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CREATING VALUE

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CREATING VALUE: HOW DO COMPANIES GET MORE THAN THEY PAID FOR IN M&A DEALS

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To my girlfriend Giovanna,
for bearing all those weekends stuck at home,
and to my mother Magda and my father Roberto,
for all the support, financial and moral,
without which this wouldn't be possible

Executive Summary

Mergers and Acquisitions (M&A) are incredibly complex operations where two different legal entities become one. It is one of the most important corporate events on stakeholders' careers, due to their high stakes and complexity, are immensely time-consuming, and is one of the subjects most affected by the theory-practice gap that bothers corporate managers and academia in modern days. Therefore, this work aims to serve as a practical guide to bridge knowledge in business and academia. It relied on heavy and extensive research on the conventional literature in modern finance and behavioural economics and past deals' documentation. Additionally, real examples were used whenever possible to provide a more relatable feeling in the reader and facilitate conceptual understanding. The work is divided into three main 'theoretical' chapters and a case study: The first chapter approaches the rationale behind an M&A and shows several explanations as to why companies would engage in such activity; the second chapter dives into the intrinsically complicated mechanics of M&A deals and how some of the acquirer's choices can influence the target's perceptions of value regardless of the price paid; the third chapter presents the two main valuation theories in detail. Finally, a case study analysis of the acquisition of Whole Foods by Amazon is conducted. The choice for this particular operation comes from its somewhat revolutionary impact on the groceries market and its high expectations. While the hype was later proven excessive, the deal could still be regarded as Amazon's successful first step towards a greater grocery integration.

Keywords: Mergers&Acquisitions, Valuation, Synergies, Corporate Finance, Banking.

List of abbreviations

A/P	Accounts Payable
A/R	Accounts Receivable
CAGR	Compounded Annual Growth Rate
Capex	Capital Expenditures
CAPM	Capital Asset Pricing Model
CIM	Confidential Information Memorandum
COGS	Cost of Goods Sold
DCF	Discounted Cash Flow
DCM	Debt Capital Markets
D&A	Depreciation and Amortisation
DIO	Days Inventory Outstanding
DPO	Days Payable Outstanding
DSCR	Debt-Service Coverage Ratio
DSO	Days Sales Outstanding
DTL	Deferred Tax Liability
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation
EMH	Efficient-Market Hypothesis
EMM	Exit Multiple Method
EPS	Earnings per Share
ESG	Environmental, Social and Governance
EV	Enterprise Value
FCF	Free Cash Flow
FTC	Federal Trade Commission
FPSB	First-Price Sealed-Bid
HHI	Herfindahl-Hirschman Index
LBO	Leveraged Buyout
LIBOR	London Interbank Offered Rate
LTM	Last Twelve Months
MD&A	Management Discussion and Analysis
M&A	Mergers and Acquisitions
MOE	Merger of Equals
NDA	Non-Disclosure Agreement
NOLs	Net Operating Losses
NOPAT	Net Operating Profits After Taxes
NPV	Net Present Value
NWC	Net Working Capital
PGM	Perpetuity Growth Method
PMI	Postmerger Integration

P/E	Price-to-Earnings
P/B	Price-to-Book
PP&E	Property, Plant & Equipment
R&D	Research and Development
ROE	Return on Equity
ROIC	Return on Invested Capital
SEC	Securities and Exchange Commission
SEO	Seasoned Equity Offering
SPACs	Special Purpose Acquisition Companies
SG&A	Selling, General and Administrative Expenses
TSM	Treasury Stock Method
WACC	Weighted Average Cost of Capital

List of symbols

A/P	Accounts payable
A/R	Accounts receivable
$Capex$	Capital expenditures
T_c	Corporate tax rate
r_d	Cost of debt
r_e	Cost of equity
$C(q_1, q_2)$	Cost function of producing two products together
$COGS$	Cost of goods sold
$Cov(x, y)$	Covariance between *x* and *y*
DIO	Days inventory outstanding
DPO	Days payable outstanding
DSO	Days sales outstanding
D	Debt
$D\ \&\ A$	Depreciation and amortisation
E	Equity
$EBITDA$	Earnings before interest, taxes, depreciation and amortisation
EV	Enterprise value
FCF_t	Free cash flow at time *t*
g	Perpetuity growth rate
β_L	Leveraged beta
r_m	Market portfolio return
NcI	Noncontrolling interest
$NOPAT$	Net operating profits after taxes
NWC_n	Net working capital at the period *n*
ΔNWC	Net working capital increase (decrease)
PS	Preferred stock
ROE	Return on equity
$ROIC$	Return on invested capital
r_f	Risk-free rate
$SG\ \&\ A$	Selling, general, and administrative expenses
SP	Size premium
TV	Terminal value
t	Time
β_U	Unlevered beta
V	Value
σ_x^2	Variance of *x*
r_{wacc}	Weighted average cost of capital

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Introduction

Mergers and Acquisitions (M&A) are incredibly complex operations where two different legal entities become one. As stated in their name, M&A can occur through the target's acquisition or by combining both companies' assets, with their shareholders becoming owners of the NewCo. M&A doesn't necessarily require the companies to be publicly traded, nor the target to cease to exist after the deal, as it is also possible to purchase only selected business units or assets.

Generally, M&A are one of the most important corporate events on stakeholders' careers — such as owner, management, and employees. Due to their high stakes and complexity, they are immensely time-consuming. Consequently, M&A is also one of the most complex subjects in corporate finance, with its foundations spanning several different topics, from mathematical modelling to human behaviour.

As such, most books present the subject with an overly mathematical and theoretical approach, with much focus on models and regressions to predict abnormal returns and very few on the process and environmental factors that affect and drive managers minds and company transformation.

The subject's relevance is particularly prevalent in the current economic state. Total M&A deal value achieved all-time highs of $5.9 trillion in 2021, boosted by a low-interest rate and easy access to capital markets environment that made financing much easier for everyone. Private equity funds were the primary beneficiaries of this trend and represented 53% of the figures (Harding et al., 2022).

Despite solid financial investors' activity, strategic buyers — those mainly motivated by synergies — still represented $3.8 trillion, the second-highest value on record (Harding et al., 2022).

The robust market evolved from the primarily corporate landscape of 20 years ago, with great diversity in buyers' profiles and deal types. The increased competition from private equity, venture capital, and Special Purpose Acquisition Companies (SPACs) demanded much broader skillsets and a deeper understanding of the deal landscape from strategic acquirers.

Yet, as mentioned before, M&A is one of the subjects most affected by the theory-practice gap that bothers corporate managers and academia in modern days (Hutt, 2008). Therefore, this work aims to serve as a practical guide able to bridge what was studied during the Management Engineering course at the Politecnico di Torino and

the best practices and methodologies used by most financial advisors and corporate finance practitioners.

This work relied on heavy and extensive research on the conventional literature in modern finance and behavioural economics and past deals' documentation, such as annual reports, merger agreements, corporate articles, and news reports to achieve its goal. The research also aimed to understand the main factors that originate and drive synergies to understand deals from managers' companies' and practitioners' points of view. Additionally, as humanity is addicted to story, the richness of real examples aspired to provide a more relatable feeling in the reader and facilitate conceptual understanding.

The work is divided into three main 'theoretical' chapters, and a case study (Amazon-Whole Foods) directed to applying those ideas. It is worth bearing in mind that one could consider the case study to indirectly begin at the valuation section, as Whole Foods was used as the leading example for technique application. For details on the functioning of the Excel valuation tables, please refer to the appendixes.

In a bit more detail, the first chapter approaches the rationale behind an M&A and shows several explanations as to why companies would engage in such activity. Notably, it provides a focus on synergies: A possibility for companies to make two plus two equal more than four, and the single most compelling reason for justifying a merger — even if often overused.

Then, the second chapter dives into the intrinsically complicated mechanics of M&A deals and how some of the acquirer's choices can influence the target's perceptions of value regardless of the price paid. Furthermore, that chapter ought to implicitly convey the importance of negotiations when crafting deal conditions to the reader.

The third chapter presents the two main valuation theories in detail, with a step-by-step process that allows readers to assign value to virtually any deal and their main points of confusion/disagreement.

Finally, to more comprehensively explain and apply the presented concepts, a case study analysis of the acquisition of Whole Foods by Amazon is conducted. The choice for this particular operation comes from its somewhat revolutionary impact on the groceries market and its satisfactory level of success — even though some expectations were exaggerated. The deal diverged from the traditional cost synergies-oriented structure with an almost 100% dependency on the more uncertain and dubious revenue synergies to succeed.

The companies involved in the deal operated in different, albeit somewhat relatable, sectors. Amazon was trying to get into groceries for some time, but its online-only approach was not compatible with customers' trust in the quality of its projects. By connecting with Whole Foods, it added several warehouses to its already very efficient Prime services, got access to customers' offline data, and also acquired a quality-recognised brand from which customers were willing to buy fresh products even without previous inspection.

The deal was received with lots of enthusiasm from investors, with the combined value of Amazon and Whole Foods increasing by more than what Amazon paid for the transaction. While the hype was later proven excessive, the deal could still be regarded as Amazon's successful first step towards a greater grocery integration.

Rationale behind an M&A deal

Mainly motivated by exploiting growth opportunities, M&A transactions rank amongst the most significant and capital-intensive kinds of investment companies can engage. As a result, executives looking for a way to expand revenue sources, market share, efficiency — or simply undertaking an 'empire building' behaviour — find in M&A an easier, faster and less risky option to achieve those than structuring a business from scratch (Rosenbaum and Pearl, 2020). For shareholders, though, there is only one question of interest: how much value the deal created?

This section is concerned with analysing how executives' goals can translate — or not — into value creation. In achieving such, it is imperative to understand what can make two plus two equal more than four and how managers' decisions may influence the probability of such outcomes when engaging in merger activity.

Strategically speaking, it's possible to categorise M&A activity within three different, albeit non-exclusive, frameworks:

- horizontal integration: the acquirer goes after a company that works in the same line of business as hers — frequently a direct competitor. Possible motivations are the possibility of accessing new geographies, distribution channels, and product lines — particularly advantageous when dealing with different cultures or heavily regulated markets. For instance, Airbnb acquired valuable local know-how of the Indian culture by acquiring stakes in Oyo in 2019, facilitating its reach and acceptance in the country (Abrams and Purnell, 2019). Horizontal integrations may also be motivated by increasing the acquirer's market share (and power) and economies of scale and scope. For example, Disney's recent acquiring spree — which included Fox, Marvel and Lucasfilm — shielded most of the fandom-powered content to its streaming service, Disney+, allowing it to gain a large amount of the market share upon launch (Fritz et al., 2017);
- vertical integration: the acquirer goes after a company operating at a different level of the value chain. In a backward integration, the target is a supplier with the acquirer seeking to increase supply chain coordination, reduce marginal costs by capturing profit margins and better hedging against uncertain market conditions. A case in point was when Delta Airlines tried to reduce its exposure to aeroplane fuel costs by buying a refinery, an example of the common failure when companies seek to expand their business to completely different sectors in vertical integrations. Delta failed to realise that oil refining is a very cyclical enterprise that is expensive to run, prone to accidents and subject to heavy

environmental regulations. The refinery only achieved modest profits in its best years, while losses were up to $114 million during the covid pandemic (Krauss and Chokshi). In a forward integration, on the other hand, the target is a customer, and the main goal is to make usage of existing structures to increase the efficiency in the product distribution and commercialisation. Arguably the most successful case for forward integrations is Amazon's acquisition of Whole Foods[1]. The digital giant successfully integrated the grocery network into its massive *Prime* distribution channels. That created up to 1-hour delivery services for Whole Foods and increased the exposure of Amazon's Alexa, Kindle and Basics product lines due to physical presence and exclusive stands in Whole Foods stores (Stevens, 2018). Garfinkel and Hankins (2011) observed vertical integrations to be one of the leading causes of merger waves;

- conglomerate: when unrelated companies are brought together under the same corporate 'umbrella' for risk diversification and benefits from standard good governance practices. As operations are mostly independent within the conglomerate, leaving little-to-no space for operational synergies, they will not be a topic of analysis.

Manager's motivations

To justify the vast sums involved in a takeover — usually fuelled by share dilution or increase in leverage — to the company's shareholders, managers frequently argue that the combined entity will benefit from synergies and growth opportunities. Research shows, however, that this is seldom the most compelling driving force in executives' minds. The M&A literature divides managers' motivations into two classes with empirical support: *behavioural* motivation; and *rational* motivation (Van Bekkun et al., 2011).

The *behavioural* view has two academic explanations for what drives merger waves: one focused on the investor, and the other focused on the managers (Baker et al., 2004). While the two are, in theory, mutually exclusive, both probably play a part in explaining mergers motivations and price fluctuations in the real world. The *irrational investors approach* assumes that rational managers coexist with irrational investors, which means that securities market arbitrage is imperfect and that managers can perceive this mispricing and respond to (or encourage) it. Those assumptions implicate that overvalued acquirers may engage in merger activity not to gain synergies but to dampen coming market corrections. Specifically, managers acquire less overvalued

[1] *Discussed in detail in the section: 'Case Study - Amazon buys Whole Foods'.*

targets with overpriced stock to increase hard assets per share (Shleifer and Vishny, 2003). Alternatively, managers can take advantage of the market's flawed perceptions on the deal's synergy outcome: if recent M&A were successful, investors' recency bias could lead them to overestimate the likelihood of value creation and therefore overvalue the combined entity. As with the previous case, this gives the manager some long-run cushion effect (Baker et al. 2004). The late-1960s conglomerates' wave is an excellent example of this. From July 1965 to June 1968, the 13 leading conglomerates had an average return of 385%, versus 34% of the S&P 425 (Ravenscraft and Scherer, 1987). That spurred announcement effects of diversifying acquisitions while penalised other's (Klein, 2001). Investors' appetite for conglomerates, regardless of their added value, made them so complex that they were still being divested or busted up decades after the end of the wave in the late 1970s (Baker and Wurgler, 2011).

On the other hand, the *irrational managers approach* assumes that managers have behavioural biases and investors are rational but have limited governance mechanisms to constrain managers. Current literature, through agency and asymmetric information models, mainly explores overconfidence and over-optimism biases (Baker et al., 2004). The latter is translatable into an overestimation of the mean, that is, an overvaluation of the company's value, capabilities, and the manager's skills while the first is an underestimation of the variance, i.e. excessive risk-taking that makes managers more likely to perform exceptionally well (or extremely bad). Empirical evidence shows that this phenomenon is mainly present within start-ups: 68% of entrepreneurs believe their start-ups to be more likely to succeed than comparable enterprises (Cooper et al., 1998). Data shows, however, that only half of all start-ups survive more than three years (Scarpetta et al., 2002).

In an M&A setup, the irrational managers approach can increase managers propensity to pay for a target due to over-optimistically derived deal synergies, culminating in the winner's curse (Roll, 1986). The lack of evidence for fundamental value creation on average through mergers could indicate such behaviour (Travlos, 1987). Also, one may use this approach to explain the pecking order theory, in which managers will prefer to finance acquisitions with internal resources to using external financing because they see their stock as undervalued (Heaton, 2002).

Finally, the irrational managers and the irrational investors approaches offer a possible explanation for why mergers and stock prices are positively correlated. Valuing a company is a highly subjective task. It will be inexorably subject to reference point thinking with recent peaks, such as the 52-weeks high, serving as anchors for valuation, as target shareholders may be unwilling to sell at a loss relative to a recent peak—in a classic example of the disposition effect. Hence, offer premiums required

to exceed a later apex will be smaller when market prices increase. Conversely, when prices plummet, targets may anchor themselves in recent highs and ask bidders an implausible price (Baker and Wurgler, 2011).

Synergies

From a purely rational point of view, M&A deals can be (and are) justified by the fact that the value of the merged entity can be much higher than the sum of its *ex-ante* components. Synergies are embedded in the notion that, in corporate finance, two plus two may equal five — a cornerstone of strategic M&A transactions. This value enhancement is attributable to a broad range of financial benefits a more efficient combined operation may provide and plays a crucial part in deal pricing and shareholders enthusiasm (Rosenbaum and Pearl, 2020).

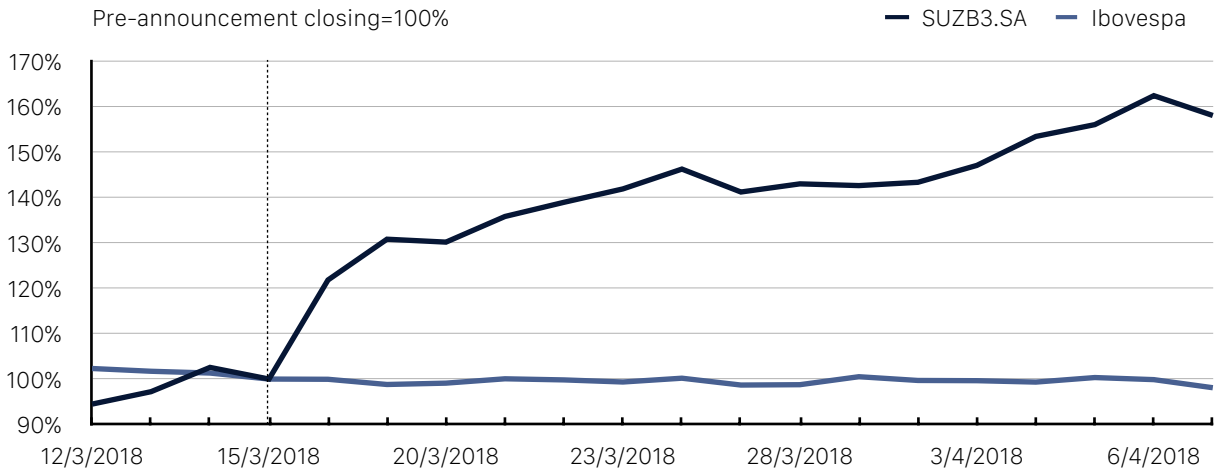
Expected synergies calculation require a deep knowledge of the sector and the firms. Its Net Present Value (NPV) represents a hard limit for acquisition premiums and is pivotal for calculating expected internal returns. Hence, they are a crucial driver of wealth creation through the merger, and there is a significant relationship between their NPV and the announcement day returns (Houston et al., 2001).

To guide the market, acquirers usually disclose with the announcement the number of synergies expected from the deal and from where will they come. Credibility at this stage is crucial as the market will put positive (or negative) pressure on the acquirer's stock as a reaction to the announcement — investors generally respond with some distrust to the values disclosed and discount those benefits (Bruner, 2004).

Nonetheless, it is not unusual for investors to regard company estimates as too conservative and pressure prices further than the expected synergies. For instance, when Suzano acquired Fibria, synergies with an NPV of R$12 billion were announced (Reuters, 2018). Investors, however, saw further potential on the future biggest pulp producer in the world, and three weeks later, Suzano's market cap had grown by R$15 billion — or 58%, as can be seen in Figure 1.

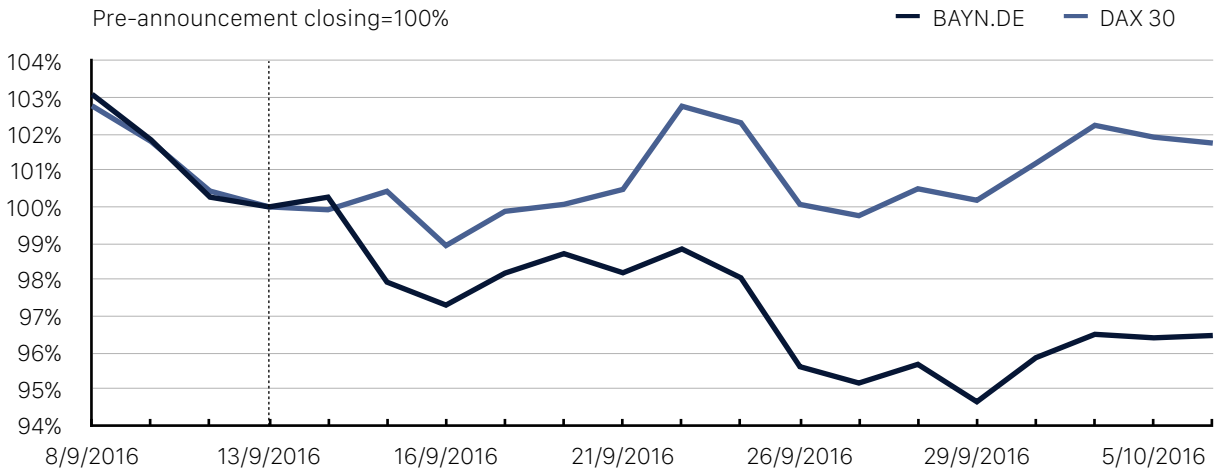
The opposite scenario is also possible: when investors hold a deal as value-destroying, price pressures may reduce the company's market cap concerning its pre-announcement values. A great example is the acquisition of Monsanto by Bayer. The expected deal synergies were $1.5 billion per year (BAYER, 2018). However, prices plummeted by 5% two weeks after the announcement, destroying almost €3 billion of Bayer's market cap, shown in Figure 2.

Figure 1 - Suzano and Brazilian market index price evolutions



Source: Author, 2021.

Figure 2 - Bayer and German market index price evolutions



Source: Author, 2021.

Synergies can be categorised as either operational or financial, depending on their origin and impact on financial statements. Operational synergies are the ones related to more efficient management of the value and production chain. Much more tangible than their financial counterparts, they are given a much bigger weight by analysts (Rosenbaum and Pearl, 2020). On the other hand, financial synergies will not impact the company's Earnings Before Interest, Taxes, Depreciation and Amortisation (EBITDA). Value-adding will come from a more negligible cost of capital, more accessible financial markets, or even from tax benefits from higher tax shields or target's accumulated Net Operating Losses (NOLs) (Zenner et al., 2009).

Operational synergies can emerge either from gains that enhance revenues or from those that cut costs. The latter — often referred to as 'hard synergies' — are much easier to quantify and achieve; therefore, the market tends to be more easily

persuaded by them when reacting to companies' announcements (Iannotta, 2010). Conversely, investors customarily receive revenue synergies with much scepticism, and the reason is that 70% of all mergers fail to achieve what was announced (Christofferson et al., 2004). Both are calculated by discounting in perpetuity the value of the cash flows by the cost of capital, as shown in (1) — it is worth noting that cost savings are treated as if they were revenues for cash flow purposes (Bruner, 2004).

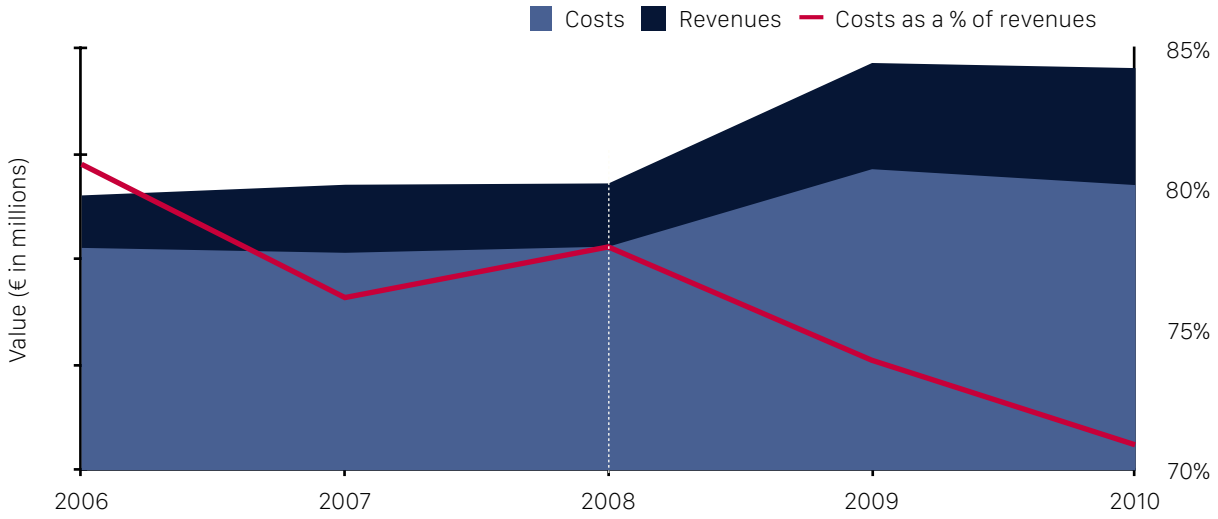
$$V_{synergies} = \sum_{t=0}^{\infty} \frac{FCF_t}{(1 + r_{wacc})^t} \tag{1}$$

Cost synergies correspond to the cost reductions achievable by the combined entity and would be otherwise impossible or unfeasible for the separate companies. They are particularly relevant for capital-intensive industries, where a higher output could spread high overhead costs more efficiently by disposal redundant assets (Gaughan, 2018). Notwithstanding, it would be reductionist to circumscribe cost synergies to lay-offs, as they can emerge from other sources as well, with the most common being:

- economies of scale: sometimes inputs cannot be scaled down proportionately with output — for instance, factory rents will not decrease if production is halved. That makes a large-scale production economically advantageous to many small-scale industries operating in the same market because increasing production will reduce unit costs (Church and Ware, 2000). For M&A, economies of scale are particularly prominent in horizontal integrations and can surge in multiple forms: the aforesaid closing of redundant facilities and operations reduces; a better division of labour amongst existing production lines by increasing output per worker in highly segmented processes; improved logistics due to the larger volume of sales allowing higher occupation rate of trucks/trains/pipelines/*et cetera*; or increased bargaining power against suppliers, now dealing with a more concentrated market — interestingly, purchasing power enhancement is much less likely to draw the attention of regulators than combinations that would have more significant effects on customers. It is worth noting that while there is plenty of empirical support for economies of scale in M&A (Fee and Thomas, 2004), there is no indication whatsoever that they are the best way of achieving them (Gaughan, 2018). A great example of economies of scale coming from horizontal mergers can be taken from the acquisition of Anheuser-Busch by InBev in 2008. By reducing redundant costs — especially within Sales, General and Administrative Expenses (SG&A) — AB InBev increased its EBIT margin by nearly 10% in the two years following the merger, as shown in Figure 3. Furthermore, with the combined entity increase in bargaining power, they increased their days payable

outstanding[2] from 47 pre-merger to just short of 200 days (Indap, 2015). In practice, that means that AB InBev power allows them to squeeze suppliers into lending to them interest-free whenever they make a purchase;

Figure 3 - Anheuser-Busch plus InBev revenues and sales — white line indicates the merger year



Source: Author, 2021.

- economies of scope: it happens when the cost of producing two different products (or services) together is smaller than doing them separately, as indicated in (2). Economies of scope usually arise because the expertise of producing something spills over to other products, or due to the company's ability to make usage of common inputs to make and sell more than one product, increasing productivity, as well as bargaining power against suppliers (Besanko and Braeutigam, 2014).

$$C(q_1, q_2) < C(q_1,0) + C(0,q_2) \quad (2)$$

In M&A, economies of scope are usually present in conglomerates and vertical integrations and commonly manifest through the common usage of marketing channels, bundling of related products, or harnessing existing supply chains to dispatch different products. When Sanofi acquired Genzyme — a small drug producer specialising in rare diseases and biological drugs — they could use their highly productive plants and supply and distribution chains to fully leverage the latter pharmaceutical patents' impact. Furthermore, complementary practices and knowledge in drug development allowed full integration of the Genzyme pipeline into Sanofi so that biological drugs grew to comprise 72% of the combined entity new patents (Bancroft, 2016).

[2] *Days payable outstanding is the average time elapsed between purchase and payment, and it is calculated as 360/(Accounts Receivable Turnover).*

Revenue Synergies are enhanced sales growth opportunities due to the combination of the businesses. They tend to be very speculative, and analysts typically incorporate them with very conservative assumptions and more aggressive discount rates (Bruner, 2004). Revenue synergies, nonetheless, represent a great upside potential and must be ultimately incorporated into the acquirer's bid price (Rosenbaum and Pearl, 2020). As was the case with cost-saving, revenue-enhancing synergies can come from various sources:

- pricing power: the combination of two companies in the same line of business will increase the market concentration — measured by the Herfindahl-Hirschman Index (HHI)[3] — which may allow the company to act as an oligopolist and increase its price markups (Besanko and Braeutigam, 2014). Needless to say, any increase in profits due to market power will be at the expense of customers and will create an economic deadweight loss, so this kind of revenue growth is frowned upon by society and is strongly regulated by anti-trust laws in most of the world. Regulating authorities, such as the US Federal Trade Commission (FTC), analyse every merger acting on the national market and has the power to block mergers or condition their approval to some divestments (Church and Ware, 2000). In September 1996, Staples and Office Depot, two of the largest office superstore chains, announced their intent to merge, which the FTC opposed. At the time, the office superstores sector was comprised of only three players with similar levels of sales: Office Depot, Staples, and OfficeMax. However, office superstores only accounted for 6% of office supply sales, so their defence was that the combined market share would not be enough for influencing prices. To block the deal, the FTC argued that in the cities in which only one or two of the companies were present, prices were more than 5% higher than in towns with the triopoly, proving that the merger would indeed culminate in an unacceptable market and pricing power (FTC, 1997);
- combination of functional strengths: the two merging companies may possess complementary skills that, combined, would implicate a larger volume of sales. These include customers, markets, technologies, information, tools and infrastructure and may also encompass cultural characteristics, such as a learning-oriented culture (Albizzatti et al., 2019). The most common kind of complementarity in M&A is the acquisition of companies with excellent product lines and Research and Development (R&D) facilities by firms with exceptional marketing and distribution capabilities. Sanofi acquisition of Genzyme provides a

[3] *Calculated as the sum of squared market shares of each firm in a particular market.*

great example of a combination of complementary skills. While Sanofi had colossal production facilities, global distribution channels, and strict quality-control standards, they completely lacked expertise in developing biological drugs, which are perceived by many as the future of the pharmaceutical industry. The merger brought biotech know-how to Sanofi and Sanofi's structure to Genzyme's biopharmaceuticals, boosting the combined entity revenue. Five years after the deal, 72% of Sanofi's pipeline comprised biological drugs, with a record of 100% late-stage programs (Bancroft, 2016);

- growth from faster-growth markets or new markets: most developed countries markets have been in a state of slow growth for many years, which means companies have to work harder to sustain a meaningful increase in revenues and profits. Some companies may find it advantageous to expand their operation into fast-growing markets, such as China and Brazil, to keep margins from stabilising (Gaughan, 2018). For instance, in 1998, the Brazilian stock market started to bloom. The Plano Real had just controlled the country's hyperinflation, and the government was pushing forward many privatisations to balance the public budget. The market was far from mature, implicating very few investment banks acting and plenty of opportunities to grow. Credit Suisse saw that, but instead of building operations from scratch, they decided to acquire an already renowned and successful bank: the Banco Garantia, founded and administered by the current owner of AB InBev, Jorge Paulo Lemann (Adachi, 1998). That allowed the Swiss bank access to an already established culture of meritocracy, a very well known and respected brand, in addition to knowledge of the Brazilian market.

