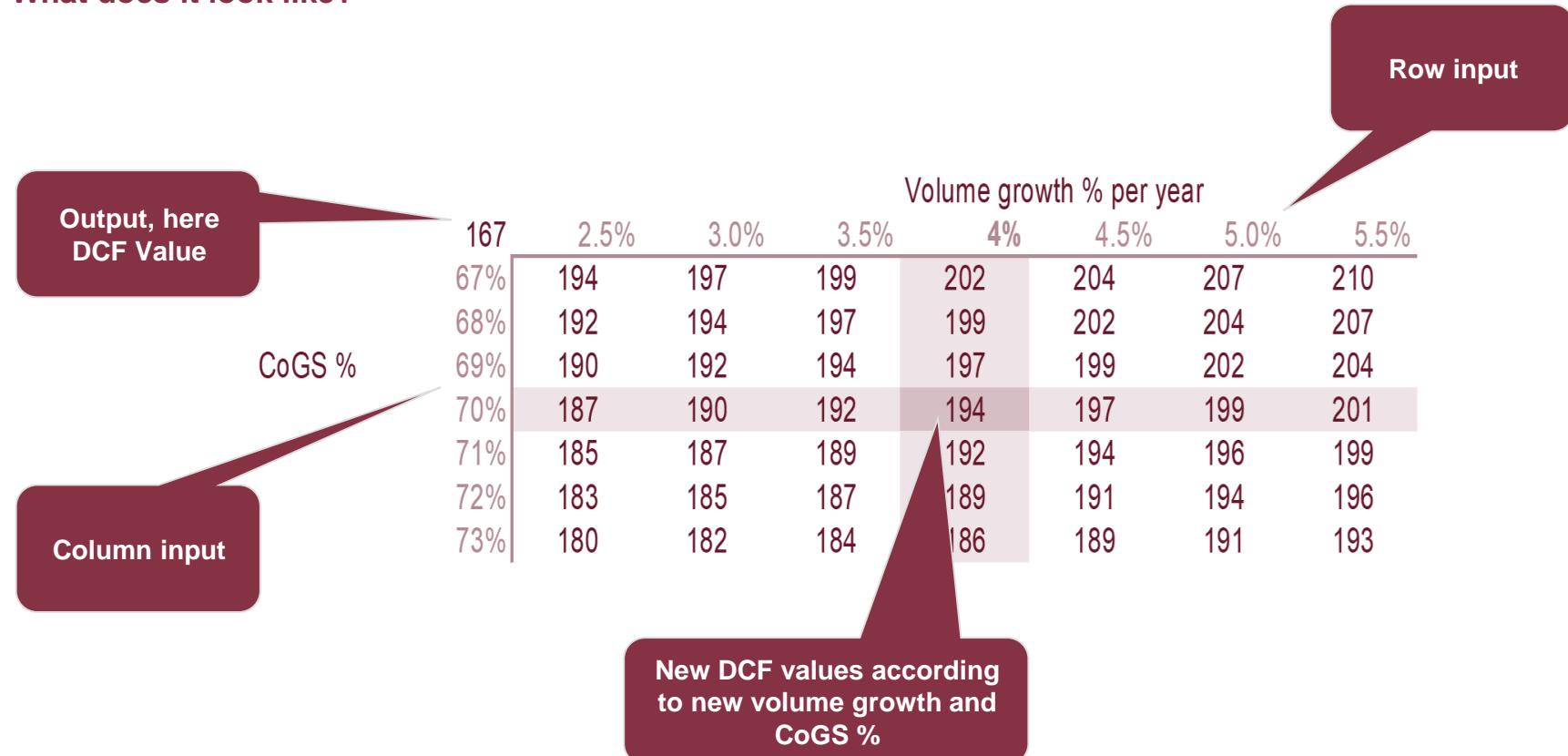
How to build?

- Select 2 business drivers in your operating model (e.g. volume growth and COGS margin)
- Create 2 input cells sensitivity sheet and link drivers model to these input cells (e.g. input cell should not be a formula but a hard input!)
- Create a desired output cell based upon impact 2 input cells
- Make a table with on the horizontal & vertical axes sensitivities on the 2 input cells and a link to the output cell in the left-hand upper corner

It is always useful to add a sensitivity table to a DCF analysis to show how a DCF value depends upon criteria such as sales growth, EBITDA margin, or WACC

DCF: Use of Sensitivity tables (2/2)

What does it look like?



	Volume growth % per year							
	167	2.5%	3.0%	3.5%	4%	4.5%	5.0%	5.5%
CoGS %	67%	194	197	199	202	204	207	210
	68%	192	194	197	199	202	204	207
	69%	190	192	194	197	199	202	204
	70%	187	190	192	194	197	199	201
	71%	185	187	189	192	194	196	199
	72%	183	185	187	189	191	194	196
	73%	180	182	184	186	189	191	193

Output, here DCF Value

Column input

Row input

New DCF values according to new volume growth and CoGS %

Comparables are widely used in M&A practice

- Comparable Trading Analysis and Comparable Transactions Analysis are valuation methodologies that are often used in M&A advisory
- However, they are considered to be less 'sophisticated' than a DCF/WACC analysis
- Comparable Trading Analysis values a company (or parts thereof) based on the observed multiples of similar companies that are listed on a stock exchange
- Comparable Transaction Analysis values a company (or parts thereof) based on the multiples paid by a buyer as part of a M&A Transaction involving a similar companies and that have been published (And include a control premium)
- They are used as complementary methodologies to the DCF analysis, and it is not advisable to use them as the only valuation methodologies

- **Main purposes of the Trading Comparables Analysis:**
 - to estimate the value of a non-listed company
 - to compare listed companies in one industry (relative valuation)
 - Sum-of-the-Parts (SOTP) analysis
- **Methodology requires selection of a peer group, based on similar companies with respect to operating and financial characteristics**
 - Business units with different characteristics should not be valued through an overall comparable analysis
 - Requires caution as methodology always requires to perform adjustments to make sure that computed multiples are correct: acquisitions, one-offs, accounting standards, large development capex, capital structure, etc

Trading Comparables: Illustration

€m	Share Price	# Shares	Equity Value	Net Debt	Enterprise Value	EBITDA	EV/EBITDA
Company A	1.0	10	10	1	11	1.2	8.3x
Company B	1.5	x	15	+	17	1.9	7.9x
Company C	0.1	80	8	=	9	0.9	9.1x
Company D	0.5	200	100	60	160	18.9	5.3x
Average							7.7x
Median							8.1x

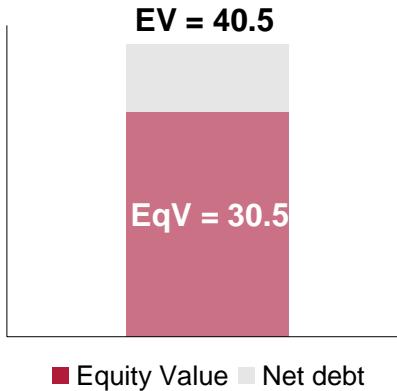
Target EBITDA = €5.0m

Target Net debt = €10.0m



$EV = 8.1 \times €5.0m = €40.5m$

$Equity\ value =$
 $€40.5m - €10.0m = €30.5m$

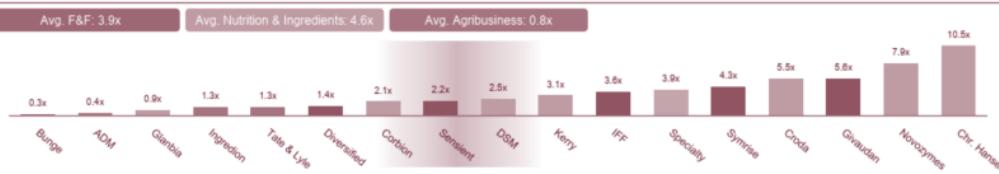


Trading Comparables: Illustration

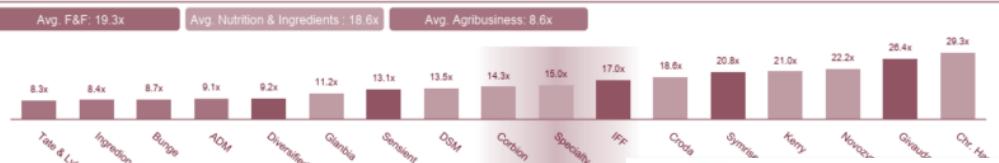
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Selected Peers: TEV / Sales 2020E



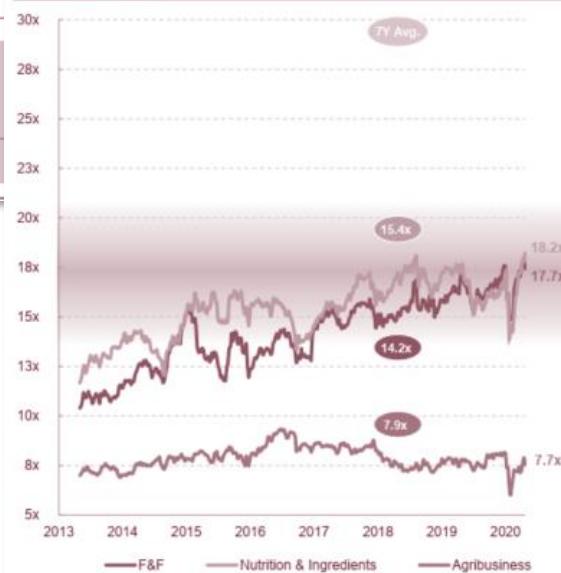
Selected Peers: TEV / EBITDA 2020E



Selected Peers: TEV / EBIT 2020E



TEV / NTM EBITDA



TEV / NTM EBIT



Flavour & Fragrances: Givaudan, Symrise, Sensient and IFF
Nutrition & Ingredients: IFF, Kerry, Novozymes, Chr. Hansen, Croda, Corbion and Glanbia
Agribusiness: Bunge, Ingredion and Tate & Lyle

Trading Comparables: Which multiple?

	Main advantage	Main disadvantage	When to use
EV/Sales	More reliable than profit based multiples if margins are negative or fluctuate	Very high level of assumptions: as differences in margins are also not accounted for	Very restricted use. E.g. companies are not yet profitable or have low margins; small bolt-on acquisitions for scale / product volume
EV/ EBITDA	Independent of depreciation policies & financing structure: adjustment for debt quantum, not value effect of financing	Particularly inappropriate for comparisons of companies with different capital intensities; please consider similarity of value drivers	More suitable for companies that are not capital intensive because it ignores capex
EV/EBITA	In addition, capital intensity is taken into account	D needs to be representative of future capex; usually Dep. < capex, or efficiency ratio would improve	Especially for capital intensive business (where depreciation is a real cost to the business)
P/E P/CEPS	Easy to use	Systematically affected by capital structure; non operating items are not accounted for; difficult to interpret correctly	Use when no decent EV can be calculated Acquiring minority stake (no control over gearing) Peers have similar gearing

- The analysis uses peer companies' transaction multiples
- Instead of looking what investors pay for a company at a stock exchange, one looks at what strategic or financial buyers have paid for a company in recent M&A transactions
- Analytically, the exercise is similar as the trading companies methodologies
- However, interpretation of the results should be done even more cautiously:
 - Synergies between buyers and sellers are different in every transaction and may have justified significant premia;
 - Company values change significantly through time, be sure to only use very recent transactions in the analysis;
 - Transaction prices are always the result of negotiations; you might be able to negotiate a better deal

Illustration: Selected Transactions

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Covestro / DSM's Resins Business

- Enterprise value of €1.55bn
- 10.3x EV / 2021 Budget EBITDA

=1,550 /
150

~150
EBITDA
2021e^(c)
stand-alone

Selected transactions in chemicals industry / multiples

Target / acquirer; EV / EBITDA multiple

BASF Construction Chemicals / Lone Star	15x
Clariant Masterbatches / Polyone	11x
Arkema Functional Polyolefins / SK Global	10x
BASF Pigments / DIC	10x
DSM Resins & Functional Materials / Covestro	10x
Avecia Neo Resins / DSM	10x
Peroxylchem / Evonik	10x
Omnova / Synthomer	10x
UCB Surface Specialties / Cytec	10x
Porocel / Evonik	9x
Nuplex / allnex	9x
Evonik MMA / Advent	9x

■ Coating resins transactions

RFM multiple of 10x in-line with recent chemical transactions and coating resins transactions

Source: Covestro Investor Presentation

Croda / Iberchem

Transaction summary

- €820m total consideration (c.£736m) on a debt-free, cash-free basis; 20.5x EV/EBITDA⁽¹⁾

=820 / 40

€187 m
revenues in 2020F
▲ +14%
growth
(CAGR 2016-20F)

€40 m
EBITDA in 2020F
21%
EBITDA margin

Is there a difference in the way these transaction multiples are presented?

Transaction Comparables: Examples

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Date	Target	Country	Description	Acquirer / Investor	Country	Sales (m€)	EBITDA (m€)	Margin (%)	TEV (m€)	TEV / EBITDA
Mar-20	Corlett	GB	Activated carbon provider for gas and liquid phase purification	Brentag	GB	31	n.a.	n.a.	n.a.	n.a.
Dec-19	Odoroff	US	Specialised in odour control and odour removal solutions	DESOTEC	DE	10	n.a.	n.a.	n.a.	n.a.
Nov-19	Puragen Activated Carbons (formerly Odsbow Carbon)	GB	Provider of activated carbon solutions	European Investor Group	DE	n.a.	n.a.	n.a.	n.a.	n.a.
Dec-18	ADA Carbon Solutions	US	Provider of activated carbon solutions	Advanced Emissions Solutions	US	62	10	16.8%	66	6.4x
Mar-18	Calgon Carbon Corporation	US	Mobile filters for activated carbon filtration and reactivation services	Kureay Co	JP	488	59	12.2%	1,098	20.9x
Jan-18	F3 Ferro Energy	US	Significant premium paid for only pure-play reactivation services provider globally	DESOTEC	DE	n.a.	n.a.	n.a.	n.a.	n.a.
Aug-17	DESOTEC	DE	Mobile filters and reactivation services	EQT	US	52	20	37.2%	283	14.1x
Nov-16	CECA (Activated Carbon Business)	DE	Activated carbon and filter aid business	Calgon Carbon Corporation	US	86	14	16.7%	105	9.8x
Jul-16	Standard Carbon	US	Provider of activated carbon products	Danau Carbon	US	n.a.	n.a.	n.a.	n.a.	n.a.
Apr-16	Char Technologies Inc	CA	Manufacturer of activated charcoal like materials	Qashtech Capital	US	n.a.	n.a.	n.a.	n.a.	n.a.
Jul-15	Superior Adsorbents	US	Supplier of coconut shell, coal and wood-based activated carbons	Odsbow Carbon	US	n.a.	n.a.	n.a.	n.a.	n.a.
Sep-14	Kurusaki Corp (Fukuka)	JP	Manufacturer of power coke and activated carbon	Osaka Small and Medium Business Investment & Consultation	JP	n.a.	n.a.	n.a.	n.a.	n.a.
Jul-14	Carbon Resources	US	Large independent distributor of activated carbon products	Odsbow Carbon	US	n.a.	n.a.	n.a.	n.a.	n.a.
Jan-14	Jacobi Carbon	US	Provider of activated carbon solutions	Osaka Gas Chemicals	JP	170	26	15.3%	338	13.0x
Jul-12	Nornit	NO	Manufacturer of high-grade activated carbons	Cabet Corporation	NO	262	90	34.3%	924	10.3x
Sep-11	Pica Sauer	DE	Provider of activated carbon solutions	Jacobi Carbon	US	n.a.	n.a.	n.a.	n.a.	n.a.
Apr-11	DESOTEC	DE	Mobile filters for activated carbon filtration and reactivation services	AAC Capital Partners	DE	23	7	n.a.	n.a.	n.a.
Mar-10	Calgon Mitsubishi Chemical Corporation	JP	Provides a full range of outsourced activated carbon products	Calgon Carbon Corporation	US	n.a.	n.a.	n.a.	6	n.a.
Jun-07	Nord NV	BE	Manufacturer of consumables, components, and purification solutions	DH Private Equity Partners	DE	n.a.	n.a.	n.a.	n.a.	n.a.
Jan-07	Open Environmental Concepts, Envirofiltr, Pure Water Solutions, Sunlight Systems	US	Group of companies to expand activated carbon water treatment	Ebroqua Water Technologies	US	n.a.	n.a.	n.a.	n.a.	n.a.
Feb-06	Calgon Carbon Corp (Charcoal and derivatives business)	US	Charcoal and derivatives business of Calgon Carbon Corporation	Calgon Carbon Corporation (MBO Vehicle)	US	n.a.	n.a.	n.a.	n.a.	n.a.
Aug-05	Huetgen's Carbotech	US	Producer of activated carbon for drinking water purification	International Chemical Investors	US	n.a.	n.a.	n.a.	n.a.	n.a.
Feb-04	Waterlink Specialty Products	US	Services relating to activated carbon and its application fields	Calgon Carbon Corporation	US	n.a.	n.a.	n.a.	n.a.	n.a.
Oct-03	Nord NV	BE	Manufacturer of consumables, components and purification solutions	Globe M&E Euroland Investments	DE	n.a.	n.a.	n.a.	n.a.	n.a.
Mar-01	Waterlink (Separations Division)	US	Manufacturer of screening, washing, and dewatering equipment	Persson Corporation	US	n.a.	n.a.	n.a.	n.a.	n.a.
Jan-00	Danau Carbon	US	Producer and distributor of activated carbon products	Danau Chemie	DE	n.a.	n.a.	n.a.	n.a.	n.a.