Financial Synergies are tangible benefits the merged entity may enjoy, without, however, any effect whatsoever in the company's operational efficiency — i.e. its revenues, costs or EBITDA. They derive primarily from increased size, scale and diversity that, in turn, may improve credit profile and market access (Zenner et al., 2009). Financial synergies are paramount during a market crisis since banks and investors withhold credit, and Debit-Service Coverage Ratios (DSCR) tend to fall sharply. Financial flexibility during a string recession is often the critical difference between survival and bankruptcy, and investors know this — for instance, during the COVID-19 crisis, companies with high financial flexibility had a stock price drop 26% lower than those with low flexibility[4] (Fahlenbrach et al., 2020).

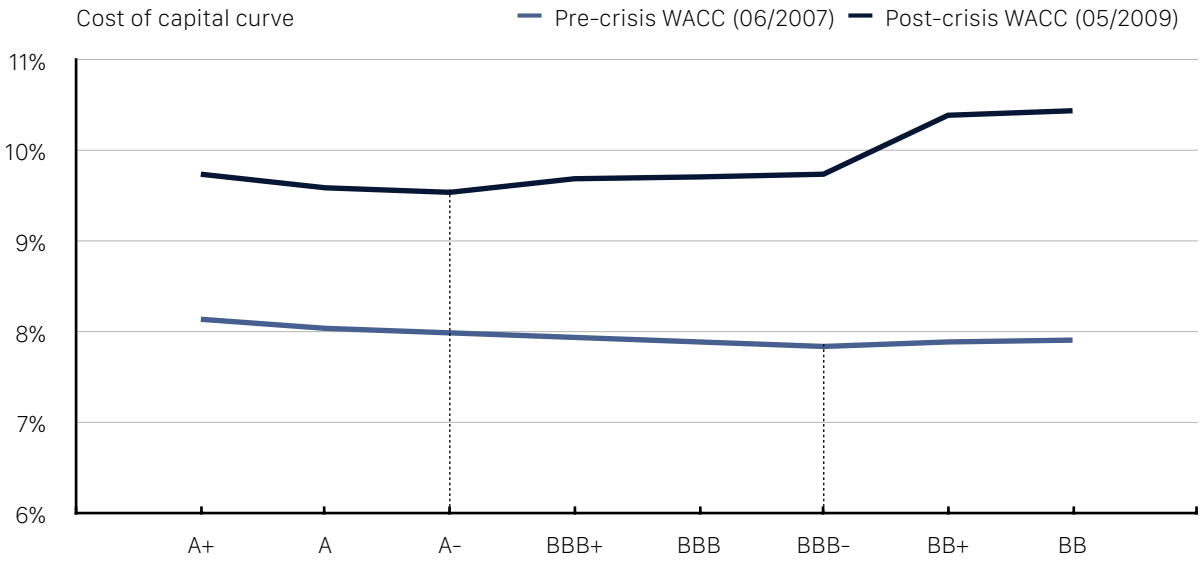
Financial synergies usually include:

[4] *Data from US companies.*

- lower cost of debt (and capital): the cost of capital is a weighted average of the cost of equity and after-tax debt, the Weighted Average Cost of Capital (WACC), shown in (3). For frictionless markets, an increase in leverage would increase the risk — and hence cost — of equity, counterbalancing its smaller weight in the equation; thus, WACC would remain constant (Modigliani and Miller, 1963). In reality, however, evidence shows that an optimal capital allocation is possible and change with market conditions. The estimation of the cost of capital at different capital structures — represented by the ratings — is called the capital curve and captures the increasing costs of equity and debt as a firm lever up and the impact of the favourable tax treatment of debt (Zenner et al., 2009). As shown in Figure 4, for many years before the 2008 crisis, the minimum WACC could be achieved at the high end of the BB ratings. However, the 2008 credit crunch ballooned non-investment grade ratings and their spread respect to AA ratings. The subsequent explosion of the cost of holding debt pushed the minimum WACC to the lower end of A grades (Zenner et al., 2009);

$$r_{wacc} = r_e \cdot \frac{E}{D+E} + r_d \cdot (1 - T_c) \cdot \frac{D}{D+E} \tag{3}$$

Figure 4 - Lowest cost of capital achieved at higher ratings during turmoils



Source: Zenner et al., 2009.

In 2009, the improvement from non-investment grade ratings could provide an up to 1% reduction in the cost of capital, so an M&A able to upgrade the merged entity credit quality will benefit from the cost of capital synergies during turmoils like the 2008 credit crisis and increased stability during economic cycles.

- improved tax efficiency: contrary to shareholders' proceeds, interest payments are tax-deductible, thereby creating a tax shield for companies holding debt, effectively reducing the borrowing cost to (4) (Berk and DeMarzo, 2017).

$$r_{d\ (after\ taxes)} = r_d \cdot (1 - T_c) \tag{4}$$

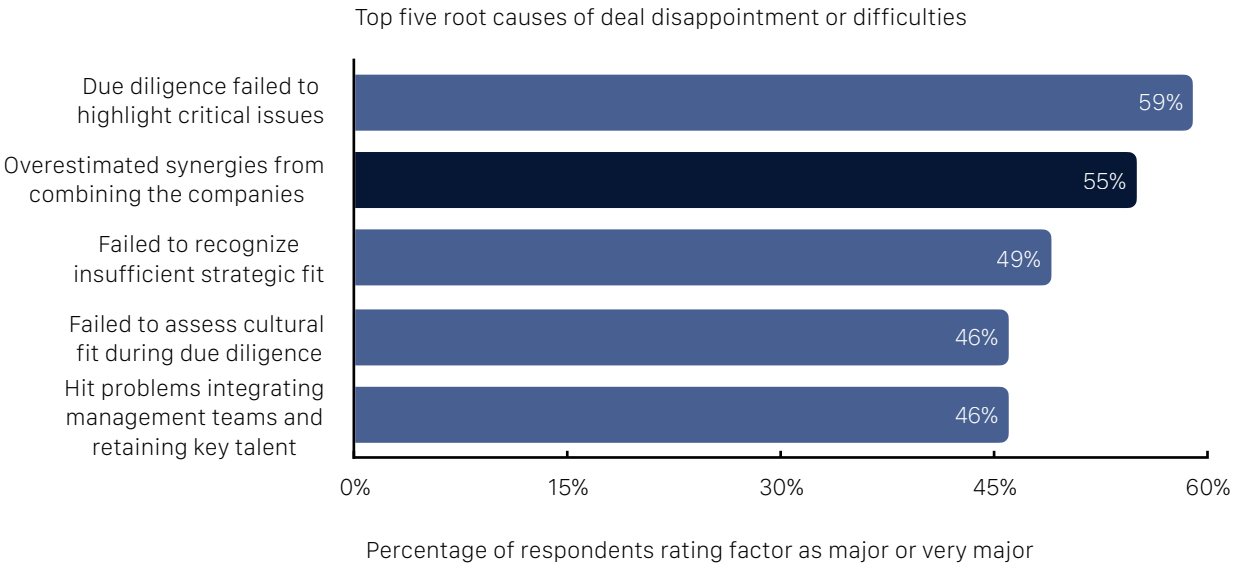
  Nevertheless, for many firms, the tax benefit of debt may not be immediately available. Repeated periods of significant operational losses will significantly reduce the extent to which tax shields can be serviceable and create a substantial amount of NOLs that the firm cannot currently use (and may not in the future as well) (Zenner et al., 2009). Those kinds of volatile-income companies may be gripping targets for acquirers with historically positive net incomes. The acquisition would provide a win-win situation where the acquirer would capture the total value of the tax shield and avoid taxes by a more efficient usage of the target's accumulated NOLs (Knight and Knight, 2021). During the telecom meltdown of the 2000s, Lucent Technologies — a telecom equipment maker — gathered NOLs worth $10 billion. When they finally returned to profits in 2003, their slim income was not enough to burn up those huge credits sufficiently quick. Alcatel — also a telecom company — saw in Lucent an opportunity to both increase its presence in the American market and avoid paying US taxes for many years to come. The combined entity's amount of NOLs was so enormous that analysts estimated that the merged entity, Alcatel-Lucent, wouldn't be a US taxpayer for at least ten years (Drucker and Silver, 2006). Anyhow, Alcatel-Lucent's performance postmerger fell short and, when Nokia bought the company in 2016, they still had that $10 billion accumulated NOLs for the US market (Alcatel-Lucent, 2016);

- certainty of capital markets access (or financial flexibility synergy): capital markets are not always open. Bond market crashes, like the 2008 crisis and the Russian debt crisis, have historically caused the reduction of high-yield bond issuing by nearly 80% from the median issuance volume, while investment-grade bonds did not suffer such dramatic conditions (Zenner et al., 2009). More generally, it is much easier for companies with higher credit ratings to access DCM, and this is valuable because it reduces financial distress risks that may arise from refinancing issues (i.e. rolling over the debt). It increases the predictability with which the company will be able to capitalise on investment or M&A opportunities. One can quantify financial flexibility synergies by valuing the benefit of excess debt capacity and the probability that investment grade or high yield markets would be open when this capacity is needed (Zenner et al., 2009).

Synergy delivery plan

Correctly identifying and estimating synergies, however, is not an easy task even for experienced managers and similar-scope companies, as most deals fail to generate the synergy amounts announced. In fact, in a survey with 352 global executives, Miles et al. (2014) pointed out the overestimation of synergies as the second most common reason for disappointing deal outcomes, as can be seen in Figure 5.

Figure 5 - Synergies are the second most common cause for disappointing deals



Source: Miles et al., 2014.

Those disappointments include but are not restricted to when synergies expectations were overly optimistic. There may also be the case that although targets were realistic, timeframes to achieve them were not, or even that the integration costs — be them literal, like severance costs, or subjective, such as declining morale or loss of talent — are excessive (Friedman et al., 2017).

To avoid a value-destroying deal, the acquirer must have a clear and detailed roadmap for postmerger integration (PMI) and the synergy delivery plan (Miles et al., 2014). This plan must set goals and timeframes, with correspondent industry-specific benchmarks, that will enable a close track of progress and embody the staff with a strong sense of accountability and motivation (Engert et al., 2019).

Furthermore, a thorough integration between the due diligence and the integration planning teams is vital to avoid managers and bankers — eager to reach an agreement — overlooking the core business trajectory or size of stated synergies when defining valuation hypothesis. It is often the case that, when integration begins, business unit heads that had no say about the feasibility and timeframe of the synergies challenge the numbers received from the due diligence team (Friedman et al., 2017).

The lack of participation of PMI staff in the due diligence process may bias it with an overly technical view of M&A since investment banking staff, as well prepared as it may be, will have limited knowledge of the target operations. The result is too much focus on paying for the asset and little on what to do with it (Engert et al., 2019).

A frequently overlooked point when drafting synergy targets and roadmaps are revenue synergies. The lack of rigour and transparency when dealing with those kinds of synergies is a direct consequence of the difficulty to track and account for them, as they usually get mixed in with the ordinary revenue of the business. To properly deal with the issue, companies must establish a pre-merger revenue baseline and ask integration teams to identify the primary sources of value and possible synergies as well as concrete measures to achieve them (Friedman et al., 2017). The successful manager can also profit from the disruptive nature of M&A to implement a broad performance improvement agenda across the organisation, such as integration, oversight and change management programs from the outset—which presents an opportunity to achieve real synergies 30% to 150% higher than estimates (Engert and Rosiello, 2010).

Few mergers illustrate better the effects of a solid synergy delivery plan as the AB InBev merger in 2008. The merger generated synergies of $2.25 billion, much higher than one could expect from scale alone, as shown in Figure 3. As a result, EBITDA increased by 16.8% in the three years following the transaction, much above the average of 3.2% achieved by merging product companies (Miles et al., 2014). The combined entity also took the opportunity to deliver profound transformations in how the firms were structured, beating the scale synergy benchmarks by almost 4% of revenues.

Timing is also critical in engaging investors in the deal. Strong execution of synergies from the beginning helps capture early visibility, as they get less and less attention on earnings calls as business changes materialise. Data shows that deals are 2.6 times more likely to succeed, delivering 40% more value to shareholders if the company meets its targets within the first 24 months after the agreement (Engert et al., 2019).

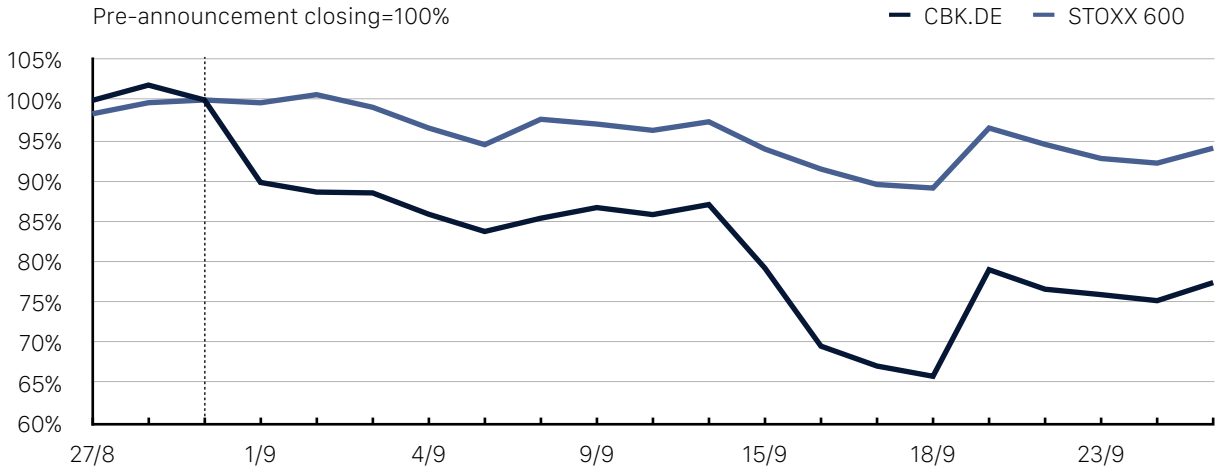
Finally, companies tend to overlook or underestimate the negative aspects that may emerge from the deal, for instance, revenue dis-synergies and integration costs (Christofferson et al., 2004)

Revenue dis-synergies are losses in revenue caused by the merger consolidation efforts. They can originate from the loss of key employees or clients that may not want to stay in the larger company, for instance, or even from product cannibalisation,

i.e. when the gain in market share of a product comes at the expense of another from the same entity (Iannotta, 2020).

Commerzbank acquisition of Dresdner Bank in 2008 gives a great example of dis-synergies in play and their impact on the success of a deal. Factors such as consolidation of branch networks and distraction of managers from day-to-day operations render revenue dis-synergies a standard in the banking industry (Bloch, 2008). However, when Commerzbank announced that it expected a €1.3 billion revenue dis-synergy to come from its acquisition of Dresdner Bank (Commerzbank, 2008), the amount frightened their shareholders, who started fleeing from the company, depressing prices up to 35% in the following weeks, as can be seen in Figure 6. The total shareholder value destroyed with the deal was a third of the acquisition price of €9.8 billion paid for Dresdner Bank.

Figure 6 - Commerzbank and STOXX 600 price evolutions



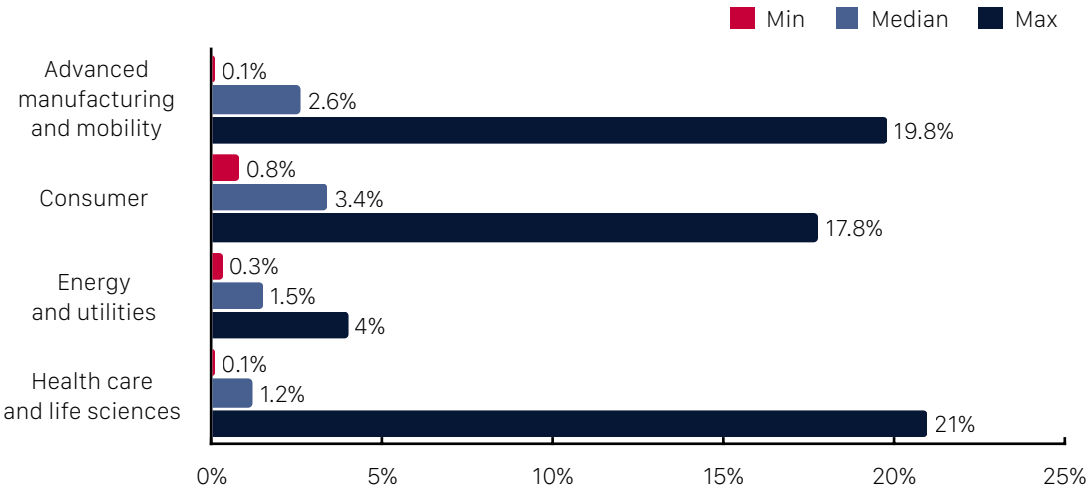
Source: Author, 2021.

Integration costs are one-time expenses needed for the execution of the merger or achievement of synergies. They can be employee-related, such as severances to reduce redundant personnel, pensions and benefits to be paid, and retention bonuses. Or they can also be functional, such as the regulatory costs imposed by the FTC, costs related to real estate and plants disposal, or IT standardisation — e.g. database migrations. Although it might seem intuitive to extrapolate them from the deal size, data shows a correlation with the degree of change required in the synergy delivery plan — hence synergies themselves — regardless of the size of the companies (Salsberg, 2019).

On average, integration costs range from 1% to 7% of the total deal size, but this may greatly vary depending on the sector, as shown in Figure 7. For instance, the

compliance requirements for regulatory, safety and quality standards can drive integration costs as high as 21% of the deal value. On the other hand, integration costs rarely surpass the 4% of the deal value for the energy and utilities sector, as most acquisitions happen within the same business area, which reduces the need for fundamental corporate change (Salsberg, 2019).

Figure 7 - Integration costs as a percentage of deal value



Source: Salsberg, 2019.

Integration costs can be particularly critical for companies with a tight post-deal cash-flow situation, as those expenditures are usually made in full and are a requirement for the fulfilment of the synergy delivery plan (Engert et al., 2019). A straightforward process to budget integration costs is therefore essential to the success of the deal. So, financial controllers must be implicated in the draft of the synergy delivery plan from the very beginning (Engert et al., 2019).

Structure and financing

Deal designing, often seen as an area of tacit knowledge by practitioners, is essentially an engineering problem, with unique sets of objectives, goals, and constraints set up by both target and acquirer for each deal (Bruner, 2004). The most common restrictions are the urgency in the deal completion, the degree of confidentiality required from the parties (and hence the number of companies involved), and who was the initiating side. This degree of complexity means every deal must be carefully tailored (and bargained) to satisfy both the buyer's and the seller's perceptions of value, created by the many facets of the transaction and the structure of the payments. There is much more to a deal than the final price paid, and this section aims at understanding the role those variables play in the minds of executives and shareholders.

Financing

The success of a merger proposal is tied to the availability of resources from the buyer. Thus, consideration can take fundamentally three different and non-exclusive forms. The first two, *cash on hand* and *debt financing*, are often grouped as practitioners consider the cost of holding cash as the foregone interest of the company's outstanding debt. The third, *equity finance*, is paradoxically both the most expensive financially and the least in terms of cash flow usage.

The chosen payment method strongly affects merger consequence analysis and, hence, the target's value to the buyer. Changes in the *proforma* credit statistics and Earnings per Share (EPS) accretion/dilution will affect the expected cash flows of the combined entity and affect the limit price the buyer is willing to pay. On the other side of the table, sellers may perceive cash as a more valuable consideration regarding the acquirer's stocks, which means investors may perceive a smaller all-cash offer as more advantageous than a higher mixed stock+cash one.

Buyers choice of financing will be based on factors such as its cost of debt and implied cost of equity, and the urgency on closing the deal — that may render it impracticable to wait for shareholders approval to issue new equity. In addition, rating agency considerations, access to bond markets, and even restrictions from controlling bodies, such as the Securities and Exchange Commission (SEC), may also bound the decision. Buyers, therefore, cannot rely on mathematical formulas, and there is no ultimate answer when deciding the capital mix to be included in the offer.

For the target, the offer terms and conditions will be more or less attractive depending on their shareholders' opinions about the market price of the acquirer. If they see them as overvalued or have weak beliefs in the synergy outcome of the merger, they may reject any attempts to be bought with equity, even if the value were to be higher than another all-cash offer. Ultimately, holding cash equals financial flexibility for both acquirer and target, as shareholders can use it to buy whatever asset preferred — including stocks of the merged entity if they see fit (Bancel and Mittoo, 2011). Hence, the consensus is that paying with cash transfers financial flexibility from buyer to seller, with the opposite happening with stock payments.

While the ideal mix of cash, debt, and equity varies from deal to deal, the pecking order theory states that managers will prioritise internal sources of financing over issuing new equity through a Seasoned Equity Offering (SEO) with debt coming in-between. That preference is a direct consequence of managers asymmetric information about the company with regards to investors. The latter, knowing CEOs may try to take advantage of their knowledge on the company possible overvaluation, will only accept to buy newly issued equity at a discount, reducing the number of resources the company can gather (Myers and Majluf, 1984).

The quicker for an acquirer to finance an M&A is to use the available cash on hand, as it requires neither shareholders nor banks approval. It usually concerns strategic buyers with excess cash on their balance sheet to follow a strategy of growth through M&A. For instance, Facebook used its enormous war chest (of almost $20 billion) in 2019/2020 to finance two acquisitions: 10% of Indian telecom operator Reliance Jio for $5.7 billion; and 100% of online search engine Giphy for $400 million (Kruppa and Fintanella-Khan, 2020).

Cash on hand is nominally the cheapest form of financing, as it only costs the foregone interest income earned on the excess cash retained. For most developed economies, this cost became effectively null due to interest rates entering negative domains. Nevertheless, the common practice amongst analysts is to view the usage of cash as the opportunity cost of raising external debt because one could use cash to repay existing debt (Rosenbaum and Pearl, 2020). It is worth mentioning that, while using cash instead of raising new debt does not change the company net debt, it does prevent further interest expenses and the increased leverage ratios. Companies may also hold significant portions of their cash in offshore accounts, rendering them subject to costs and taxes if they were to be repatriated. Hence, it is uncommon for firms to rely upon maintaining substantial cash positions to fund mergers. Instead, they tend to access capital markets when opportunities arise.

Per the pecking order theory, companies prefer to seek investors to obtain debt finance instead of launching SEOs. The issuance of new debt or use of revolver availabilities to fund — partially or entirely — an M&A was particularly prevalent in the merger mania of the 1980s, amidst nearly 60% of the value of the deals fully paid in cash (Rappaport and Sirower, 1999). The main sources of debt finance are:

- revolving credit facilities: a line of credit extended by banks and other financial institutions that grants the company a pre-approved borrowing limit for a specified period that may or may not be used to its full extent. Revolving credit facilities are very flexible and may be predicated on the company cash flows (cash flow revolver) or asset base (asset-based lending facility) (Rosenbaum and Pearl, 2020). As with the lending, revolving credit facilities may be repaid at any time, which will restore the original borrowing limit. Predominately bears interest every quarter at floating rates — comprised of a benchmark (for instance, the London Interbank Offered Rate (LIBOR)) plus a margin;
- term loans: a loan with specific payment schedules (typically quarterly) that require amortisation, on top of the coupon payment. Companies can repay the debt at straight-line amortisation or a constant payment method (where interest plus principal payments do not change throughout the loan). As with revolving credit facilities, the common practice is to charge interest at floating rates quarterly;
- bonds and notes: securities in which the issuer pays bondholders interest coupons on regularly defined intervals, with the principal repaid in full at the maturity date. Interest rates can be either fixed or floating, and it is common for bonds to be registered and tradable at stock exchanges, with varying degrees of liquidity. Ordinarily, exchange-traded bonds and notes are given a grade by rating agencies to represent the degree of risk embedded in the security, which, in turn, directly affects the interest rates investors will demand to lend (Allen, 2013);
- commercial papers: comprise unsecured debt instruments with short maturity dates (often less than 270 days). It is issued only by investment-grade companies due to its higher-risk profile. Its foremost use is for covering short-term cash needs, including acquisitions. For they mature quickly, commercial papers are issued as zero-coupon instruments at a discount (Rosenbaum and Pearl, 2020).

It is worth noting that in recent years the available capital for M&A activity has been growing due to the involvement of hedge funds in addition to traditional commercial banks. The syndication of M&A debt to hedge funds is becoming common practice for banks, in which the first assume what is usually second-lien debt (Gaughan, 2018).

A company's cost of debt reflects the current price to the firm of borrowing funds. It is a function of the default risk lenders perceive in the company. As default risk increases, lenders will ask larger spreads on top of the risk-free rate (LIBOR, for instance) to lend to the firm (Damodaran, 2006). If the company doesn't intend to deviate from its current capital structure with the merger, the cost of capital can be derived from the blended yield of its outstanding debt instruments. If otherwise, one may use peer companies to estimate the resulting cost of debt (Rosenbaum and Pearl, 2020).

For publicly traded securities, one can infer the cost of debt from the basis of the current yield[5] of outstanding issues. On the other hand, professionals typically quote private debt with Debt Capital Markets (DCM) divisions of investment banks. In the absence of current market data, an alternative approach is to derive the cost of debt from the company's current (or implied) credit ratings and comparable credits (Damodaran, 2006).

Since interest payments are tax-deductible, the all-in cost of debt must be viewed on a cost-effected basis. And finally, while debt is cheaper than equity, mandatory interest payments (and debt repayment) constrain how much of debt a company can incur.

For equity financing, on the other hand, while shareholders expect profits to be distributed in the form of dividends, there is no legal requirement for companies to distribute them. Thus, equity financing adds some financial flexibility to companies, as stockholders cannot file the firm for bankruptcy nor establish any covenants. Moreover, the priority rule establishes that equity holders claims should be the last to be reimbursed if someone files (Kelly et al., 2005). Since the financial markets maxim that 'there is no such thing as a free lunch' remains valid, investors demand higher returns to compensate for the increased risk they bear.

The cost of equity is much less intuitive than that of debt, as it cannot be directly observed and because it may not be uniform across all the investors in the company, as perceptions and tolerance of risk are personal and subjective (Damodaran, 2006). The standard practice is to derive an implicit average cost of equity from the company market data using the Capital Asset Pricing Model (CAPM) (5), with the beta inferred from the average unlevered beta from comparable companies (re-levered with the company's debt-to-equity ratio, obviously) (Koller et al., 2005).

$$r_e = r_f + \beta_L(r_m - r_f) \tag{5}$$

[5] *For callable bonds, the yield is quoted as the yield-to-worst call (YTW), the lowest yield comparing possible call dates and their respective prices.*

Companies can use equity financing in two different ways. They can directly offer shares of the merged entity to target's shareholders as consideration, or they can issue shares in the open market and use the cash proceeds as payment. The first is preferred to the latter, as SEOs suffer from adverse selection effects and information asymmetry, resulting in an average 2% negative announcement effect (Ritter, 2003).

For both equity financing modalities, if the acquirer issues an amount that represents 20% or more of its outstanding shares, they will need to obtain shareholder approval in a general meeting, which will add uncertainty and time to the financing process, and subsequently, the deal as a whole (Rosenbaum and Pearl, 2020).

In practice, equity is nowadays the most diffused form of financing, especially for large-scale public transactions. For instance, transactions tend to be all-stock on Mergers of Equals (MOE), with target shareholders fully integrated into the acquirer.

As expected, equity financing is even more prevalent in bull markets and bubbles; this is a direct consequence of managers trying to time the market and use their asymmetric information and supposedly overvalued stock (Van Bekkun et al., 2012). For instance, in the 2000's dot-com bubble, more than 50% of all deals were paid fully in stocks, versus only 17% entirely in cash (Rappaport and Sirower, 1999).

Finally, paying with stock means sharing the outcomes of the merger—be them positive or otherwise. Thus, target shareholders will see equity as more desirable than debt if they believe in the deal or are tax-sensitive and want to defer capital gains. More commonly, however, target shareholders will prefer cash as payment, as stock value derives from risk aversion preferences and other subjective parameters (Póvoa, 2012). Table 1 summarises the main advantages of each financing method.

Table 1 - Debt vs. Equity financing summary from the acquirer's perspective

	Debt	Equity
Provides EPS accretion	Yes	No
Reduces Cost of Capital	Yes	No
Is tax deductible	Yes	No
Increases Return on Equity (ROE)	Yes	No
Increases Balance Sheet flexibility	No	Yes
Absence of mandatory cash payments	No	Yes
Lack of credit rating considerations	No	Yes
Lack of covenants	No	Yes

Source: Rosenbaum and Pearl, 2020.

Transaction structure

The M&A transaction can be structured in two different ways, albeit mixable in particular cases: stock sales; and asset sales. Those significantly differ in complexity and have several tax implications both for the company and the shareholders. Thus, parties perception of value coming from the deal will be affected by the transaction structure chosen, as will the seller's willingness and ability to pay.

Stock sales are the most common sale structure observed in M&A transactions, especially for C Corps[6]. It refers to buying the target company's stocks directly from its shareholders in exchange for some form of consideration, as discussed before.

In this event, the target company continues to exist as a wholly-owned subsidiary of the acquirer. Thus, the buyer acquires (and economically bears) all past, present, and future, known or unknown liabilities with the target. That makes stock sales the cleanest form of transactions from the seller's perspective, eliminating all tail liabilities not specifically retained in the definitive agreement (Rosenbaum and Pearl, 2020).

To protect themselves, the acquirer may demand, in the deal negotiations, to receive representations and warranties[7] or other concessions from the seller to allocate the risk of certain liabilities to his behalf (Gaughan, 2018). For public companies, reps and warranties do not survive the closing of the deal. For private transactions, on the other hand, former shareholders typically remain liable for warranties breaches (Brown and Grinnell, 2015).

On the other hand, asset sales are transactions in which the buyer purchases all or part of the target's assets. In this kind of structure, the target does not cease post-transaction, nor is it absorbed by the acquirer. That means any liability not explicitly included in the definitive agreement — which provides for most unknown contingency liabilities — will remain at the seller's responsibility. Thus, while it alleviates the buyer's risk, it also represents a massive burden for the seller, adding a great deal of uncertainty to the sale.

Furthermore, asset sales may be subject to double taxation for the seller if the target is liquidated and proceeds are distributed to shareholders, as is often the case. That happens because, opposed to a stock sale, where the sellers are the target's shareholders, on asset sales, it is the corporate entity selling, so that any gains are subject to corporate tax on top of the already foreseen capital gain tax for

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[6] Corporations taxed separately from its shareholders.

[7] Representations are assertions as to facts, accurate on the date the representation is made, while warranties are indemnifications if the statement is later proven to be false.

shareholders receiving the proceeds, as illustrated in Table 2. Exceptions are the cases where the assets belong to 80% owned subsidiaries, as profits are not going to be distributed to shareholders, and internal capital gains may be offset by losses and hence not taxed at all (Gaughan, 2018).

Table 2 - Stock sale vs. Asset sale taxation for the seller

	Stock Sale	Asset Sale
Purchase Price	$2,000.0	$2,000.0
Asset Base	(500.0)	(500.0)
Corporate Level Gains	—	1,500.0
Corporate Tax (25%)	—	(375.0)
Shareholder Level Gains	1,500.0	1,125.0
Capital Gain Tax (15%)	(225.0)	(168.8)
Seller Net Proceeds	$1,775.0	$1,456.3

Source: Rosenbaum and Pearl, 2020.

Finally, as assets are individually transferred, there are some serious practical issues related to the titles' transfer speed, cost, and feasibility. That is especially prevalent for multinational companies with diverse licenses and contracts held on multiple geographies. For instance, third party consent may be required, or non-assignment clauses may be present (Gaughan, 2018). In stock sales, by contrast, the new owners automatically obtain all the titles by acquiring the stock. Those, together with the seller's reluctance in incurring additional taxes, explains why *Asset Sales* remain an infrequent event, mostly linked with Leveraged Buyouts (LBO) (Bruner, 2004).

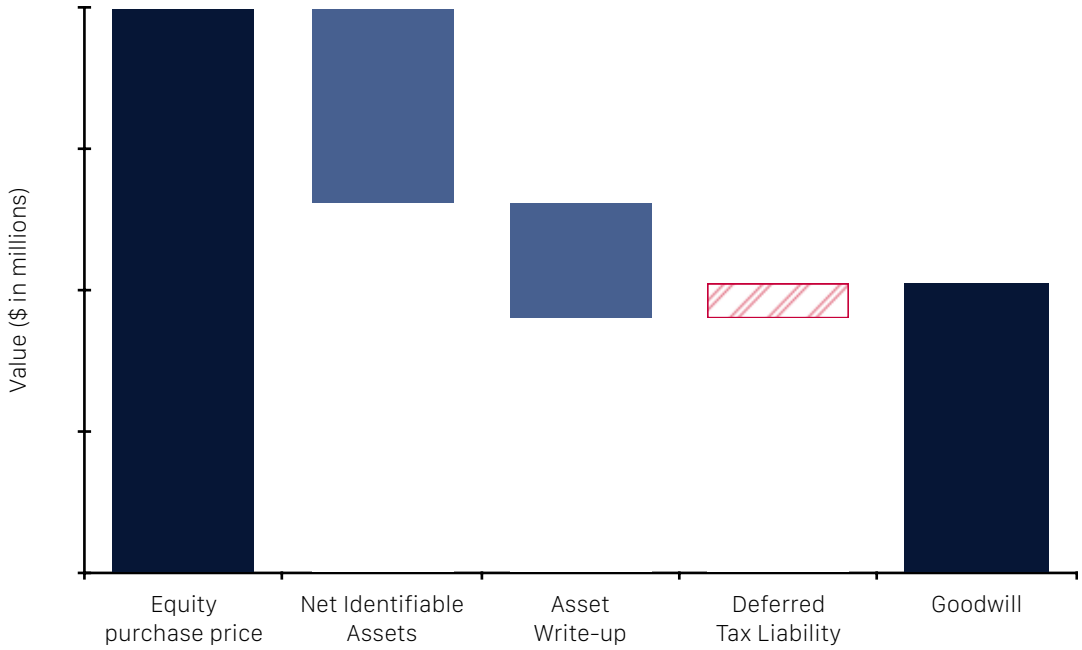
For both IFRS (IASB, 2018) and GAAP (FASB, 2017), in the event the purchase price exceeds the net identifiable assets (for both asset and stock sales), some of this excess can be allocated to the target's tangible and intangible assets, that are 'written-up' to their fair market value. The stepped-up value of the assets will then be used as the basis for Depreciation and Amortisation (D&A), effectively reducing net profits.

Tax laws, however, don't always treat stock and asset sales in the same manner concerning stepped-up assets. In the US, for instance, in the event of a stock sale, companies cannot use the transaction-related D&A to deduct taxes. The idea is that, since neither buyer nor seller pays taxes on the 'gain' on the GAAP asset write-up, the buyer shouldn't be able to reap tax deduction benefits from this accounting convention (Rosenbaum and Pearl, 2020). Thus, a Deferred Tax Liability (DTL) is

created on the balance sheet — calculated as the write-up multiplied by the company's tax rate to account for the difference between book and tax depreciation.

The difference between the acquisition price and the value of the stepped-up assets (discounted of DTL), as shown in Figure 8, is called goodwill and is placed amongst the non-current assets in the balance sheet. Neither IFRS (ASBR, 2018) nor GAAP (FASB, 2017) foresees the amortisation of goodwill. Nevertheless, both accounting standards allow for annual tests for impairment, in which goodwill can be 'written-down' to a fair value, with the difference entering the income statement as a one-time charge (Iannotta, 2010).

Figure 8 - Goodwill composition



Source: Author, 2021.

Goodwill can help identify companies that rely on acquisitions to grow, as it can become a substantial percentage of their overall assets. It also indicates whether companies are systematically paying large Price-to-Book (P/B) ratios for acquisitions and whether they are overpaying their targets through the annual impairment test. For instance, AB InBev is well-known for their acquisition strategy in the brewery sector. That is reflected on their balance sheet by $120 billion of goodwill, more than 53% of their total assets. Despite that, AB InBev's goodwill is rarely subject to impairment, with only one $2.5 billion charge in the last three years — mainly due to the pandemic (AB InBev, 2020). Thus, showing that although paying large P/B ratios, AB InBev investments are being well-made.

Contrasting to stock sales, companies can use transaction-related D&A to deduct taxes. That may provide cash benefits for the acquirer during the stepped-up depreciation period, as it will reduce the amount of taxes due, creating a tax shield (Rosenbaum and Pearl, 2020). However, the double taxation to the seller that may be created on asset sales tends to strongly outweigh the buyer's potential tax shields so that the overall transaction structure becomes value-destroying.

In the cases of subsidiaries' sales, where no double taxation is foreseen, the US law has a mechanism that allows the buyer to benefit from the tax shield without having the trouble of transferring individual titles for all assets previously discussed. The 338(h)(10) election consents to treat stock sales as asset sales for tax purposes resulting in lower after-tax costs for the buyer and more significant after-tax proceeds for the seller that will also benefit from no tail liabilities being left behind. Moreover, the Internal Revenue Code requires that the 338(h)(10) be a joint election by both buyer and seller, forcing parties to work together to maximise value.

Table 3 illustrates the difference in cost and proceeds obtained by the parties from a stock sale and a 338(h)(10). As shown, since this scenario creates meaningful incentives for the buyer to increase its bid to have the target agree to a 338(h)(10), it is common for the seller to ask a premium to do so (Rosenbaum and Pearl, 2020). Thus, the buyer will be willing to increase its bid up to the value of the tax shield, and the typical outcome is that the buyer and the seller split the tax benefit.

Table 3 - Summary of the primary deal structures for the sale of a subsidiary

	Stock Sale	338(h)(10)	Buyer Breakeven	Split Difference
Seller's Side				
Purchase Price	$2,000.0	$2,000.0	$2,358.0	$2,179.0
Asset Base	(500.0)	(500.0)	(500.0)	(500.0)
Corporate Level Gains	$1,500.0	$1,500.0	$1,858.0	$1,679.0
Corporate Tax (38%)	(570.0)	(570.0)	(706.0)	(638.0)
Seller Net Proceeds	$930.0	$930.0	$1,152.0	$1,041.0
Buyer's side				
Purchase Price	$2,000.0	$2,000.0	$2,358.0	$2,179.0
Tax Benefits[8]	—	(289.0)	(358.0)	(323.5)
Net Purchase Price	$2,000.0	$1,711.0	$2,000.0	$1,855.5

Source: Rosenbaum and Pearl, 2020.

[8] *Calculated as the present value of buyer's annual tax savings for 15 years at a 10% discount rate.*

Table 4 summarises the characteristics of the presented deal structures.

Table 4 - Summary of the primary deal structures

	Stock Sale	Asset Sale	338(h)(10) Election
Shareholders are sellers	Yes	No	No
Corporate entity is seller	No	Yes	Yes
Potential double taxation	No	Yes	Yes
Seller transfer all assets & liabilities	Yes	No	Yes
Simple execution	Yes	No	Yes
Asset step-up for accounting	Yes	Yes	Yes
Asset step-up for tax	No	Yes	Yes
Common for public companies	Yes	No	No
Common for subsidiary	Yes	Yes	Yes

Source: Rosenbaum and Pearl, 2020.

Sale Process

The sale of a company, division, or collection of assets is an immensely time-consuming process that can span several months and whose result can never be ascertained until the final signature. The complexity of tailoring the approach to achieve an optimal mix of value maximisation, speed of execution, and certainty of completion amongst other deal-specific considerations make it so that companies (acquirers or targets) typically hire investment banking professionals to advise them through the process (Rosenbaum and Pearl, 2020).

The sale process is a spectrum that can range from a negotiated sale with a single party to broad auctions with several bidders. In-between those, sellers can also organise targeted auctions only with a handful of carefully chosen potential acquirers (Iannotta, 2010). A multitude of factors can influence the sale process selected. Buyer initiated deals usually end up being negotiated sales — unless the target decides to open negotiations with other players. Instead, when the target starts the selling process, the company will inexorably face a trade-off between competition — and hence less money left in the table; and business disruption — as deal negotiations require the sharing of operational information with interested parties, including competitors (Hansen, 2001).

Negotiated sales, as aforementioned, are usually initiated by the acquirer and consist of the target dealing directly with a single prospective buyer. Consequently, the absence of a competitive tension significantly reduces the seller's leverage in the negotiations. Thus, the buyer and the seller usually deal upfront with critical terms, such as price, structure, and governance. Notwithstanding, dealing with a single acquirer provides some benefits in terms of deal flexibility, velocity and business disruption that may outweigh the potential 'money left on the table'.

Targets may maintain some kind of competitive playing ground by the constant threat of launching an open auction, the so called 'shade of an auction' (Aktas et al., 2010). That may impel the buyer into offering more significant premiums upfront in the negotiation process. To justify it, buyers may need to foresee clear synergies and some strategic fit. Hence, it is common for negotiated sales to be performed by strategic acquirers (Rosenbaum and Pearl, 2020).

The famous case of RJR Nabisco is an example of an initially negotiated sale that evolved into a broad auction. The 1987 market crash plummeted the company's share price from the mid-sixties to the low-forties in a day. The then CEO of the company F. Ross Johnson saw the opportunity to acquire the company with an investment group through an LBO and made an offer of $75 per share in October 1988—which would mean the largest LBO in history. The proposal was, nevertheless, deficient, as Johnson did not expect any competition. When RJR management announced that they would take RJR Nabisco private, KKR decided to enter the game and submitted an offer of $90 per share to the company's board, which triggered them to start a broad auction and set a deadline for the submission of revised bids.

On the 29th of November, the board announced that KKR would buy RJR Nabisco for $109 per share. The value was lower than the $112 per share offered by Johnson. The official justification was that the KKR proposal was guaranteed, but rumours at the time indicated that the board was unsatisfied by the $100 million deal that Johnson would get as a golden parachute.

Strategic buyers conventionally conduct months of research about the acquirer, including some informal contacts, before placing an official offer. That allows the bypassing of much of the upfront preparation, buyer contact, marketing, and company-specific education, significantly accelerating the agreement (Rosenbaum and Pearl, 2020). Furthermore, the possibility of tailoring the deal on a one-to-one basis provides a great deal of flexibility and facilitates the negotiation between the parties.

Sellers also greatly benefit from the higher degree of confidentiality embedded in a negotiated sale. The seller is compelled to provide the buyer with a lot of confidential

and sensitive information for the latter to derive a meaningful valuation range and estimate potential synergies and fit. Since acquirers are often direct competitors, there is the potential for unsuccessful buyers to use that information to gain a strategic advantage in the market. Dealing with a single party increases the control over the information flow and minimises that risk (Hansen, 2001). Furthermore, given that M&A inexorably end with personnel cuts and closing of redundant facilities, news that a company is going to be sold heavily impacts employees' morale and may strongly disrupt business (Napier, 1989). More robust control of information flows also means that information about the deal is less likely to leak before the announcement.

On the other hand, auctions are staged processes where the target is marketed to multiple potential bidders. The auction process is supposed to positively affect both value and terms received by the target due to the augmented competitive environment. Since commonly every acquirer submits their closed-envelope bid at the same time — a process called First-Price Sealed-Bid (FPSB) — they are expected to present the best offer possible (also considering his potential competitors) to avoid losing the target. In an FPSB, competing bidders will likely bid more aggressive if another bidder is recognised as more potent, in the hopes he will shade his bid too far, a dynamic completely absent from English auctions (increasing sequential open offers), where a strong bidder can only wait for the weaker offer to exit at their true lower value (Kesten, 2015). Thus, auction processes provide the seller's board with the tranquillity of fulfilling their fiduciary duties with shareholders and a strong indicator of inherent value.

Auction processes, nevertheless, have some drawbacks, such as the already mentioned more complex information flow, habitually larger time-spans, potential business disruptions and loss of employee morale. Furthermore, when a winning bid is chosen and the others discarded, the process approaches itself to a negotiated sale, and the buyer may be tempted to use his increased leverage to engage in re-trading — i.e. replacing the initial bod with a lower one at a later date.

The greater probability of information leaks also raises the issue of 'tainting': seller-initiated deals — regularly the case for auctions — are often associated with business distress (Pettit et al., 2007). Therefore, when a disclosed (or leaked) auction process fails, there is a strong probability that the target reputation becomes stigmatised as 'damaged goods', hurting their credit profile, relationship with suppliers and clients, and future M&A activity (Taylor, 2020).

The auction process's highly complex nature makes it inevitable for the seller to seek out the professional assistance of an investment bank that will provide resources, experience, and expertise to ensure a successful outcome.

To better exemplify the difference between auctions and negotiations, Table 5 compares two deals from 1998. The first was the selling of Blount Inc., a manufacturer of forestry and construction products advised by the Beacon Group in this auction. After the board decided that selling the company would be the best alternative, Beacon Group contacted 65 potential buyers. Of those, 28 signed confidentiality agreements, and only two submitted written bids for Blount — with the financial group Lehman Brothers being the successful bidder.

The second was the sale of BankBoston to Fleet Financial. Both companies' CEOs discussed the possible merger in April 1998, and BankBoston did not contact any other potential bidders during the whole period of discussions. Finally, in March 1999, they signed the deal.

One crucial difference between both deals is that the general public only found out about the BankBoston merger the day after the signing. While for Blount, rumours already started to surface in the media almost one month before the public announcement, highlighting the difficulty of controlling information flows when dealing with several players — 65 in this case (Boone and Mulherin, 2007).

Table 5 - Examples of the sales processes

	Auction	Negotiation
Seller	Blount Inc.	BankBoston
Bidder	Lehman Brothers	Fleet Financial
Initiation event	Target contacts investment bank	CEOs meet
Initiation date	26/08/1998	01/04/1998
Companies contacted	65	1
Confidentiality agreements	28	1
Private bidders	2	1
Public bidders	1	1
Rumour date	31/3/1999	N/A
Agreement date	18/4/1999	14/3/1999
Merger announce	20/4/1999	15/3/1999

Source: Boone and Mulherin, 2007.

Blount Inc. transaction is also an example of a broad auction, in which the target tries to maximise the universe of prospective buyers approached. It usually starts with a pool bigger than fifty companies to optimise competitive dynamics. As mentioned before, broad auctions require much more upfront organisation and market and have the most significant potential of business disruption.

On the other hand, targeted auctions focus on a clearly defined and narrow set — typically 5 to 8 — of buyers with an excellent strategic fit, desire, and financial capacity to acquire the target. Therefore, targeted auctions are somehow between broad auctions and negotiated sales. It maintains a reasonable degree of competition while still minimising potential business disruption. Furthermore, most buyers prefer to engage in auctions they believe being able to win. Thus, an upfront screening process that leads to a few companies with a good chance satisfies buyers and may lead to more manageable processes (Pettit et al., 2007).

Both kinds of auctions, nevertheless, conventionally follow the same structure, as a 2-round bidding process which spans from three to six months and comprises the following stages:

- organisation and preparation: the investment bank chosen to advise the deal will help the seller identify their objectives and determine the appropriate sale process. The investment bank will draft a preliminary valuation and the marketing and legal material (such as teasers and Non-Disclosure Agreements (NDAs). Finally, the universe of potential buyers will be identified;
- first bidding round: the acquirer's pool is contacted and handled the teasers and Non-Disclosure Agreements (NDAs). Interested parties sign it and receive the initial bid procedures and the Confidential Information Memorandum (CIM) — a detailed written description of the target that serves as a primary marketing document. In addition, The target's management may organise a presentation to the potential acquirers. That is also the moment in which investment banks set the data room. At the end of this stage, the interested parties submit a first non-binding bid (Iannotta, 2010);
- second bidding round: the target and the sell-side advisor select the companies that will proceed to the next round of bidding. An efficient sell-side advisor can discern genuine bids from those bidders that want a free look at the target without effective intentions of consummating the transaction. Acceptable proposals are deemed access to the data room and can visit the target's facilities. This stage ends with the submission of final (binding) offers by interested parties,

which are expected to have minimum conditionality or 'outs' (Rosenbaum and Pearl, 2020);

- negotiations: the target evaluates the final bids and select two (or more) preferred bidders to negotiate. It is worth noting that price is not the only variable to be assessed in the final offer. The binding nature of each bid (i.e. the conditionality) and the bidder's financial package (i.e. their ability to pay) are also weighted. Sellers must maintain a good level of playing field amongst the bidders to maximise the competition at this stage to avoid re-trading. For that matter, the seller reserves the right to reject all bids at any stage of the process, cancelling the sale (Davis and Schreiber, 2017). During these final negotiations, the advisor works intensely with the bidders to clear reminiscent diligence items and firm the binding terms of the definitive agreement. The stage ends with the approval of the agreement by the board;
- closing: the final stage of the auction process is focused on obtaining the necessary anti-trust and shareholder approval and the buyer sourcing all the necessary funds to close the transaction. It is common for sell-side advisors to provide a staple financing[9] package to buyers to be used if needed to increase the likelihood of success (Povel and Singh, 2010). This stage usually takes between four to eight weeks to finish but may need more than 12 months depending on the complexity of the deal and the amount of overlap between the two companies operations, as the FTC may condition approval to some divestments.

Table 6 provides a summary of the risks embedded in each of the sale processes.

Table 6 - Comparison among Broad Auctions, Targeted Auctions and Negotiated Sales

Probability of:	Broad Auction	Targeted Auction	Negotiated Sale
Exclusion of non-obvious buyers	Low	High	High
Leaving money on the table	Low	Medium	Medium
Being 'tainted' from unsuccessful outcome	High	Low	Low
Deal lasting too long	High	Medium	Low
Having an uncompetitive environment	Low	Medium	High
Not satisfying boards fiduciary duties	Low	Medium	High
Information leaks	High	Low	Low
Not finding a suitable buyer	Low	Medium	Medium

[9] *A pre-arranged and pre-approved financial package whose financial details used to be stapled to the back of the acquisition term sheet—hence the name.*

Source: Author, 2021.

A close analysis of particularly large transactions shows that competition is prevalent and that more than half of companies are sold through auction processes (Boone and Mulherin, 2007). Overall evidence also points out that targets yield great returns from auctions, while the competitive environment renders acquirers gain minimal, at best (Hansen and Dasgupta, 2007).

Some of the disappointing returns for buyers may come from factors hypothesised by the irrational managers approach, such as the psychological momentum (or 'deal frenzy') that arises from overly competitive environments. Bidders may be detached from reality and spurred to win at any price (Bruner, 2004), triggering a case of winner's curse. Winning, in this case, would convey bad news to the winner because it means that everyone else estimated the item's value to be less than him — indicating overpayment (McAfee and McMillan, 1987).

Evidence of the winner's curse has been found in auctions for offshore oil leases (Capen et al., 1971), uncertain technology (Quirk and Terasawa, 1984), and takeovers (Varaiya and Ferris, 1987). Nevertheless, the prevalence of this phenomenon in M&A is highly debated, as it would imply repeated violations of rationality, with bidders regularly surprised with auction results (McAfee and McMillan, 1987). Thus, rational bidders would regularly underbid if they thought they would likely win. And although, as Thaler (1992) states, rationality is an economic hypothesis and not a demonstrated fact, recent studies point out that the winner's curse is not typical for company auctions (Boone and Mulherin, 2007).

Valuation strategies and pitfalls

Unlike prices, which for most assets are available anytime and for anyone, value can be quite an elusive measure. For instance, assets that hold aesthetic or emotional baggage may be valued differently depending on the personal views and preferences of the person doing the valuation. Financial assets can, sometimes, bear some resemblance to those: different people will have different risk tolerances and hence require more or less return to invest in a particular security (Hull, 2015).

However, the fundamental difference is that financial securities are acquired to provide the owner with some cash flows in time. Accordingly, while the final value of a security may depend on the risk appetite of the viewer, the process used to arrive at that value must reflect its cash-flow generation capabilities (Damodaran, 2006).

In M&A, valuation is pivotal for the acquirer to formulate an offer and estimate synergies. On the seller's side, it is used as a benchmark to assess the acquirer's proposals and satisfy the board's fiduciary requirements. Unfortunately, valuation techniques' results are susceptible to their inputs. It is elementary for an analyst to manipulate the valuation hypothesis or the comparables universe to achieve results that confirm his preconceived notions (Damodaran, 2006). Thus, companies must be careful to use valuation to **derive** prices rather than **justify** them.

Assessing a company's worth is mainly done through two primary methodologies: multiples (or relative valuation); and fundamental (or intrinsic) valuation. The first relies on finding a universe of companies (or precedent transactions) with similar key business and financial characteristics to use as a benchmark. It has the advantage of being very 'current' and straightforward, but periods of market irrationality may skew its results lead to overpayment. The latter is based on the expected cash flow generation of the asset and hence not affected by market sentiments. It is, however, forward-looking and thus prone to the analysts' hypothesis about the company's future capabilities — as well as the inevitable uncertainty about the coming economic panorama (Póvoa, 2012).

The common practice is to perform both valuation methods and display their range in a 'football field' graph to avoid being misled. For example, material disconnections between derived valuation ranges may indicate that critical assumptions or calculations need to be revised. Or, the analyst has found valuation arbitrage in the market — i.e. the efficient-markets hypothesis is not holding, and prices are not a good reflection of value (Rosenbaum and Pearl, 2020).

Relative valuation

Relative valuation (or multiples) is a class of valuation techniques in which an asset value is derived from similar assets currently trading in the market — and hence for which the price is known. This methodology is built on two central hypotheses: the first is that companies that share common markets, risks, and financial characteristics should be valued the same; and the second is the weak form of the Efficient-Market Hypothesis (EMH), which states that, in the long run, prices reflect all the possible information available to investors, and consequentially are the best possible estimate of value (Fama, 1970).

Those hypotheses, nonetheless, are not fail-proof. For starters, the very definition of a comparable company can be very relative. Even in established and straightforward sectors (which is not always the case), there are no two companies that are exactly the same. Risk and growth profiles are often hard to properly estimate and may have a strong impact in market pricing (Damodaran, 2006).

For instance, in 2005, Andrew Wines and Chalone Wine Group had very similar products, shared most of their markets, and presented very similar volatilities — 24.7% and 24.08%, respectively. At the time, Chalone had a trailing Price-to-Earnings (P/E) ratio of 21.76, while Andrews only traded at 8.96x their earnings (Damodaran, 2006), indicating a possible undervaluation of Andrews. However, as both companies' expected growth rates show, this was not an arbitrage opportunity: Chalone was foreseen to grow four times more in the following years, and adjusted P/E ratios would expose that Andrew was more expensive than Chalone.

Furthermore, the EMH is a highly discussed topic in academia. On the one hand, evidence shows that it is tough to beat the market[10] consistently. So that most actively managed funds have average insignificant or negative returns, and most alphas can be attributed either for failing to account for liquidity risk or pure luck (Gibson et al., 2013). That motivated Burton G. Malkiel (1999, p. 24) to state that 'A blindfolded monkey throwing darts at a newspaper's financial pages could select a portfolio that would do just as well as one carefully selected by the experts'.

On the other hand, as the last 20 years have painfully shown, markets can be very wrong in the short term since investors often diverge from the *homo economicus*[11] hypothesised by the Modern Portfolio Theory and act irrationally. Examples for that range from analysts to see a billion dollars valuation on a three-years-old money-

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[10] *Generate alpha, in the financial jargon.*

[11] *A perfectly rational being that always acts in a way that would maximise his utility.*

losing internet seller of pet supplies in the dot-com bubble of the 2000s' (Koller et al., 2005), all the way to nowadays' over $50 thousand prices on digital currencies that have no intrinsic value, generate no cash-flows and are not accepted as legal tender[12] (Quiggin, 2013).

Notwithstanding, when carefully conducted, relative valuation can be a powerful tool to assess value. Along with the disadvantages mentioned earlier, being market-based also comes with two outstanding traits: contemporaneity and defendability. On multiples based valuation, the analyst's personal views and estimates are (in theory) substituted by a market consensus — wrong as it may be. That provides him with a much stronger basis to defend his claims, founded on the current market mood and prevailing economic conditions (Rosenbaum and Pearl, 2020). Furthermore, relative valuation is much quicker and easier to conduct, depending on substantially less information and hypotheses.

For M&A deals, investment banks usually perform two different kinds of relative valuation: comparable companies (also called 'trading comps' or simply 'comps') and precedent transactions. The first look at a universe of competitors or similar companies that share the same market as the target to serve as a benchmark for a valuation range. In contrast, the latter looks at prior M&A deals that share some characteristics with that being advised.

Both methods are very similar and share the same methodology. However, precedent transactions have the advantage of considering control premiums paid by the acquirer and expected synergies. On the downside, they are much less contemporary, as they often refer to M&A that occurred up to three years in the past, and may not reflect current market conditions. Also, it is often very difficult to find a robust universe of similar transactions to compare (Rosenbaum and Pearl, 2020).

A relative valuation, be comps or precedent transactions, comprises four fundamental steps: selecting the universe, locating financial information, spreading the multiples, and determining a valuation range.