Transaction Multiple Median for Ingredients precedents of 14.0x TEV / EBITDA and EBITDA margin of 16%

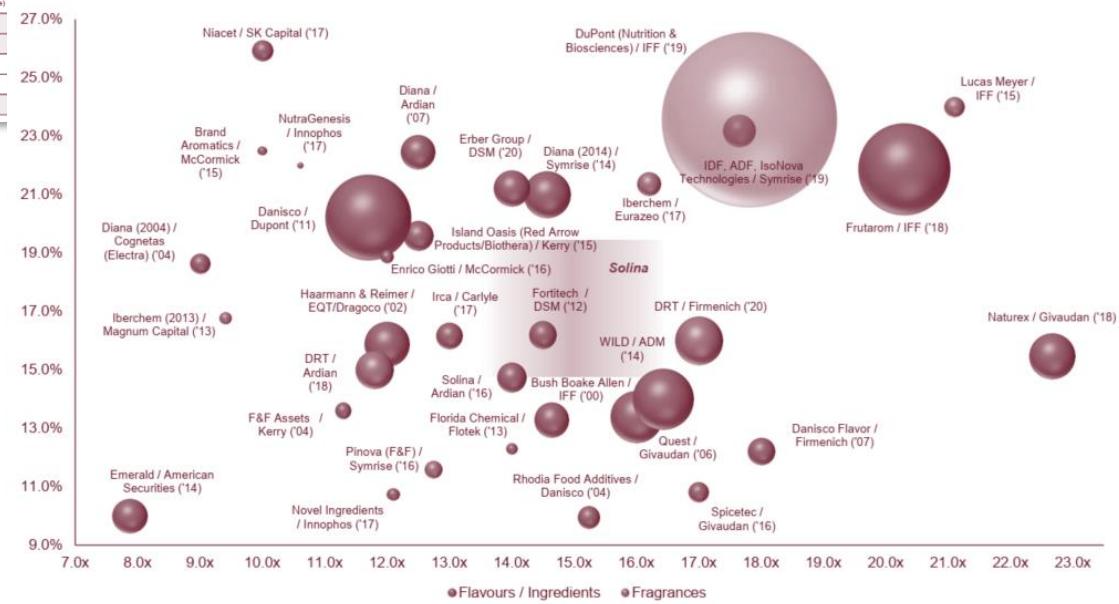


Illustration: Sum of the Parts Valuation & Valuation Gap

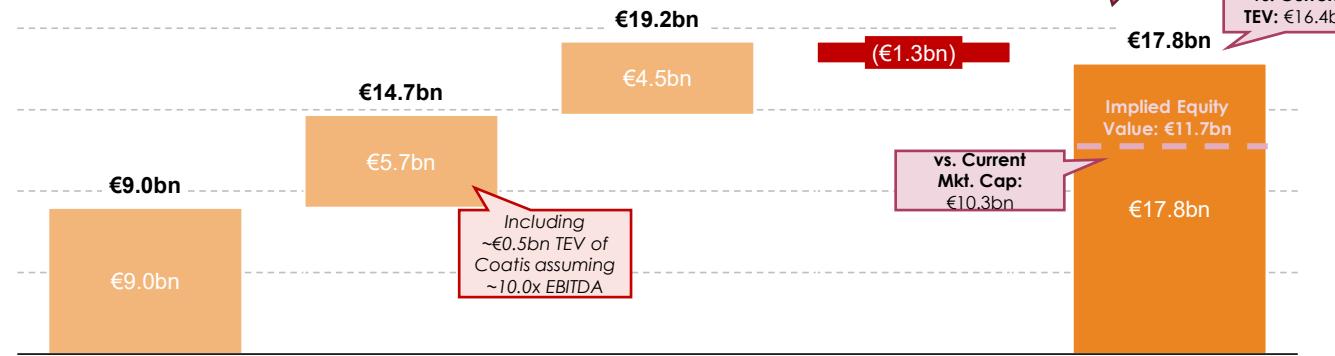
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Solvay's Sum of the Parts Valuation

Valuation Gap are what Activist Shareholders are pursuing

vs. Current TEV: €16.4bn



	Materials	Chemicals	Solutions	Corporate	Total TEV
2020E EBITDA⁽¹⁾	€713m	€803m	€568m	(€156m)	€1,927m
Implied 2020E TEV/EBITDA⁽¹⁾	8.1x	9.2x	5.4x	9.5x	7.7x

Brokers	Date	Materials	Chemicals	Solutions	Corporate	Total TEV
CREDIT SUISSE	December 2020	€9.0bn	€5.4bn	€5.1bn	(€1.3bn)	€18.1bn
Deutsche Bank	December 2020	€10.2bn	€6.5bn	€5.0bn	(€1.6bn)	€20.2bn
Morgan Stanley	November 2020	€9.5bn	€5.7bn	€4.0bn	(€0.2bn)	€19.1bn
BERENBERG	November 2020	€10.0bn	€4.3bn	€3.6bn	(€1.8bn)	€16.2bn
ABN AMRO	November 2020	€8.4bn	€5.7bn	€4.5bn	(€1.3bn)	€17.2bn
J.P. Morgan	October 2020	€8.9bn	€6.0bn	€5.3bn	(€1.3bn)	€18.9bn
EXANE BNP PARIBAS	July 2020	€7.7bn	€5.0bn	€4.3bn	(€1.3bn)	€15.6bn
Median TEV		€9.0bn	€5.7bn	€4.5bn	(€1.3bn)	€17.8bn

Listed Companies: Offer, Implied Premium and Brokers Consensus – PPG's Takeover of Tikurila

PPG's offer price is **EUR 25.00** per share*

- **66.2%** premium compared to the closing price of Tikkurila share on Nasdaq Helsinki on December 17, 2020 (EUR 15.04)
- **70.3%** premium compared to the 3-month volume-weighted average price of Tikkurila share preceding the announcement of the Tender Offer
- **77.8%** premium compared to the 12-month volume-weighted average price of Tikkurila share preceding the announcement of the Tender Offer

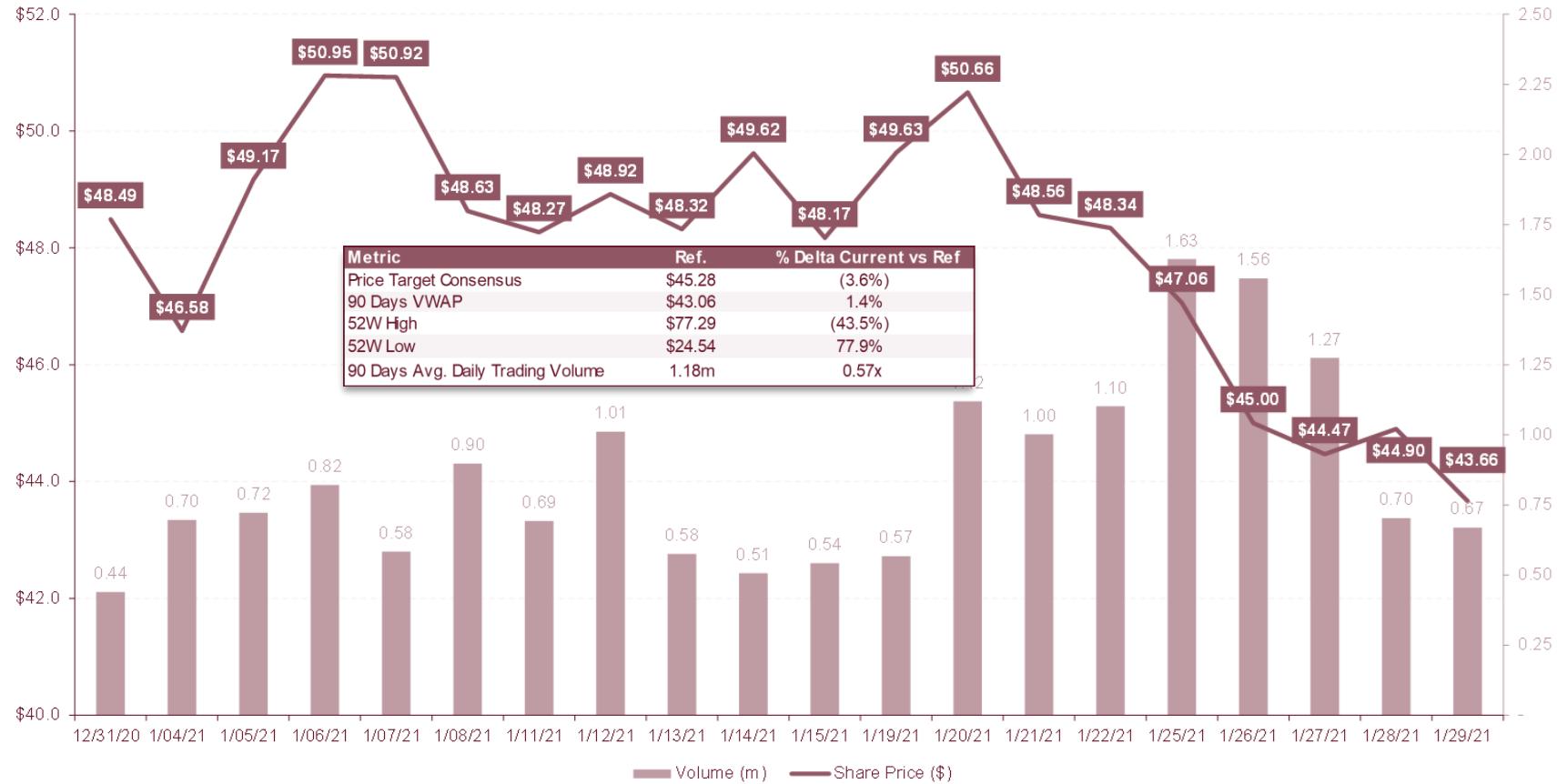
- **Offer price in public takeover is always communicated by mentioning the premium it offers to the shareholders vs:**
 - **Last undisturbed price**
 - **3-month/ 12-month VWAP**
 - **Optional: Brokers' target price**
- **In order to determine if an offer price is attractive, the offer price is compared to the average premia offered for companies in the same sector or to the brokers' consensus target price**
- **The highest the premium, the more compelling the offer is for the existing shareholders**

Share Price Development: VWAP

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Share Price & Trading Volume Development (Last 20 Trading Days, Closing Share Price / Volume)



Share Premia Analysis: Example

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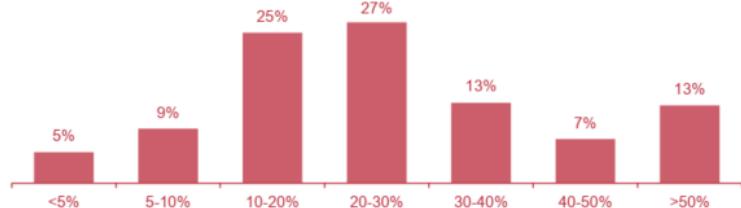


US Takeover Premium Analysis Since 2010 – All (1/2)

L10Y US Industrial Takeover
Transactions >\$500m

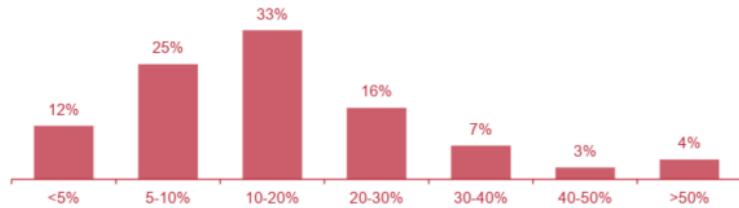
Premium to Undisturbed Date

Number of Deals						
12	21	58	62	31	17	30
Median: 24%						Mean: 20%



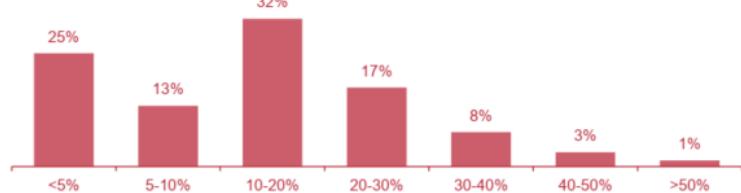
Premium to 30 Day VWAP

Number of Deals						
27	58	75	36	17	6	10
Median: 13%						Mean: 9%



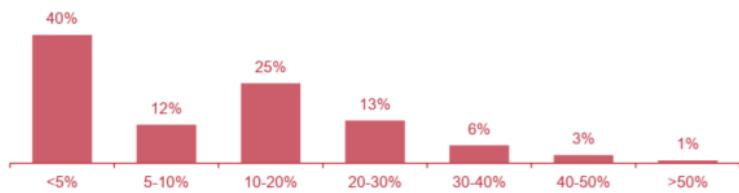
Premium to Consensus Broker Target

Number of Deals						
56	30	73	39	17	7	3
Median: 13%						Mean: 4%



Premium to 52 Week Trading High

Number of Deals						
93	28	58	31	13	6	2
Median: 9%						Mean: (9%)



Source: Company filings, SEC announcements, Factset, Mergermarket
Note: Transactions listed are Public to Private. Includes broad Industrial related US deals over \$500m

Brokers' Target Price Consensus

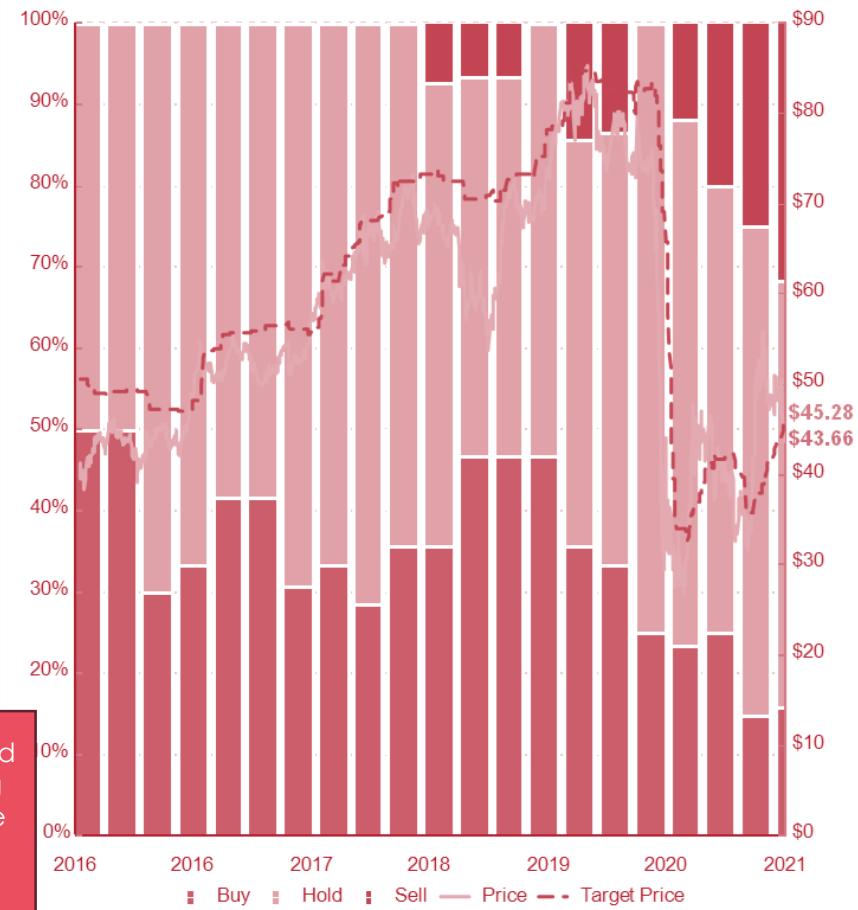
Selected Analyst Price Targets & Recommendations Overview⁽¹⁾

Broker	Price Target	Rating	Implied EV / 2019A EBITDA	Date
Alembic Global Advisors	\$67.00	Buy	11.2x	27 Jan '21
Seaport Global Securities	\$64.00	Buy	10.8x	25 Jan '21
Berenberg	\$51.00	Buy	8.9x	25 Jan '21
Vertical Research Partners	\$50.00	Hold	8.7x	29 Jan '21
Wells Fargo Securities	\$49.00	Hold	8.6x	26 Jan '21
Canaccord Genuity	\$48.00	Hold	8.4x	26 Jan '21
Jefferies	\$48.00	Hold	8.4x	25 Jan '21
BMO Capital Markets	\$41.00	Hold	7.4x	26 Jan '21
Goldman Sachs	\$40.00	Hold	7.3x	29 Jan '21
Credit Suisse	\$40.00	Sell	7.3x	26 Jan '21
Cowen	\$39.00	Hold	7.1x	26 Jan '21
Tier4 Research	\$38.00	Hold	7.0x	07 Jan '21
Truist Securities	\$35.00	Hold	6.5x	26 Jan '21
Wolfe Research	\$34.00	Sell	6.4x	26 Jan '21
Loop Capital Markets	\$33.00	Sell	6.2x	28 Jan '21

Current Price	\$43.66
All Brokers Consensus Price Target	\$45.28
Selected Brokers Avg. Price Target	\$45.13
% Premium to Current	3.4%
'19A EBITDA (\$m)	\$569
Current TEV / '19A EBITDA	7.8x
Average Implied TEV / '19A EBITDA	8.0x

=Any offer will be compared to consensus, representing analysts' view of where the share price could be in 6months

All Analyst Recommendations & Price Targets Evolution (Last 5 Years)





Transformation Underway But Nobody Cares

October 5, 2015



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REVITALIZE P&G TOGETHER VOTE THE WHITE PROXY CARD



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However, We Believe the Company's Performance Has Not Yet Lived Up to Its Potential

Adjusted EBITDA since the merger of Dow and DuPont has remained flat despite expectations of achieving \$1.0 billion in cumulative cost synergies by the end of 2020.



There seems to be significant opportunity to improve EBITDA given substantial merger synergies.

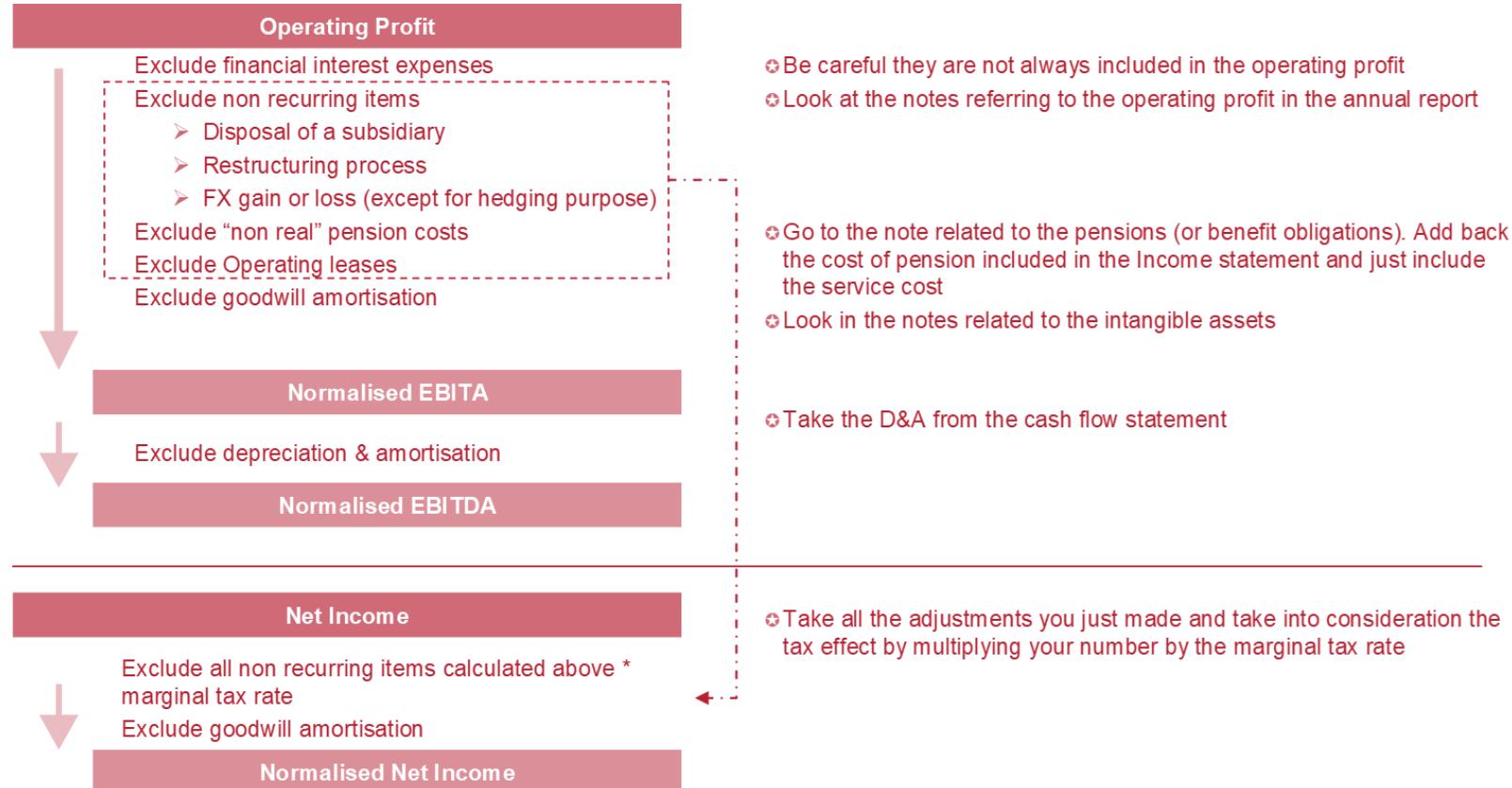
Source: Public company filings.
(1) 2020 financials based on Current management guidance on Q3 2020 earnings press release. Revenue growth assumes midpoint of 0% - 2% net sales growth guidance, and Adj. EBITDA based on midpoint of \$1.9 - \$2.1 billion guidance.

E.

Valuation Considerations

3. Adjustments/ Normalisations for multiple-based valuations

Introduction to P/L adjustments



- **Situation:** In September 2020, Company Delta's Key Supplier has not been able to supply key raw materials due to a breakdown at its plant. As a result, Company Delta's production was interrupted during 1 month and was not able to sell any products
 - Loss of revenue/ gross margin: €2.0m
 - Costs to restart production: €0.5m
- These costs should be considered as exceptional by nature and outside Delta's control, and should not re-occur next year. As a result, for valuation analysis perspective, they should be integrated back into a "**Normalised EBITDA**"
 - Identifying one-offs to be added back/ excluded from reported financials is called "**Quality of Earnings analysis**" and is led by Accountants' Transaction Services team
- **Implications:** In 2020A, Delta had reported EBITDA of €10.0m. You are in discussions with a Buyer considering making an offer for Delta's at 12.0x EBITDA. Which EBITDA should the Buyer use?

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- Reported EBITDA: $12.0 \times €10.0 = €120m$

Valuation could be
underestimated by
€30m

- Normalised EBITDA: $12.0 \times €(10.0 + 2.0 + 0.5) = €150m$

Run-Rate Adjustments distorting Normalised Profitability (1/2)

- **Situation:** On 1st October 2020, Company Delta has obtained a new customer, which is expected to generate every quarter €3.0m of gross margin
- The reported financials will include the margin from this contract, but only for one quarter given that the contract started on 1st October 2020. In 2021, the margin corresponding to this contract in Delta's financials will be much higher. As a result, for valuation analysis perspective, financials should be presented on a “**pro-forma run-rate basis**”, as if the contract would have started on 1st January 2020
- Same approach would need to be taken for the finalization of the construction of a new plant which is now on-line, and for which customer contracts are already secured and going to generate recurring revenues
- **Implications:** In 2020A, Delta had reported EBITDA of €13.0m. You are in discussions with a Buyer considering making an offer for Delta's at 12.0x EBITDA. Which EBITDA should the Buyer use?

Run-Rate Adjustments distorting Normalised Profitability (2/2)

- **Situation:** On 1st October 2020, Company Delta has obtained a new customer, which is expected to generate every quarter €3.0m of gross margin
- The reported financials will include the margin from this contract, but only for one quarter given that the contract started on 1st October 2020. In 2021, the margin corresponding to this contract in Delta's financials will be much higher. As a result, for valuation analysis perspective, financials should be presented on a “**pro-forma run-rate basis**”, as if the contract would have started on 1st January 2020
- Same approach would need to be taken for the finalization of the construction of a new plant which is now on-line, and for which customer contracts are already secured and going to generate recurring revenues
- **Implications:** In 2020A, Delta had reported EBITDA of €13.0m. You are in discussions with a Buyer considering making an offer for Delta's at 12.0x EBITDA. Which EBITDA should the Buyer use?

- Reported EBITDA: $12.0 \times €13.0 = €156m$
 - Normalised EBITDA: $12.0 \times €(13.0 + 3.0 \times 3 \text{quarters}) = €264m$
- Valuation could be
underestimated by
€108m

- **Situation:** On 30th September 2020, Company Delta has completed the acquisition of Alfa:
 - Alfa estimated 2020 Financials
 - Revenue: €200m (no cyclical)
 - EBITDA: €40m
 - Acquisition Price: €360m, funded via cash from (i) equity issuance (€60m) and (ii) new debt (€300m, did not have debt nor debt-like items before)
- Early January 2021, Company Delta issues a press release on its preliminary 2020 full year results, indicating:
 - Revenue: €500m
 - EBITDA: €130m
- You are asked to include Delta in a Trading Comparable Analysis you are preparing
 - Knowing that Delta has a current Market Capitalisation of €1,300m, what is the EV/EBITDA 2020 multiple of Delta

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 - Early January 2021, Company Delta issues a press release on its preliminary 2020 full year results, indicating:
 - Revenue: €500m
 - EBITDA: €130m
 - You are asked to include Delta in a Trading Comparable Analysis you are preparing
 - Knowing that Delta has a current Market Capitalisation of €1,300m, what is the EV/EBITDA 2020 multiple of Delta
- **Computation:**
 - Enterprise Value: €1,300m + €300m = €1,600m
 - Run-Rate EBITDA: €130m + 3 quarters of Alfa EBITDA not yet included in the reported financials (3x€10m) = €160m
 - $EV / EBITDA = €1,600m / €160m = 10.0x$ (vs 12.3x on a reported basis)

Calendarisation Between Peers must be performed when comparing trading comparables

	30 September '20	31 December '20	31 March '21	30 June '21	30 September '21	31 December '21	
Company A	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022	Q2 2022	Q3 2022

Fiscal Year Ending 30 June **Situation:** Brokers will provide estimates for A based on its fiscal year, i.e. EBITDA 21E (A) will correspond to the period 1 July 20-30 June 21 It is end of January 21, and Company A has just published its Q2 2021 results, and brokers have updated their EBITDA 21E (A) estimates Therefore you can obtain a very recent view of what is EV / EBITDA 21E (A) multiple

	30 September '20	31 December '20	31 March '21	30 June '21	30 September '21	31 December '21	
Company B	Q3 2020	Q4 2020	Q1 2021	Q2 2021	Q3 2021	Q4 2021	Q1 2022

Fiscal Year Ending 31 December Company B has just released its FY 2020 estimates and brokers have updated their view for EBITDA 21E (B) performance You want to compare EV / EBITDA 21E (A) multiple with Company B. You obtain Brokers' consensus EBITDA 21E (B) and compute its multiple

Problem: Are both multiples comparable? No, since EBITDA 21E (A) includes 2 outstanding quarters while EBITDA 21E (B) includes 4 outstanding quarters

Solution: Calendarisation to bring EBITDA on the same comparison basis between A and B

1- Calendarisation of EBITDA (B) to Company A

EBITDA 21c (B) need to be brought back to a comparable period with A, therefore, assuming no cyclical, the following calendarisation needs to be performed:

$$\text{EBITDA 21c (B)} = 50\% \text{ EBITDA 20 (B)} + 50\% \text{ EBITDA 21E (B)}$$

50% EBITDA 20 (B) can also be replaced by EBITDA H2 20A (B) (which is reported)

→ EV / EBITDA 21c (B) and EV / EBITDA 21 (A) can now be compared

2- Calendarisation of EBITDA (A) to Company B

EBITDA 21c (A) need to be brought back to a comparable period with B, therefore, assuming no cyclical, the following calendarisation needs to be performed:

$$\text{EBITDA 21c (A)} = 50\% \text{ EBITDA 21E (A)} + 50\% \text{ EBITDA 22E (A)}$$

→ EV / EBITDA 21c (A) and EV / EBITDA 21E (B) can now be compared

Transaction comparables always based on Last Twelve Months Multiples

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	31 December '19	31 March '20	30 June '20	30 September '20	31 December '20	31 March '21	30 June '21
Company A	Q4 2019	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2021	Q2 2021
Fiscal Year Ending 31 December							

Situation: Comparable Transaction Analysis mainly relies on backward-looking multiples as target's business plan are not publicly communicated. If a company is sold in the 2nd part of 2020, Seller will present **Last Twelve Month (LTM) financials**, which take into account the company's "**current trading**" which is the Company's performance during 1st semester of 2020

EBITDA LTM June 20 (A) = EBITDA 19 (A) - EBITDA H1 19 (A) + EBITDA H1 20 (A)

If 9m19 financials are available (in the context of sale in Q4 20):

EBITDA LTM September 20 (A) = EBITDA 19 (A) - EBITDA 9m19 (A) + EBITDA 9m20 (A)

For listed companies, LTM multiples can also be computed (by adjusting last reported financials with recent current trading)

Market capitalisation & liabilities

- Market capitalisation
- Share dilution: Employee stock options
- Share dilution: Convertible debt
- Share dilution: Rights issue
- Preference shares
- Net debt: Overview of key constituents
- Interest bearing debt
- Pensions
- Operating leases
- Provisions
- Other liabilities (minority interests, contingent liabilities, other liabilities)

Not applicable since
IFRS16, with leases now
on balance-sheet

Assets

- Asset items: Overview
- Excess cash & marketable securities
- Non-consolidated subsidiaries
- Illiquid investments
- Other asset items

- **Similarly to P&L adjustments, various adjustments on the Market Cap / Net Debt should be assessed and potentially performed**
- **Key is to apply similar definition across peer group**
- **Net Debt and Net Debt'-like items should include any third-party claims which will result in potential cash-outflow for the Company (e.g. Pension liabilities)**

Employee stock options affect a company valuation in two ways:

- I. The value of options that will be granted **in the future** needs to be captured in the free cash flow projections; no additional adjustment at net debt level is required
 - Accounting rules (IFRS) stipulate that the value of the option (generally unvested) is determined on grant day and subsequently linearly expensed over the time between the grant date and the vesting date
 - Option costs are generally included in employee expenses; if future option programs are expected to be comparable to history, extrapolation of historic employee costs can be used
- II. The value of options **outstanding at valuation date** must be subtracted from enterprise value as a nonequity claim

There are two methods to estimate the value impact of options already outstanding:

Option value method

- The correct method is to look in the notes for valuation of all options (vested and unvested). Note that this value is a good approximation only if the current share price is close to the one underlying the option values in the annual report. If this is not available, consider valuing the options using option valuation models such as Black and Scholes.

Exercise value method

- If the option value method is not possible, assume that all in-the-money options are exercised immediately. Please note that this ignores the time value of the options, as well as assumes that out-of-the-money options carry no value. The resulting valuation error increases as:
 - options have longer time to maturity;
 - the company's stock has a higher volatility; and
 - the company's share price is closer to the exercise price.
- In this method, please take the exercise proceeds resulting from conversion into consideration and treat them as a cash item

Conclusion

- Always try to use the option value method, but if not possible: apply the exercise value method but keep in mind that it underestimates the enterprise value: since it assumes immediate conversion of all options, the value of the options is too low and the net debt adjustment too low as well

Pension adjustments for under- (or over-) funded pension liabilities

- Only applicable for Defined Benefit plans, not for Defined Contribution plans
- If the difference between the fair value of the pension assets and the actuarially determined present value of the pension liability is negative (positive), then the pension plan is underfunded (overfunded)

Balance sheet adjustments

- Do not use book values of the pension liabilities, instead, look in notes for the present value of the unfunded pension liability; this is a debt like item
- Take care: The present value of the unfunded pension liability is generally calculated on a pre-tax basis. If payments to the pension fund are tax deductible (which may not be the case in all countries or circumstances), then you should tax-adjust the liability by multiplying by $(1 - \text{cash tax rate})$
- Similarly, add any other non-pension retirement liabilities, e.g. medical benefit plans
- Disregard unrecognised losses (gains) in the notes of an annual report

EBITDA adjustments

- Service cost and amortisation of prior service cost are operational and therefore included in EBITDA
- Excluded from EBITDA are:
 - Interest cost
 - Return on plan assets
- See next pages for further detail

} Related to performance of plan

Net Debt Adjustments: Pension (2/3)

Pensions – balance sheet

- Underfunded status of pension fund is EUR 1,818m: this number (after-tax) should be used in our analysis and should be treated as a debt like item
- Pension provision on balance sheet (book value) is only EUR 1,515m: ignore this amount. It excludes any unrecognised costs, losses or gains
- Please note that other postretirement benefits should also be included in analysis (underfunded of EUR 292m). This figure must also be taxed

- Explanatory notes:
- Unrecognised net loss / (gain)...
- ...are changes in pension liability / (asset) due to
 - changes in actuarial assumptions; and/or
 - use of long term expected return rather than actual return
- ...are "smoothed out" from accounting perspective
- Unrecognised prior service costs are changes in pension liability / asset due to
 - amendments to pension plan (e.g. as a result of labour negotiations)
 - are "smoothed out" (amortised) from accounting perspective

Asset/liability	2006	Pensions	Other postretirement benefits
		2005	2006
			2005
Defined benefit obligation			
Balance at beginning of year	(5,510)	(8,975)	(508)
Acquisitions/divestments	(12)	(4)	(1)
Settlements/curtailments	3	4,575	79
Service costs	(82)	(209)	(13)
Contribution by employees	(7)	(32)	(2)
Interest costs	(249)	(437)	(20)
Benefits paid	322	484	25
Actuarial gains/(losses)	(197)	(747)	93
Changes in exchange rates	(28)	(165)	55
Balance at end of year	(5,760)	(5,510)	(292)
Plan assets			
Balance at beginning of year	3,596	6,781	
Acquisitions/divestments	(2)	1	
Settlements	160	(4,502)	
Contribution by employer	7	397	32
Contribution by employees		(436)	461
Benefits paid	(284)	461	736
Expected return on plan assets	233	736	126
Actuarial gains	214		
Changes in exchange rates	18		
Balance at end of year	3,942	3,596	
Funded status	(1,818)	(1,914)	(292)
Unrecognized net loss/(gain)	302	328	(9)
Unrecognized prior service costs	1	1	(26)
Medicare receivable			(46)
Net balance pension provisions	(1,515)	(1,585)	(373)

PV of pension liability

Fair value of pension assets

Contribution by company into pension fund → has effect on company's cash flow statement

Underfunded status of other postretirement benefits

Underfunded status of pension fund

Pension provision recognised on balance sheet

Pension benefits actually paid out to retirees → no effect on company's cash flow statement, is paid from the fund

1 and 2 should be treated as debt. 3 and 4 are the balance sheet items and are only relevant for accounting purposes

Net Debt Adjustments: Pension (3/3)

Pensions – income statement

The diagram illustrates the breakdown of pension costs into operating and non-operating parts, and their relationship to actuarial assumptions.

Operating part of pension cost (to be included in EBIT):

	Pensions		Other postretirement benefits	
	2006	2005	2006	2005
Charge/(income)				
Service costs for benefits earned during the period	82	209	13	21
Interest costs on defined benefit obligations	249	437	20	30
Expected return on plan assets	(233)	(461)		
Amortization of unrecognized losses/(gains)	9	11	(1)	
Settlement/curtailment gain	(4)	(132)	(51)	(169)
	103	64	(19)	(118)

Financial income from pension asset (to be excluded from EBIT):

	Pensions		Other postretirement benefits	
	2006	2005	2006	2005
Percent				
Pension benefit obligation at December 31				
– discount rate	4.9	4.7	5.8	5.5
– rate of compensation increase	4.2	3.9		
Net periodic pension costs				
– discount rate	4.7	4.9	5.5	5.4
– rate of compensation increase	3.9	3.2		
– expected return on plan assets	6.5	6.7		

Financial / non-operating part of pension cost (to be excluded from EBIT):

Actuarial assumptions

The above are expensed above the EBITDA line in the P&L. 1 is an actual cost and should be included in EBITDA. 2 should be excluded from EBITDA (added back)

E.On AG - Nuclear decommissioning liabilities

- Energy companies active in nuclear power generation face large costs for decommissioning and handling of nuclear waste
- The liabilities can be found in the notes to the financial statements, e.g. provisions note, and the amount should be regarded as an adjustment to net debt

Note 25. Miscellaneous provisions

€ in millions	current	non-current
Non-contractual obligations for nuclear waste management	133	10,022
Contractual obligations for nuclear waste management	300	3,335
Personnel obligations	593	690
Other asset retirement obligations	301	943
Supplier-related obligations	451	290
Customer-related obligations	296	80
Environmental remediation and similar obligations	32	456
Other	1,886	2,257
Total	3,992	18,073

The provision based on German and Swedish nuclear power legislation comprising in total EUR 13.8 billion comprise all nuclear obligations relating the disposal of spent nuclear fuel rods and low-level nuclear waste and to the retirement and decommissioning of nuclear power plant components

E.