The first — selecting the universe — is also the most crucial to a fruitful valuation. It consists of determining a set of companies with similar business characteristics and financials. That can be pretty intuitive for some sectors, with firms serving the same sub-sector in different geographies or the target's closest competitors serving as good benchmarks. Nonetheless, that can be a rather challenging task for others with no explicit publicly traded peers. When that is the case, bankers usually seek companies

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[12] Note that cryptocurrencies are a very current discussion topic and its defenders argue that its value comes from its role in facilitating transactions.

that, albeit outside the target's core sector, share some business and financial characteristics at a fundamental level (Rosenbaum and Pearl, 2020). For instance, one could argue that Whole Foods has no direct competitor selling exclusively organic groceries. Nevertheless, to perform a comps analysis, one could expand the universe to include all grocery retailers, or even mass merchandisers with similar exposure to the grocery's business cycle, resulting in a group such as depicted in Table 7.

Table 7 - Whole Foods universe of comparable companies

Selected Company	Ticker
Grocery Retailers	
The Kroger Co.	KR
Ahold Delhaize	AD
Sprouts Farmers Market, Inc.	SFM
Weis Markets, Inc.	WMK
Ingles Markets, Incorporated	IMKTA
Mass Merchandisers	
Wall-Mart Stores, Inc.	WMT
Target Corporation	TGT

Source: Whole Foods, 2017a.

This step can be very time consuming because before looking for comps, the advisor must perform a throughout analysis of the target. Besides a financial profile that includes metrics as size, growth characteristics and return on investment, one must compile and understand clearly the target's business profile to determine commonality with its peers. That includes the sector serviced, products offered, distribution channels used, and geographical presence.

Once the universe is defined, bankers must incorporate financial information about the target and the comps into a spreadsheet. One can gather most of the data from the companies' financial statements and investors communications. For US-based companies, SEC fillings are the best possible source. For instance, 10-Ks (annual) and 10-Qs (quarterly) fillings provide a comprehensive overview of the company's past performances, including financial statements[13]. In addition, equity researches and consensus estimates provide valuable information about how the market foresees future earnings and profitability and may be helpful to calculate forward-looking multiples and Compounded Annual Growth Rates (CAGR). And finally, for market data,

[13] *Audited by a Certified Public Accountant, in the case of the 10-Ks.*

the common practice is to extract the information from service providers such as Bloomberg, S&P Capital IQ, or even credit rating agencies, such as Moody's or Fitch (Rosenbaum and Pearl, 2020).

For example, Table 8 provides some key financial information for Whole Foods and some of their comps in 2017 and where one could find the data.

Table 8 - Selected financial information for Whole Foods and main comps (data from Q2 2017)

	Whole Foods	The Kroger Co.	Sprouts Farmers	*Source*
Net Sales	$15,856.0	$117,018.0	$4,336.1	*10-Qs*
EBITDA	$1,397.0	$5,580.0	$220.7	*10-Qs*
Net Income	$503.3	$1,803.0	$136.0	*10-Qs*
Basic Shares Outstanding	319,565	897,346	136,472	*10-Ks*
Cash & Equivalents	$1,012.0	$356.0	$14.8	*10-Qs*
Total Debt	$1,047.0	$13,444.0	$310.0	*10-Qs*
Share Price	$35.45	$30.28	$24.74	*Bloomberg*
Sales next 2-years CAGR	2.9%	4.3%	13.4%	*S&P Capital IQ*

All data in millions, except for share price.

Source: Author, 2021.

The financial data is then used to calculate indirect information and several ratios and multiples to derive valuation ranges. Relevant data to be calculated includes size, return on investment, credit profile metrics, and trading multiples (Póvoa, 2012).

Regarding size, analysts need to estimate the total market capitalisation of the companies, given by (6). It must be calculated on a fully diluted basis, including all in-the-money options, warrants and convertible securities. The common practice is to present this data together with the share price as a percentage of the 52-week high both to add time deepness (as the current price is just a picture of the present moment) and a gauge about the market sentiment regarding company and sector. For instance, a particular company diverging from its peers might indicate company-specific issues, such as missing an earnings guidance (Rosenbaum and Pearl, 2020).

$$E = Stock\ Price \times Diluted\ Shares\ Outstanding \tag{6}$$

The number of fully diluted shares is estimated from the Treasury Stock Method (TSM). The central assumption behind the TSM is that all tranches of in-the-money warrants and options are exercised at their weighted average strike price, and the proceeds are then used to repurchase outstanding shares at the current share price

(Berk and DeMarzo, 2017). Since the in-the-money strike price is by definition lower than the share price, the company would repurchase fewer shares than the option exercised. So the method will always be dilutive. To exemplify, Table 9 presents the calculation of Whole Foods options exercised, while Table 10 estimates fully diluted shares using that data.

Table 9 - Whole Foods option tranches and hypothetical proceeds (share price = $35.45)

Option Tranches	# of options	Exercise price	In-the-money	Proceeds
Tranche 1	1,600	$20.49	1,600	$32.8
Tranche 2	11,000	$33.00	11,000	$363.0
Tranche 3	9,200	$43.73	-	-
Tranche 4	4,500	$52.40	-	-
Total	26,300		12,600	$395.8

Proceeds and number of shares in millions

Source: Whole Foods, 2017a.

Table 10 - Calculation of Whole Foods fully-diluted shares (values in millions)

	# of shares	*Notes*
Basic Shares Outstanding	319,565	
Plus: shares from in-the-money options	12,600	*in-the-money shares*
Minus: shares repurchased	(11,165)	*proceeds/share price*
Fully diluted shares outstanding	321,000	

Source: Author, 2021.

The equity value calculated with (6) will serve as input in (7) to estimate enterprise value — the sum of all ownership interests in a company, both from equity and debt holders. Theoretically, that value is independent of the firm's capital structure (Modigliani and Miller, 1963). It is easy to see that raising debt and keeping the proceeds as cash wouldn't change enterprise value, nor issuing equity and using it to repay debt. In reality, however, debt and equity issuance inexorably present financing fees, and debt repayment may include breakage costs, rendering the mentioned operations value-destroying.

$$EV = E + D + PS + NcI - Cash \tag{7}$$

Then, bankers need to calculate metrics to measure return on investment. A remarkably straightforward way to assess the value-creating potential of companies.

Hence, they help make investment decisions and estimate future investments' returns (Fernandes, 2014). The firm's effectiveness in converting capital into profits is usually measured from three different stances: Return on Invested Capital (ROIC), Return on Equity (ROE), and dividend yield. Nevertheless, for particular industries, other sector-specific indicators may be applicable.

The first, ROIC (8), measures the return generated by all the capital invested in a given company. To do so, it compares a pre-interest earning, the Net Operating Profit After Taxes (NOPAT)[14], and the book net capital[15] — equity plus debt, discounted of cash. In analysis, this indicator is commonly paired with the WACC to assess if the company can generate higher returns than it costs to fund itself — i.e. if the company is creating or destroying value with their operations (Póvoa, 2012).

$$ROIC = \frac{NOPAT}{D + E - Cash} \tag{8}$$

ROE (9), on the other hand, measures returns only at the shareholder level. Hence, the numerator consists of interest-deducted earnings — net income — and the denominator consists only of equity. As was in the previous case, one can assess value-creating capabilities by comparing the ROE with the cost of equity (Póvoa, 2012).

$$ROE = \frac{Net\ Income}{E} \tag{9}$$

Net income, however, can be kept in the company as retained earnings, and it is also not uncommon to see dividends paid in excess of net profits. Thus, a market investor may be more interested to see how much of the price he can expect to earn as dividends. The appropriate metric for that is the dividend yield (10), which compares the annualised last quarterly dividend with market prices (Rosenbaum and Pearl, 2020).

$$Dividend\ Yield = \frac{4 \times Last\ Quarterly\ Dividend\ per\ Share}{Current\ Share\ Price} \tag{10}$$

Table 11 provides an example for the 2017 Whole Foods case. The comparison shows that although the companies diverged in size, their returns seldom deviated significantly. The exceptions are the ROE that is highly dependant on the company's capital structure — more leveraged companies experience a higher cost of equity from increased risk of financial distress; and Sprouts does not pay dividends.

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[14] The NOPAT is the tax-affected form of the Earnings Before Interest and Taxes (EBIT), and is calculated as NOPAT=EBIT(1-T_c).

[15] A good practice is to use year-average values to account for balance sheet ephemerality.

Table 11 - Estimation of return on investment metrics for Whole Foods and selected comps

	Whole Foods	The Kroger Co.	Sprouts Farmers
Balance Sheet (12m average)			
Cash	$932.0	$339.0	$13.6
Debit	1,047.5	13,760.5	282.5
Equity	3,291.5	6,421.5	662.6
Income Statement			
EBIT	$853.0	$3,198.0	$220.7
Corporate Tax (38%)	(324.1)	(1,215.2)	(83.9)
NOPAT	528.9	1,982.8	136.8
Net Income	503.3	1,803.0	136.0
Market Data			
Share Price	$35.45	$30.28	$36.95
Last Quarterly Dividend	0.14	0.12	—
Moody's Corporate Rating	Baa3	Baa1	Ba3
Return on Investment Indicator			
ROIC	15.52%	9.99%	14.69%
ROE	15.29%	28.08%	20.52%
Dividend Yield	1.58%	1.59%	0.00%

$ in millions, except for share data.

Source: Author, 2021.

Finally, bankers proceed to spread the trading multiples of the comparables universe with financial information in hand. Those can take particular and specialised forms for various sectors, but the most generic and widespread compare a measure of market valuation with financial performance (Rosenbaum and Pearl, 2020). Once again, one must contrast firm-wide metrics such as enterprise value with earnings that flow to both equity and debt holders — i.e. EBITDA or EBIT. For equity value, on the other hand, profits must be already interest-deducted — for instance, Net Income or EPS (Damodaran, 2006). P/E ratio is the most widespread transaction multiple in financial markets, yet Enterprise Value-to-EBITDA is usually preferred when it comes to M&A.

The P/E ratio (11) can be viewed as how much investors are willing to pay for a dollar of the company's earnings. Those can be based on the expected forward 1 or 2 years, or over the Last Twelve Months (LTM) — named trailing. As investors are usually focused on future growth, the first is commonly preferred (Damodaran, 2006).

$$P/E = \frac{Share\ Price}{Diluted\ EPS} \tag{11}$$

Highly mature companies with demonstrated ability to generate cash are the ones that benefit the most from this ratio. Nevertheless, it has some severe limitations that restrain its usage within the M&A framework. For instance, companies in different countries may not be subject to the same accounting conventions for non-cash items, such as D&A, or might impose different tax rates on profits, which can bias the results (Póvoa, 2012). Furthermore, in the same way as the ROE, distinct capital structures and credit ratings may render two otherwise similar companies in terms of size and operating margins radically different when it comes to P/E (Rosenbaum and Pearl, 2020).

To avoid those kinds of issues, analysts tend to favour the usage of the EV/EBITDA ratio (12), that are not affected by D&A expenses nor by interest payments and taxes (Rosenbaum and Pearl, 2020). It is essential to notice that, as with the P/E ratio, the Enterprise Value (EV) is always market-based for this application and book values are not relevant for the analysis, as contemporaneity is crucial (Damodaran, 2006).

$$EV/EBITDA = \frac{EV}{EBITDA} \tag{12}$$

The trading multiples basis and values for Whole Foods' 2017 comparables are shown in Table 12. As predicted, it is possible to see that differences in capital structure tend to result in a much more 'stable' EV/EBITDA ratio than P/E.

Table 12 - Trading multiples for Whole Foods comparables universe

	KR	AD	SFM	WMK	IMKTA	WMT	TGT
Value Metrics							
Enterprise Value	$40,557	$27,289	$3,769	$1,473	$1,619	$276,118	$41,957
Share Price	$30.28	$21.57	$24.74	$52.60	$36.95	$79.90	$57.86
Earnings Metrics							
EBITDA	$5,580	$3,966	$309	$167	$233	$33,080	$7,270
Diluted EPS	$1.95	$0.91	$0.97	$2.13	$2.47	$4.46	$5.00
Trading Multiples							
EV/EBITDA	7.3x	6.9x	12.2x	8.8x	6.9x	8.3x	5.8x
Trailing P/E	15.5x	23.7x	25.5x	24.7x	15.0x	17.9x	11.6x

$ in millions, except for share data.

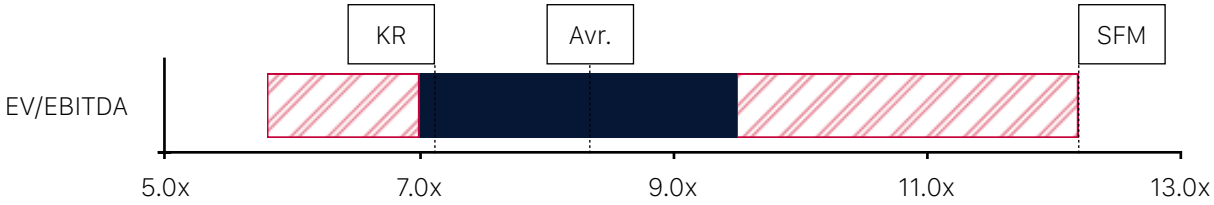
Source: Author, 2021.

Using the metrics gathered from the financial filings and those calculated in Table 11, bankers then proceed to carefully select two or three closer comparables to serve as the basis for the valuation, with the broader group serving as reference points. Finally, depending on the sector, economic situation, and confidence in the analysts' estimates, LTM or one-year forward multiples may be used (Rosenbaum and Pearl, 2020).

The usage of EV/EBITDA multiples will estimate a value for the entire enterprise. For M&A purposes, companies are commonly interested in implied share prices, as they are only acquiring the equity stake in the target. Therefore, using (7) will be needed to go from EV to equity, which will need to be divided by the fully diluted shares (6). P/E ratios, on the other hand, deliver a stock price without the need for further adjustments.

The closest comparable in terms of financials for Whole Foods valuation was The Kroger, while it was Sprouts Farmers for business characteristics. It should be noticed, however, that sprouts farmers zero-dividend policy gives rise to much more aggressive growth rates — sales grew 13% LTM and was expected to grow 15% in the coming year — which are going to be reflected in a higher EV, so its EV/EBITDA should be treated with care when defining the multiples range for Whole Foods. Thus, the multiples range selected, with EV/EBITDA shown in Figure 9, had a smaller upper limit than Sprouts Farmers to account for the fundamental differences in business growth.

Figure 9 - Selected multiple range for Whole Foods' LTM EV/EBITDA



Source: Author, 2021.

Table 13 - Valuation implied by EV/EBITDA and P/E (all values LTM) for Whole Foods

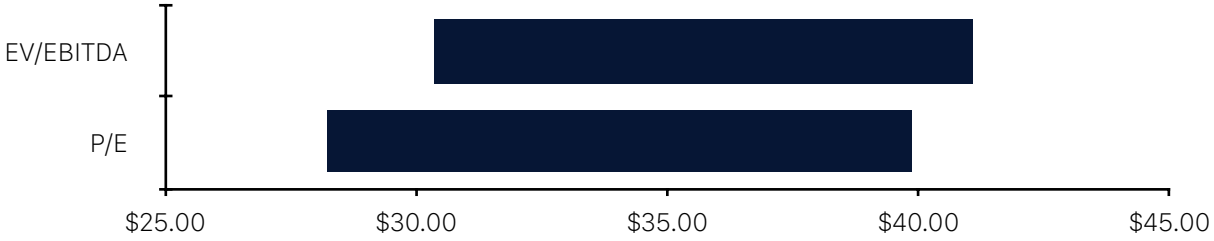
	Metric	Multiple range	Implied EV	Net debt	Implied equity	# shares	Implied Share Price
EBITDA	$1,397	7.0x — 9.5x	$9,779 — $13,218	(35)	$9,744 — $13,183	321	$30.36 — $41.07
EPS	1.66	17x — 24x	—	—	—	—	28.22 — 39.84

$ in millions, except for share data.

Source: Author, 2021.

Subsequently, one can apply the valuation range to Whole Foods' financials to arrive at an implied EV and share price in 2017. Table 13 shows the calculations process used, with the company's net debt being the total debt minus cash (Whole Foods didn't have any non-controllable interest nor preferred shares), and share numbers are fully diluted, as shown in Table 10. The price ranges derived are represented in a football field graph in Figure 10.

Figure 10 - Share price valuation range for Whole Foods



Source: Author, 2021.

Fundamental valuation

Fundamental valuation — also called Discounted Cash Flow (DCF) analysis — is a methodology based on the premise that the value of an asset is the present value of all its expected cash flows discounted at a rate that reflects their riskiness (Damodaran, 2006). Thus, unlike relative valuation, the value of a company is not dependent on perceived worth or market mood and conditions, which renders DCF analysis an essential alternative to other market-based methodologies.

The market detachment makes it particularly relevant in times of crisis and bubbles, where prevailing market conditions can be sanity-checked against aberrations, or in cases where company specificity renders a comparable universe limited or non-existing.

When adequately conducted, fundamental analysis allows the correct identification of over and undervalued stocks and provides plenty of flexibility to analyse the target under various economic scenarios by altering some inputs (Damodaran, 2006). Howbeit — as with multiples — some fundamental valuation's greatest strengths are also its primary weaknesses, and a DCF is only as robust as the underlying assumptions that support it. Thus, a sloppy or mischievous banker can set hypotheses unrelated to the business's risks and opportunities and manufacture a valuation unconnected with the firm's intrinsic value.

The bedrock of fundamental valuation is that companies exist solely for a reason: to provide their owners with streams of cash flows — called Free Cash Flows (FCF) — that will reward their investment. Therefore, the idea is that companies with the same cash-flow generation abilities and risk profile ought to be equally valued.

In theory, for the value to perfectly reflect the target, its cash flows should be projected until the end of the company's life, which is rather impracticable. Instead, since most mature companies eventually achieve a state of almost constant growth, and the discounting reduces the importance of individual cash flows as years goes by, the common practice is only to estimate the following 5 to 10 years and use a Terminal Value (TV) measure to capture the rest (Póvoa, 2012).

For most methodologies, TV estimations will be based on the projected last year's FCF. Therefore, it must represent a steady state of constant growth rates, reinvestment proportions, and rates of return (Koller et al., 2005). Furthermore, projection periods must span at least one complete business cycle, with the last year being neither a peak nor a trough. For some sectors and companies, such as innovative start-ups or the mining industry, ten years may not be enough, and so the banker will have to use more extended 'explicit' periods.

The fact that value unfolds from several years' FCF instead of a point in time is another advantage of fundamental against relative valuation, as it allows for assigning positive values to companies at a current loss, given that they will become profitable in the future (Damodaran, 2006).

In fundamental valuation, EV is determined by discounting all cash flows and the TV with the company's average cost to raise new capital — represented by the WACC — as shown in (13). Since this analysis is very vulnerable to TV and WACC assumptions, the common practice is to see outputs in terms of ranges, rather than point values.

$$EV = \sum_{t=0}^{tf} \frac{FCF_t}{(1 + r_{wacc})^t} + \frac{TV}{(1 + r_{wacc})^{tf}} \tag{13}$$

The fundamental valuation process can be subdivided into five steps: a study of the target's performance drivers; the projection of FCF; the estimation of the WACC; the computation of the TV; and final range definition.

Firstly, to craft realistic projections about a company's future, it is imperative to understand what drives its revenues and how the different businesses are expected to behave in the near future. One can gather much of this information by carefully reading the company's fillings, equity researches, and even newspaper articles. This process is much easier for public companies where stock exchanges require some

reasonable level of disclosure, while for private business management, projections and materials — such as the CIM — are often necessary (Rosenbaum and Pearl, 2020).

Sources of performance can either be internal, such as opening new stores or developing new products, or external, with acquisitions, market trends, or macroeconomic factors, for instance.

As seen with comparables, growth profiles can appreciably vary amongst peers in a similar sector. Factors like management personality, scale, and technology's state-of-the-art can lead companies to capture or lose market share from their competitors in a stagnant market. Similarly, differences in asset management — such as using lease machinery or incurring expansion projects — can create meaningful differences in FCF generation (Rosenbaum and Pearl, 2020).

Whole Foods, for instance, is a grocery store with a business model focused on providing clients with a differentiated, value-added experience around natural and organic products (Kelly et al., 2017a). The company operates in three different countries: the US, the UK, and Canada. However, 97% of its sales and 93% of its assets are located in the United States. The US food industry is a mature and oversaturated market of approximately $650 billion in 2015 — a 2% increase over the prior year. On the other hand, natural foods are a growing market, representing $108 billion and growing 9% in the previous year (Whole Foods, 2016). In spite of that, Whole Foods have been struggling to adapt to the evolving food retail landscape, with a sales CAGR of only 5.3% (Kelly et al., 2017a).

In 2017, the most significant criticism of Whole Foods resided in management's tardiness to reposition it. The company's substantial brand value, leadership in providing store experience and highly innovative food business were counterbalanced by weak data analytics, price optimisation, technology, and distribution channels (Kelly et al., 2017b). Thus, at the time, an M&A could be the ideal opportunity to change management and provide Whole Foods with the needed know-how to boost its turnaround.

The factors that may limit the growth are embedded in Whole Foods' business model. The current strategy relies on the opening of new stores in existing and new areas. As such, competition from a quite consolidated industry could pose a critical short-term risk. In the long run, climate challenges such as global warming could cripple the availability and quality of natural organic food and severely hurt profitability (Whole Foods, 2016).

Then, the fundamental valuation process must project the company's future cash flows. Those are the annual cash generated by the firm after paying all operative

expenses and investments in Property, Plant & Equipment (PP&E) (14), but before any interest payment. Therefore, FCF goes to equity and debt investors and is independent of the capital structure, rendering it a reasonable metric to calculate EV

$$FCF = NOPAT + D\ \&\ A - Capex - \Delta NWC \tag{14}$$

For most financial measures, past performance is not a good indicator for future results — with evidence pointing to a near-zero correlation between current and future high growth scenarios (Little, 1960). Nevertheless, the past can provide an excellent benchmark for crafting hypotheses, performing reality checks, and extrapolating financial ratios — that will be handy in estimating Net Working Capital (NWC). Thus, the analysis's starting point usually comprises spreading the firm's last three years financial statements and calculating relevant margins (Póvoa, 2012).

The two main assumptions behind FCF projections are that the target will last forever and arrive at a mature state with steady growth at some point in time. While this is a somewhat uncomfortable set of hypotheses, the evidence does point out that steady-state conditions typically occur within reasonable forecast horizons in ways that agree with residual income models (Nissim and Penman, 2001).

The first figures to project in an FCF calculation are sales, which will be detracted from operational costs to estimate NOPAT (15). In M&A scenarios, it is common for the target management to provide advisors with its own set of internal projections (labelled 'Management Case') that will serve as a base for bankers to incorporate assumptions deemed more probable — in the called 'Base Case'. In the absence of guidance, projections can involve more art than science. Consensus estimates and equity research may serve as reasonable proxies for the first three years, but analysts must ultimately input their own experiences and insights to complete the projection. A common way of estimating 'unguided' years is to progressively scale down growth until the steady-state is reached in the terminal year (Rosenbaum and Pearl, 2020).

$$NOPAT = (Sales - COGS - SG\ \&\ A) \times (1 - T_c) \tag{15}$$

Cost of Goods Sold (COGS) and SG&A tend to be easier to estimate, as margins seldom change in mature markets. Hence, analysts usually rely upon historical data to drive the initial years of projection. For most cases, gross margins and SG&A as a percentage of sales are kept constant throughout projection periods. However, bankers may assume slight improvements or degradations if historical trends or market outlooks indicate so (Rosenbaum and Pearl, 2020). For instance, small companies may be subject to economies of scale when growing.

In the Whole Foods case, the company was inserted in a reasonably mature and oversaturated market, with margins and returns seeming poised to head lower with time — with 30% to 40% of the industry cutting prices to fight the growing Amazon threat (Kelly et al., 2017b). Despite that, in 2017, Whole Foods was positioned in the only slice of the market that has experienced growth in the previous years — speciality formats went from 1.9% of market share in 2009 to 3.3% in 2017 (Kelly et al., 2017b). So, the company was expected to sustain high growth until sector consolidation.

From 2014 to 2016, Whole Foods managed to sustain a 5.3% CARG, despite the stunted growth in 2016 (and expected for 2017). Consensus projections, nevertheless, expected the company to recover momentum to achieve 5.2% growth by 2019. Afterwards, major retailers would likely have built internal natural and organic foods offerings, and hence the speciality format would converge to the general food retail industry long-term growth rates (Kelly et al., 2017b).

As for costs, the marketing and administrative structure of Whole Foods has not changed much in the years leading to 2017, and consequentially SG&A margins constantly fluctuated around 29%. For the long-term, management expected slight improvements in administrative efficiency incorporated in the model through a 28.5% long-term rate. On the other hand, gross margins (excluding D&A expenses) have deteriorated in the previous years due to more intense price pressures from online retailers and larger peers. For example, COGS as a percentage of sales grew from 62% to 62.5% in two and a half years. Nevertheless, management expected consolidation and M&A activity to improve margins in the long term. So, the projection in Table 14 incorporated the assumption of an initial drop in margins followed by a slight uptick.

Table 14- NOPAT projections for Whole Foods (corporate tax rate = 39%)

	2015	2016	2017E	2018E	2019E	2020E	2021E
Sales	$15,389.0	$15,724.0	$16,007.0	$16,655.3	$17,521.4	$18,187.2	$18,696.4
% growth	*8.4%*	*2.2%*	*1.8%*	*4.1%*	*5.2%*	*3.8%*	*2.8%*
COGS (exc. D&A)	9,534.0	9,815.0	10,084.4	10,492.8	11,003.4	11,367.0	11,685.3
% sales	*62.0%*	*62.4%*	*63.0%*	*63.0%*	*62.8%*	*62.5%*	*62.5%*
Plus: D&A	*439.0*	*498.0*	*560.2*	*582.9*	*595.7*	*582.0*	*598.3*
SG&A	4,472.0	4,477.0	4,642.0	4,830.0	4,993.6	5,183.4	5,328.5
% sales	*29.1%*	*28.5%*	*29.0%*	*29.0%*	*28.5%*	*28.5%*	*28.5%*
NOPAT	$575.8	$569.7	$439.4	$457.3	$566.5	$643.4	$661.4

$ in millions

Source: Author, 2021.

Since company accounting is performed on competence regimes, NOPAT must be adjusted for non-expensed cash (and non-cash expensed) items to arrive at the FCF. For instance, investments in PP&E and changes in inventory consume cash but do not reflect in the income statement.

Adjustments are commonly divided into three categories. The first, D&A, is considered an expense for accounting purposes, so it reduces reported earnings and taxes accordingly. Notwithstanding, D&A does not require a current outlay of cash and therefore does not affect FCF. The reckoning for this dual nature have it considered as part of COGS when calculating NOPAT for tax purposes but re-added (without considering taxes) when calculating FCF (14) (Libby et al., 2013).

D&A is often projected as a percentage of sales or Capex in fundamental valuation models based on historical levels. That derives from the need for constant investment from the company to support top-line growth. An alternative for D&A estimation is to build a detailed PP&E schedule based on current assets and Capex projections, but although more technically appealing, it usually does not provide substantially different results (Rosenbaum and Pearl, 2020).

In Whole Foods, D&A as a percentage of sales remained relatively stable, with a slight increase trend of approximately 0.3% per year from 2014 to 2016. Conversely, D&A as a percentage of Capex has been quite volatile in the past years, rising from 51.6% to almost 70% in 2016. Thus, the first was used as a basis for projecting future years. In Table 15, the consensus estimates kept the upward trend for the first two years, but sector consolidation should reduce store openings and hence D&A expenses for the long-term (Kelly et al., 2017b).

Table 15 - D&A projections for Whole Foods

	2014	2015	2016	2017E	2018E	2019E	2020E
Sales	$14,194.0	$15,389.0	$15,724.0	$16,007.0	$16,655.3	$17,521.4	$18,187.2
Capex	710.0	851.0	716.0	768.3	799.5	823.5	836.6
D&A	377.0	439.0	498.0	560.2	582.9	595.7	582.0
% sales	*2.7%*	*2.9%*	*3.2%*	*3.5%*	*3.5%*	*3.4%*	*3.2%*
% capex	*53.1%*	*51.6%*	*69.6%*	*72.9%*	*72.9%*	*72.3%*	*69.6%*

$ in millions

Source: Author, 2021.

The next item is Capex. The term refers to the company's expenditures to purchase, improve or replace its asset base — i.e. PP&E. Since those cash outflows are capitalised on the balance sheet and do not affect earnings, they must be subtracted from NOPAT (14). Historical Capex is disclosed in the investment section of the cash flow statement and is usually an excellent guideline to foresee the future. Nonetheless, it is worth noting that the lifecycle stage of the firm can severely affect Capex needs. For instance, start-up and early growth companies will need to invest more capital in sustaining their expansion, while mature companies might limit their Capex to PP&E replacement (Mauboussin and Callahan, 2013). Future planned Capex is usually discussed in the Management Discussion and Analysis (MD&A) part of the financial statements.

As shown in Table 16, Whole Foods' Capex needs have remained relatively constant over the last three years, revolving around 5%. On that account, projections estimated that Capex levels would remain high for at least two more years before dropping due to market consolidation and the company entering a more mature state.

Table 16 - Capex projections for Whole Foods

	2014	2015	2016	2017E	2018E	2019E	2020E
Sales	$14,194.0	$15,389.0	$15,724.0	$16,007.0	$16,655.3	$17,521.4	$18,187.2
Capex	710.0	851.0	716.0	768.3	799.5	823.5	836.6
% sales	*5.0%*	*5.5%*	*4.6%*	*4.8%*	*4.8%*	*4.7%*	*4.6%*

$ in millions

Source: Author, 2021.