Valuation Considerations

4. Synergies

What Are Synergies?

- Synergies are one of the key drivers for M&A. They make the value of an asset or a company different between potential owners of this asset or company
- When valuing a business, valuation is always made on a standalone basis (excl. any synergies) first (it applies for DCF but also for multiples), however client always want to know what a business is worth for them by including a scenario with synergies
- Synergies ultimately translate into higher FCF under the Buyer's ownership, and generally include:
 - Revenue synergies: ability to generate more revenue (and more gross margin) than standalone business plan by for instance pushing products of the acquiring entity into client base of target and vice versa
 - Cost synergies: ability to reduce costs (and more EBITDA) by combining and rationalisation Buyer and Target' operations, by closing 1 headquarter and duplicated offices, by reducing headcounts, by obtaining greater power of negotiation with suppliers, etc
 - Other synergies: cost of capital, tax (not utilized tax-loss carry forward at the target), etc
 - Negative synergies: loss of volumes due to avoidance of supplier concentration at Client
- Synergies often translates in an annual run-rate synergy amount, which is generally pre-tax amount and which is pre-EBITDA (except for other synergies above-mentioned)

- A Synergy analysis is always very granular and contain three components
 - Run-rate amount: full amount of the additional margin/ saving. It is often communicated as % of Target's sales
 - Phasing: how many years it will take to reach the run-rate (generally 2-3 years)
 - Costs: Costs required to achieve the run-rate amount, for instance redundancy costs, penalties to terminate the leases, etc (generally 1x run-rate amount, spread over 2 years)
- Since synergies translate into cash-flows, they can be valued using a DCF (these are pre-tax)
- Synergies are communicated by a buyer as they improve the metrics at which an acquisition has been made

Illustration: Selected Transactions

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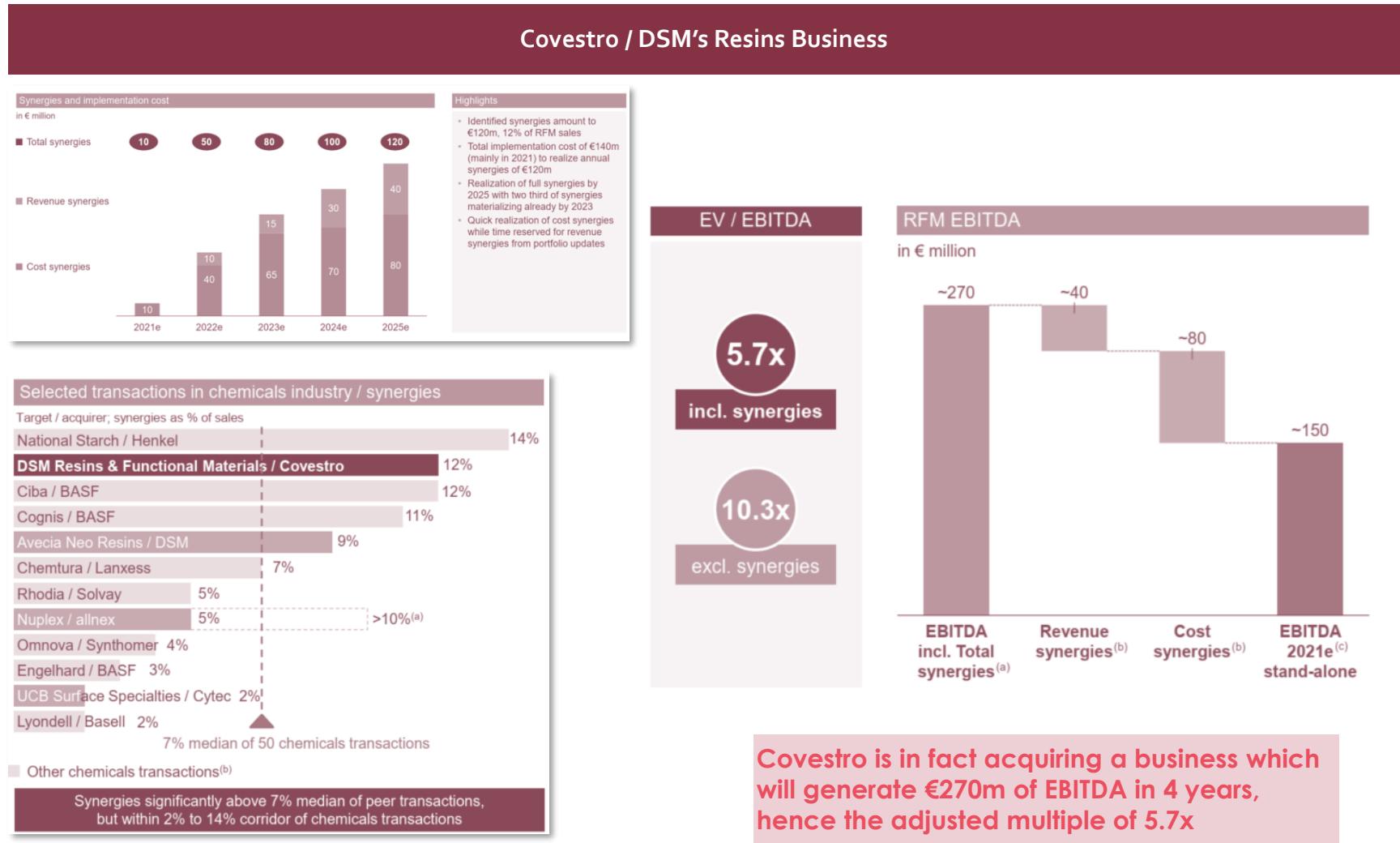


Illustration: Selected Transactions

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McCormick/Fona



Value Creation

- \$710 million transaction value implies a multiple of 23.5x 2020E adjusted EBITDA pre-synergies or 16.6x including anticipated run-rate cost synergies and tax attributes¹
- Expected mid-to-high single digit sales growth accretive to long-term organic sales objective
- Gross margin accretion anticipated in McCormick and Flavor Solutions segment
- Expected to be neutral to fiscal 2021 adjusted EPS² and with fully realized synergies ~1% accretive. These estimates include ~2% dilutive impact from ongoing amortization expense



Synergies and One-time Costs

- Approximately \$7 million in cost synergies anticipated annually, fully realized by the end of fiscal 2023
- Additional revenue synergies are expected through customer cross-selling
- Approximately \$30 million in one-time transaction and integration costs



Capital Structure

- All cash transaction funded by a combination of cash and commercial paper
- Continued commitment to strong Investment Grade rating
- Expect to delever to ~3.0x by end of fiscal 2022 after leverage ratio increase post Cholula & FONA acquisitions
- No change to dividend policy

Recalculate the multiples mentioned

Fona generated \$30m EBITDA in FY20E

Notes:

1. Includes net present value of tax benefit from step-up of \$93 million

2. EPS adjusted for transaction and integration costs, including certain purchase accounting adjustments

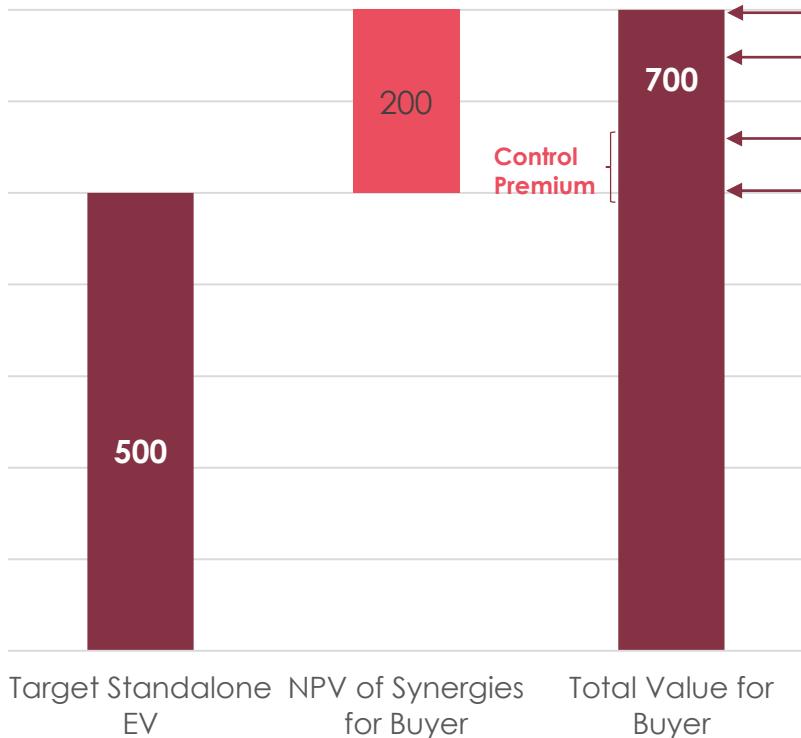
E.

Valuation Considerations

5. Wrap-Up

Synergies Determine how much a Buyer can afford a Target

Price vs Valuation Concept

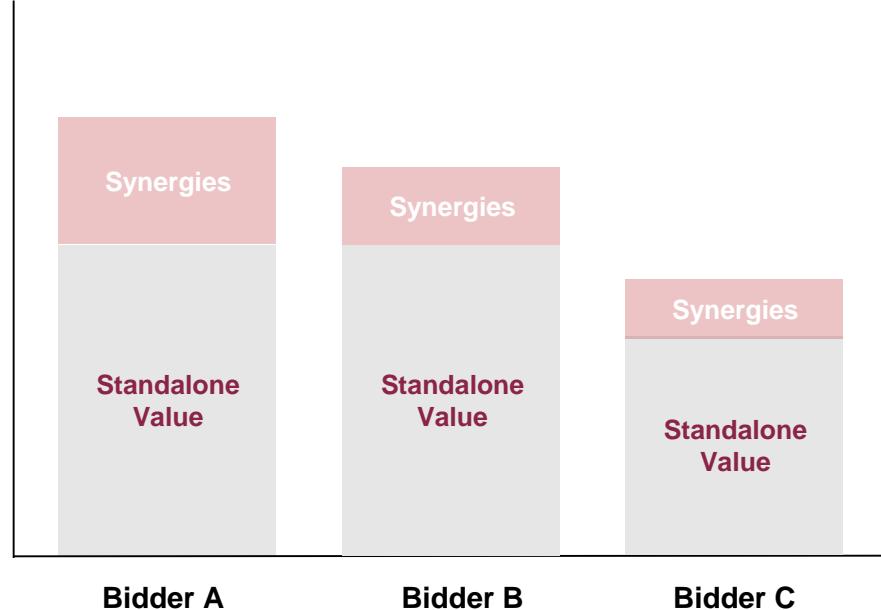


- E- Buyer end up paying more than the value that this transaction will create = destroy shareholder value
- D- Buyer pays full value (incl. synergies to be created) to Seller
- C- Buyer pays a large portion of the synergies value to Seller, risk created on the deliverability of the synergies
- B- Buyer pays a portion of the synergies value to Seller
- A- Buyer keep 100% of the value which will be created by synergies, Seller has not obtained any control premium

The “control premium” is the proportion of total synergy value that the buyer has been willing to give away

It is important to note that “control” gives the acquirer the ability to extract synergy value, however, in the absence of synergies, control itself has no value

Optimising the bidding landscape is key driver to generated the higher price for a Seller



- Standalone value of an asset should be broadly the same for all strategic buyers
- If it is not the case, actions should be explored to make the assets more valuable across the bidder landscape (example: can some actions be taken to improve the asset's standalone value fro Bidder C?)
- The higher the synergies, the greater is the Bidders' ability to deliver a higher offer (in the form of a control premium, providing that there are no other limiting factors, such as financing)
- Seller, via its advisers, should dedicate time to Bidder B to try and potentially identify new synergies
- Ultimately, Bidder A, who has the largest synergies, will position its price at level which is just above the control premium Bidder B may pay (hence the need to have bidders with synergies as high as possible)
- As a buy-side adviser to Bidder A, your role is to determine what is the control premium that other bidders can afford

In a valuation section of a presentation, we generally include the following slides:

A football field (see next slide) which shows the value range for the asset you are suggesting as an advisor and which combines the valuation outcomes of different methodologies used

Various valuation methodologies and assumptions used: DCF (incl. Business Plan, WACC, Terminal Value, etc), LBO, Trading Multiples (table showing the comparable companies, and the multiples range selected), Comparable Deals (table showing deals selected)

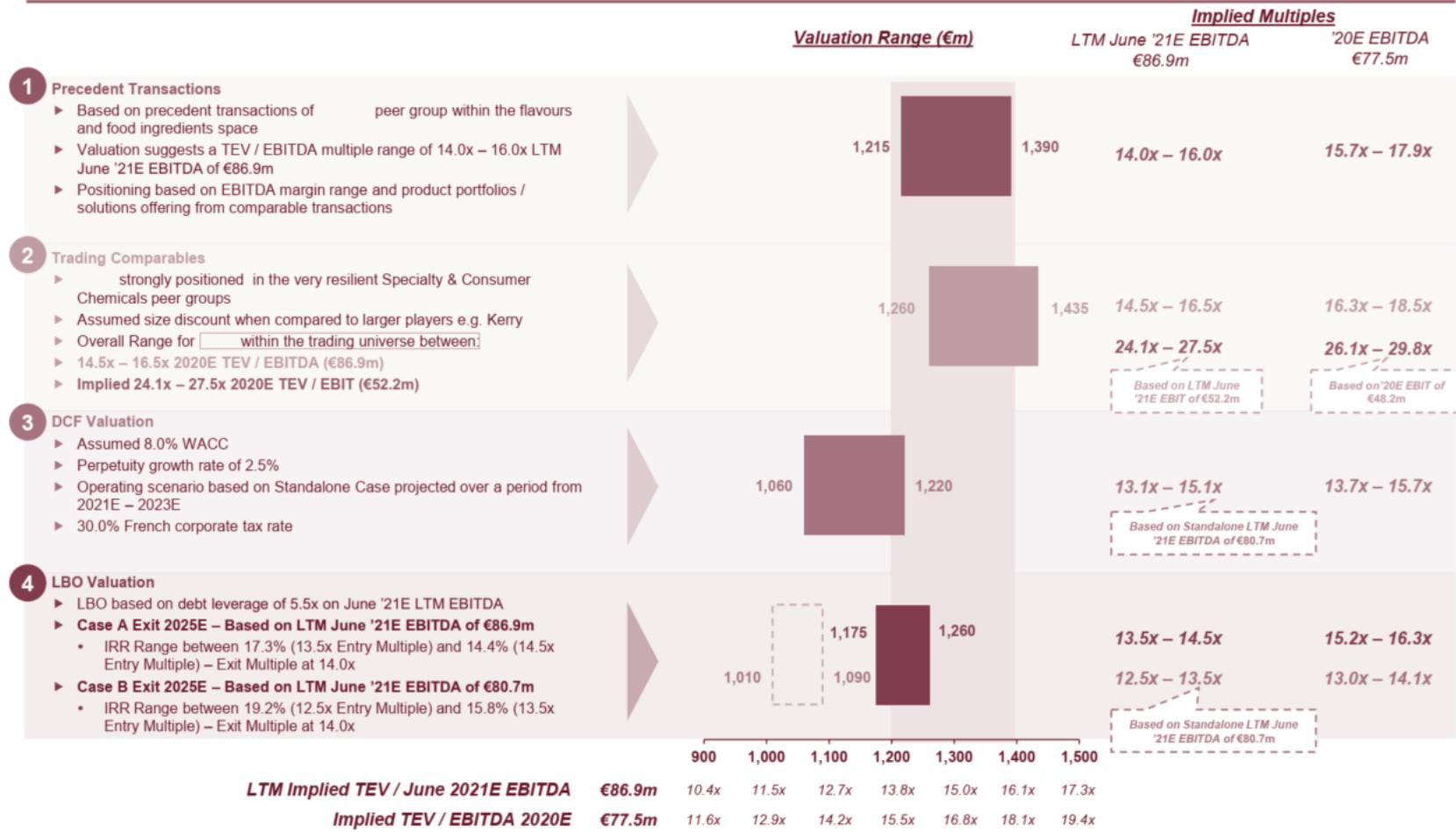
Present the Operating Model and the key assumptions used (revenue growth, EBITDA margin, Capex, Working Capital), often with graphs

For the DCF valuation, a sensitivity analysis can be inserted to show the implied DCF valuation if certain criteria (sales growth, EBITDA margin) vary

Once the standalone presentation is done, an analysis on synergies and valuation is inserted, showing the impact synergies have on the value

How do we present Valuation: Illustration

Preliminary Valuation of €1,200 – 1,400m (14.0x - 16.0x LTM June '21E EBITDA)



You can refer to (US) filings which include, in the context of a large acquisition, fairness opinions by the adviser(s) to the Buyer, stating that the offer is fair (directed to the Buyer's shareholders)

This presents how IBs are approaching valuation

In the context of the merger of IFF and Dupont's Nutrition & Bioscience business (\$22bn transaction value), IFF's advisers Morgan Stanley and Greenhill have published their valuation analysis, from p188 onwards

https://ir.iff.com/node/33671/html#toc792766_171

Analysis At Various Prices

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Analysis At Various Prices

Implied range
@10x €140-160m

	1,500	1,600	1,700	1,800	1,900	2,000
Acquisition TEV (\$m)						
Sources & Uses (€m)						
Acquisition TEV	1,269	1,354	1,438	1,523	1,607	1,692
Transaction Expenses (M&A, DueDiligence, Debt)	35	35	35	35	35	35
Total Uses	1,304	1,389	1,473	1,558	1,642	1,727
Use of Cash	150	150	150	150	150	150
New Transaction Debt	1,154	1,131	1,131	1,131	1,131	1,131
Equity Issuance	-	108	193	277	362	446
Sources	1,304	1,389	1,473	1,558	1,642	1,727
Pro-Forma Leverage (€m)						
2021E Y Standalone Net Debt	1,318	1,318	1,318	1,318	1,318	1,318
New Transaction Debt	1,154	1,131	1,131	1,131	1,131	1,131
Use of Cash	150	150	150	150	150	150
PF Net Debt	2,622	2,599	2,599	2,599	2,599	2,599
PF Net Debt / EBITDA	3.0x	3.03x	3.00x	3.00x	3.00x	3.00x
Equity Issuance						
Equity Issuance	€m	-	108	193	277	362
New Shares (Assuming 10% share issuance discount)	m	-	3.8	6.7	9.7	12.7
Current Shares	m	86.0	86.0	86.0	86.0	86.0
PF Shares	m	86.0	89.7	92.7	95.7	98.6
% of current NOSH	%	-	4.4%	7.8%	11.3%	14.7%
X Acquisition Multiples						
X EBITDA	€m					
2021E	135	9.4x	10.0x	10.6x	11.2x	11.9x
2022E	153	8.3x	8.8x	9.4x	9.9x	10.5x
2023E	160	7.9x	8.5x	9.0x	9.5x	10.0x
X EBITDA (incl. run-rate synergies)	€m					
2021E	165	7.7x	8.2x	8.7x	9.2x	9.7x
2022E	183	6.9x	7.4x	7.9x	8.3x	8.8x
2023E	190	6.7x	7.1x	7.6x	8.0x	8.5x
X EBITDA - Capex (incl. catch-up capex)	€m					
2021E	93	13.6x	14.5x	15.4x	16.4x	17.3x
2022E	117	10.8x	11.6x	12.3x	13.0x	13.7x
2023E	123	10.3x	11.0x	11.7x	12.4x	13.1x
Value Creation						
PF Accretion / Dilution (incl. synergies)						
2022E	20.6%	15.3%	11.2%	7.4%	3.8%	0.4%
2023E	23.5%	18.0%	13.9%	10.0%	6.4%	3.0%
2024E	24.0%	18.5%	14.4%	10.6%	6.9%	3.5%
X ROCE (incl. synergies & net capex impact)						
2023E	12.3%	11.5%	10.8%	10.2%	9.7%	9.2%
2024E	13.2%	12.4%	11.6%	11.0%	10.4%	9.9%
2025E	13.6%	12.7%	12.0%	11.3%	10.7%	10.2%

Source: Company filings, broker estimates, EVR and

E.

Valuation Considerations

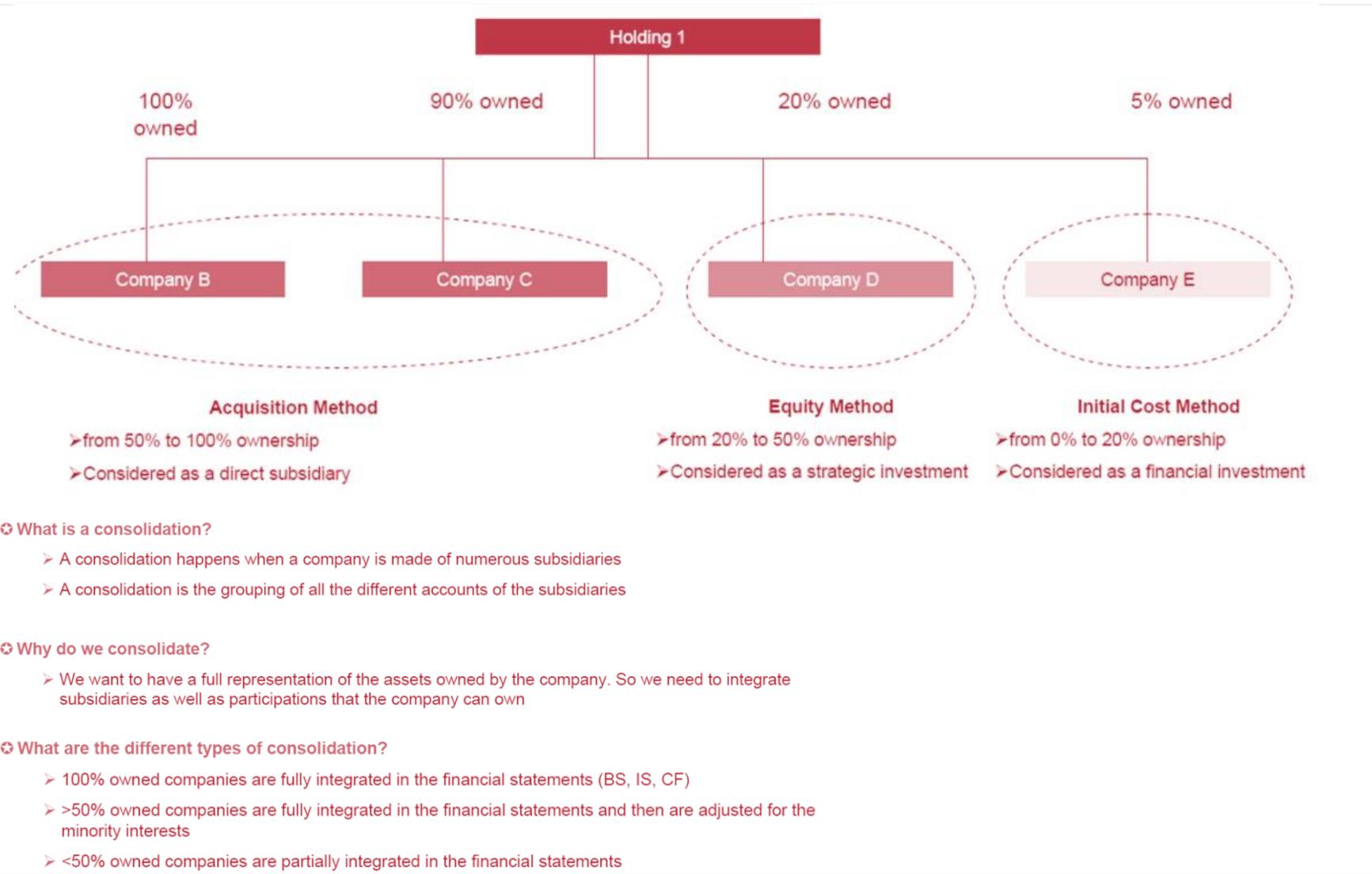
6. Optional Valuation Exercises

- **Trading Comps**
- **Transaction Comps**
- **DCF**

F.

Acquisition Modelling

Type of Consolidation



BALANCE SHEET

- ✿ Here are the following steps for the consolidation of the Balance Sheet:
 - Revalue to fair value the assets and liabilities of the acquired company at the acquisition date
 - Calculate goodwill and include it in the Newco balance (old balance sheet + acquired company)
 - ⇒ **Goodwill = price paid for the company – fair value of the net assets x %acquired**
 - Take out the shareholders' equity and if necessary the debt (if the company is acquired without it) of the acquired company
 - Add the acquired company assets and liabilities to the company
 - Add Minority Interests in the Liabilities and Equity
 - ⇒ Represents the % of the acquired company you do not own
- ✿ You will obtain the Newco Balance sheet
- ✿ The Newco balance sheet **MUST BALANCE**, never forget it
- ✿ The minority interests that company A pays need to be added to the minority interest value in the balance sheet

INCOME STATEMENTS

- ✿ Add the two statements in the NEWCO P&L
- ✿ If there are any inter group sales you have to take them out (sales between the subsidiaries of the group)
- ✿ Below your net income you have to take out minority interests if the acquired company is not fully owned by the buyer
 - Minority interests = net income of the acquired company x % not owned

Acquisition Method: 100% Acquisition – Example

Balance Sheet Impact (1/6)

- ⊕ Company A has purchased of Company B by issuing on the market 10 new shares at a market value of 25. Below you will find the BS of Company B as well as the fair value of its assets
1. Calculate the Balance Sheet at fair value
 2. Calculate the goodwill paid by Company A if Company A has acquired 100% of B

	Company B BS at date of acquisition	Fair Value adjustments	Company B BS at fair value
Cash	10		
Receivables	70	(20)	
PP&E	60	40	
Goodwill	0		
Total Assets	140		
Payables	40		
Long-Term Debt	20		
Equity	50		
Retained Earnings	30		
Total Liabilities & Equity	140		

Acquisition Method: 100% Acquisition – Example

Balance Sheet Impact (2/6)

- Company A has purchased of Company B by issuing on the market 10 new shares at a market value of 25. Below you will find the BS of Company B as well as the fair value of its assets

	Company B BS at date of acquisition	Company B BS at fair value
Cash	10	10
Receivables	70	50
PP&E	60	100
Goodwill	0	0
Total Assets	140	160
Payables	40	40
Long-Term Debt	20	20
Equity	50	70
Retained Earnings	30	30
Total Liabilities & Equity	140	160

Acquisition Method: 100% Acquisition – Example

Balance Sheet Impact (3/6)

- Calculate the Newco BS if Company A has acquired 100% of B

	Company A	FV Company B	Calculations	Newco 1
Cash	20	10		
Receivables	140	50		
PP&E	100	100		
Goodwill	10	0		
Total Assets	270	160		
Payables	60	40		
Long-Term Debt	100	20		
Equity	65	50+20		
Retained Earnings	45	30		
Total Liabilities & Equity	270	160		

Acquisition Method: 100% Acquisition – Example

Balance Sheet Impact (4/6)

- ★ Calculate the Newco BS if Company A has acquired 100% of B

	Company A	FV Company B	Calculations	Newco 1
Cash	20	10	20+10	30
Receivables	140	50	140+50	190
PP&E	100	100	100+100	200
Goodwill	10	0	10+150	160
Total Assets	270	160	580	580
Payables	60	40	60+40	100
Long-Term Debt	100	20	100+20	120
Equity	65	50+20	65+250	315
Retained Earnings	45	30	45	45
Total Liabilities & Equity	270	160	580	580

Goodwill Calculations

- ★ Purchase price: $10 \times 25 = 250$
- ★ Fair value of assets: $10 + 50 + 100 = 160$
- ★ Fair Value of Net assets: $160 - 40 - 20 = 100$
- ★ Goodwill: $250 - 100 = 150$

Acquisition Method: 100% Acquisition – Example Income Statement Impact (5/6)

- Calculate the Newco Income Statement if Company A has acquired 100% of B with intergroup sales equal to 50

	Company A	Company B	Intergroup	Newco 1
Sales	1000	300		
COGS	-300	-100		
Gross Profit	700	200		
SG&A	-200	-75		
Operating Profit	500	125		
Interests	-75	-25		
PBT	425	100		
Tax @ 33%	-140	-33		
Net Income	285	77		

Acquisition Method: 100% Acquisition – Example

Income Statement Impact (6/6)

- Calculate the Newco Income Statement if Company A has acquired 100% of B with intergroup sales equal to 50

	Company A	Company B	Intergroup	Newco 1
Sales	1000	300	-50	1250
COGS	-300	-100	50	-350
Gross Profit	700	200		900
SG&A	-200	-75		-275
Operating Profit	500	125		625
Interests	-75	-25		-100
PBT	425	100		525
Tax @ 33%	-140	-33		-173
Net Income	285	77		351

Acquisition Method: 90% Acquisition – Example

Balance Sheet Impact (1/4)

- Company A has purchased of Company B through a cash deal for €500. Below you will find the BS of Company B as well as the fair value of its assets
- Calculate the NEWCO BS

	Company A BS	Company B BS	Adjustments	NEWCO BS
Cash	820	210		
Receivables	540	670		
PP&E	900	960		
Goodwill	10	0		
Total Assets	2,270	1,840		
Payables	660	540		
Long-Term Debt	800	820		
Minority Interests	0	0		
Equity	465	50		
Retained Earnings	345	430		
Total Liabilities & Equity	2,270	1,840		

Acquisition Method: 90% Acquisition – Example

Balance Sheet Impact (2/4)

- Company A has purchased Company B through a cash deal for €500. Below you will find the BS of Company B as well as the fair value of its assets
- Calculate the NEWCO BS

	Company A BS	Company B BS	Adjustments	NEWCO BS
Cash	820	210	-500	530
Receivables	540	670		1,210
PP&E	900	960		1,860
Goodwill	10	0	68	78
Total Assets	2,270	1,840		3,678
Payables	660	540		1,200
Long-Term Debt	800	820		1,620
Minority Interests	0	0	48	48
Equity	465	50	-50	465
Retained Earnings	345	430	-430	345
Total Liabilities & Equity	2,270	1,840		3,678

Calculations

- Purchase price: 500
- Fair value of assets: $210+670+960=1840$
- Fair Value of Net assets: $1840-1360=480$
- Goodwill: $500-480 \times 90\% = 68$
- Minority Interests= $(50+430) \times 10\% = 48$

Comments

- The purchase price represents the cash used for the acquisition
- This purchase price represents the acquisitions of 90% of the assets as well as the liabilities
- Minority Interests calculations are based on the book equity value

Acquisition Method: 90% Acquisition – Example

Income Statement Impact (3/4)

- ✿ Calculate the Newco Income Statement if Company A has acquired 90% of B, we assume that they are no intergroup sales

	Company A	Company B	Calculations	Newco 1
Sales	1785	888		
COGS	-982	-474		
Gross Profit	803	414		
SG&A	-393	-147		
Operating Profit	410	267		
Interests	-60	-24		
PBT	350	243		
Tax @ 33%	-116	-73		
Net Income	234	170		
Minority interests	0	0		
Net Income to equity holders	234	170		

Acquisition Method: 90% Acquisition – Example

Income Statement Impact (4/4)

- ★ Calculate the Newco Income Statement if Company A has acquired 90% of B, we assume that there are no intergroup sales

	Company A	Company B	Calculations	Newco 1
Sales	1785	888	1785+888	2,673
COGS	-982	-474	982+474	-1,456
Gross Profit	803	414	803+414	1,217
SG&A	-393	-147	393+147	-540
Operating Profit	410	267		677
Interest	-60	-24	60+24	-84
PBT	350	243	350+243	593
Tax @ 33%	-116	-73	116+73	-189
Net Income	234	170		404
Minority interests	0	0	0+0+17	-17
Net Income to equity holders	234	170		387

Calculations

- ★ Minority Interests = $170 \times 10\% = 17$
- ★ Minority interests represent the part of the income that you do not own

BS Impact

- ★ Lets assume Company A paid 30 of Dividends through company B
- ★ BS impact of minority interest in N+1:
 - MI year N: 48
 - MI to 10% shareholders: 17
 - Dividends paid through Company B: $-30 \times 10\% = -3$
 - MI year N+1: 62

BALANCE SHEET

- ❖ Here are the following steps for the consolidation of the Balance Sheet:
 - Revalue to fair value the assets and liabilities of the acquired company at the acquisition date
 - Calculate goodwill and include it in the Newco balance (old balance sheet + acquired company)
 - ⇒ Goodwill = price paid for the company – fair value of the net assets x %acquired
 - Add a participation line in the long term assets
- ❖ You will obtain the Newco Balance sheet
- ❖ **The Newco balance sheet MUST BALANCE, never forget it**
- ❖ The net income that company B will distribute to Company A needs to be added to the investment value in the balance sheet

INCOME STATEMENTS

- ❖ Considered as an associate income. Must be considered as a revenue
 - Net income x % of ownership

Equity Method: 30% Acquisition – Example

Balance Sheet Impact (1/4)

- Company A has purchased of Company B through a cash deal for €160. Below you will find the BS of Company B as well as the fair value of its assets
- Calculate the NEWCO BS

	Company A BS	Company B BS	Adjustments	NEWCO BS
Cash	820	210		
Receivables	540	670		
PP&E	900	960		
Goodwill	10	0		
Participation	0	0		
Total Assets	2,270	1,840		
Payables	660	540		
Long-Term Debt	800	820		
Minority Interests	0	0		
Equity	465	50		
Retained Earnings	345	430		
Total Liabilities & Equity	2,270	1,840		

Equity Method: 30% Acquisition – Example

Balance Sheet Impact (2/4)

- Company A has purchased of Company B through a cash deal for €160. Below you will find the BS of Company B as well as the fair value of its assets

Calculate the NEWCO BS

	Company A BS	Company B BS	Adjustments	NEWCO BS
Cash	820	210	-160	660
Receivables	540	670		540
PP&E	900	960		900
Goodwill	10	0	16	26
Investment	0	0	144	144
Total Assets	2,270	1,840		2,270
Payables	660	540		660
Long-Term Debt	800	820		800
Minority Interests	0	0		0
Equity	465	50		465
Retained Earnings	345	430		345
Total Liabilities & Equity	2,270	1,840		2,270

Calculations

- Purchase price: 160
- Fair value of assets: $210+670+960=1840$
- Fair Value of Net assets: $1840-1360=480$
- Goodwill: $160-480 \times 30\% = 16$
- Investment: $480 \times 30\% = 144$

Equity Method: 30% Acquisition – Example

Income Statement Impact (3/4)

✿ Calculate the Newco Income Statement if Company A has acquired 30% of B, we assume that they are no intergroup sales

	Company A	Company B	Calculations	Newco 1
Sales	1,785	888		
Associate Income	0	0		
COGS	-982	-474		
Gross Profit	803	414		
SG&A	-393	-147		
Operating Profit	410	267		
Interests	-60	-24		
PBT	350	243		
Tax @ 33%	-116	-73		
Net Income	234	170		

Equity Method: 30% Acquisition – Example

Income Statement Impact (4/4)

- ★ Calculate the Newco Income Statement if Company A has acquired 30% of B, we assume that they are no intergroup sales

	Company A	Company B	Calculations	Newco 1
Sales	1,785	888		1,785
Associate Income	0	0	51	51
COGS	-982	-474		-982
Gross Profit	803	414		854
SG&A	-393	-147		-393
Operating Profit	410	267		461
Interest	-60	-24		-60
PBT	350	243		401
Tax @ 33%	-116	-73		-116
Net Income	234	170		285

Calculations

- ★ Minority Interests= $170 \times 30\% = 51$
- ★ Minority interests represent the part of the income that you do not own
- ★ Tax: Given that associate income is already after tax (e.g. computed based on B Net Income, Company A should not pay taxes on this amount (there is no double-taxation in general). Therefore, the Taxable Profit should exclude this amount and be equal to 350 (while the Profit Before Tax (PBT) does equal 401)

BS Impacts

- ★ IF you are paid 30 in dividends and that the associate owe you 51:
- ★ You must add 21 into your investment BS

G.

How M&A Transactions are Financed?