The last item is the variation in the target's NWC, determined by subtracting non-interest bearing current liabilities of a company from its non-cash current assets, shown in Table 17.

Table 17 - D&A projections for Whole Foods

Current Assets	Current Liabilities
Accounts Receivable (A/R)	Accounts Payable (A/P)
Inventory	Accrued liabilities
Prepaid expenses and other current assets	Other current liabilities

Source: Author, 2021.

The NWC is a measure of liquidity, and an indicator of operational cash needs (Libby et al., 2013) and annual changes in it (16) represent sources or usages of cash. For instance, increases in NWC could mean that the company uses its cash availabilities to fund increases in inventory or Accounts Receivable (A/R) — typical for growing firms.

$$\Delta NWC = NWC_n - NWC_{(n-1)} \tag{16}$$

Future projections of NWC needs are usually based on the target's historical ratios from prior years. However, in some cases (especially for early growth companies), trend lines, management guidance or sector tendencies may indicate changing ratios and therefore be used as a basis (Rosenbaum and Pearl, 2020).

Current assets and liabilities are typically estimated in terms of days outstanding, i.e. the number of days between adding the item to the balance sheet and writing it off. A/R represents the portion of sales that were not immediately paid by its customers — for instance, sales on credit — and hence, Days Sales Outstanding (DSO)(17) is projected comparing A/R with total sales.

$$DSO = \frac{A/R}{Sales} \times 365 \tag{17}$$

It represents the average number of days the company takes to collect payment after a sale; thus, the lower the DSO, the faster it receives cash from its credit sales. Changes in that ratio can result from increased customer leverage, which can now demand more time to cash its purchases, or even a customer base with credit problems (Brigham and Houston, 2015).

Inventories are the company's raw materials, work in progress and finished goods. Their book value is written-off and debited to COGS in the income statement when a sale is made. Hence, Days Inventory Outstanding (DIO)(18) compares inventory value with COGS to estimate the average amount of time an item is held in the inventory before its sale (Libby et al., 2013).

$$DIO = \frac{Inventory}{COGS} \times 365 \tag{18}$$

The diametral opposite of DSO is the Days Payable Outstanding (DPO)(19), representing the average number of days between the acquisition of supplies and their payment. DPO is a measure of a firm's leverage against its suppliers, as the more extensive the ratio, the longer the company can hold on to its cash for other business purposes (Brigham and Houston, 2015).

$$DPO = \frac{A/P}{COGS} \times 365 \tag{19}$$

The last current items represent expenses such as salaries, rent, interest and taxes that were paid in advance (prepaid expenses) or incurred but not yet paid (accrued liabilities). The common practice for both is to project them as a percentage of sales in line with historical levels (Rosenbaum and Pearl, 2020).

For Whole Foods, historical ratios remained steady for the last three years, as shown in Table 18. Furthermore, management provided some guidance for the next five years (Whole Foods, 2017a). Inasmuch as they were in line with past data, they were considered reliable and used for the forecasted horizon.

Table 18 - NWC projections for Whole Foods

	2014	2015	2016	2017E	2018E	2019E	2020E
A/R	$198.0	$218.0	$242.0	$258.7	$273.8	$288.0	$299.0
DSO	*5.1*	*5.2*	*5.6*	*5.9*	*6.0*	*6.0*	*6.0*
Inventory	441.0	500.0	517.0	511.0	531.8	557.7	576.1
DIO	*18.3*	*19.1*	*19.2*	*18.7*	*18.7*	*18.7*	*18.7*
Other Assets	265.0	307.0	364.0	320.1	333.1	350.4	363.7
% sales	*1.9%*	*2.0%*	*2.3%*	*2.0%*	*2.0%*	*2.0%*	*2.0%*
Current Assets	$904.0	$1,025.0	$1,123.0	$1,089.8	$1,138.7	$1,196.1	$1,238.8
A/R	$276.0	$295.0	$307.0	$318.6	$331.5	$347.6	$359.1
DPO	*11.5*	*11.3*	*11.4*	*11.5*	*11.5*	*11.5*	*11.5*
Other Liabilities	981.0	957.0	1,034.0	1,040.5	1,080.6	1,138.9	1,182.2
% sales	*6.9%*	*6.2%*	*6.6%*	*6.5%*	*6.5%*	*6.5%*	*6.5%*
Current Liabilities	$1,257.0	$1,252.0	$1,341.0	$1,359.1	$1,412.1	$1,486.5	$1,541.3
NWC	($353.0)	($227.0)	($218.0)	($269.3)	($273.4)	($290.4)	($302.5)

$ in millions

Source: Author, 2021.

Once all of the items mentioned before have been projected, it is trivial to calculate annual FCF using (14), reintroduced here for convenience. Table 19 exemplifies it for the Whole Foods case.

$$FCF = NOPAT + D\ \&\ A - Capex - \Delta NWC \tag{14}$$

Table 19 - FCF projections for Whole Foods

	2015	2016	2017E	2018E	2019E	2020E	2021E
NOPAT	$575.8	$572.5	$439.4	$457.2	$566.5	$643.5	$661.5
(+) D&A	439.0	498.0	560.2	582.9	595.7	582.0	598.3
(-) Capex	851.0	716.0	768.3	799.5	823.5	836.6	860.0
(-) ΔNWC	126.0	9.0	(51.0)	(6.3)	(15.0)	(12.1)	(8.5)
FCF	**$37.8**	**$345.5**	**$282.3**	**$246.9**	**$353.7**	**$401.0**	**$408.3**

$ in millions

Source: Author, 2021.

The fact is that, as already mentioned, the FCF for the explicitly projected years is only a fraction of the total value; the rest is captured by the TV, whose calculations, however, depend on the WACC, shown before in (3) and reintroduced here for convenience.

$$r_{wacc} = r_e \cdot \frac{E}{D+E} + r_d \cdot (1 - T_c) \cdot \frac{D}{D+E} \tag{3}$$

The WACC is the standard proxy in corporate finance to the return required by investors to put money in the company, and, as it is a current measure, all variables must be market-based (Damodaran, 2006).

The cost of debt in the WACC reflects the interest rate investors require to lend to the firm. Thus, it depends on the credit profile, capital structure, and the instrument used to issue debt. Typically, the cost of debt is inferred from the average yield of a company's outstanding debt — public and private. For traded bonds, the cost can be determined based on their current yield (20), while for privately-placed instruments, if the fair value is not explicitly stated in the company's financial statements, analysts must consult the DCM division of a bank (Póvoa, 2012).

$$Current\ Yield = \frac{Annual\ Coupon}{Bond\ Price} \tag{20}$$

If market data is not present due to low market liquidity, for instance, at-issuance coupon yield can be used as a substitute for the cost of debt. However, It tends to be much less accurate, as it reflects market conditions at debt issuance rather than today (Rosenbaum and pearl, 2020).

Oppositely, the rate of return expected from stockholders to assume non-diversifiable risk — i.e. the cost of equity — can not be directly observed in the market. Instead, it must be implicitly derived from underlying market conditions through a pricing model

regression (Póvoa, 2012). Since every investor has a distinct risk profile and demands different rates of return as compensation, the model must capture an average feeling that can be applied to the firm as a whole (Damodaran, 2006). Despite developments in academia, the most common and widespread model for estimating equity premium in M&A is still the CAPM (5) — albeit modified to account for size premiums (21) (Ibbotson, 2016).

$$r_e = r_f + \beta_L(r_m - r_f) + SP \tag{21}$$

The first input in the CAPM model is the risk-free rate, i.e. the rate of return expected from the investment in risk-less security. The common practice in the market is to assume some government bonds in a given currency as a proxy for risk-free securities. That is because, in theory[16], countries are sovereign in issuing their currency, and hence may always create liquidity to honour their debt, even if this comes at the cost of inflation (Póvoa, 2012). In addition, the longest-dated available security is typically used to match the expected life of the company. For instance, in US dollars valuations, the choice often falls on the 20-year bond.

The market return represents how much investors expect to earn with the most diversified set of stocks possible — the market (or efficient) portfolio. The problem is that constructing a said portfolio is far from an easy task, especially in large and well-developed markets like the US. Hence, analysts traditionally use market indexes such as the S&P500 as a substitute (Berk and DeMarzo, 2017). For example, Duff&Phelps tracks equity risk premiums dating back from 1926, with values until 2017 indicating average risk premiums (i.e. market return minus risk-free rate) of 6.9% per year (Ibbotson, 2016).

The CAPM beta captures the sensitivity of the asset's returns to those of the market (22), and thus, it measures a stock's volatility and systematic (or non-diversifiable) risk. Betas smaller than 1.0 mean that the company is less exposed to market swings and, hence, less risky than the market, with the opposite being valid accordingly. Mathematically, the increase in risk is captured in the CAPM with the expansion of the required cost of equity.

$$\beta_L = \frac{Cov(e,m)}{\sigma_m^2} \tag{22}$$

[16] In practice, governments do default, as the Latin American debt crisis painfully showed in the 1980s. To adjust for sovereign default risk, countries' credit default swap (CDS) spreads may be subtracted from government yields.

Betas may be estimated using the company's historical financial information (typically the last two to five years). Still, that approach is often avoided for two main reasons: past returns may not be a reliable indicator of future performance due to changing market and company conditions; and beta regressions of single companies tend to have significant standard errors and hence minimal confidence levels (Damodaran, 2006). To avoid those, bankers prefer to use predicted betas (calculated with proprietary multi-factor risk models) whenever possible (Rosenbaum and Pearl, 2020). In the absence of predicted betas, an alternative is to use a group of publicly traded comparable companies to derive an average beta for the sector since the standard error of a sample with *n* items decreases with the square root of *n* (Damodaran, 2006).

Capital structure has a sizeable effect on betas since investors will require higher returns from leveraged companies to compensate for increased risk. Therefore, comparable companies' betas must be unlevered (23) before using the group's average (or median) as a proxy for the target and relevered again using the target's capital structure to be input in the CAPM (Rosenbaum and Pearl, 2020).

$$\beta_U = \frac{\beta_L}{1 + (1 - T_c)\frac{D}{E}} \tag{23}$$

Finally, the size premium is a factor added to the cost of equity to account for the empirical evidence that smaller companies' risk is not entirely captured in their betas due to liquidity issues that render their calculation rather inexact (Rosenbaum and Pearl, 2020). Some companies, such as Duff&Phelps, estimate size premia based on market cap (Ibbotson, 2016).

Table 20 shows the inputs for Whole Foods' cost of equity estimation. The risk-free rate was assumed as the 20-year US Treasury bond, and size and market premia were sourced from Ibbotson (2016). Finally, the beta was calculated using the median of the last five years beta from the comparables (0.19) relevered with Whole Foods market-based D/E ratio of 9.8%, composed of $11.4 billion of market cap and an outstanding privately placed debt of $1.12 billion in 2017 (Whole Foods, 2017b).

Table 20 - Cost of equity inputs for Whole Foods

Risk-free rate	Market risk premium	Levered beta	Size premium	Cost of Equity
2.8%	6.9%	0.20	1.0%	5.2%

Source: Author, 2021.

Whole Foods debt is entirely private, and in its financial statements, the company estimates the effective interest rate to be 5.3% (subject to a 39% tax shield).

Therefore, applying the available information to (3) results in a 5.0% WACC. In any case, given the numerous assumptions involved in determining the WACC, it is good to sensitise some of its inputs to produce a WACC range, as shown in Table 21.

Table 21 - WACC range for Whole Foods

Debt-to-total capitalisation \ *Beta*	0.10	0.15	0.20	0.25	0.30
3.5%	4.5%	4.8%	5.1%	5.5%	5.8%
6.5%	4.4%	4.7%	5.1%	5.4%	5.7%
9.5%	4.4%	4.7%	5.0%	5.3%	5.6%
12.5%	4.3%	4.6%	4.9%	5.3%	5.6%
15.5%	4.3%	4.6%	4.9%	5.2%	5.5%

Source: Author, 2021.

The final variable to be estimated in the fundamental valuation process is the TV: The present value of the target's cash flows until infinity. The basic assumption behind its computation is that FCF will grow at a constant rate of g from the final projection period onwards (Damodaran, 2006).

For most valuation models, the TV accounts for a substantial amount of the total EV —sometimes as three-quarters or more—highlighting the importance of being at a steady state in the final projection year (Rosenbaum and Pearl, 2020).

There are two main methods for calculating the TV of a company. The first, the Perpetuity Growth Method (PGM), is based on the formula for the sum of an infinite geometric series (24). In contrast, the second, the Exit Multiple Method (EMM), estimates terminal value as an EV/EBITDA multiple at the final year, and it is mainly used by private equity funds, whose intention is to sell the company after some time (Rosenbaum and Pearl, 2020).

$$\sum_{t=0}^{\infty} ar^t = \frac{a}{1-r} \tag{24}$$

The PGM is the most used amongst strategic buyers and equity researchers and requires the analyst to estimate the target's long-term sustainable growth rate—i.e. with which FCF will grow forever. Commonly, the basis for the perpetuity growth rate is the industry's long-term growth—generally between 2% and 4%, such as the nominal GDP growth of developed economies (Rosenbaum and Pearl, 2020).

Using (24) and assuming r as the ratio between growth and WACC, it is trivial to derive (25) as the value of FCF to perpetuity (Gordon and Shapiro, 1956).

$$TV = \frac{FCF_{tf} \times (1+g)}{r_{wacc} - g} \tag{25}$$

On the other hand, the EMM is mainly used by private equity funds and other investors with definite investment horizons and assumes that the company will be worth a multiple of its EBITDA at the terminal year (26). In this case, EV/EBITDA tend to be based on current LTM trading multiples for comparable companies, skewed down to account for the lack of extraordinary growth for the company for perpetuity.

$$TV = EBITDA_{tf} \times Exit\ Multiple \tag{26}$$

For whichever method is selected, good practices dictate to also calculate the alternative's implied inputs as a sanity check. For instance, when using the EMM, one should also calculate the perpetuity growth rate *g* necessary to achieve such exit multiple and vice-versa.

For Whole Foods, the last FCF explicitly estimated in Table 19 was $408.3 million and the food retailing industry long-term growth rate of roughly 2% per year was chosen as a proxy for the perpetuity[17]. That, together with the 5.0% WACC previously estimated, results in a terminal value of $14.06 billion — implying a 8.2x exit multiple.

After calculating all the needed inputs, the calculation of EV through equation (13) is relatively straightforward, and Table 22 exemplifies the process for the Whole Foods case. For easing the visualisation, discount factors were calculated from the WACC (27) and subsequently multiplied by the respective years' cash flow. It is worth noting that the terminal value is, by definition, reported as a single cash flow at the end of the explicit horizon and hence discounted by the same rate.

$$d_t = \frac{1}{(1+r_{wacc})^t} \tag{27}$$

Table 22 - Enterprise Value calculation for Whole Foods

	2017E	2018E	2019E	2020E	2021E	TV
FCF_t	$282.3	$247.0	$353.7	$400.9	$408.3	$13,841.2
Discount factor (d_t)	*0.952*	*0.907*	*0.864*	*0.822*	*0.783*	*0.783*
Discounted FCF_t	268.8	224.0	305.5	329.7	319.8	10,840.7
Enterprise Value	**$12,288.6**					

$ in millions

Source: Author, 2021.

[17] *Chosen assuming a strategic buyer.*

The equity value can be calculated with (7), reintroduced here for convenience, which will then be divided by the number of outstanding shares for an implied share price. For instance, Whole Foods' equity was valued at $12.18 billion, which results in a share price of $37.86 after dividing by their 321.7 million shares outstanding.

$$EV = E + D + PS + NcI - Cash \tag{7}$$

As the DCF incorporates numerous assumptions with severe impacts on valuation, it is common to see results as a range rather than a single value. The sensitivity analysis tries to capture the possible valuation range through the variation of key inputs, such as the perpetuity growth rate and the WACC.

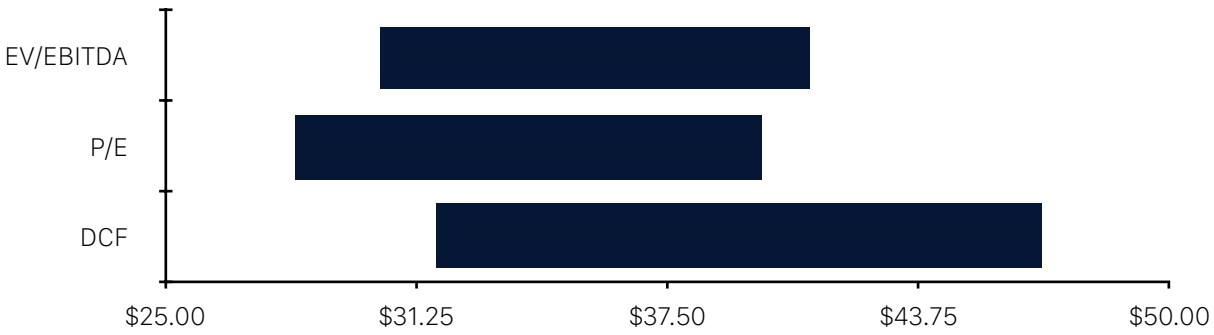
The sensitivity analysis for Whole Foods is shown in Table 23, while the valuation range is on the football field graph in Figure 11, which incorporates the other two valuation ranges obtained using multiples. It is possible to see that the spectrum produced by the DCF analysis is higher than the other two. That is quite common and is the result of using the target's management guidance to craft assumptions and projections, as they tend to be overly optimistic (Rosenbaum and Pearl, 2020).

Table 23 - DCF sensitivity analysis for Whole Foods

		Perpetuity growth rate				
		1.6%	1.8%	2.0%	2.2%	2.4%
WACC	4.2%	44.27	47.5	51.31	55.84	61.35
	4.6%	38.41	40.84	43.64	46.82	50.58
	5.0%	33.92	35.76	**$37.86**	40.25	43.01
	5.4%	30.28	31.77	33.43	35.25	37.32
	5.8%	27.3	28.51	29.84	31.31	32.96

Source: Author, 2021.

Figure 12 - Share price valuation range for Whole Foods



Source: Author, 2021.

Accretion/(dilution) analysis

The accretion/(dilution) analysis is a straightforward yet powerful tool to assess the advantageousness of the deal in the eyes of the buyer's shareholders. It tries to estimate (or evaluate) the merger's future effects by comparing standalone versus proforma EPS. When the former is higher, the transaction is said to be *dilutive*, while the opposite makes an *accretive* deal (Rosenbaum and Pearl, 2020).

The final result will depend on the debt/equity mix, P/E ratios, projected earnings, and expected synergies. For instance, as a rule of thumb, 100% stock transactions are accretive when the target has a lower P/E ratio than the acquirer, and increasing leverage tend to also have accretive effects depending on current interest rates (Rosenbaum and Pearl, 2020).

Ideally, acquirers seek transactions that can be accretive from 'day one', but since M&A are usually longer-term strategic moves, it is common to focus the accretion/(dilution) analysis into longer time horizons. That allows the incorporation of growth prospects, synergies, and other combination effects while reducing the impact of deal-related expenses, such as integration costs (Bruner, 2004).

Accretion/(dilution) analysis is also a crucial tool to support negotiation and source of financing. With it, acquirers can quickly simulate different scenarios and establish limits to purchase price, leveraging, stock payments, and the minimum amount of synergies that would make a given deal design advantageous (Bruner, 2004).

The process to calculate a new combined net income is pretty straightforward; it consists of laying down the EBIT projections for both companies for a given time-span (usually five years), add-in expected synergies, subtracting transaction-related expenses and acquirer interest expenses, and subtracting incremental interest from the deal (including eventual refinancing of the target's debt) (Bruner, 2004).

The combined net income is then divided by the number of shares of the acquirer plus additional shares issued to finance the deal to arrive at a combined EPS that will be compared to the acquirer's standalone EPS (Rosenbaum and Pearl, 2020).

Table 24 shows a generic example of an accretion/(dilution) analysis considering a 100% stock payment scenario. The additional interest payments are solely due to the refinancing of the target's debt, and the additional shares were calculated as the target's value divided by the acquirer's market price (the exchange ratio).

Table 25, on the other hand, shows a scenario with a 100% cash payment (fully financed with new debt). In this case, there are no additional shares, but interest payments increase by a significant amount due to funding of the deal.

Table 24 - Condensed accretion/(dilution) analysis with 100% stock consideration

	2019	2020E	2021E	2022E
Acquirer EBIT	$1,317.4	$1,409.6	$1,494.2	$1,568.9
Target EBIT	518.0	556.9	590.3	619.8
(+) Synergies minus transaction expenses	63.3	63.3	63.3	63.3
(-) Acquirer standalone interest	142.4	140.2	135.7	130.9
(-) Incremental interest	*66.3*	*39.1*	*10.5*	*7.8*
Proforma Net Income (tax rate @ 25%)	1,267.5	1,387.8	1,501.2	1,585.0
Standalone shares outstanding	*140.0*	*140.0*	*140.0*	*140.0*
Shares issued in the transaction	*67.1*	*67.1*	*67.1*	*67.1*
Proforma combined EPS	**$6.12**	**$6.70**	**$7.25**	**$7.65**
Standalone EPS	*6.29*	*6.80*	*7.28*	*7.70*
Accretion/(Dilution) - %	*(2.8%)*	*(1.5%)*	*(0.4%)*	*(0.7%)*

Source: Adapted from Rosenbaum and Pearl, 2020.

Table 25 - Condensed accretion/(dilution) analysis with 100% cash consideration

	2019	2020E	2021E	2022E
Acquirer EBIT	$1,317.4	$1,409.6	$1,494.2	$1,568.9
Target EBIT	518.0	556.9	590.3	619.8
(+) Synergies minus transaction expenses	63.3	63.3	63.3	63.3
(-) Acquirer standalone interest	142.4	140.2	135.7	130.9
(-) Incremental interest	*322.0*	*295.8*	*241.7*	*184.3*
Net Income (tax rate @ 25%)	1,075.8	1,195.3	1,327.8	1,452.6
Standalone shares outstanding	*140.0*	*140.0*	*140.0*	*140.0*
Shares issued in the transaction	-	-	-	-
Proforma combined EPS	**$7.68**	**$8.54**	**$9.48**	**$10.38**
Standalone EPS	*6.29*	*6.80*	*7.28*	*7.70*
Accretion/(Dilution) - %	*22.1%*	*25.6%*	*30.3%*	*34.7%*

Source: Adapted from Rosenbaum and Pearl, 2020.

Both scenarios considered the target to have a higher P/E ratio than the acquirer, and hence increasing the stock percentage will make the deal more dilutive. This is a direct consequence of the acquirer paying a larger multiple for the target's earnings than it is valued for its own.

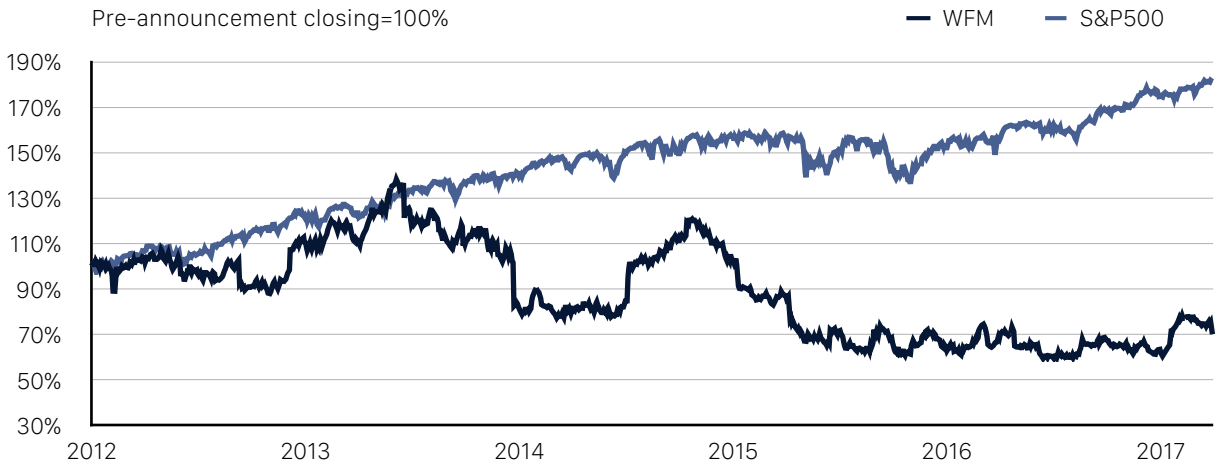
Case Study - Amazon buys Whole Foods

On June 16, 2017, Amazon announced that it had entered into a definitive agreement to buy Whole Foods Market for $42 per share in an all-cash transaction valued at approximately $13.7 billion (including debt), representing a control premium of 34% from the 52-week average.

At the time, Whole Foods' selling was standing on the horizon for a while, with The Kroger being speculated as a potential acquirer as early as October 2016 (La Monica, 2016). Albeit a very recognisable brand with a solid consumer base, Whole Foods suffered lots of pressure from shareholders and the media due to its excessive prices and sluggish growth (Kelly et al., 2017b).

The company reacted to those criticisms with substantial price investments, but management tardiness made Whole Foods recover much slower than most analysts expected. As a result, share prices reflected shareholders' mistrust, with prices nearly 50% down from 2013 highs, as shown in Figure 13.

Figure 13 - Whole Foods share price history in the 5 years prior to the deal announcement



Source: Author, 2021.

Amazon's move took the retail service by surprise and represented a compelling wake-up call for a sector that had downplayed Amazon's previous strategic actions (Sides et al., 2017). The reaction from the market was immediate, and all grocery retailers experienced price declines after the announcement, with approximately $22 billion in value 'disappearing' (Egan, 2017) as many viewed the deal as a sign that brick and mortar retail would give place to click and mortar or even click only realities (Sides et al., 2017).

Deal rationale

Whole Foods revolutionised the way Americans approach eating and grocery stores. Its unique store experience and substantial brand value made healthy and organic meals a concern that transcended the typical environmentalist/body-concerned individual, reaching urbanites, soccer moms and baby boomers.

That innovative strategy led Whole Foods to unprecedented success in the sector and the Fortune 500 list. However, gradually, competition caught up, and Whole Foods was forced to try conventional grocery store pricing and tactics to revert its falling scenario (Haddon and Gasparro, 2017).

Concurrently, the groceries sector has never been more challenging. Even though still very fragmented and local, pressure from existing peers and new discount/online service providers has pushed margins down for the five years that preceded the merger. Analysts foresaw investment capacity in technology as crucial for differentiation and sustaining market shares for the following years (Kelly et al., 2017b).

Furthermore, the augmented availability of food stores rapidly deteriorated consumer loyalty to local stores, increasing customers' price sensitivity, one of Whole Foods' weakest points. The company has been accustomed to little competition in the organic markets for decades so that it could charge higher margins and restrainedly promote.

Their status quo started to be heavily questioned in 2015, with New York City officials overcharging allegations, pushing away customers and reinforcing Whole Foods' image as an excessively costly store network (Gasparro, 2015).

Although pricing had been the subject of intense debate among senior managers in the previous years, the company did not take action until the public relations damage was already widespread, and it was only in September 2015 that it announced the first significant personnel cuts (Haddon and Gasparro, 2017).

In fact, management lethargy was one of Whole Foods' most prominent issues. As it is common for companies with a long-term success record, Whole Foods failed to adapt to new industry trends and fell victim to the competitive advantage trap. It was unable to recognise the importance of costs and customer loyalty in a more mature category and eschewed standard market practices such as fidelity cards and centralised purchases for a long time (Haddon and Gasparro, 2017).

When Whole Foods' 'transformation plan' was finally released, which foresaw higher investments in advertising and reducing hard costs, investors received it with much

scepticism. For once, layoffs had already thinned store staffing and prompted customer complaints, so the company's potential to go further was dubious at best. Moreover, television and paper advertisements cut even deeper into an already damaged profit margin with discreet results.

The urgency and scale of changes required to turn the company around in a consolidating sector put M&A possibilities in the spotlight because deals could provide the much-needed dimension while synergies could fund investment needs (Kelly et al., 2017b).

Albeit a very complex company, Amazon's business view can be simplified with a phrase coined by Justin Lahart (2018): 'There is the money consumers spend on Amazon, and the money they spend not on Amazon'. This way of thinking spurred the company into the largest sector in which money is spent not on Amazon: Food and beverages, a fifth of Americans' expenditures on goods (Lahart, 2018).

Amazon joined the online groceries service just a few years before the deal. However, its effects on the industry were tremendous. Apart from the cost-cutting wave that affected roughly 40% of the players by 2017 (Kelly et al., 2017b), Amazon prompted a revolution in delivery services, product offering, logistics optimisation and consumer profiling that took traditional brick-and-mortar stores by surprise.

Regardless of its effects in the industry, most players failed to recognise Amazon as a threat until the Whole Foods acquisition was sealed. Even after, many players overestimated the challenges Amazon would face, such as a lack of knowledge of the environment and defiance on prime subscription programs (Sides et al., 2017).

However, much more than taking a piece of the $1 trillion groceries market, Amazon wanted to create an environment that would drive customers from stores into its ecosystem, which meant increasing their incentives to subscribe to Prime services. Whole Foods' physical presence and strong brand could achieve just that, as surveys indicated a considerable overlap between the two companies' customers (Kowitt, 2017).

Amazon's move can also be seen from a data acquisition viewpoint. The company business model strongly relies on identifying consuming patterns that will be used for logistics planning and targeted marketing. Nevertheless, prior to the deal, the company had little-to-no knowledge about customers' offline behaviour. Therefore, Whole Foods, albeit still very infant on data gathering, could be turned into a gold mine for Amazon.

While at first, one could look at Amazon's 30 acquisitions in the five years preceding the deal as a form of empire-building behaviour by management, a close analysis shows that the company mainly bought smaller tech companies with disruptive technological patents that could improve Amazon Web Services division. Furthermore, as the IMDb and Twitch acquisitions showed, Amazon has been very precise when going to the market to increase its product offering and flaunted an impressive track record (Vasquez and Moise, 2017).

The acquisition also took place in a moment when M&A markets were declining from a record high in 2015 when low interest rates and the recent tax reform had fuelled companies' interest in mega-deals (over $10 billion) (Farrell, 2015). Most analysts blamed the 1% increase in US bonds interest rates as the prime culprit for the M&A cooldown in the middle of a bull market in 2017 (Thomson et al., 2017).

Market conditions at the time indicate that the merger was not motivated by managers' herd behaviour biases, nor investors' recency bias, especially considering that 2016 had the largest volume of busted transactions since the 2008 financial crisis (de la Merced, 2016).

Furthermore, contrarily to what would be expected from behavioural deal motivations, the deal was fully paid in cash despite Amazon stocks experiencing an all-time high — which could be due to overvaluation and hence taken advantage of.

The deal, however, shows signs of market timing regarding Whole Foods stocks. Activist investors had already explored the company's poor recent financial performance and management lethargy[18], such as Jana Partners, who acquired 8.3% of Whole Foods' outstanding stock in April 2017.

Jana Partners openly criticised how the company had been conducting business, from brand development to customer services, and advocated for extensive improvements in analytics, distribution strategy, and technology usage (Stevenson, 2017) — all areas in which Amazon excels.

Although Jana Partners' announcement increased stock prices by 9.51%, the company was operating at a level 30% lower than 3-5 years prior. That rendered Whole Foods attractive to Amazon because it might be trading below its potential value and because it would allow the internet giant to benefit from turnaround and restructuring operations already in course, but that had not yet been reflected in stock prices.

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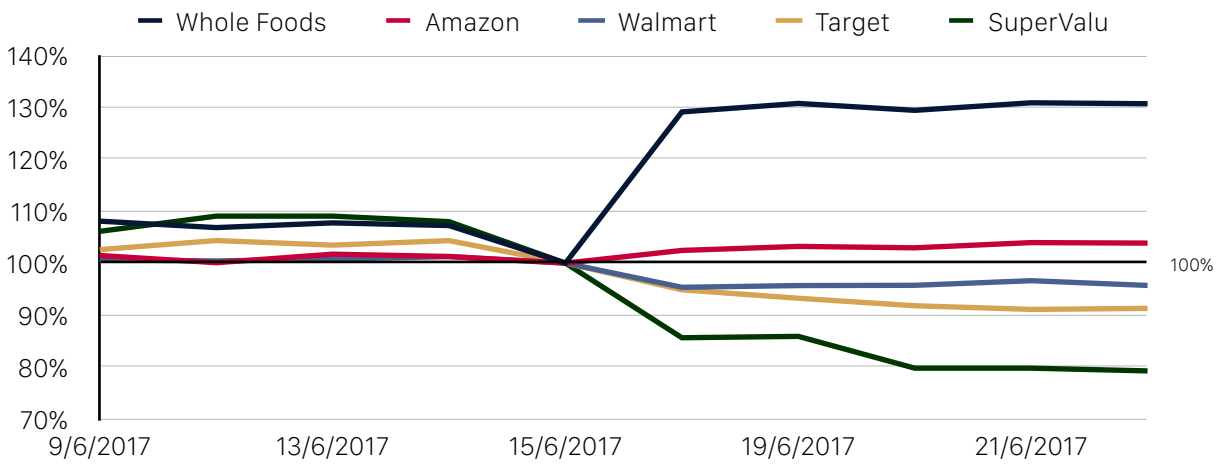
[18] Shareholders who acquire a significant stake in the company to pressure the management for changes that would increase market capitalisation (at least in the investor's opinion).

As for rational motivations, no official synergy estimates were disclosed by Amazon, and the only indication for future plans regarding Whole Foods came from Amazon's CEO Jeff Wilke, who said that '[they were] determined to make healthy and organic food affordable for everyone', and that '[they were going to] lower prices without compromising Whole Foods Market's long-held commitment to the highest standards' (Amazon, 2017).

Amazon's cloaking of its fundamental goals created much speculation in the media, and the potential impact of the deal was heavily felt in financial markets. Most investors were confident that Amazon's entrance would revolutionise the grocery market so that competitors' stocks plummeted when the deal was announced — some as much as 12.5%, as shown in Figure 14. While part of the fall was blamed on investors' overreaction by many analysts, Amazon's impact in the sector seemed to be almost a consensus (Clarence-Smith, 2017). Conversely, investors responded to the deal with immense pressure on both Amazon and Whole Foods' stock prices, also shown in Figure 14.

Figure 14 - Amazon and selected groceries stock prices (pre-announcement closing = 100%)



Source: Author, 2022.

If one assumes the market to be somewhat efficient, it is possible to use the stock movements after the announcement as a proxy for the expected synergies from the deal, even if no official guidance was provided. Before the deal went public, Amazon and Whole Foods had combined market equity of $471.5 billion; by the end of trading on June 16, this value had gone up to $485.8 billion, which means investors priced synergies at $14.3 billion[19] (Misamore, 2017).

[19] By market capitalisation estimates, they are divided as $11.2 billion to Amazon shareholders and $3.1 billion to Whole Foods.

Moreover, merger arbitrage will pressure the target's stock toward the acquisition offer and, according to the EMH, spreads should be smaller the more probable it is that the deal will be concluded (Cornelli and Li, 2002). For Whole Foods, spreads even got to negative domains in the days following, indicating a reasonable probability of the deal going through and expectations of a bidding war (that did not occur).

While analysts forecasted synergies from both operational categories, the significant differences in business scope between Amazon and Whole Foods would probably make most of them categorise into revenue synergies rather than cost. In fact, despite employees' concerns about Amazon's automation capabilities[20], the company announced after the deal that it was not planning any layoffs or introduction of automatic cashiers in Whole Foods for the foreseeable future (Summerville and Cheng, 2017).

The main area for Amazon to benefit from cost synergies was speculated to be its grocery supply chain. For a long time — since the creation of Amazon Fresh — the company has struggled to address the highly complex management of perishable products' supply chain and storage (Gagliordi, 2017).

Before the deal, Amazon had 70 distribution centres across the US charged with Prime Now 1-day deliveries. While they worked fine for most digitally-sold products, they weren't close enough to the final consumer — the so-called 'last mile' — to provide groceries with the quality and freshness level required by customers (Eadicicco, 2017).

With Whole Foods, Amazon acquired 456 refrigerated distribution centres[21] putting the company within 10 miles of 80% of the American population and 90% of the wealthy (Summerville and Cheng, 2017). Those economies of scale could reduce much of Amazon Fresh storage and refrigerated transportation costs. Moreover, Amazon's massive warehouses could work in spoke-hub paradigms that would enhance Whole Foods' storage capabilities and be used for other Prime products distribution, an example of possible economies of scope (Clarence-Smith, 2017).

Amazon could use those factors to fulfil its promise of reducing Whole Foods' (in)famous price policy without impacting quality. Analysts speculated that the adoption of a hub and spoke approach could help Amazon to cut out most wholesalers (Bloomberg, 2017), although there were some concerns if it would be capable of doing so, as at the time, even within the company, 52% of the products came from third-party sellers (Bloomberg, 2017).

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[20] In late 2016, Amazon launched a 'beta' store without checkout lanes or cashiers in Seattle for its employees.

[21] Every Whole Foods store is a potential distribution centre.

As mentioned in the 'Rationale' section, cost synergies are much easier to estimate and justify, favouring analysts and bankers when crafting an M&A deal. However, in the Amazon-Whole Foods case, revenue synergies are actually where the business has the potential to shine the most.

For once, Amazon thrives on data. Its whole Prime business model is based on predictive models for customers' online behaviour to optimise warehouse usage and logistics. Moreover, tracking cookies have been crafted to perfection to integrate the multibillion-dollar industry of targeted advertising. Before the deal, however, Amazon was in the dark when it came to customers' behaviour when they were away from their computers.

At first glance, Whole Foods would seem like an inferior candidate to immediately combine functional strengths. For instance, it had no loyalty program; its digital capabilities covered only the very basic; and only supply chain and merchandising management had integrated software in 2015 (Gagliordi, 2017).

However, in a deeper analysis, those apparent weaknesses could be turned into great opportunities for the experienced Amazon. For example, the lack of an already established loyalty program could open the space for smooth Prime integration with an automatic entry in a new Whole Foods benefits program (Gagliordi, 2017), and the more extensive digital transformation that Amazon is capable of implementing could add much more value to Whole Foods than to companies with an already culturally-settled data usage system.

The combination of functional strengths can also help with Whole Foods' struggle with channel blurring. Trends show that customers increasingly value product offerings when selecting supermarket chains (Luchs et al., 2014). People don't want to shop for 'naturals' at one place and then go elsewhere for their other purchases. That could be clearly seen from the recent growth of 'organic' sectors of big mass retailers, such as The Kroger and Target (Kelly et al., 2017b). In addition, Amazon's 'sell everything' strategy could boost Whole Foods' offering and staunch client leaking to other brands, especially considering the company's recognised quality.

The 'everything at the same place' policy could also be expanded on Amazon's side. In addition to refrigerated warehouses that would make same-day delivery the norm, Whole Foods' stores could be integrated to provide pick-up services for Amazon's online buyers (Gagliordi, 2017). Physical stores also present a unique opportunity for Amazon to showcase their proprietary product lines — such as Kindle, Alexa, and Essentials (Clarence-Smith, 2017).

The deal also presented another exciting possibility of complementary strengths' synergies beyond Amazon's 'sell everything' strategy: integrating Alexa capabilities with Whole Foods' quality recognition.

Alexa has been a clamorous success for Amazon. Customers who have it love it, even though most people use it for many 'purposeless' ends, such as checking the weather, the news, listening to music, or even as a timer (Gomes-Casseres, 2017). Nonetheless, the most crucial aspect of Alexa is that it usually sits in the kitchen and can be used to buy items on Amazon with voice commands quickly.

At first, buying groceries online may not seem like a terrific deal; unlike industrial products, which follow standardised processes and have minimal variability, natural products can have substantial quality differences even within the same farm. And that was precisely the problem Amazon had been facing with its 'Fresh' product line: People did not trust the brand enough to order natural products without seeing or touching them first.

And that is where Whole Foods comes in. Regardless of price polemics, no other grocer in the US is so associated with the quality of its products as Whole Foods. As a result, most clients would be willing to order pretty much anything on Alexa unseen if they knew it was coming from Whole Foods (Gomes-Casseres, 2017).

That union could be the answer to one of the biggest challenges of modern grocers: Millennials tend to love quality food, not have cars, and spend very little time shopping or housekeeping. Amazon had an excellent penetration into this segment — due to its reliability and digital convenience, rather than low prices — but none of the established supermarket chains could break in yet (Gomes-Casseres, 2017). With the acquisition, Whole Foods[22] could pioneer and entirely rip the benefits.

Moreover, the Whole Foods-Alexa would be a unique combination. Alexa's main competitors in the personal assistant market are Nest and Siri[23], respectively backed by Google and Apple. Neither of those companies ever indicated an interest in selling non-digital products, let alone groceries with expiration dates (Gomes, Casseres, 2017). Even if they did, hardly any other company could convey Whole Foods' quality standards into consumers' trust.

Therefore, the deal put Whole Foods in a unique position of competitive advantage that is likely to remain sustainable for the foreseeable future.

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[22] While synergies are often seen from the buyer's perspective in M&A deals, both target and acquirer can (and usually do) rip benefits from each other's complementary strengths.

[23] Even though Siri is only available as part of macOS and iOS, and not as a standalone device — unlike its competitors.

Lastly, the deal can also be seen from the perspective of access to faster-growing markets or new markets. For example, up until the agreement, Whole Foods didn't have any digital presence. And while this wasn't such a big deal in 2017, when only 25% of the Americans shopped online for groceries, it indeed would become a problem in the next ten years, when researches indicate that this number could grow to as much as 70% (Clarence-Smith, 2017).

Furthermore, even before the deal was hypothesised, Amazon had already indicated an interest in increasing the transparency of its supply chain lines, as seen in their 'Elements' product lines — which comes with a unique code that customers can use to track each ingredient, as well as its place and date of origin (Robischon, 2017b).

Jeff Bezos summarised growing customers' Environmental, Social and Governance (ESG) concerns in an interview given to Robischon (2017a), saying: 'There's a subset of customers — I think it's a pretty big subset — that when you're talking about things that go in or on your body, or in or on your children's bodies, they really care about that supply chain'.

To that matter, there seems to be no better philosophical fit (and market-entering shortcut) than Whole Foods, where every chicken has a backstory (or so they claim). Amazon could incorporate its proprietary software to keep track of the supply chain into Whole Foods' products and benefit from the latter credibility when it comes to sustainability. So, integrating the 'Elements' line into Whole Foods offering could give them quick access to the subset of customers to which Bezos was referring.

When it comes to financial synergies, as Whole Foods was to be made private after the deal closing, it is tough to estimate the impacts on the cost of capital or tax efficiency. Nevertheless, it is clear that Amazon's size and debt capacity would make capital markets access much easier, as the parent company could guarantee the debt issuance.

On Amazon's side, there should be little change in financial health since the debt incurred for the acquisition added up to only 3.5% of the company's market value of equity. And while it is true that Amazon's long-term book debt increased threefold, it was still in a very comfortable leveraging situation, with a book D/E of 0.9, so the company's ratings shouldn't be affected by the acquisition.

While most analysts emphasised the deal's rationale after the announcements, they also raised some concerns about Amazon's capacity to make it successful. For starters, this was Amazon's first major transformational acquisition. In the past, the company tended to buy enterprises that could be independently managed, such as Twitch (Summerville, 2017).

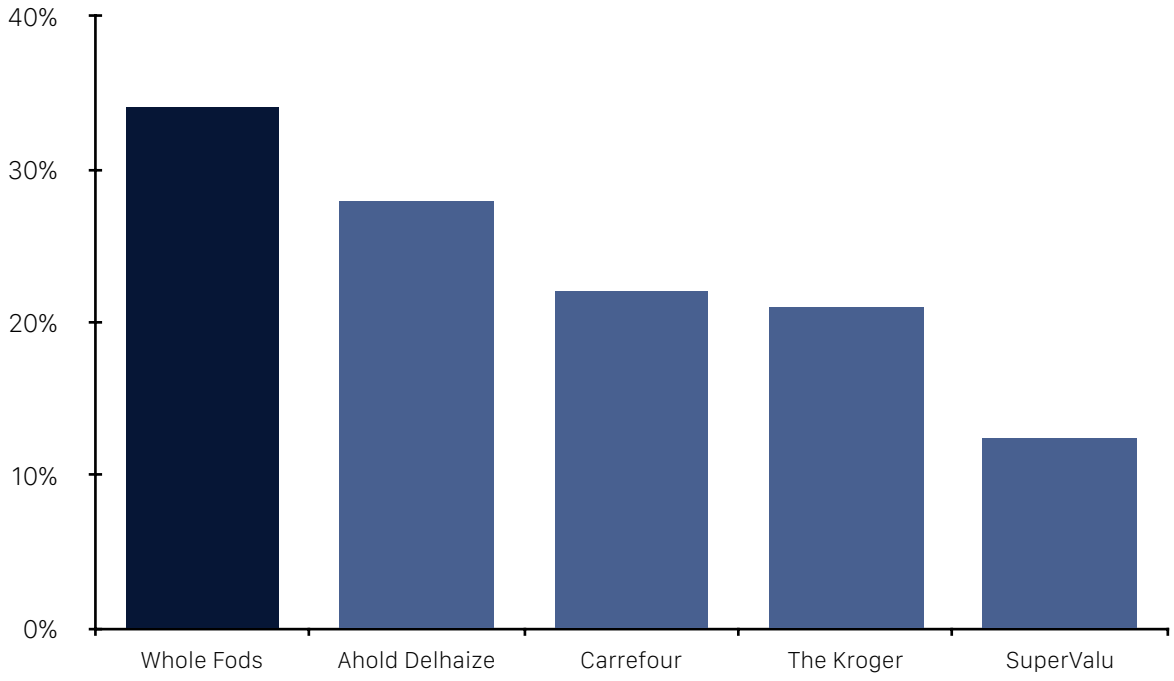
The deal's scale — 14 times larger than the previous record — was also remarked as a bold move that could either represent the first step to an era of notable acquisitions for Amazon or a wake-up call to prevent further mistakes (Summerville, 2017).

Some analysts also indicated that Amazon could be biting off more than it could chew, as groceries are a completely different game than books, media and electronics, especially when it comes to considerably more logistically complex supply and delivery services (Bloomberg, 2017).

Finally, Whole Foods' profit margins could pose a tricky issue: Brick and mortar channels tend to have lower margins due to their higher fixed and variable costs with assets and personnel. Therefore, by increasing their exposition to the brick and mortar sector, Amazon could dilute their profit margins (Clarence-Smith, 2017).

Nonetheless, Whole Foods operated at much higher profit margins than any other grocer, as shown in Figure 15, thanks to their (in)famous pricing policy. But, while some of that markup comes from customers' willingness to pay for quality natural products, it is a fact that it was also the leading cause of recent years' falling revenues. Hence, Amazon's ability to prevent the dilution of its margins resides on whether it can reduce stores and supply chain footprint to accommodate price lowerings.

Figure 15 - Grocers' profit margins



Source: Clarence-Smith, 2017.

Deal design

The deal was organised as a negotiated stock sale fully paid in cash through the issuance of bonds by Amazon. The chosen fundraising method was a perfect example of the effects of bullish credit markets on M&A activity and the stated principle of equivalence between the cost of cash and debt.

By the deal closing, Amazon held cash and equivalents reserves of $21.4 billion (Amazon, 2017), more than enough to cover the roughly $16 billion needed to fund the deal. Nonetheless, the company preferred to borrow money at low rates for as much as 40 years instead of reaching those reserves (Heath, 2017).

A myriad of internal and external factors played a part in that Amazon's preference for liquidity — somewhat contradicting the pecking order theory. For once, although interest rates have increased from the year before to counter the rising inflation[24], they were still shallow compared to the last decade, as shown in Figure 16. Moreover, the average premium to Treasury was 1.11%, not far above the all-time low of 0.97%.

Figure 16 - 10-years US Treasury Notes yields

Source: Author, 2022.

Alongside that, Amazon had an immense debt capacity for a company its size, with a pre-deal debt a little over $8 billion, less than 2% of its market capitalisation just before the announcement (Amazon, 2017). Moreover, investors were craving for high-quality names like Amazon (Heath, 2017) — whose credit ratings were AA- according to Standard & Poors and Baa1 for Moody's. Through leveraging, Amazon could also optimise its capital structure to increase tax shields without compromising financial stability.

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[24] US CPI Index reached 1.26% in 2016 from 0.12% in the year before. Despite Federal Reserve's efforts, the CPI Index still soared more to 2.13% in 2017.

Although interest-bearing, the debt gives Amazon lots of flexibility to deal with future turmoils when capital markets may be unaccessible or interest rates may soar. Thanks to this 'battlefield balance sheet' of cash, investors can be assured that the company will not face cash-flow 'droughts' during recessions and will remain able to finance attractive acquisitions, even if banks and investors withhold credit. What's more, even if credit markets improve, the division of debt into tranches assures that Amazon can roll some of the short-term parts with more advantageous interest rates.

The process of gathering debt was pretty straightforward and according to the M&A playbook. First, Amazon obtained a 364-day senior unsecured bridge loan summing $13.7 billion from Goldman Sachs (Amazon's leading advisor), Merril Lynch, Pierce, Fenner & Smith, and Bank of America. It sent a credible sign to investors that Amazon would be able to secure the necessary funds, as the banks were going to bear exposure to the borrower's credit. Shortly afterwards, on August 15, Amazon secured and sold $16 billion of bonds divided as shown in Table 26 (Goldfarb, 2017).

Table 26 - Amazon's debt offering tranches to finance Whole Foods' acquisition

	Value	Spread (over T-Bonds)	Maturity
1st Tranche	$1,000.0	40 bps	3.0 years
2nd Tranche	1,000.0	60 bps	5.5 years
3rd Tranche	2,000.0	75 bps	7.0 years
4th Tranche	3,500.0	90 bps	10.0 years
5th Tranche	2,750.0	105 bps	20.0 years
6th Tranche	3,500.0	125 bps	30.0 years
7th Tranche	2,250.0	145 bps	40.0 years

$ in millions

Source: Author, 2022.

This debt issuance was only the fourth in Amazon's history and the first since December 2014. After the allocation, Moody's reaffirmed Amazon's ratings to be Baa1 but changed the outlook from stable to positive, affirming that the benefits from the acquisition were likely to outweigh the extra debt burden (Goldfarb, 2017).

Finally, as stated in the 'Financing' section, cash poses the problem of repatriation for global companies such as Amazon. It is not possible to determine how much of the company's reserves were in US Dollars, but it is fair to speculate that at least a good portion of it could be overseas, given Amazon's operations.

As for the usage of equity rather than debt, other than the very favourable capital market conditions aforementioned, one must also consider that due to adverse selection effects, most SEOs are accompanied by drops in share price, thus reducing the proceeds from the issuance — as would be the case if the company sold bonds below par. Therefore, by issuing debt — that was well-received by investors — Amazon could avoid hurting both its shareholders' current capital and its future proceeds — that would be diluted by a stock payment.

The alternative, using shares directly as payment, also wouldn't be ideal. Apart from the possible reluctance of Whole Foods investors to receive Amazon shares (as cash provides flexibility), the inclusion of the target's shareholders in the post-deal capital structure implies sharing with them the results of the transaction. So, if the acquirer is confident in the synergetic potential, it would be against its interests to dilute its success by giving a slice of it to outsiders.

Finally, equity payments pose some bureaucratic issues. For instance, a stock-per-stock would have an exchange rate of roughly 23 shares of Whole Foods per share of Amazon, undoubtedly leaving several of the target's investors with highly illiquid (and possibly unwanted) fractional shares. Alternatively, Amazon could split its stock, but this could affect its long-term volatility and its shareholders' profile[25].

Regarding the transaction structure, as the target was not a subsidiary, an asset sale would render its shareholders subject to double taxation and would hence be firmly against their interest. Furthermore, Amazon was not merely interested in Whole Foods' assets but also in management and personnel knowledge and experience. Transferring all contracts (as well as property ownership) would bear costs that ultimately outweigh any possible tax benefits. Thus, a stock sale was the obvious choice.

The companies carried out the deal through a one-on-one negotiation process between their managers, and Amazon went a great deal to keep it that way, despite the subsequent inquiries from two other strategic bidders (whose names were kept private) and four private equity firms (Whole Foods, 2017a).

To do so, Amazon employed a strategy that mixed two factors. First, Amazon signalled to Whole Foods and advisors that it was willing to pay a higher value than what other competitors could, as stated by Evercore[26] in an internal meeting with the board (Whole Foods, 2017a). Then, Amazon made strong statements throughout the process,

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[25] Amazon was trading at roughly $970 per share pre-deal. That hardly accessible price ensures the company that most shareholders will be individuals with a certain level of wealth, and hence a supposedly higher level of knowledge about the underlying business (at the cost of a lower liquidity).

[26] Whole Foods' advisor.

remarking to Whole Foods that it was unwilling to participate in a multiparty bidding process. Any information leakage or evaluation of competitive bids would mean the unilateral deal termination from Amazon's side (Whole Foods, 2017a).

Following the findings of Boone and Mulherin (2007) about negotiations' competitive environment, Amazon's interest in keeping things private wasn't motivated by price considerations. On the contrary, the company was willing to overpay strategic bidders to prevent leakages. And the explanation for that could be linked to two different factors. The first is Amazon's reluctance in signalling its coming strategy to direct tech competitors. For instance, as mentioned earlier, combining a quality-recognised brand with a digital assistant can give a potentially disrupting competitive advantage to the owner of this bundle, and Amazon could not risk losing this up-to-that-point overlooked opportunity. The second point is related to the deal's speed of completion. M&A can be quite a time and resources consuming endeavour, so it is in the best interest of both parties that the agreement is closed as soon as possible.

On this last aspect, the Amazon-Whole Foods deal was remarkably swift, with only four months spanning from when Amazon made the first inquiries to Whole Foods' management to the transfer of the shares. Moreover, only two months separated announcement and conclusion, which further assured Amazon that the risk of a last-minute bid would be minimal.

The deal followed the traditional negotiation framework. After Jana Partners filled an SEC schedule disclosing that they had acquired 8.8% of Whole Foods on April 10, the latter's board of directors contacted Evercore to act as their sell-side financial advisors in the case of a potential acquisition. Jana's interest prompted a letter of solicitation from an unnamed company ('Company X') expressing interest in exploring potential partnerships. Later that week, Whole Foods also received separate inquiries from four private equity funds interested in pursuing a leveraged buyout (Whole Foods, 2017a).

Then, on April 17, Whole Foods' management became aware of a recent media report about a rumour of Amazon's interest in acquiring the company. An outside consultant then served as a bridge between both managements and asked if Amazon would be interested in a potential strategic transaction (Whole Foods, 2017a).

On April 26, Whole Foods received representatives of Jana Partners, who demanded several changes in the board of directors and announcements of exploring strategic alternatives, to which the company promptly complied (Whole Foods, 2017a).

The day after, Whole Foods entered into an NDA with Amazon, with which they met personally in a meeting on April 30, although no proposal was made at the time.

Whole Foods' board met several times to discuss Amazon, 'Company X', and Jana Partners' proposals the following week and Amazon performed a due diligence session with Whole Foods' management on May 4. Additional information was requested on May 7 (Whole Foods, 2017a).

Whole Foods received a third proposal from another unnamed company (Company Y) on May 8, and on May 10, the board of directors fulfilled Jana Partners' request for board resignations, appointments, and announcements. Further on, Whole Foods met with Company X in person, from which they got a price indication between $35 and $40 per share — in a mix of cash and debt.

Then, finally, on May 23, Whole Foods received a $41 per share offer from Amazon. Amazon highlighted in the letter that the value was very compelling and would create value for the target's shareholders. Furthermore, it reserved the right to terminate the transaction if any rumours of its interest leak or Whole Foods start a multiparty sale process (i.e. an auction) (Whole Foods, 2017a).

Evercore stated, in a private meeting on May 30, that Amazon's offer was sound and potentially exceeded the price value strategic buyers or private equities could possibly propose and, together with the board, they formulated a counterproposal of $45 per share, which was received with disappointment by Amazon and its advisors (Whole Foods, 2017a).

Amazon made a final bid of $42 per share the day after, unanimously accepted by the board. After that, due diligence processes continued for the next 15 days until the public announcement on June 16.

The deal agreement contained several covenants to the parties in the case of failure. For instance, either party could unilaterally terminate the deal in the case of non-conclusion by February 15, 2018; or non-approval by Whole Foods' shareholders; or even final restraints by anti-trust authorities. Moreover, Amazon also reserved the right to unilaterally terminate the deal if the board changed its recommendation for shareholders' endorsement.

Amazon was further protected by a $400 million termination fee to be paid by Whole Foods if the former initiated the termination, including Whole Foods' board accepting a superior offer after the announcement (Whole Foods, 2017a). The hefty termination fee was a clever tool used by Amazon to prevent further competing bids (that have to be considered by law to fulfil the board's fiduciary duties) and cover for its already incurred transaction costs in the case of a sudden failure.

Table 27 summarises the main events of the transaction.

Table 27 - Main aspects of the sale process

Seller	Whole Foods, Inc.
Bidder	Amazon.com, Inc.
Initiation event	Whole Foods' external consultant contacts Amazon's management
Initiation date	17/4/2017
Companies contacted	8
Confidentiality agreements	1
Private bidders	1
Public bidders	1
Confidentiality agreement date	27/4/2017
First offer date	23/5/2017
Agreement date	1/6/2017
Merger announce	16/6/2017

Source: Author, 2022.

Finally, on a minor note about anti-trust considerations: Since companies operated on somewhat unrelated businesses up to that point, the deal did not raise any serious investigation by FTC (FTC, 2017). Some analysts, however, flagged some concerns that Amazon could be concentrating an incredible amount of economic power that could impact the retail sector and the broader American economy (Meyer, 2017).

They argue that the standard measures used by the FTC to assess a decrease in competition, such as the HHI and price markups, have little use in the cases of vertical monopolies, i.e. when a company gets control of the whole supply chain and creates barriers for others to join the market (Meyer, 2017).

Nowadays, Amazon's 'arms' arguably span almost every step of the chain, from its traditional work as a middle-man to assembling some product lines and a state-of-the-art distribution network (that would be expanded with the addition of Whole Foods' facilities).

Analysts' criticism focused on what they saw as an aggressive price strategy that pursued growth over profits, which most anti-trust experts overlooked. While they reckoned that customers are benefitting from it in the short-term, they also raised some concerns over the long-term effects of Amazon selling online six times as much as Walmart, Target, Best Buy, Nordstrom, Home Depot, Macy's, Kohl's, and Costco do combined (Khan, 2017).