Illustration: Sources&Uses

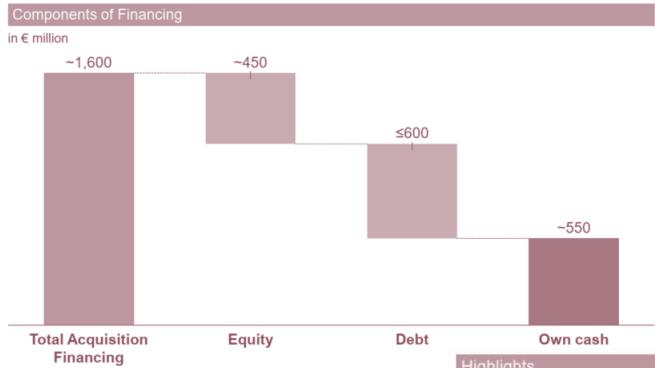
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Covestro / DSM's Resins Business

Committed to a solid investment grade rating

Balanced financing of transaction



Total uses including acquisition of shares, refinancing of Target's debt, and payment of transaction expenses

Highlights

- Full bridge financing in place for €1.6bn fully underwritten by relationship banks
- Accelerated book building of new Covestro shares equivalent to ~€450m and bond issuance of ≤€600m
- Solid combined free cash flow will support quick deleveraging
- Interest costs at very attractive conditions
- Funding mix underpins Covestro's commitment for a solid investment grade rating
- No material M&A activity during integration and deleveraging phase

Croda / Iberchem

Transaction summary

- €820m total consideration (c.£736m) on a debt-free, cash-free basis; 20.5x EV/EBITDA⁽¹⁾
- Funded via:
 - Group's existing debt facilities
 - Placing of new ordinary shares to institutional investors
 - Expected net proceeds of c.£600m
 - Conducted through accelerated bookbuild
 - Represents c.8% of Croda's issued share capital
- Structure of financing preserves Croda's financial flexibility with net debt forecast c.2x EBITDA⁽²⁾ post completion at end 2020, expected to de-lever to c.1.6x by end of 2021

Driver of funding mix is Pro-Forma leverage that the Buyer is ready to accept, combined with ratings considerations (if applicable)

Croda / Iberchem

Acquisition expected to be earnings accretive in the first full financial year following completion and strongly accretive thereafter, driven by continued strong EBITDA growth and the realisation of significant combinational synergies. The Acquisition's Return on Invested Capital (ROIC) is expected to exceed Croda's cost of capital within five years.

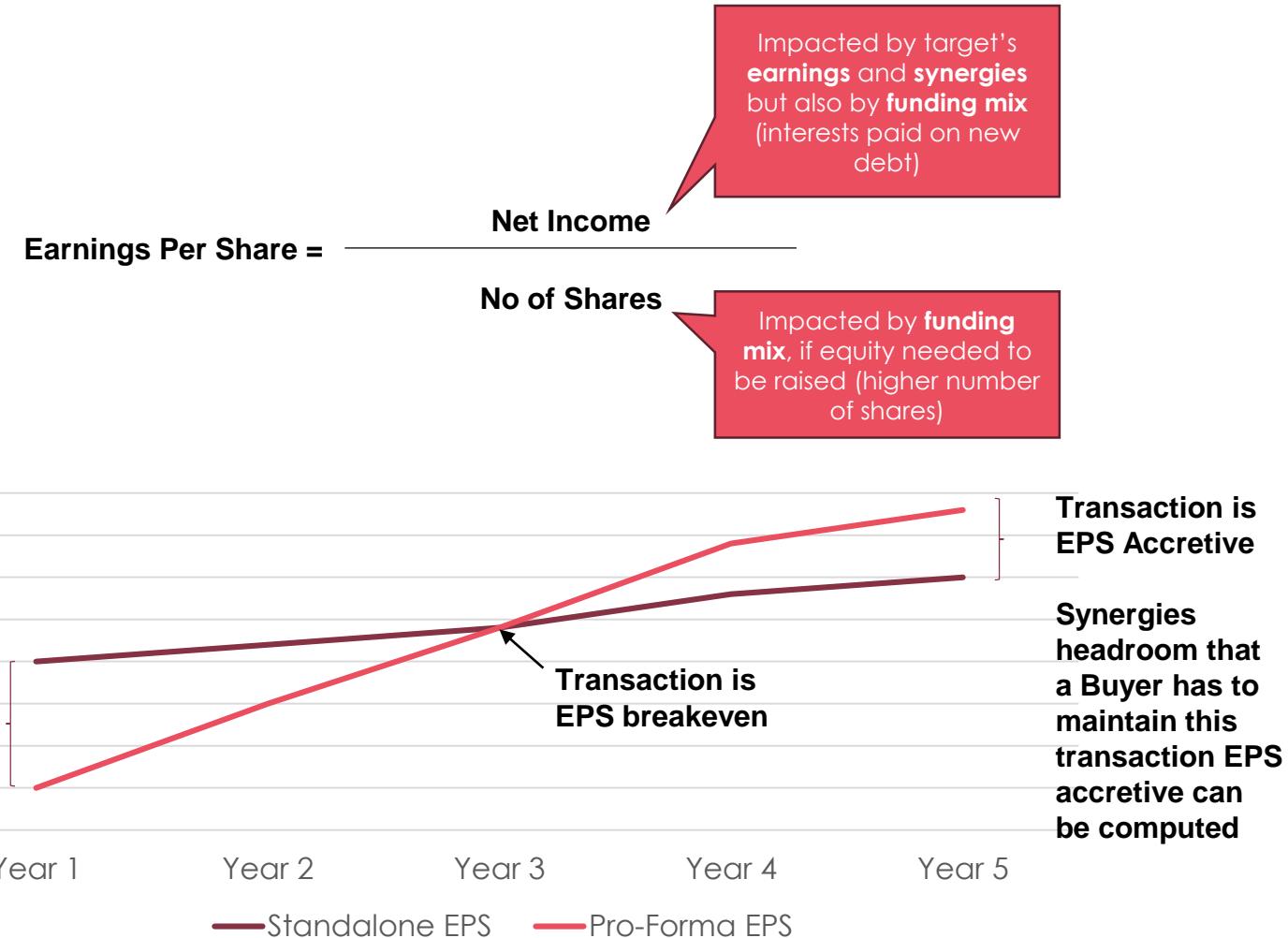
EPS

Amount of profit from recurring activities, after tax and all other charges (ie preference dividends and minorities), that is attributable to the ordinary shareholders allocated to each outstanding share of ordinary share capital;

- Can be compared between companies
- Generally considered to be the single most important variable in determining a share's price
- Used to compute the P / E multiple (Price-to-earnings multiple)
- Limitations: Capital required not captured, manipulation and adjustment requirements

Listed companies communicate on the impact on standalone EPS of transactions

Earnings Per Share: Illustration



The basic objective of a merger model¹ is to analyse whether it is worth the Bidder acquiring the Target and whether the Bidder can raise the funds to do it. Consequently, a good merger model will highlight:

- Whether the transaction will enhance or dilute earnings per share;
- Whether the Bidder will they be able to afford to pay the interest on money borrowed to do the deal;
- What mix of cash and shares is the optimum for the deal;
- How the combination is affected by synergies arising from the combination; and
- Whether the numbers are consistent.

The basis of good merger modelling lies in good accounting. Put simply, if Bidder buys Target, we need to adjust Bidder's accounts to reflect:

1. the consideration paid and transaction costs;
2. the acquired assets and liabilities of Target;
3. any goodwill arising; and
4. the impact of any results of the combined entity arising since the transaction date.

We will see each of these steps in detail later in the notes.

The up-front calculations

Merger modelling can be time-consuming and complex. Consequently, it is often worthwhile doing some quick calculations as a check:

- that a model is needed, i.e.
 1. Is it worth it?
 2. How should it be financed?
 3. Can the Bidder finance it?
- on the results which come from more detailed models

Is it worth it?

The simplest way to assess whether the transaction is attractive is to see if the deal enhances the Bidder's EPS, i.e. the shareholders of the Bidder should be better off (in EPS terms) after the transaction than before.

The Bidder's EPS can be easily found and then compared with a computed EPS for the combined entity. The combined EPS is dependent on the share prices of the Bidder and Target, bid premium, financing structure, tax rates, etc.

However, by comparing the P/E (price earnings ratio, or price/eps) of the Bidder with that of the offer for Target, it is possible to conclude as to whether the transaction is likely to be EPS accretive.

Additionally, if the P/E of the Bidder is compared with the p/e of cash, it is possible to conclude as to whether the transaction is likely to be EPS accretive if the Bidder buys out the Target's shareholders with cash.

The advantage of this simple maths is that:

- it is simple maths; and
- there is very little input data needed in order to come up with reasonable conclusions:
 - Bidder and Target price per share
 - Bidder and Target EPS
 - Bidder's cost of debt and tax rate
 - The offer premium

Illustration

	Bidder	Target
Current share price	€3.45	€56.70
Forecast EPS	€0.17	€4.81
Offer premium		30%

The P/Es of Bidder and for the offer for Target can be calculated:

P/E of Bidder ($\text{€3.45} \div \text{€0.17}$)	20.3x /
P/E of offer for Target ($(\text{€56.70} \times 1.3) \div \text{€4.81}$)	15.3x /

As the P/E of the offer for Target is less than the trading P/E of Bidder, then the deal is likely to be accretive if equity is the currency used in the deal as the Target shareholders would be accepting relatively expensive shares for their relatively cheap shares.

Another way to look at this is by concentrating on earnings yields - the Bidder shares are yielding only 4.9% ($1 \div 20.3$ or $\text{€0.17} \div \text{€3.45}$) and are being offered in exchange for shares which will yield 6.5% ($1 \div 15.3$ or $\text{€4.81} \div (\text{€56.70} \times 1.30)$). i.e. the earnings yield in the new Bidder shares being issued is greater and so EPS will be enhanced.

How should it be financed?

All share deal

If the Bidder pays in shares, the Target shareholders swap the shares that they have held in the Target for new shares issued by the Bidder, i.e. they remain shareholders, but of the combined company.

Provided the P/E of the Bidder is greater than the P/E of the offer for the Target then it is likely that the all share deal will be EPS accretive as we have seen above.

All cash deal

If the Bidder pays in cash, the Target shareholders swap their shares for cash (and disappear to the Caribbean).

In this situation the Bidder will either use up its cash reserves and/or raise new debt to pay for the deal. As a result, there will be a negative impact on the Bidder's earnings as it will either forego interest on its cash and/or suffer interest on its new debt.

Illustration (continued)

	Bidder	Target
Current share price	€3.45	€56.70
Forecast EPS	€0.17	€4.81
Offer premium		30%
Cost of new debt financing	5.50% ✓	
Corporate tax rate	35%	

PE of cash

The P/E of the offer for Target can be calculated as before:

$$\text{P/E of offer for Target } ([€56.70 \times 1.3] \div €4.81) \quad 15.3x.$$

This can be compared with the "P/E of cash" where:

$$\text{P/E of cash} = \frac{1}{i \times (1-t)}$$

i = the interest rate

t = the corporate tax rate

$$\text{P/E of cash } (1 \div [5.5\% \times (1 - 35\%)]) \quad 28.0x$$

As the P/E of cash is greater than the P/E of the offer for Target, then the deal is likely to be accretive in an all cash transaction.

This can be explained in terms of yields: For every €100 spent acquiring Target, earnings will rise by €6.53 (€100 x [1 ÷ 15.3 or €4.81 ÷ (€56.70 x 1.30)]). However, this is only going to cost Target €3.58 (€100 x [5.5% x (1 - 35%)]) in new post-tax financing costs – i.e. the positive impact on earnings is greater than the negative impact.

Additionally, we can compare which method of payment is likely to be more accretive by comparing the P/E of the Bidder with the P/E of the cash:

P/E of Bidder ($\text{€}3.45 \div \text{€}0.17$)	20.3x
P/E of cash ($1 + [5.5\% \times (1 - 35\%)]$)	28.0x

As the P/E of cash is bigger than the P/E of Bidder, then it would be better to use cash for the transaction (subject to impact on gearing etc).

In this case, using shares for the transaction is relatively expensive with shareholders expecting an earnings yield of 4.9% ($1 \div 20.3$ or $\text{€}0.17 \div \text{€}3.45$) to be maintained whilst the post-tax cost of new debt financing is only 3.6% ($5.5\% \times (1 - 35\%)$).

Breakeven interest rate

The P/E of the offer for Target (15.3x) can be turned into a yield of 6.5% ($1 \div 15.3$ or $\text{€}4.81 \div (\text{€}56.70 \times 1.30)$) which is the expected earnings return on the investment in Target.

This can be used to calculate the breakeven interest rate – i.e. the maximum interest rate which Bidder could suffer on any new borrowings and yet still maintain the same EPS for its shareholders.

As EPS is measured using post tax profits, the 6.5% earnings yield is, therefore, a post-tax measure. In order to get a pre-tax measure:

$$\begin{aligned}\text{Breakeven interest rate} &= \frac{1}{\text{Offer PE} \times (1-t)} \\ &= \frac{1}{15.3 \times (1-35\%)}\end{aligned}$$

$$\text{Breakeven interest rate} = 10.0\%$$

i.e. in an all cash deal, Bidder could borrow at rates of up to 10.0% and the transaction is still likely to be EPS accretive.

Interest rate at which Bidder is indifferent between cash or shares

The PE of Bidder can be turned into a yield of 4.9% ($1 \div 20.3$ or $\text{€}0.17 \div \text{€}3.45$) which is the earnings return expected by Bidder's shareholders.

This can be used to calculate the interest rate at which Bidder should, theoretically, be indifferent as to which form of consideration is used to pay for Target. As with the breakeven interest rate, EPS is measured from post-tax profits and so the 4.9% earnings yield is a post-tax measure. In order to get a pre-tax measure:

$$\begin{aligned}\text{Interest rate where indifferent} &= \frac{1}{\text{Bidder PE} \times (1-t)} \\ &= \frac{1}{20.3 \times (1-35\%)}\end{aligned}$$

i.e. if the interest rate is less than 7.6% on new funds borrowed then Bidder should use cash to fund the deal. If the interest rate on new borrowings is likely to be greater than 7.6% then equity is a cheaper source of finance.

In the above transaction where the interest rate is 5.5%, the Bidder should use cash for the transaction which is also borne out by the P/E of cash being bigger than the P/E of Bidder.

In summary

Rules of thumb:

P/E of Bidder > P/E of offer likely EPS accretive (if shares used)

P/E of cash > P/E of offer likely EPS accretive (if cash used)

P/E of cash > P/E of Bidder Use cash to pay

Where Target's earnings growth rate is lower than Bidder's then any accretion or dilution will worsen over time.

Note: the above excludes any costs associated with the combination, synergies, the impacts of fair value adjustments, tax losses etc.

The only information needed to do such analysis is:

- Bidder and Target price per share
- Bidder and Target EPS
- Bidder's cost of debt and tax rate
- The offer premium

- EPS Computation Illustration Excel

H.

Conclusion & Final Questions

Appendix

Additional Valuation Materials

Example: Aerospace Trading Comparables (1/3)

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(All Financials in \$m, Except per Share)