Value considerations

The deal was closed with the following effects on Whole Foods' equity (Whole Foods, 2017a):

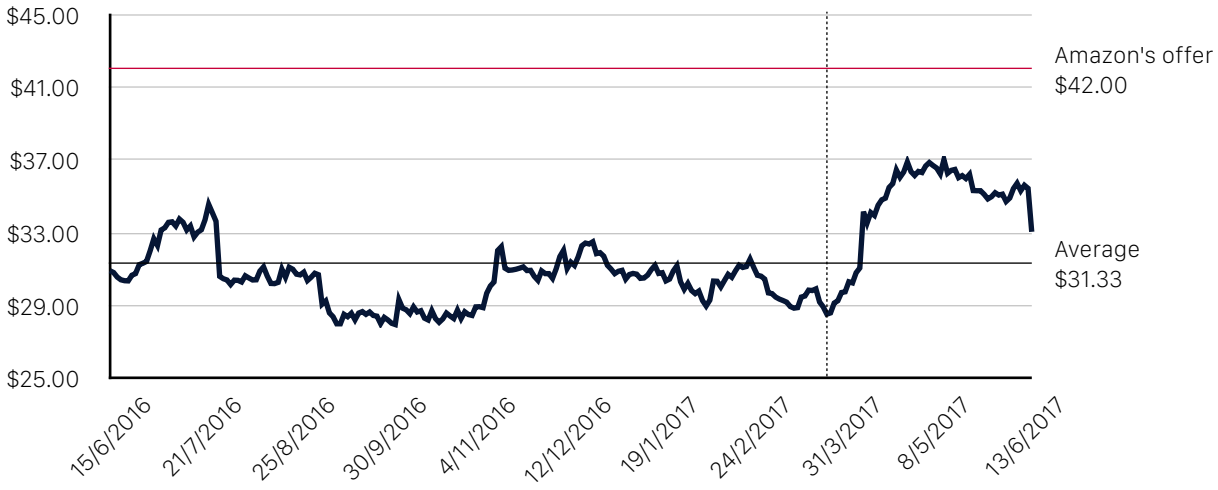
- Every Whole Foods' common stock outstanding before the deal consummation would be converted into the right to receive $42, without interests — non including any shares already owned by Amazon, Walnut Merger Sub, Inc. or in treasury stock;
- Stock options or appreciation rights (vested or not) would be automatically cancelled and converted into the right to receive the excess of the $42 agreed price to the option exercise price;
- Restricted stocks and unit awards would be cancelled and converted into the right to receive the merger consideration of $42 per share.

The total consideration was estimated to be $13.57 billion without including Whole Foods' debt — that would raise the value to $14.76 billion (Whole Foods, 2017a).

Whole Foods' board of directors considered the proposed value very attractive, as stated in their letter to shareholders, where they shed some light on the fact that control premiums were 27% of June 15 prices and 41% of March 31 (before public activism and transfer speculations affect the trading levels) (Whole Foods, 2017a).

In fact, as shown in Figure 17, Amazon's offer represented substantial value creation to the target's shareholders by any benchmark when looking at 52-weeks trailing prices — 13.4% higher than the period's maximum and 34% than average.

Figure 17 - Whole Foods 52-weeks trailing price (dotted line represents start of stock activism)



Source: Author, 2022.

Nonetheless, it is crucial to notice that control premiums are the norm in M&A deals, so the value by itself can be misleading. Market data shows that control premiums in the last few years have been around 34% (Walker et al., 2016), making Amazon's offer very close to precedent peers. Another interesting consideration is that a change in management and global strategy from Jana Partner's activism was probably already accounted for in stock prices — i.e. they were already biased by investors' acquisition expectations. Therefore, the pre-activism average of $30.36 would arguably serve as a better benchmark for Amazon's offer — resulting in roughly 38% premiums.

A slightly above-average control premium by Amazon corroborates the idea that the lack of 'official' competition didn't imply smaller prices and 'money left on the table', as hypothesised. On the other hand, the rise in prices some months before the merger may have helped Amazon not need even higher premiums. As hypothesised by Baker and Wurgler (2011) on their behavioural finance theory, recent peaks serve as reference points for both managers and shareholders so that the offer is more likely to go through, and with a lower premium, the closer current prices are to 52-weeks peaks.

Whole Foods' board of directors also praised the 100% cash offer in their recommendation letter to shareholders: It provided certainty of value and liquidity to investors that were highly esteemed in the company's environment of risks and uncertainties, including intense market pressure and difficulty in executing long-term strategic plans to grow (Whole Foods, 2017a).

Amazon's offer was rendered fair and advantageous also on Whole Foods' financial advisor's opinion. The process through which Evergrande analysed and evaluated Amazon's proposal is very similar to what was conducted in the 'Valuation' section of this work. It ran a relative valuation through a group of selected public comparables and conducted a DCF analysis using both management and analyst estimates to derive future cash flows.

For the relative valuation, Evercore selected a very similar group of companies from the one reported in Table 7, with the addition of Supervalu, Inc. Evercore also adjusted the quantitative results obtained with internal (and not disclosed) qualitative-criteria judgements. Another critical difference between Evercore's and this work's analysis was that the former, in addition to 2017 data, used forward-looking multiples to guide the valuation further (Whole Foods, 2017a). Its lack in this work is explainable by the difficulty of obtaining consensus estimates made in 2017 for all companies.

There were also slight differences in the 2017 EBITDA, as this work used 17/6/2017 LTM data and Evercore used end-of-year estimates. The same process was applied for deriving a P/E valuation range with similar results, as shown in Table 28.

Table 28 - Relative Valuation results' comparison (Ec = Evercore; TW = this work)

	Metric	Selected Range	Implied Share Price
TW EV/2017LTM EBITDA	$1,397	7.0x — 9.5x	$30.36 — $41.07
Ec EV/2017E EBITDA	1,258	7.0x — 9.5x	27.75 — 36.89
Ec EV/2018E EBITDA	1,331	7.0x — 9.5x	29.22 — 39.04
TW P/2017LTM E	$1.66	17x — 24x	$28.22 — $39.84
Ec P/2017E E	1.43	20x — 24x	28.69 — 34.43
Ec P/2018E E	1.49	20x — 24x	29.76 — 35.72

$ in millions, except for share data

Source: Author, 2022.

For the DCF Analysis, Evercore worked with two separate cases. The 'Management Case' used internal management projections (tendentially inflated), and the 'Public Equity Analysts Case' used consensus estimates and historical data to create a more conservative scenario, in line with the valuation performed in this work (Whole Foods, 2017a).

Terminal Value was estimated using both EMM, with an exit EV/EBITDA of 7.0x to 9.5x, and PGM, with a growth rate of 2.5% to 3.5% — in line with market estimates and management projections (Whole Foods, 2017a). However, unlike this work's valuation, where the WACC revolved around 5%, Evercore used more aggressive discount rates from 7.0% to 9.0%. The difference can be attributed to its use of historical betas (Whole Foods, 2017a) instead of market-based ones.

In any case, results did not differ much, as shown in Table 29, with this work's values coming in between the inflated management's projections and the more heavily discounted public equity analyst's estimates.

Table 29 - Fundamental Valuation results' comparison (Ec = Evercore; TW = this work)

	Implied Share Price
TW Public Equity Estimates	$31.77 — $46.82
Ec Management Estimates	37.11 — 51.22
Ec Public Equity Estimates	28.50 — 39.55

Source: Author, 2022.

Evercore's valuations range clearly shows why the advisor considered Amazon's offer so attractive. Apart from management projections, no other methodology came close to the $42 per share offered, strongly indicating that no other bidder would be willing to go this high.

From Amazon's point of view, the accretion/(dilution) analysis shown in Table 30 provides some excellent indication of why the price was advantageous for the acquirer, regardless of the expected synergies, for the transaction was expected to be accretive on-and-by itself. The accretive potential can also be attributed to Amazon's usage of its vast debt capacity to fund the transaction, as stock payments tend to be dilutive. Furthermore, Amazon used the very favourable debt environment to sell bonds at the cost of debt much lower than what new stockholders were asking to invest in it, further accreting the deal results.

Table 30 - Condensed Amazon-Whole Foods accretion/(dilution) analysis

	2017E	2018E	2019E	2020E
Amazon EBIT	$3,440.0	$6,227.6	$10,564.0	$17,121.6
While Foods EBIT	518.0	556.9	590.3	619.8
(-) Acquirer standalone interest	448.5	461.1	464.1	416.4
(-) Incremental interest	*581.0*	*581.0*	*581.0*	*550.8*
Proforma Net Income (tax rate @ 35%)	3,131.0	5,935.1	10,447.6	17,209.4
Standalone shares outstanding	*497.0*	*497.0*	*497.0*	*497.0*
Shares issued in the transaction	-	-	-	-
Proforma combined EPS	**$4.09**	**$7.76**	**$13.66**	**$22.51**
Standalone EPS	*3.91*	*7.54*	*13.21*	*21.85*
Accretion/(Dilution) - %	*4.7%*	*2.9%*	*3.4%*	*3.0%*

Source: Author, 2022.

It is worth noting that, in line with what was done for Whole Foods' DCF, Table 30 used equity research projections (Ju and Ford, 2017) for coming years' EBIT and standalone interest. The 'incremental interest' debt schedule was calculated by applying the respective spreads to long-term T-bond yields at the announcement date. While the implied yield curve for the coming years would provide more accurate results, the difference would not severely affect the accretion/(dilution) analysis, hence the preference for spot rates.

Outcome and takeaways

The deal immediately shook the groceries industry from top to bottom. Fearing that Amazon's entrance into the market would ultimately overthrow the standard business model, everyone, from competitors to suppliers, began to make fundamental changes in their selling and marketing strategies. For instance, several food makers revamped their packaging to emphasise online repeat purchases instead of the traditional impulse buys (Haddon, 2018).

The market transformation was further accelerated by the massive increase Whole Foods stores' traffic. After two years of stagnation, the number of customers visiting the grocer increased 2% year-on-year in the first four quarters post-acquisition. And although the fuzz could be, at least partially, explained by the media coverage of the deal and of Amazon-spurred price reductions (Berthene, 2019), that did not stop terror from spreading to competitors around the world.

As a result, most accelerated planned investments in online delivery and pick-up services, bumping ahead plans from 5-7 years to 2-3 years. The 'Amazon effect' becomes evident when analysing one of the biggest online grocery-delivery companies in the US, Instacart Inc., whose customers grew from 30 pre-deal[27] to more than 200 in 2018 (Haddon, 2018).

The shift in investment focus could also be seen from an M&A perspective, as competitors slowed down the opening of new stores to focus on acquiring tech companies and private-label brands (Hirsch, 2018). For example, Walmart bought the e-commerce platform Flipkart, and Target acquired Shipt, a company that specialises in delivery services for online orders. As a result, most companies had their margins hurt in the short-term (Haddon and Stevens, 2017b), which puts them at a disadvantage to Amazon in the stock exchange, as groceries' investors tend to punish endeavours that are unprofitable or will take longer to be effective (Hirsch, 2018).

Despite all the fear and analysts' expectations, the reality was that Amazon did not conquer online and offline grocery sales (Berthene, 2019); far from it, Whole Foods was never able to step up and compete with the big players, like Kroger—whose revenues remained five times larger. In fact, most large competitors reported a little-to-no drop in sales one year after the deal (Haddon, 2018).

It does not mean that Amazon's initiatives were unsuccessful, however. On the contrary, the company successfully used substantial price drops on selected items

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[27] *Including Whole Foods, which signed a 5-year commitment with the company sometime before the M&A initiative. Amazon ditched them by 2019 to use internal services instead (Banker, 2019).*

(like organic bananas and avocados) to attract new customers to its stores, and distributors reported 24% more sales to Whole Foods (Haddon, 2018). Yet, prices were so high at the acquisition time, and Whole Foods' quality standards were so elevated that it only managed to narrow the gap — rather than undercut competitors — in most items (Cox, 2021). For instance, research indicated that a selected basket of goods was still 37% cheaper on Walmart some months after the deal, even though the difference was reduced by three percentage points (Haddon and Stevens, 2017b). Moreover, the image of 'Whole Paycheck' proved to be more sticky than most expected, with many customers saying that it would take a 20% drop in prices to shop more at Whole Foods (Haddon and Stevens, 2017b).

However, sometime after the deal, it became clear that Amazon never intended to use Whole Foods to curb the market. Apart from the obvious moves to cut prices and use the stores' network to ramp up online grocery business, the company also used Whole Foods to draw more people into the Amazon ecosystem (Lahart, 2018). For starters, the company integrated Prime services into Whole Foods as a loyalty program with exclusive deals and delivery services, such as a 10% off on all items, an additional 5% cash-back for purchases with Prime Visa card, and free two-hour delivery on some regions (Haddon, 2018). That move set a new standard on shopper loyalty programs, prompting the reaction of big players like Walmart, who followed with its subscription service: Delivery Unlimited (Berthene, 2019). The increased set of offers attracted Prime members to Whole Foods and the latter's customers to Prime services.

Furthermore, Prime integration allowed Whole Foods' stores to start serving as massive data-gathering facilities, as predicted by some analysts. Amazon revolutionarily applied to Whole Foods some of the same tools and tactics from its online business to track customers' behaviour and offer personalised deals, targeted advertisement, and support its order-to-shelf inventory management system. The combination is compelling for the growing group of customers who browse products online but buy in person (Hirsch, 2018). An example of this data application is automatic warnings to regular customers on the Prime Whole Foods app when discounts are available for commonly bought items (Banker, 2019).

More profoundly, though, Whole Foods acquisition can be seen as a vehicle through which Amazon could learn about the grocery business to launch its own larger mainstream store (Stevenson, 2021). The fact is that Whole Foods could never be scaled up into a global brand because of the intrinsic 'special experience' that customers expect from it and its products, and also the tamed reputation it has when it comes to prices. In fact, Amazon has already taken its first steps in that direction, with new stores popping up in the US under the 'Amazon Fresh' banner.

Those stores are generally much smaller and less extravagant than Whole Foods, with a more local focus and cheaper materials (Stevenson, 2021). Amazon Fresh stores could also be a way to scale up the already successful experience on same-day delivery achieved in Whole Foods, with stores serving as more cost-effective ways to take care of fresh food and serve as delivery hubs (Hirsch, 2018). First, however, there is the question of whether the Amazon Fresh brand will be able to replicate the trust consumers have in Whole Foods.

The initial step Amazon took outside its comfort zone was to be the first mover in price reductions. Up to that point, the company had relied on algorithms that automatically analyse competitors' prices to match or narrowly undercut them on its website[28] (Haddon and Stevens, 2017a). Yet, grocers' prices are not immediately available to an algorithm and can severely differ from region to region, even within the same banner. Furthermore, customers at Whole Foods are generally more focused on quality rather than price, so it's tougher to predict how discounted prices may affect traffic (Haddon and Stevens, 2017a).

Thus, Amazon had to break its reactive approach and be the price maker for over 100 items — many by more than 30%. While prices on average were still higher than the competition, some products became much cheaper, contrarily to the cents margins Amazon customarily applied on online offerings (Haddon and Stevens, 2017a).

Amazon also tried to deconstruct Whole Foods' decentralised structure and bring it closer to the 'tight' Amazon philosophy. For instance, price differences among regions were mostly eliminated (Haddon and Steven, 2017a), supplier purchase processes were focused on the Austin HQ (Hirsch, 2018), and marketing was moved to corporate, eliminating the store graphic designer position and a large number of regional staff (Banker, 2019).

While those modifications increased cost efficiency and corporate control over regional stores, they also came with some drawbacks that ultimately served as valuable lessons to Amazon on the differences between online and brick-and-mortar operations. For instance, the centralised purchase did simplify operations for brands to scale nationwide without travelling region by region, but it fundamentally led to the squeezing out of smaller, local brands that had no interest in going national (Hirsch, 2018). Amazon countered the issue with the introduction of regional purchase teams to handle new local items, leaving larger brands to global procurement. As a result, over 7,500 new local items in 2018 from 1,900 new and existing suppliers (Banker, 2019).

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[28] *They further focus on popular items that drive traffic to give them a reputation of lowest prices.*

Other changes in the Whole Foods environment included Amazon using its more considerable purchasing power to squeeze suppliers into paying merchandising fees for items on sale — discounting Prime offers back to the vendor — and a new (and polemic) order-to-shelf inventory management system. The system, which consists of orders skipping the stock room and going directly to the shelves — therefore reducing spoilage — was not received well by employees accustomed to a more loose corporate culture and resulted in product shortages on several stores (Banker, 2019).

This cultural difference went somewhat against John Mackey's[29] statements that the deal was 'love at first sight' and highlighted the issues of moving too fast with a negotiation process so that there was no time for the parties to build rapport and discuss intangible issues, such as culture (Gelfand et al., 2018).

Nonetheless, the deal can still be regarded as a considerable success. Since the acquisition, Amazon successfully leveraged the brand and its infrastructure and achieved remarkable growth in the grocery sector (Cox, 2021). Some synergetic highlights were opening delivery lockers in Whole Foods stores and the excellent results selling its own devices, such as Echo and Kindle (Hirsch, 2018). In its turn, Whole Foods benefitted immensely from Amazon's digital capabilities, as consumers show an amplifying appetite for buying groceries online, with 43% of Americans using this channel at least once in 2018 (Berthene, 2019).

Notably, the pandemic environment has formidably accelerated this trend, with Amazon's 2020 brick-and-mortar stores sales falling by 8%, but online gains rising by 46% — with a good part of that probably attributable to Whole Foods (Cox, 2021). The lousy performance of traditional stores is also part of a broader Amazon trend to shift sales online and transform some physical stores into 'behind-the-scenes' automated fulfilment centres (Cox, 2021).

It's undeniable that Amazon's overwhelming focus on productivity and online fulfilment hurt some of the store's service reputation over the years. Yet, it is also beyond doubt that the online giant took a failing grocer with zero digital capabilities and a reputation for preposterous price tags into a loved brand with one of the best online experiences available. All of that in three years and without losing the commitment to high standards of quality and sustainability that constructed Whole Foods. A deal that, with only $13.7 billion, manages to achieve such while turning an $800 billion market upside-down has to be deemed **remarkable**.

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[29] *Whole Foods' founder and CEO (pre and post-deal).*

Conclusion

The size, complexity and importance of M&A have allured practitioners, investors, managers and academics for a long time. Attempts on finding how to perfectly design, time, and value a deal have been going on for decades, often with unsuccessful or incomplete results. And the truth is that things cannot be any different: There are so many factors driving such operations that it is impossible to avoid leaving some to chance or predict the environment and emotions and motivations of those involved.

As financial science evolves, it becomes ever more clear that it is not (and it cannot hope to be) an exact science. Ultimately, finance is made out of people: impulsive, afraid, greedy. And as much as some group behaviours can be quantified, the reality is that everything has a stochastic variable and extreme events, however unlikely, are always possible.

With that in mind, this thesis could never yearn to provide a perfect path to identify (or craft) the immaculate deal, nor an infallible way to invest in merging companies successfully. Instead, it craved to serve as a practical guide that students and practitioners could use to understand more thoroughly and better identify where the probabilities are most likely to drive them. And that goal was fulfilled.

This work successfully rationalised some of the most complex subjects in finance with a practical and relatable approach that rendered them understandable even for those with only rudimentary financial education. In addition, it explored some pitfalls and behavioural elements that could potentially drive a seemingly successful merger into a disaster or even lead investors to regard an aimed-for-catastrophe deal as a genius move.

Obviously, given the complexity of the subject, most topics presented only had their surfaces scratched. However, the vast research literature used to carve this thesis, available in the references, is a formidable starting point for an interested reader to explore them in greater depth.

Finally, the case study chosen to illustrate this work was not random. The particularity of its synergy sources differs from what most hope to achieve with the simple combination of factories and lay-offs to create economies of scale. The fact is that Amazon took a great leap of faith with Whole Foods, trusting that it would be able to use its skills and cultural characteristics to boost an established business' revenues. The uncertainty surrounding revenue synergies is usually so considerable that analysts refrain from including it in their models. And Amazon proved them wrong.

The deal was also interesting from a behavioural point of view. Amazon got so large and had such an effect in the markets that it touched that everyone assumed Whole Foods would be the case again, from investors to competitors. Those who questioned whether the business model and reputation would allow it to be scaled up to the anticipated dimensions were few and quickly dismissed. Then, when it became clear that the endeavour was impossible[30], a quasi-consensus was ready to promptly label the deal as a failure.

In the end, the reality is that the deal was indeed not perfect — none of them is — but from a cold point of view, the astounding effect Amazon had on the sector and company was far from a failure. Furthermore, it may be the case that investors' expectations and Amazon's objectives were never the same in the first place.

So, what this work wanted to highlight with this case is also that even a deal with excellent fundamentals, reasoning and design can ultimately be affected by the expectations people put on them.

In a way, the same craziness that makes finance and markets so unpredictable is also what renders them so fascinating. But it is the good investors' duty not to be carried away by them. And this work may provide some paths.

[30] Which does not prevent Amazon to use the knowledge and experience gathered with the deal to scale-up its own 'Amazon Fresh' brand.

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Appendix A - Comparables Analysis sheets

The file is composed of the following sheets:

- *List*: A list of all the comparable companies with a summary of their main financials (i.e. LTM Sales and EBITDA) and a short business description;
- *Benchmarking 1*: A full detail on the target and every comparable LTM financials, profitability margins, and growth ratios;
- *Benchmarking 2*: A full detail on the target and every comparable return metrics, and leverage and coverage ratios;
- *Output*: The output table with comparables' trailing and expected multiples (EV/ EBITDA and P/E), with means and medians for the tiers and the whole group;
- *Target and Comps sheets*: Individual sheets for all the companies involved in the analysis, with historical data and future projections for all three financial statements and market data, such as price and shares outstanding. **All inputs are made in this category**.

The *List*, shown in Figure A1, collects its data from each company's sheets and displays them in a way to render direct comparison easier and hence tier separation more transparent.

Figure A1 - *List* sheet

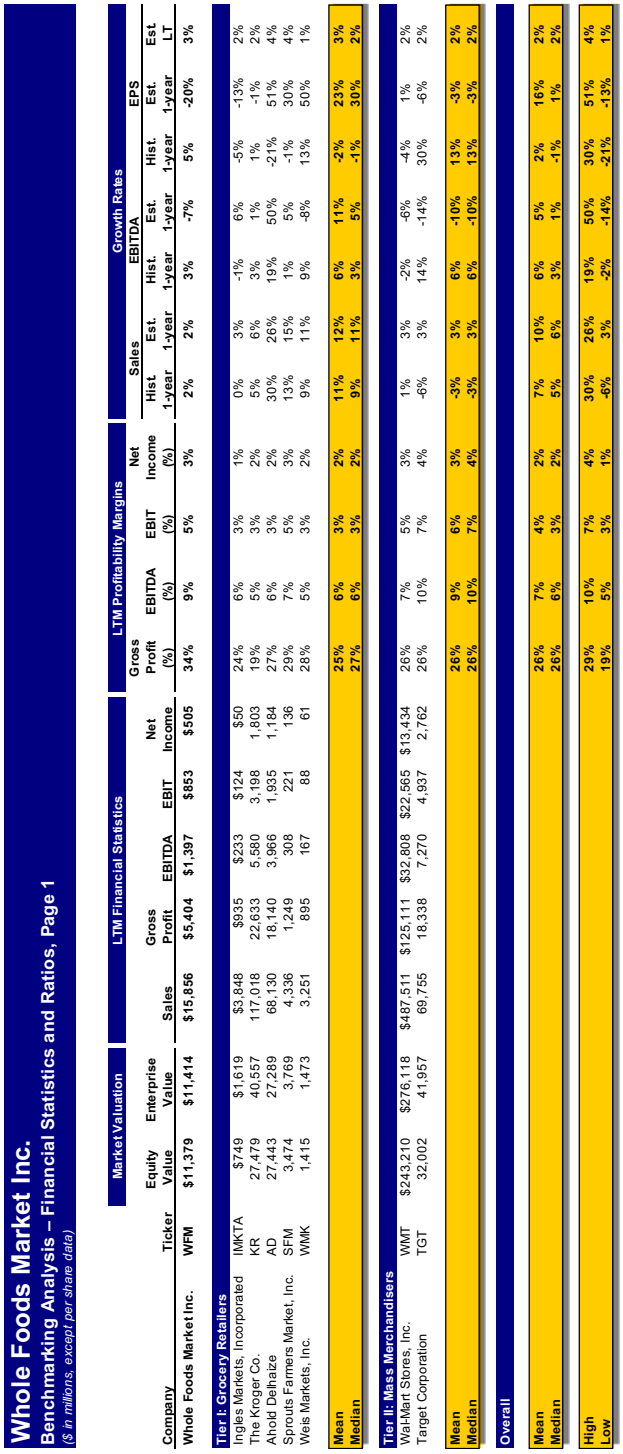
($ in millions)

List of Comparable Companies						
Company	**Ticker**	**Business Description**	**Equity Value**	**Enterprise Value**	**LTM Sales**	**LTM EBITDA**
Whole Foods Market Inc.	**WFM**	**The leading natural and organic foods supermarket and uniquely positioned as America's Healthiest Grocery Store. Also produces itself some of the products sold.**	**$11,379**	**$11,414**	**$15,856**	**$1,397**
Ingles Markets, Incorporated	IMKTA	Supermarket chain in the southeast United States. The supermarkets are primarely located in suburban areas, small towns and neighborhood malls.	749	1,619	3,848	233
The Kroger Co.	KR	One of the largest grocery retailers. Also manufactures and processes some of the food for sale. Operates stores, fuel centers and an online shop	27,479	40,557	117,018	5,580
Ahold Delhaize	AD	European grocery store with presence in the US with a stong focus on sustainability. Result from the merger of Ahold and Delzaize in 2015.	27,443	27,289	68,130	3,966
Sprouts Farmers Market, Inc.	SFM	Healthy grocery stores that offers fresh, natural and organic products. A complete food retailer that operates with smaller stores.	3,474	3,769	4,336	308
Weis Markets, Inc.	WMK	Family-owned food retailer focused on Pensylvannia and surrounding states. Other than food, Weis also offer pharmacy services and sell fuel.	1,415	1,473	3,251	167
Wal-Mart Stores, Inc.	WMT	Mass merchandiser that aims at a lower cost strategy and is present in 28 countries. Active in both retail and wholesale of a vast array of products.	243,210	276,118	487,511	32,808
Target Corporation	TGT	Mass merchandiser operating either in physical stores and the internet. Sells a wide range of merchandise but profits maily come from food.	32,002	41,957	69,755	7,270

Source: Author, 2021.

The *Benchmarking* spreadsheets go into deeper detail and already consider a tier separation done by the author in designing the sheets. The first sheet, *Benchmarking 1* (Figure A2), shows more comprehensive financial information than the *List*, adding Net Income, Gross Profits and EBIT. Furthermore, the sheet conveys growth and profitability information, calculated with the formulas laid down in the Valuation section of this work, based on the reported financials.