Valuation Metrics															Operating Metrics				
	Company	Enterprise Value	Equity Value	Share Price		Dividend Yield	EV as a Multiple of:		Price as a Multiple of:		CY20 - CY22E CAGR	Rev	EPS	% EBITDA Margin					
				Current 12/14/20	% 52-Week High		CY20E	CY21E	CY20E	CY21E									
Aircraft OEMs	Boeing	\$175,313	\$130,743	\$228.62	65.8%	240.6%	-	NM	25.8x	NM	33.7x	NM	21.5%	NA	(4.5%)	8.8%			
	Airbus	95,314	88,006	111.45	66.2%	187.6%	-	20.9	12.9	NM	19.6	NM	32.6	10.2%	NM	8.1%	11.7%		
	Bombardier	14,993	1,032	0.36	23.2%	162.5%	-	NM	21.1	NM	30.3	NM	(32.5%)	NM	2.1%	12.7%			
	Textron	13,643	10,787	46.74	91.8%	215.8%	0.2%	14.4	10.4	19.6	14.0	24.5	17.4	7.7%	32.0%	8.3%	10.4%		
	Embraer	3,628	1,323	1.78	44.0%	149.4%	-	NM	11.1	NM	36.8	NM	NM	28.2%	NA	(2.6%)	7.3%		
	Dassault Aviation	2,594	9,064	1,085.44	75.0%	141.9%	-	6.1	3.4	12.2	5.1	21.9	12.3	4.9%	36.5%	7.0%	9.4%		
	Median				66.0%	175.1%	0.0%	14.4x	12.0x	15.9x	24.9x	23.2x	17.4x	9.0%	34.3%	4.5%	9.9%		
Aerostructures & Subassemblies	Spirit	\$5,375	\$3,825	\$36.06	45.0%	210.1%	0.1%	NM	24.0x	NM	NM	NM	9.6%	NA	(9.6%)	5.4%			
	Triumph	2,837	751	14.10	48.9%	411.1%	-	17.6	16.3	22.0	20.2	35.0	NM	(4.5%)	36.5%	7.6%	9.5%		
	Senior	766	446	1.06	42.9%	185.7%	-	9.8	8.5	19.9	24.1	NM	NM	6.6%	NA	8.2%	9.6%		
	Melgar Aerospace	443	419	7.24	62.2%	183.2%	4.5%	5.0	5.6	NA	NA	14.0	15.7	5.6%	0.0%	15.4%	12.7%		
	Latecoere	429	265	2.76	59.1%	218.0%	-	NM	38.4	NM	NM	NM	12.8%	NA	(5.8%)	1.8%			
	CPI Aerostructures	72	41	3.44	49.7%	251.1%	-	NM	20.7	NM	NM	NM	26.5	8.6%	NA	(1.0%)	3.5%		
	Median				49.3%	214.1%	0.0%	9.8x	18.5x	21.0x	22.1x	24.5x	21.1x	7.6%	18.3%	3.3%	7.4%		
Aeroengines	Safran	\$61,071	\$58,090	\$144.44	79.4%	224.5%	-	18.7x	15.0x	26.4x	20.8x	NM	30.8x	14.2%	48.9%	17.1%	18.7%		
	Rolls-Royce	17,975	3,009	1.57	49.1%	304.6%	-	NM	11.1	NM	19.3	NM	NM	8.5%	NA	(6.6%)	10.2%		
	MTU Aeroengines	15,161	14,093	249.41	71.9%	193.4%	0.0%	20.8	17.3	32.1	26.6	38.5	31.5	11.2%	24.0%	14.7%	15.4%		
	Median				71.9%	224.5%	0.0%	19.8x	15.0x	29.3x	20.8x	38.5x	31.1x	11.2%	36.5%	14.7%	15.4%		
	Howmet Aerospace	\$17,943	\$11,820	\$26.81	78.7%	253.2%	-	17.0x	15.2x	19.9x	18.1x	36.2x	29.8x	2.8%	21.6%	20.2%	21.8%		
	Hexcel	5,123	4,205	49.89	62.4%	186.5%	-	25.3	22.8	35.2	32.2	NM	NM	4.2%	NM	13.5%	15.6%		
	RBC Bearings	4,369	4,514	175.98	96.7%	215.2%	-	27.3	27.2	31.5	31.0	43.5	43.1	0.5%	0.8%	25.2%	25.2%		
Engineered Components & Materials	Allegheny Technologies	3,731	2,386	16.30	73.1%	311.7%	-	18.5	18.2	NM	NM	NM	NM	(1.0%)	NA	6.9%	7.7%		
	LISI Group	1,633	1,343	25.37	65.0%	159.4%	-	8.5	7.4	17.1	15.3	NM	28.1	7.2%	NM	12.9%	13.8%		
	Median				73.1%	215.2%	0.0%	18.5x	18.2x	25.7x	24.6x	39.9x	29.8x	2.8%	11.2%	13.5%	15.6%		
	Honeywell	\$158,702	\$151,249	\$211.85	98.7%	204.0%	1.7%	20.7x	18.8x	23.5x	21.0x	30.1x	26.9x	6.4%	11.6%	23.8%	24.8%		
	Raytheon	143,640	107,525	70.80	45.1%	141.8%	2.6%	15.8	14.1	20.0	18.5	22.9	20.3	6.2%	23.1%	14.2%	15.2%		
	Eaton	55,636	45,818	113.84	92.4%	197.1%	2.5%	18.5	17.2	21.3	20.2	27.4	23.2	2.9%	17.5%	16.6%	17.5%		
	TransDigm	50,605	34,219	595.82	90.6%	242.4%	-	21.6	21.5	22.6	22.5	43.4	46.3	4.8%	14.7%	44.8%	46.0%		
Aerospace Parts & Suppliers	Parker Hannifin	44,559	35,889	270.09	96.5%	276.8%	1.3%	15.7	14.7	17.1	15.9	23.5	20.5	5.3%	13.3%	19.4%	20.1%		
	Woodward	8,073	7,335	116.81	91.4%	232.5%	0.3%	18.2	18.0	20.5	20.6	30.6	32.3	(1.1%)	(5.2%)	17.9%	18.3%		
	Meggitt	6,264	4,689	5.93	64.4%	207.0%	-	18.7	15.4	39.1	26.2	27.8	20.2	6.2%	32.7%	14.3%	16.6%		
	Curtiss-Wright	5,864	4,731	113.16	75.8%	147.9%	0.6%	11.3	10.3	12.3	11.5	16.6	15.1	4.9%	10.4%	20.9%	21.8%		
	Moog	3,343	2,350	79.45	83.2%	227.0%	1.2%	19.1	10.6	39.2	15.0	NM	17.7	(1.3%)	NM	6.1%	11.2%		
	Barnes	3,240	2,533	49.47	73.9%	151.5%	1.3%	14.3	13.2	17.4	16.5	30.9	25.9	8.4%	24.1%	20.2%	20.8%		
	Ducommun	916	635	52.12	91.5%	313.8%	-	10.5	9.9	12.2	11.7	20.9	18.5	5.0%	15.2%	13.9%	14.2%		
MRO / Distribution	Heroux-Devtek	581	405	10.90	64.9%	155.2%	-	8.6	8.7	10.6	10.9	19.4	19.2	2.3%	10.4%	15.2%	15.2%		
	Astronics	523	359	11.64	39.8%	181.9%	-	16.7	13.8	21.9	18.7	NM	NM	8.5%	NA	6.3%	7.5%		
	Median				83.2%	204.0%	0.6%	16.7x	14.1x	20.5x	18.5x	27.4x	20.4x	5.0%	14.7%	16.6%	17.5%		
	TransDigm	\$50,605	\$34,219	\$595.82	90.6%	242.4%	-	21.6x	21.5x	22.6x	22.5x	43.4x	46.3x	4.8%	14.7%	44.8%	46.0%		
	HEICO	17,746	17,368	132.33	97.7%	214.6%	0.1%	38.2	34.8	NM	37.0	NM	NM	8.2%	7.6%	25.9%	26.6%		
MRO / Distribution	Meggitt	6,264	4,689	5.93	64.4%	207.0%	-	18.7	15.4	39.1	26.2	27.8	20.2	6.2%	32.7%	14.3%	16.6%		
	AAR Corporation	1,443	1,207	33.76	65.1%	357.6%	0.9%	12.5	12.0	14.8	14.3	23.3	22.5	(0.7%)	3.5%	6.2%	6.5%		
	Median				77.8%	228.5%	0.1%	20.1x	18.5x	22.6x	24.3x	27.8x	22.5x	5.5%	11.1%	20.1%	21.6%		

Note: Market Data as of 11th December 2020
Source: Company Filings, Broker Reports, FactSet

Example: Aerospace Trading Comparables (2/3)

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(All Financials in \$m, Except per Share)

	Company	CY20 - CY22E CAGR				% EBITDA Margin			CapEx % of Sales			FCF Yield			FCF % EBITDA		
		Rev	EBITDA	EBIT	EPS	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E
Aircraft OEMs	Boeing	21.5%	NA	NA	NA	(4.5%)	8.8%	11.3%	2.4%	2.1%	2.0%	NM	4.0%	6.1%	152.8%	76.5%	82.2%
	Airbus	10.2%	45.7%	NM	NM	8.1%	11.7%	14.2%	4.1%	4.0%	4.2%	2.6%	5.5%	7.8%	49.7%	66.0%	70.5%
	Bombardier	(32.5%)	NM	NA	NM	2.1%	12.7%	14.3%	2.3%	3.8%	3.9%	NM	48.0%	62.4%	NM	69.8%	72.8%
	Textron	7.7%	24.9%	35.3%	32.0%	8.3%	10.4%	11.1%	2.2%	2.7%	2.6%	6.5%	9.0%	10.5%	73.4%	74.2%	76.3%
	Embraer	28.2%	NA	NA	NA	(2.6%)	7.3%	8.5%	5.1%	5.1%	5.2%	NM	7.5%	14.9%	NM	30.2%	39.7%
	Dassault Aviation	4.9%	28.9%	34.8%	36.5%	7.0%	9.4%	10.5%	3.5%	3.1%	2.8%	2.4%	5.6%	5.7%	50.2%	66.9%	73.1%
Aerostructures & Subassemblies	Median	9.0%	28.9%	35.0%	34.3%	4.5%	9.9%	11.2%	2.9%	3.5%	3.4%	2.6%	6.5%	9.1%	61.8%	68.4%	73.0%
	Spirit	9.6%	NA	NA	NA	(9.6%)	5.4%	10.3%	2.8%	3.1%	2.7%	NM	2.5%	10.1%	129.3%	41.9%	73.3%
	Triumph	(4.5%)	24.7%	NA	36.5%	7.6%	9.5%	13.0%	1.5%	1.8%	1.8%	17.1%	18.7%	28.7%	79.8%	80.6%	86.0%
	Senior	6.6%	18.9%	NM	NA	8.2%	9.6%	10.2%	4.1%	6.2%	6.7%	8.6%	7.1%	8.5%	49.2%	35.4%	34.2%
	Magellan Aerospace	5.6%	(3.9%)	(6.6%)	0.0%	15.4%	12.7%	12.8%	NA	NA	NA	NA	NA	NA	NA	NA	NA
	Latecoere	12.8%	NA	NA	NA	(5.8%)	1.8%	6.6%	4.6%	3.5%	3.3%	NM	NM	8.3%	179.5%	NM	50.1%
Aeroengines	CPI Aerostructures	8.6%	NA	NA	NA	(1.0%)	3.5%	5.0%	6.8%	4.0%	NA	NM	NM	NA	NM	NM	NA
	Median	7.6%	18.9%	(6.6%)	18.3%	3.3%	7.4%	10.2%	4.1%	3.5%	3.0%	12.9%	7.1%	9.3%	104.5%	41.9%	61.7%
	Safran	14.2%	23.9%	38.3%	48.9%	17.1%	18.7%	20.1%	5.0%	5.2%	5.4%	4.0%	5.1%	6.3%	70.6%	72.2%	73.0%
	Rolls-Royce	8.5%	NA	NA	NA	(6.6%)	10.2%	14.0%	5.5%	4.3%	3.9%	NM	31.0%	57.7%	182.3%	57.6%	72.4%
	MTU Aeroengines	11.2%	20.0%	22.9%	24.0%	14.7%	15.4%	17.2%	5.2%	5.4%	5.6%	3.3%	4.0%	5.0%	64.9%	64.9%	67.1%
	Median	11.2%	21.9%	30.6%	36.5%	14.7%	15.4%	17.2%	5.2%	5.2%	5.4%	3.7%	5.1%	6.3%	70.6%	64.9%	72.4%
Engineered Components & Materials	Howmet Aerospace	8.5%	14.0%	18.8%	31.0%	20.2%	21.8%	22.3%	3.0%	3.5%	3.3%	7.6%	8.4%	9.9%	85.1%	83.9%	85.3%
	Hexcel	4.2%	28.6%	NM	NM	13.5%	15.6%	20.5%	3.8%	4.5%	4.6%	3.5%	3.8%	6.2%	71.9%	71.0%	77.6%
	RBC Bearings	3.6%	7.0%	8.7%	7.3%	25.2%	25.2%	26.9%	3.4%	3.1%	NA	3.1%	3.1%	NA	86.7%	87.7%	NA
	Allegheny Technologies	(1.0%)	32.8%	NM	NA	6.9%	7.7%	12.3%	4.4%	6.0%	5.2%	3.0%	1.9%	8.6%	35.4%	22.0%	57.7%
	LISI Group	7.2%	20.5%	NM	NM	12.9%	13.8%	16.3%	6.5%	7.2%	7.2%	7.1%	7.9%	11.6%	49.7%	48.1%	55.8%
	Median	4.2%	20.5%	13.7%	19.2%	13.5%	15.6%	20.5%	3.8%	4.5%	4.9%	3.5%	3.8%	9.3%	71.9%	71.0%	67.7%
Aerospace Parts & Suppliers	Honeywell	6.4%	9.3%	9.7%	11.6%	23.8%	24.8%	25.1%	2.8%	2.6%	2.5%	4.5%	5.0%	5.5%	88.2%	89.4%	90.2%
	Raytheon	6.2%	18.4%	25.3%	23.1%	14.2%	15.2%	17.7%	3.0%	3.6%	3.2%	6.7%	7.2%	9.7%	79.0%	76.1%	81.6%
	Eaton	2.9%	9.3%	15.1%	17.5%	16.6%	17.5%	18.8%	2.2%	2.6%	2.5%	5.7%	6.0%	6.8%	86.7%	84.9%	86.4%
	TransDigm	4.8%	8.5%	NA	14.7%	44.8%	46.0%	48.1%	2.0%	2.1%	1.9%	6.5%	6.6%	7.7%	95.5%	95.5%	96.0%
	Parker Hannifin	5.3%	8.7%	9.7%	13.3%	19.4%	20.1%	20.7%	1.6%	1.5%	1.5%	7.3%	7.8%	8.6%	92.0%	92.5%	92.5%
	Woodward	3.2%	8.9%	11.4%	8.6%	17.9%	18.3%	20.0%	1.9%	2.3%	3.0%	5.4%	5.3%	6.1%	89.2%	87.4%	85.1%
	Meggitt	6.2%	29.5%	48.4%	32.7%	14.3%	16.6%	21.3%	7.5%	6.8%	6.5%	3.4%	5.1%	8.3%	47.8%	58.8%	69.7%
	Curtiss-Wright	4.9%	6.9%	7.6%	10.4%	20.9%	21.8%	21.7%	1.8%	2.2%	2.2%	10.1%	10.8%	11.3%	91.3%	89.9%	89.7%
	Moog	NA	NA	NA	NA	6.1%	11.2%	NA	3.1%	3.3%	NA	3.6%	9.5%	NA	48.7%	70.2%	NA
	Barnes	8.4%	12.8%	16.2%	24.1%	20.2%	20.8%	21.9%	3.6%	4.1%	4.0%	7.3%	7.8%	9.3%	82.3%	80.4%	81.9%
	Ducommun	5.0%	6.2%	10.0%	15.2%	13.9%	14.2%	14.2%	1.9%	2.1%	2.4%	11.8%	12.3%	12.9%	86.0%	84.8%	83.1%
MRO / Distribution	Heroux-Devtek	2.3%	3.3%	7.8%	10.4%	15.2%	15.2%	15.5%	2.9%	3.0%	3.2%	13.5%	13.2%	14.1%	80.6%	80.3%	79.1%
	Astronics	8.5%	41.7%	NA	NA	6.3%	7.5%	10.7%	1.5%	2.0%	2.0%	6.6%	7.8%	14.2%	75.9%	73.7%	81.0%
	Median	5.2%	9.1%	10.7%	14.7%	16.6%	17.5%	20.3%	2.2%	2.6%	2.5%	6.6%	7.8%	9.0%	86.0%	84.8%	84.1%
	TransDigm	4.8%	8.5%	NA	14.7%	44.8%	46.0%	48.1%	2.0%	2.1%	1.9%	6.5%	6.6%	7.7%	95.5%	95.5%	96.0%
	HEICO	8.2%	11.2%	13.0%	7.6%	25.9%	26.6%	27.4%	1.5%	1.6%	NA	2.5%	2.8%	NA	94.3%	94.0%	NA
MRO / Distribution	Meggitt	6.2%	29.5%	48.4%	32.7%	14.3%	16.6%	21.3%	7.5%	6.8%	6.5%	3.4%	5.1%	8.3%	47.8%	58.8%	69.7%
	AAR Corporation	NA	NA	NA	NA	6.2%	6.5%	NA	1.0%	1.0%	NA	8.1%	8.4%	NA	84.3%	84.5%	NA
	Median	6.2%	11.2%	30.7%	14.7%	20.1%	21.6%	27.4%	1.7%	1.8%	4.2%	5.0%	5.8%	8.0%	89.3%	89.2%	82.8%

Note: Market Data as of 11th December 2020
Source: Company Filings, Broker Reports, FactSet

Example: Aerospace Trading Comparables (3/3)

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(All Financials in \$m, Except per Share)

	Company	Debt	Cash	Pension		Revenue			EBITDA			EPS			FCF			Year Ago	52-Week Price	
				& OPEB	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E	CY20E	CY21E	CY22E	Price	High	Low	
Aircraft OEMs	Boeing	\$61,095	\$31,279	\$15,538	\$58,608	\$77,151	\$86,496	(\$2,631)	\$6,804	\$9,770	(\$8.76)	\$1.85	\$6.48	(\$4,019)	\$5,204	\$8,030	\$341.67	\$347.45	\$95.01	
	Airbus	22,202	15,232	2,114	56,442	63,314	68,536	4,571	7,379	9,709	0.85	3.41	5.31	2,270	4,867	6,846	152.43	168.29	59.41	
	Bombardier	10,040	1,160	2,276	13,545	5,600	6,163	283	710	884	(0.53)	(0.19)	(0.09)	(35)	495	644	1.50	1.53	0.22	
	Textron	4,724	2,670	802	11,454	12,623	13,293	949	1,309	1,480	1.91	2.68	3.33	697	972	1,129	43.45	50.93	21.66	
	Embraer	4,549	2,356	21	3,542	4,480	5,826	(92)	326	498	(0.99)	(0.17)	0.04	(274)	99	198	3.76	4.05	1.19	
	Dassault Aviation	390	4,925	110	6,108	8,056	6,724	425	759	707	49.64	88.37	92.48	213	508	517	1,346.35	1,448.06	765.19	
	Median																\$97.94	\$109.61	\$40.53	
Aerostructures & Subassemblies	Spirit	\$2,995	\$1,441	\$-	\$4,256	\$4,136	\$5,108	(\$410)	\$224	\$525	(\$5.30)	(\$2.10)	\$0.50	(\$530)	\$94	\$385	\$80.14	\$80.14	\$17.16	
	Triumph	2,022	440	505	2,122	1,841	1,935	161	174	251	0.40	0.17	0.75	129	141	216	28.82	28.82	3.43	
	Senior	426	102	-	958	933	1,087	78	90	110	(0.03)	(0.01)	0.04	38	32	38	2.40	2.46	0.57	
	Magellan Aerospace	85	71	7	571	615	637	88	78	81	0.52	0.46	0.52	NA	NA	NA	11.47	11.65	3.95	
	Latecoere	204	55	15	521	612	662	(30)	11	44	(0.92)	(0.18)	0.08	(54)	(10)	22	4.67	4.67	1.27	
	CPI Aerostructures	38	7	-	89	99	105	(1)	4	5	(0.22)	0.13	0.24	(7)	(1)	NA	6.90	6.92	1.37	
	Median																\$9.18	\$9.29	\$2.40	
Aeroengines	Safran	\$9,669	\$5,295	\$813	\$19,137	\$21,744	\$24,943	\$3,272	\$4,069	\$5,026	\$2.89	\$4.69	\$6.40	\$2,310	\$2,938	\$3,669	\$175.26	\$181.92	\$64.34	
	Rolls-Royce	19,643	5,600	1,447	14,511	15,827	17,073	(963)	1,618	2,397	(0.58)	0.00	0.05	(1,755)	932	1,735	3.11	3.20	0.52	
	MTU Aeroengines	1,636	1,016	1,003	4,934	5,710	6,101	727	878	1,046	6.48	7.93	9.96	472	570	703	299.42	347.12	128.94	
	Median																\$175.26	\$181.92	\$64.34	
	Howmet Aerospace	\$5,081	\$1,365	\$2,407	\$5,249	\$5,397	\$6,181	\$1,058	\$1,179	\$1,376	\$0.74	\$0.90	\$1.27	\$900	\$989	\$1,174	\$31.65	\$34.07	\$10.59	
	Hexcel	999	68	33	1,505	1,440	1,633	203	224	335	0.23	0.50	1.34	146	159	260	77.32	79.89	26.75	
	RBC Bearings	20	166	1	635	639	682	160	161	184	4.05	4.08	4.66	139	141	-	170.28	181.97	81.77	
Engineered Components & Materials	Allegheny Technologies	1,250	572	551	2,936	2,670	2,879	201	205	355	(0.56)	(0.57)	0.64	71	45	205	22.29	22.29	5.23	
	LiSI Group	594	307	-	1,489	1,602	1,712	193	222	280	0.50	0.90	1.65	96	107	156	38.20	39.05	15.91	
	Median																\$38.20	\$39.05	\$15.91	
	Honeywell	\$22,222	\$15,008	\$-	\$32,154	\$34,083	\$36,428	\$7,657	\$8,455	\$9,155	\$7.03	\$7.89	\$8.75	\$6,757	\$7,555	\$8,255	\$176.98	\$214.63	\$103.86	
	Raytheon	32,781	10,001	11,604	63,884	67,131	72,067	9,077	10,201	12,731	3.09	3.48	4.67	7,171	7,766	10,394	149.07	156.83	49.93	
	Eaton	9,121	763	1,417	18,117	18,519	19,196	3,014	3,242	3,604	4.16	4.90	5.74	2,614	2,752	3,116	93.60	123.25	57.77	
	TransDigm	20,066	3,752	68	5,236	5,117	5,748	2,346	2,352	2,763	13.74	12.88	18.08	2,241	2,245	2,651	575.81	657.93	245.79	
Aerospace Parts & Suppliers	Parker Hannifin	7,942	776	1,488	14,615	15,123	16,205	2,836	3,039	3,348	11.52	13.16	14.79	2,609	2,811	3,098	206.49	279.86	97.56	
	Woodward	838	153	52	2,470	2,442	2,629	443	448	525	3.82	3.62	4.50	395	391	447	124.48	127.84	50.24	
	Meggitt	1,634	314	287	2,341	2,453	2,640	335	407	562	0.21	0.29	0.38	160	239	391	8.68	9.21	2.87	
	Curtiss-Wright	1,059	27	102	2,491	2,610	2,740	521	568	595	6.81	7.51	8.30	476	511	534	143.40	149.25	76.52	
	Moog	944	85	134	2,860	2,823	-	175	317	-	1.28	4.50	-	85	222	NA	90.25	95.50	35.00	
	Barnes	818	177	67	1,120	1,179	1,315	226	245	288	1.60	1.91	2.47	186	197	236	62.31	66.92	32.66	
	Ducommun	347	75	8	629	652	694	87	92	99	2.49	2.81	3.31	75	78	82	51.67	56.95	16.61	
MRO / Distribution	Heroux-Devtek	231	62	6	446	438	466	68	66	72	0.56	0.57	0.68	55	53	57	13.99	16.80	7.02	
	Astronics	172	30	22	502	505	591	31	38	63	(3.23)	(0.13)	0.67	24	28	51	29.26	29.26	6.40	
	Median																\$93.60	\$123.25	\$49.93	
	TransDigm	\$20,066	\$3,752	\$68	\$5,236	\$5,117	\$5,748	\$2,346	\$2,352	\$2,763	\$13.74	\$12.88	\$18.08	\$2,241	\$2,245	\$2,651	\$575.81	\$657.93	\$245.79	
	HEICO	740	395	2	1,791	1,917	2,096	464	509	574	2.24	2.28	2.59	438	479	NA	126.18	135.47	61.66	
	Meggitt	1,634	314	287	2,341	2,453	2,640	335	407	562	0.21	0.29	0.38	160	239	391	8.68	9.21	2.87	
	AAR Corporation	323	108	21	1,866	1,852	-	116	120	-	1.45	1.50	-	98	101	NA	44.62	51.88	9.44	
	Median																\$85.40	\$93.68	\$35.55	

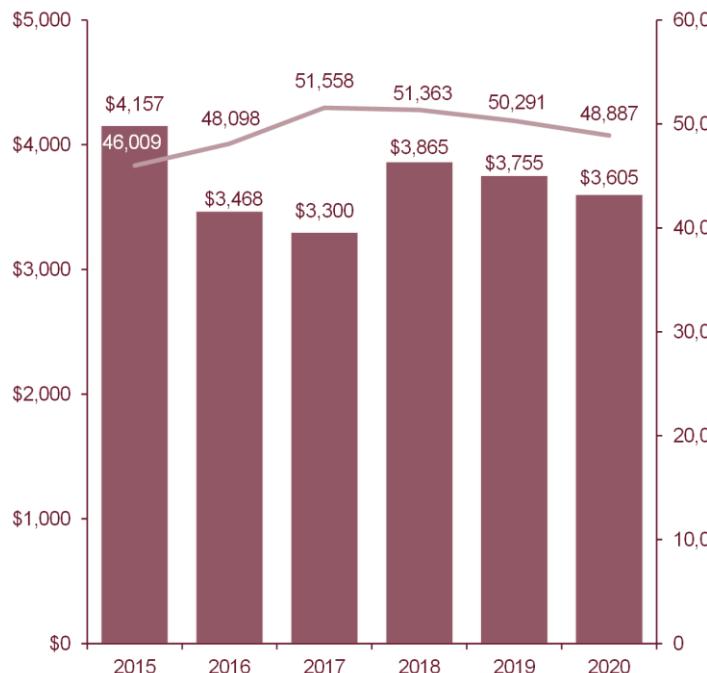
Note: Market Data as of 11th December 2020
Source: Company Filings, Broker Reports, FactSet

Appendix

2020 M&A Activity

(\$ in billions)

Global M&A



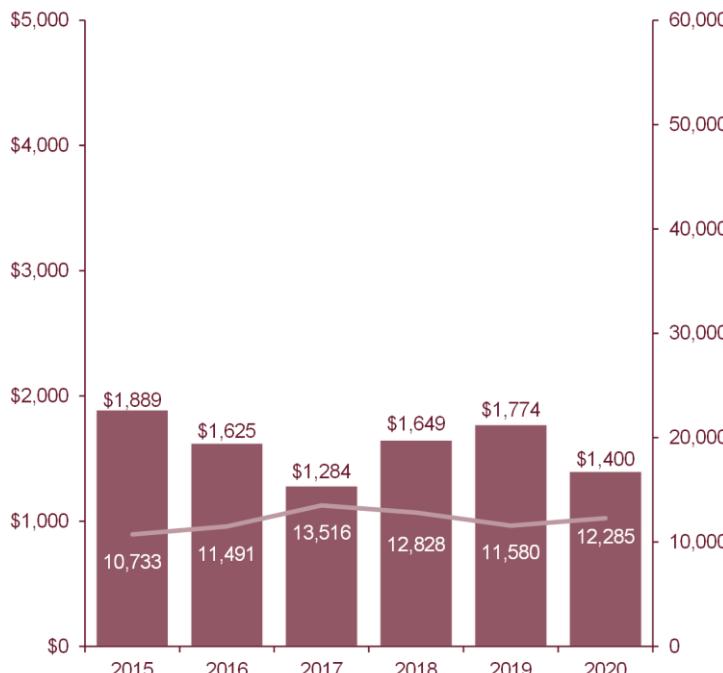
% Growth	\$	(17%)	(5%)	+17%	(3%)	(4%)
#		+5%	+7%	(0%)	(2%)	(3%)

■ Volume ■ Number of Deals

Source: Refinitiv as of 12/31/2020

Note: Total deal value includes Government and Agencies sector

US M&A



% Growth	\$	(14%)	(21%)	+28%	+8%	(21%)
#		+7%	+18%	(5%)	(10%)	+6%

■ Volume ■ Number of Deals

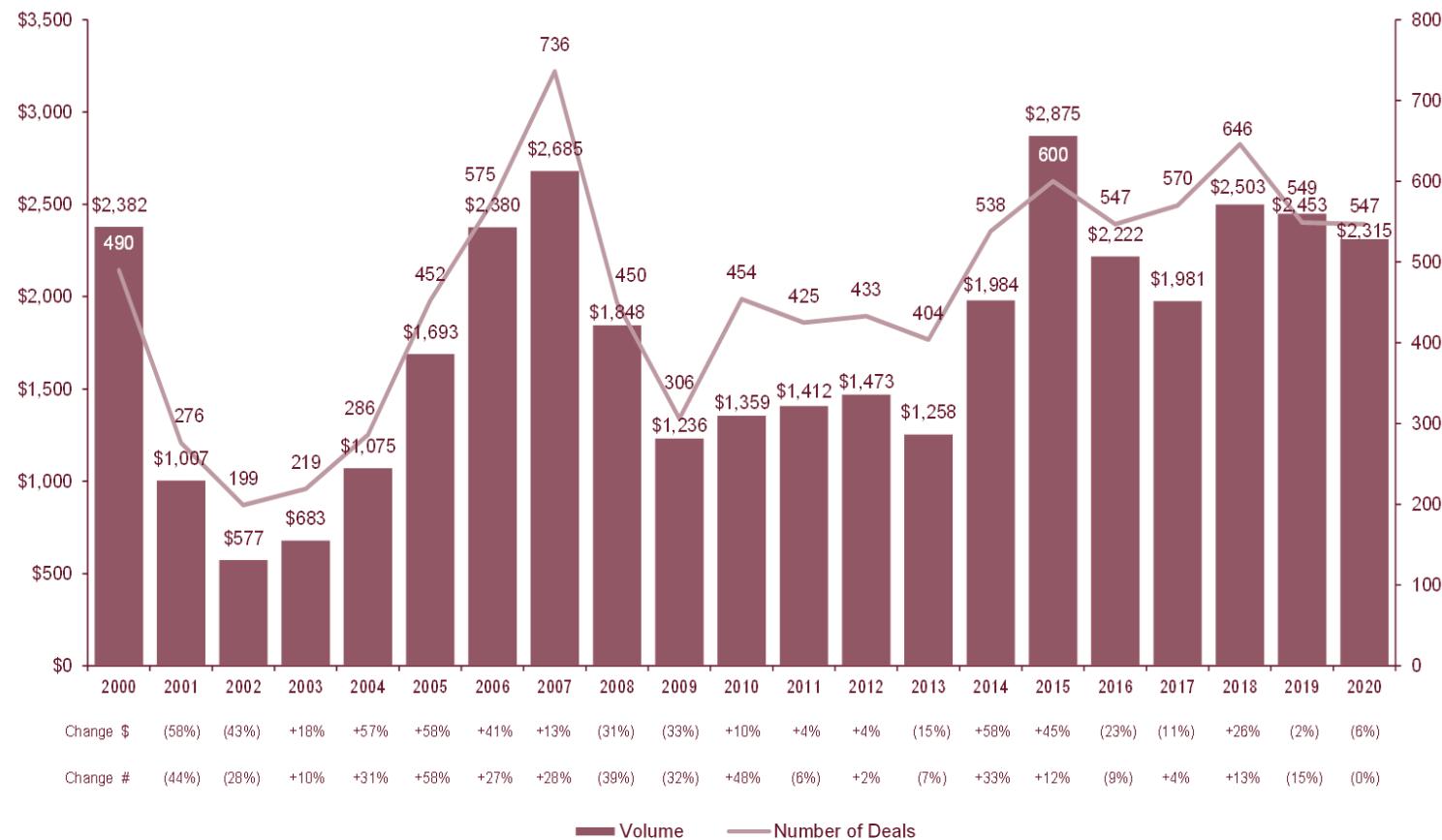
Global M&A: Dollar volume and number of transactions > \$1 billion

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(\$ in billions)

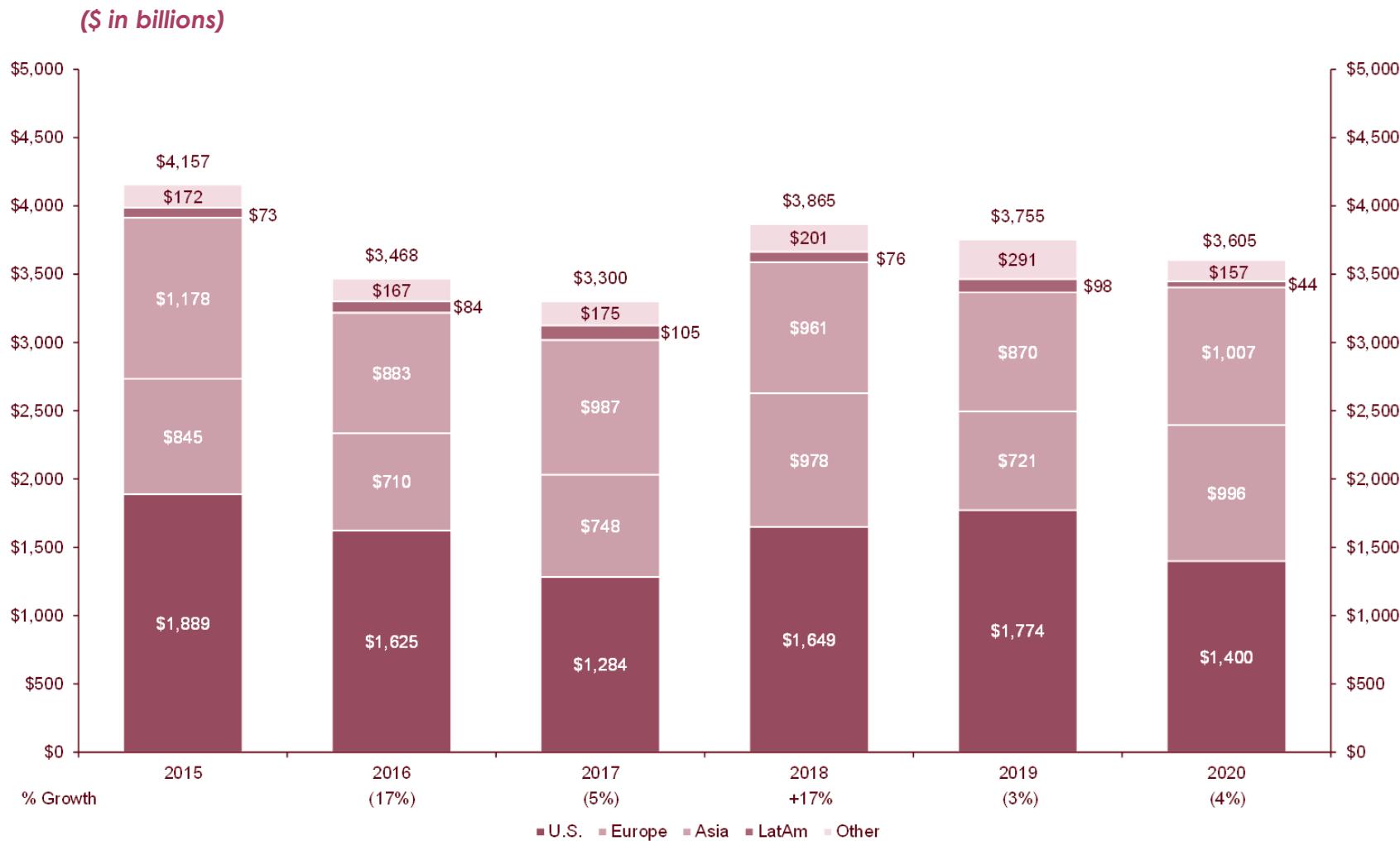
Global M&A Transactions > \$1 Billion – Past 20 Years



Source: Refinitiv as of 12/31/2020

Global M&A activity

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Source: Refinitiv as of 12/31/2020

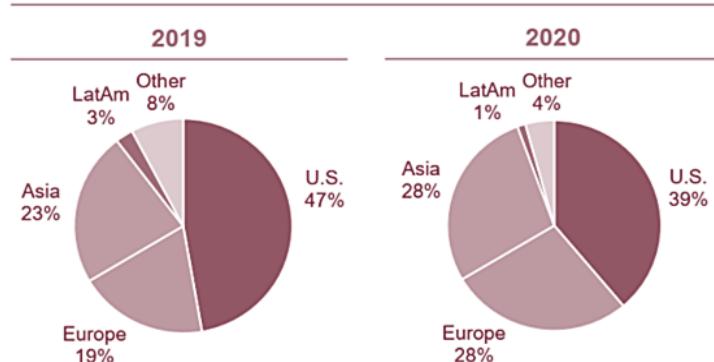
Highlight of US announced deals

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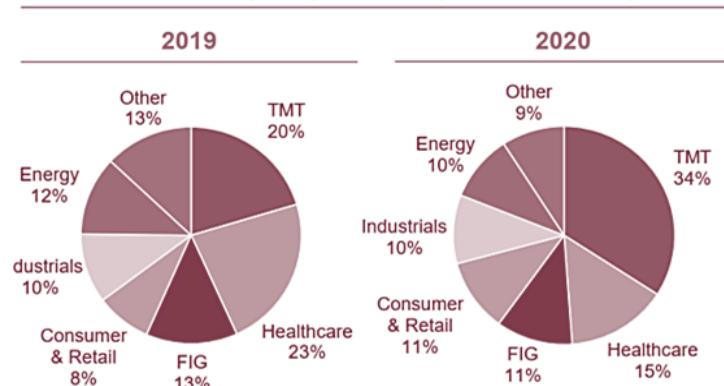


(\$ in millions; US highlighted in blue)

Global M&A by Target Region (% of Deal Value)



U.S. M&A by Target Sector (% of Deal Value)



Top 10 Largest Global M&A Deals of 2020¹

Rank	Target	Acquirer	Deal Value (\$bn)	% Stock
1	IHS Markit	S&P Global	\$44	100%
2	arm	NVIDIA	\$39	56%
3	ALEXION	AstraZeneca	\$39	66%
4	XILINX	AMD	\$34	100%
5	Willis Towers Watson	AON	\$30	100%
6	slack	salesforce	\$26	42%
7	MARATHON	SEVEN HOLDINGS	\$21	-
8	maxim integrated	ANALOG DEVICES	\$20	100%
9	Immunomedics	GILEAD	\$20	-
10	thyssenkrupp Elevators	Advent International Cinven RAG STIFTUNG	\$19	-

8 of the 10 largest global M&A deals were announced in 2H 2020

Source: FactSet, SDC Database

Note: Charts include all announced deals as of 12/31/20

1. Excludes transactions where the acquirer purchased a remaining stake in the target and state-owned China Oil & Gas Pipeline Network's acquisition of PetroChina for an estimated ~\$38.4bn