Figure A2 - *Benchmarking 1* sheet



Whole Foods Market Inc.
Benchmarking Analysis – Financial Statistics and Ratios, Page 1
($ in millions, except per share data)

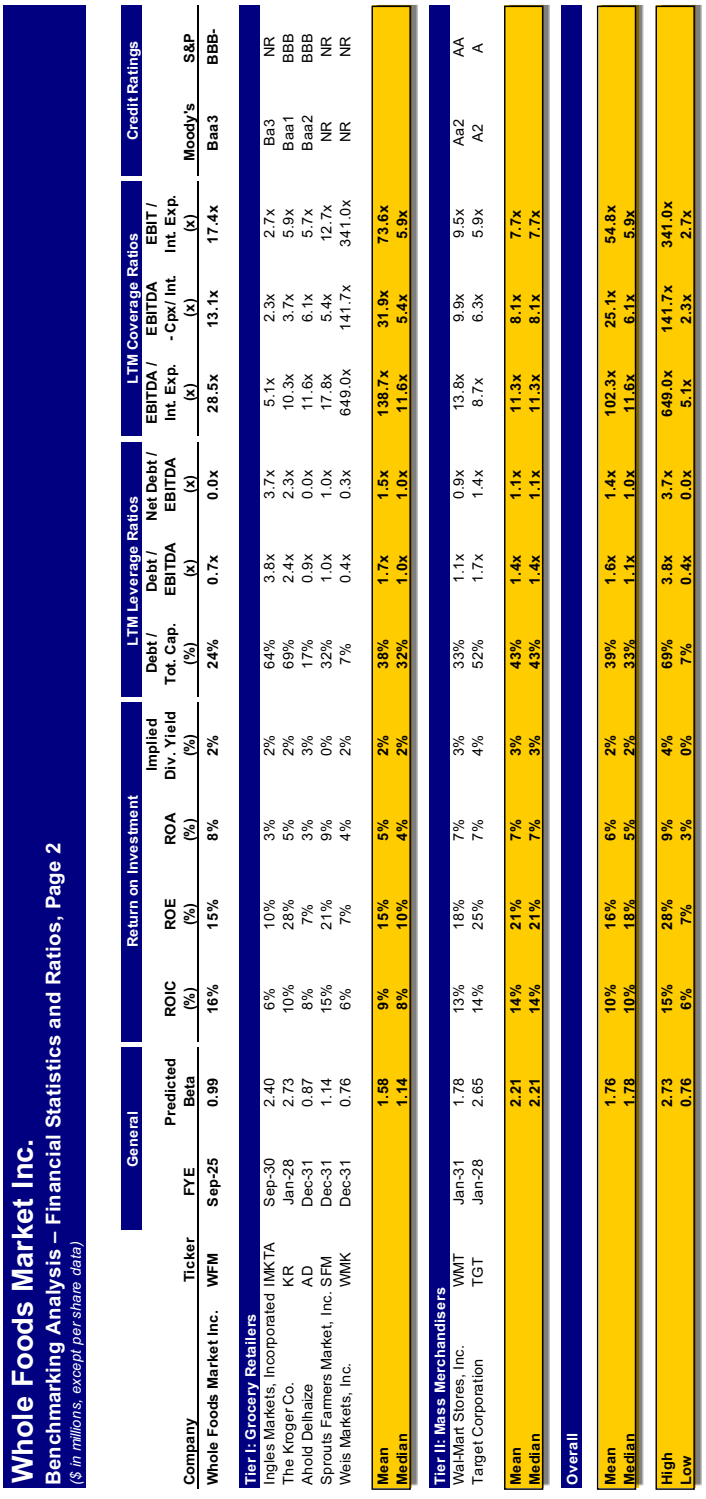
		Market Valuation		LTM Financial Statistics					LTM Profitability Margins				Growth Rates							
													Sales		EBITDA		EPS			
Company	Ticker	Equity Value	Enterprise Value	Sales	Gross Profit	EBITDA	EBIT	Net Income	Gross Profit (%)	EBITDA (%)	EBIT (%)	Net Income (%)	Hist. 1-year	Est. 1-year	Hist. 1-year	Est. 1-year	Hist. 1-year	Est. 1-year	Est. LT
Whole Foods Market Inc.	**WFM**	**$11,379**	**$11,414**	**$15,856**	**$5,404**	**$1,397**	**$853**	**$505**	**34%**	**9%**	**5%**	**3%**	**2%**	**2%**	**3%**	**-7%**	**5%**	**-20%**	**3%**
Tier I: Grocery Retailers																			
Ingles Markets, Incorporated	IMKTA	$749	$1,619	$3,848	$935	$233	$124	$50	24%	6%	3%	1%	0%	3%	-1%	6%	-5%	-13%	2%
The Kroger Co.	KR	27,479	40,557	117,018	22,633	5,580	3,198	1,803	19%	5%	3%	2%	5%	6%	3%	1%	1%	-1%	2%
Ahold Delhaize	AD	27,443	27,289	68,130	18,140	3,966	1,935	1,184	27%	6%	3%	2%	30%	26%	19%	50%	-21%	51%	4%
Sprouts Farmers Market, Inc.	SFM	3,474	3,769	4,336	1,249	308	221	136	29%	7%	5%	3%	13%	15%	1%	5%	-1%	30%	4%
Weis Markets, Inc.	WMK	1,415	1,473	3,251	895	167	88	61	28%	5%	3%	2%	9%	11%	9%	-8%	13%	50%	1%
Mean									**25%**	**6%**	**3%**	**2%**	**11%**	**12%**	**6%**	**11%**	**-2%**	**23%**	**3%**
Median									**27%**	**6%**	**3%**	**2%**	**9%**	**11%**	**3%**	**5%**	**-1%**	**30%**	**2%**
Tier II: Mass Merchandisers																			
Wal-Mart Stores, Inc.	WMT	$243,210	$276,118	$487,511	$125,111	$32,808	$22,565	$13,434	26%	7%	5%	3%	1%	3%	-2%	-6%	-4%	1%	2%
Target Corporation	TGT	32,002	41,957	69,755	18,338	7,270	4,937	2,762	26%	10%	7%	4%	-6%	3%	14%	-14%	30%	-6%	2%
Mean									**26%**	**9%**	**6%**	**3%**	**-3%**	**3%**	**6%**	**-10%**	**13%**	**-3%**	**2%**
Median									**26%**	**10%**	**7%**	**4%**	**-3%**	**3%**	**6%**	**-10%**	**13%**	**-3%**	**2%**
Overall																			
Mean									**26%**	**7%**	**4%**	**2%**	**7%**	**10%**	**6%**	**5%**	**2%**	**16%**	**2%**
Median									**26%**	**6%**	**3%**	**2%**	**5%**	**6%**	**3%**	**1%**	**-1%**	**1%**	**2%**
High									**29%**	**10%**	**7%**	**4%**	**30%**	**26%**	**19%**	**50%**	**30%**	**51%**	**4%**
Low									**19%**	**5%**	**3%**	**1%**	**-6%**	**3%**	**-2%**	**-14%**	**-21%**	**-13%**	**1%**

Source: Company filings, Bloomberg, Consensus Estimates
Note: Last twelve months data based on June 14, 2017. Estimated annual financial data based on a calendar year.

Source: Author, 2021.

Benchmarking 2 (Figure A3) follows the same logic as the first but concentrates on return and leverage ratios, with the addition of credit ratings to further narrow the analysis. Those two tables were used to identify the closest comparables that could be used to drive the multiple range selection, as explained in the Valuation section of this work.

Figure A3 - *Benchmarking 2* sheet



Whole Foods Market Inc.
Benchmarking Analysis – Financial Statistics and Ratios, Page 2
($ in millions, except per share data)

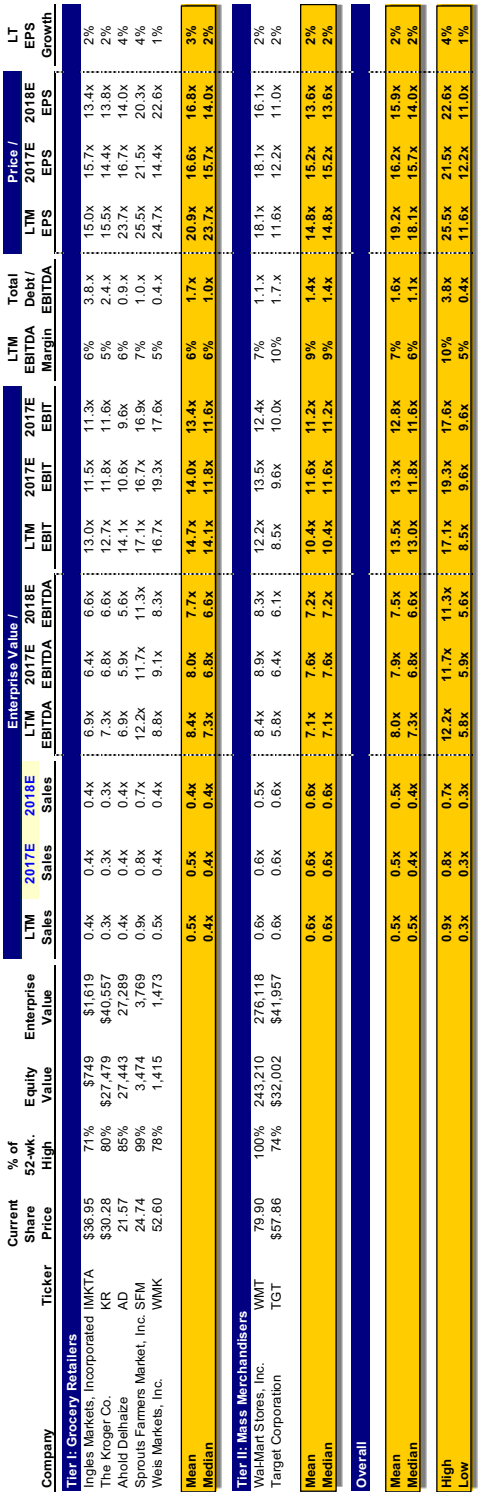
		General		Return on Investment				LTM Leverage Ratios			LTM Coverage Ratios			Credit Ratings	
Company	Ticker	FYE	Predicted Beta	ROIC (%)	ROE (%)	ROA (%)	Implied Div. Yield (%)	Debt / Tot. Cap. (%)	Debt / EBITDA (x)	Net Debt / EBITDA (x)	EBITDA / Int. Exp. (x)	EBITDA - Cpx/ Int. (x)	EBIT / Int. Exp. (x)	Moody's	S&P
Whole Foods Market Inc.	**WFM**	**Sep-25**	**0.99**	**16%**	**15%**	**8%**	**2%**	**24%**	**0.7x**	**0.0x**	**28.5x**	**13.1x**	**17.4x**	**Baa3**	**BBB-**
Tier I: Grocery Retailers															
Ingles Markets, Incorporated	IMKTA	Sep-30	2.40	6%	10%	3%	2%	64%	3.8x	3.7x	5.1x	2.3x	2.7x	Ba3	NR
The Kroger Co.	KR	Jan-28	2.73	10%	28%	5%	2%	69%	2.4x	2.3x	10.3x	3.7x	5.9x	Baa1	BBB
Ahold Delhaize	AD	Dec-31	0.87	8%	7%	3%	3%	17%	0.9x	0.0x	11.6x	6.1x	5.7x	Baa2	BBB
Sprouts Farmers Market, Inc.	SFM	Dec-31	1.14	15%	21%	9%	0%	32%	1.0x	1.0x	17.8x	5.4x	12.7x	NR	NR
Weis Markets, Inc.	WMK	Dec-31	0.76	6%	7%	4%	2%	7%	0.4x	0.3x	649.0x	141.7x	341.0x	NR	NR
Mean			**1.58**	**9%**	**15%**	**5%**	**2%**	**38%**	**1.7x**	**1.5x**	**138.7x**	**31.9x**	**73.6x**		
Median			**1.14**	**8%**	**10%**	**4%**	**2%**	**32%**	**1.0x**	**1.0x**	**11.6x**	**5.4x**	**5.9x**		
Tier II: Mass Merchandisers															
Wal-Mart Stores, Inc.	WMT	Jan-31	1.78	13%	18%	7%	3%	33%	1.1x	0.9x	13.8x	9.9x	9.5x	Aa2	AA
Target Corporation	TGT	Jan-28	2.65	14%	25%	7%	4%	52%	1.7x	1.4x	8.7x	6.3x	5.9x	A2	A
Mean			**2.21**	**14%**	**21%**	**7%**	**3%**	**43%**	**1.4x**	**1.1x**	**11.3x**	**8.1x**	**7.7x**		
Median			**2.21**	**14%**	**21%**	**7%**	**3%**	**43%**	**1.4x**	**1.1x**	**11.3x**	**8.1x**	**7.7x**		
Overall															
Mean			**1.76**	**10%**	**16%**	**6%**	**2%**	**39%**	**1.6x**	**1.4x**	**102.3x**	**25.1x**	**54.8x**		
Median			**1.78**	**10%**	**18%**	**5%**	**2%**	**33%**	**1.1x**	**1.0x**	**11.6x**	**6.1x**	**5.9x**		
High			**2.73**	**15%**	**28%**	**9%**	**4%**	**69%**	**3.8x**	**3.7x**	**649.0x**	**141.7x**	**341.0x**		
Low			**0.76**	**6%**	**7%**	**3%**	**0%**	**7%**	**0.4x**	**0.0x**	**5.1x**	**2.3x**	**2.7x**		

Source: Company filings, Bloomberg, Consensus Estimates
Note: Last twelve months data based on June 14, 2017. Estimated annual financial data based on a calendar year.

Source: Author, 2021.

Output (Figure A4) takes each company sheet's information to calculate comparables' backward- and forward-looking multiples. Furthermore, to help drive the analysis, means and medians are displayed separated by tiers and overall. As was the case with Benchmarks, all multiples are calculated according to the formulas laid down in the **Valuation** section.

Figure A4 - *Output* sheet



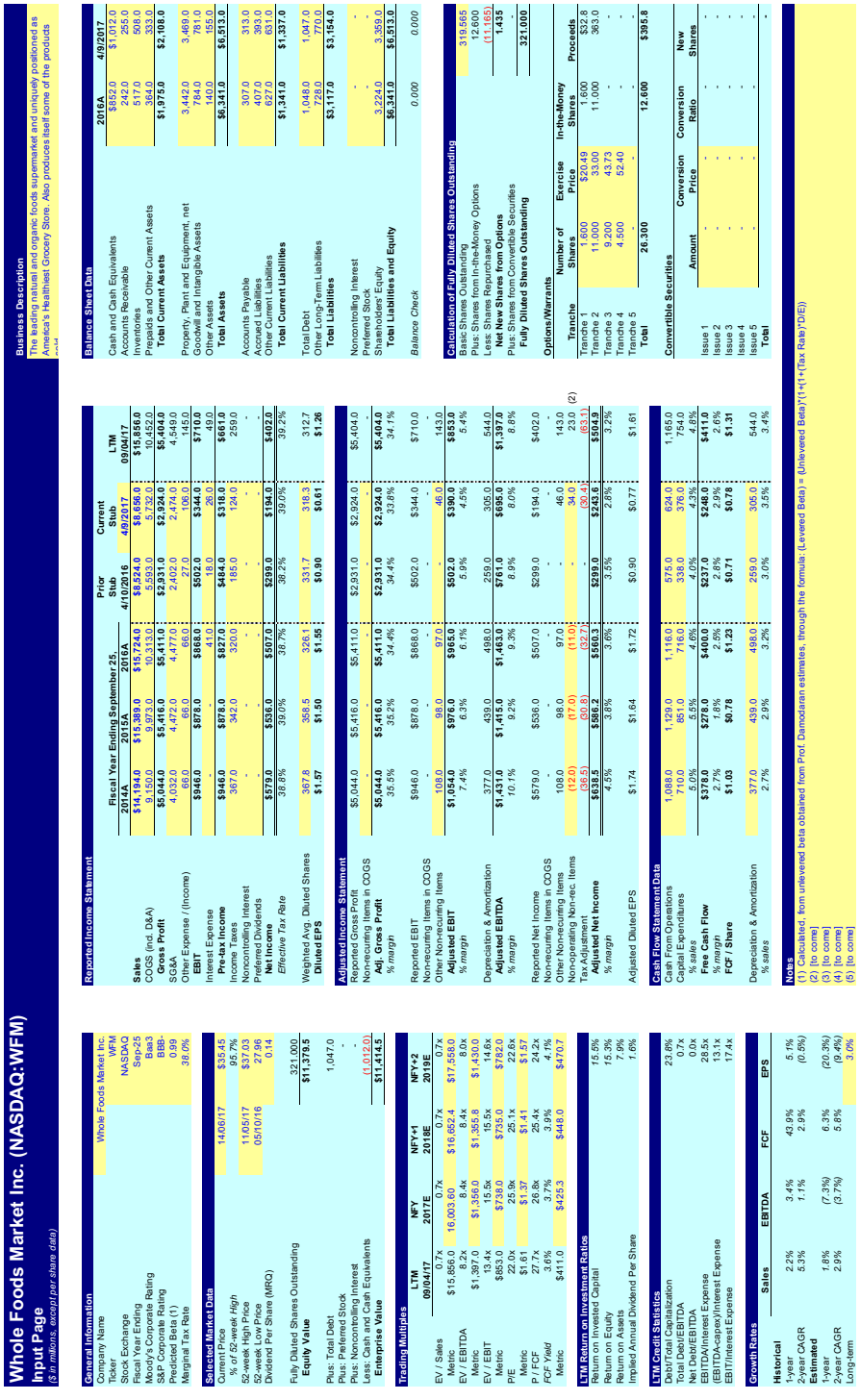
Company	Ticker	Current Share Price	% of 52-wk. High	Equity Value	Enterprise Value	Enterprise Value / LTM Sales	Enterprise Value / 2017E Sales	Enterprise Value / 2018E Sales	Enterprise Value / LTM EBITDA	Enterprise Value / 2017E EBITDA	Enterprise Value / 2018E EBITDA	LTM EBIT	2017E EBIT	2017E EBIT	LTM EBITDA Margin	Total Debt / EBITDA	Price / LTM EPS	Price / 2017E EPS	Price / 2018E EPS	LT EPS Growth
Tier I: Grocery Retailers																				
Ingles Markets, Incorporated	IMKTA	$36.95	71%	$749	$1,619	0.4x	0.4x	0.4x	6.9x	6.4x	6.6x	13.0x	11.5x	11.3x	6%	3.8.x	15.0x	15.7x	13.4x	2%
The Kroger Co.	KR	$30.28	80%	$27,479	$40,557	0.3x	0.3x	0.3x	7.3x	6.8x	6.6x	12.7x	11.8x	11.6x	5%	2.4.x	15.5x	14.4x	13.8x	2%
Ahold Delhaize	AD	21.57	85%	27,443	27,289	0.4x	0.4x	0.4x	6.9x	5.9x	5.6x	14.1x	10.6x	9.6x	6%	0.9.x	23.7x	16.7x	14.0x	4%
Sprouts Farmers Market, Inc.	SFM	24.74	99%	3,474	3,769	0.9x	0.8x	0.7x	12.2x	11.7x	11.3x	17.1x	16.7x	16.9x	7%	1.0.x	25.5x	21.5x	20.3x	4%
Weis Markets, Inc.	WMK	52.60	78%	1,415	1,473	0.5x	0.4x	0.4x	8.8x	9.1x	8.3x	16.7x	19.3x	17.6x	5%	0.4.x	24.7x	14.4x	22.6x	1%
Mean						**0.5x**	**0.5x**	**0.4x**	**8.4x**	**8.0x**	**7.7x**	**14.7x**	**14.0x**	**13.4x**	**6%**	**1.7x**	**20.9x**	**16.6x**	**16.8x**	**3%**
Median						**0.4x**	**0.4x**	**0.4x**	**7.3x**	**6.8x**	**6.6x**	**14.1x**	**11.8x**	**11.6x**	**6%**	**1.0x**	**23.7x**	**15.7x**	**14.0x**	**2%**
Tier II: Mass Merchandisers																				
Wal-Mart Stores, Inc.	WMT	79.90	100%	243,210	276,118	0.6x	0.6x	0.5x	8.4x	8.9x	8.3x	12.2x	13.5x	12.4x	7%	1.1.x	18.1x	18.1x	16.1x	2%
Target Corporation	TGT	$57.86	74%	$32,002	$41,957	0.6x	0.6x	0.6x	5.8x	6.4x	6.1x	8.5x	9.6x	10.0x	10%	1.7.x	11.6x	12.2x	11.0x	2%
Mean						**0.6x**	**0.6x**	**0.6x**	**7.1x**	**7.6x**	**7.2x**	**10.4x**	**11.6x**	**11.2x**	**9%**	**1.4x**	**14.8x**	**15.2x**	**13.6x**	**2%**
Median						**0.6x**	**0.6x**	**0.6x**	**7.1x**	**7.6x**	**7.2x**	**10.4x**	**11.6x**	**11.2x**	**9%**	**1.4x**	**14.8x**	**15.2x**	**13.6x**	**2%**
Overall																				
Mean						**0.5x**	**0.5x**	**0.5x**	**8.0x**	**7.9x**	**7.5x**	**13.5x**	**13.3x**	**12.8x**	**7%**	**1.6x**	**19.2x**	**16.2x**	**15.9x**	**2%**
Median						**0.5x**	**0.4x**	**0.4x**	**7.3x**	**6.8x**	**6.6x**	**13.0x**	**11.8x**	**11.6x**	**6%**	**1.1x**	**18.1x**	**15.7x**	**14.0x**	**2%**
High						**0.9x**	**0.8x**	**0.7x**	**12.2x**	**11.7x**	**11.3x**	**17.1x**	**19.3x**	**17.6x**	**10%**	**3.8x**	**25.5x**	**21.5x**	**22.6x**	**4%**
Low						**0.3x**	**0.3x**	**0.3x**	**5.8x**	**5.9x**	**5.6x**	**8.5x**	**9.6x**	**9.6x**	**5%**	**0.4x**	**11.6x**	**12.2x**	**11.0x**	**1%**

Source: Company filings, Bloomberg, Consensus Estimates
Note: Last twelve months data based on June 14, 2017. Estimated annual financial data based on a calendar year.

Source: Author, 2021.

All companies, be they the target or its comparables, are represented in a single sheet that follows the format shown in Figure A5, in which inputs are inserted in the yellow cells and outputs appear in the rest. The *Company Sheet* includes a business description carried to the List Sheet and sections (that will be discussed in detail ahead) for inputting market and company information to calculate benchmarks and multiples present on other pages.

Figure A5 - *Company* sheet



Source: Author, 2021.

The first section, shown in Figure A6, contains general information about the company (such as name, ticker, stock exchange, and corporate ratings) that will help identify and compare the company with its peers. It also contains selected market data that will be used to calculate price multiples, return ratios, and the enterprise value (7). The number of fully diluted shares is sourced from a calculation that accounts for the outstanding options, and the other 'plus and less' are sourced from the LTM balance sheet.

Figure A6 - General information and selected market data

General Information		
Company Name		Whole Foods Market Inc.
Ticker		WFM
Stock Exchange		NASDAQ
Fiscal Year Ending		Sep-25
Moody's Corporate Rating		Baa3
S&P Corporate Rating		BBB-
Predicted Beta (1)		0.99
Marginal Tax Rate		*38.0%*

Selected Market Data		
Current Price	14/06/17	$35.45
% of 52-week High		*95.7%*
52-week High Price	11/05/17	$37.03
52-week Low Price	05/10/16	27.96
Dividend Per Share (MRQ)		0.14
Fully Diluted Shares Outstanding		321.000
Equity Value		**$11,379.5**
Plus: Total Debt		1,047.0
Plus: Preferred Stock		-
Plus: Noncontrolling Interest		-
Less: Cash and Cash Equivalents		(1,012.0)
Enterprise Value		**$11,414.5**

Source: Author (2021).

The second section, shown in Figure A7, is used for forward-looking calculations, as it requires the inputting of selected financial estimates sourced from consensus. LTM data is sourced from the income statement.

Figure A7 - Future data and trading multiples

Trading Multiples	LTM 09/04/17	NFY 2017E	NFY+1 2018E	NFY+2 2019E
EV / Sales	0.7x	0.7x	0.7x	0.7x
Metric	$15,856.0	16,003.60	$16,652.4	$17,558.0
EV / EBITDA	8.2x	8.4x	8.4x	8.0x
Metric	$1,397.0	$1,356.0	$1,355.8	$1,430.0
EV / EBIT	13.4x	15.5x	15.5x	14.6x
Metric	$853.0	$738.0	$735.0	$782.0
P/E	22.0x	25.9x	25.1x	22.6x
Metric	$1.61	$1.37	$1.41	$1.57
P / FCF	27.7x	26.8x	25.4x	24.2x
FCF Yield	*3.6%*	*3.7%*	*3.9%*	*4.1%*
Metric	$411.0	$425.3	$448.0	$470.7

Source: Author (2021).

Then, an output section summarises some key LTM ratios, credit statistics, and growth rates, shown in Figure A8. The only input in this section is the estimated long-term growth used solely for benchmarking.

Figure A8 - Selected LTM financial data

LTM Return on Investment Ratios	
Return on Invested Capital	*15.5%*
Return on Equity	*15.3%*
Return on Assets	*7.9%*
Implied Annual Dividend Per Share	*1.6%*

LTM Credit Statistics	
Debt/Total Capitalization	*23.8%*
Total Debt/EBITDA	0.7x
Net Debt/EBITDA	0.0x
EBITDA/Interest Expense	28.5x
(EBITDA-capex)/Interest Expense	13.1x
EBIT/Interest Expense	17.4x

Growth Rates	Sales	EBITDA	FCF	EPS
Historical				
1-year	*2.2%*	*3.4%*	*43.9%*	*5.1%*
2-year CAGR	*5.3%*	*1.1%*	*2.9%*	*(0.5%)*
Estimated				
1-year	*1.8%*	*(7.3%)*	*6.3%*	*(20.3%)*
2-year CAGR	*2.9%*	*(3.7%)*	*5.8%*	*(9.4%)*
Long-term				*3.0%*

Source: Author (2021).

The income statement section, shown in Figure A9, calculates profitability and LTM data based on some inputs taken from the company's reported financial statements.

Figure A9 - Income Statement

Reported Income Statement	Fiscal Year Ending September 25,			Prior Stub	Current Stub	LTM
	2014A	2015A	2016A	4/10/2016	4/9/2017	09/04/17
Sales	**$14,194.0**	**$15,389.0**	**$15,724.0**	**$8,524.0**	**$8,656.0**	**$15,856.0**
COGS (incl. D&A)	9,150.0	9,973.0	10,313.0	5,593.0	5,732.0	10,452.0
Gross Profit	**$5,044.0**	**$5,416.0**	**$5,411.0**	**$2,931.0**	**$2,924.0**	**$5,404.0**
SG&A	4,032.0	4,472.0	4,477.0	2,402.0	2,474.0	4,549.0
Other Expense / (Income)	66.0	66.0	66.0	27.0	106.0	145.0
EBIT	**$946.0**	**$878.0**	**$868.0**	**$502.0**	**$344.0**	**$710.0**
Interest Expense	-	-	41.0	18.0	26.0	49.0
Pre-tax Income	**$946.0**	**$878.0**	**$827.0**	**$484.0**	**$318.0**	**$661.0**
Income Taxes	367.0	342.0	320.0	185.0	124.0	259.0
Noncontrolling Interest	-	-	-	-	-	-
Preferred Dividends	-	-	-	-	-	-
Net Income	**$579.0**	**$536.0**	**$507.0**	**$299.0**	**$194.0**	**$402.0**
Effective Tax Rate	*38.8%*	*39.0%*	*38.7%*	*38.2%*	*39.0%*	*39.2%*
Weighted Avg. Diluted Shares	367.8	358.5	326.1	331.7	318.3	312.7
Diluted EPS	**$1.57**	**$1.50**	**$1.55**	**$0.90**	**$0.61**	**$1.26**

Source: Author (2021).

And the adjusted income statement section (Figure A10) incorporates adjustments on non-recurring items to recalculate some metrics, like EBIT and Net Income (after re-adding the taxes at the effective tax rate), on a normalised base. It also sources D&A from the Cash Flow Statement to calculate the adjusted EBITDA that will be the basis to calculate multiples in the *Output* sheet.

Figure A10 - Adjusted Income Statement

Adjusted Income Statement						
Reported Gross Profit	$5,044.0	$5,416.0	$5,411.0	$2,931.0	$2,924.0	$5,404.0
Non-recurring Items in COGS	-	-	-	-	-	-
Adj. Gross Profit	**$5,044.0**	**$5,416.0**	**$5,411.0**	**$2,931.0**	**$2,924.0**	**$5,404.0**
% margin	*35.5%*	*35.2%*	*34.4%*	*34.4%*	*33.8%*	*34.1%*
Reported EBIT	$946.0	$878.0	$868.0	$502.0	$344.0	$710.0
Non-recurring Items in COGS	-	-	-	-	-	-
Other Non-recurring Items	108.0	98.0	97.0	-	46.0	143.0
Adjusted EBIT	**$1,054.0**	**$976.0**	**$965.0**	**$502.0**	**$390.0**	**$853.0**
% margin	*7.4%*	*6.3%*	*6.1%*	*5.9%*	*4.5%*	*5.4%*
Depreciation & Amortization	377.0	439.0	498.0	259.0	305.0	544.0
Adjusted EBITDA	**$1,431.0**	**$1,415.0**	**$1,463.0**	**$761.0**	**$695.0**	**$1,397.0**
% margin	*10.1%*	*9.2%*	*9.3%*	*8.9%*	*8.0%*	*8.8%*
Reported Net Income	$579.0	$536.0	$507.0	$299.0	$194.0	$402.0
Non-recurring Items in COGS	-	-	-	-	-	-
Other Non-recurring Items	108.0	98.0	97.0	-	46.0	143.0
Non-operating Non-rec. Items	(12.0)	(17.0)	(11.0)	-	34.0	23.0
Tax Adjustment	(36.5)	(30.8)	(32.7)	-	(30.4)	(63.1)
Adjusted Net Income	**$638.5**	**$586.2**	**$560.3**	**$299.0**	**$243.6**	**$504.9**
% margin	*4.5%*	*3.8%*	*3.6%*	*3.5%*	*2.8%*	*3.2%*
Adjusted Diluted EPS	$1.74	$1.64	$1.72	$0.90	$0.77	$1.61

Source: Author (2021).

The cash flow section (Figure A11) shows a condensed version of the cash flow statement in which the inputs are the operating and investment cash flow, as well as D&A. The last column represents LTM data, as with the last two sections.

Figure A11 - Cash Flow Statement

Cash Flow Statement Data						
Cash From Operations	1,088.0	1,129.0	1,116.0	575.0	624.0	1,165.0
Capital Expenditures	710.0	851.0	716.0	338.0	376.0	754.0
% sales	*5.0%*	*5.5%*	*4.6%*	*4.0%*	*4.3%*	*4.8%*
Free Cash Flow	**$378.0**	**$278.0**	**$400.0**	**$237.0**	**$248.0**	**$411.0**
% margin	*2.7%*	*1.8%*	*2.5%*	*2.8%*	*2.9%*	*2.6%*
FCF / Share	**$1.03**	**$0.78**	**$1.23**	**$0.71**	**$0.78**	**$1.31**
Depreciation & Amortization	377.0	439.0	498.0	259.0	305.0	544.0
% sales	*2.7%*	*2.9%*	*3.2%*	*3.0%*	*3.5%*	*3.4%*

Source: Author (2021).

A condensed balance sheet with end-of-year and current trading data is also inputted.

Figure A11 - Balance Sheet

Balance Sheet Data		
	2016A	**4/9/2017**
Cash and Cash Equivalents	$852.0	$1,012.0
Accounts Receivable	242.0	255.0
Inventories	517.0	508.0
Prepaids and Other Current Assets	364.0	333.0
Total Current Assets	**$1,975.0**	**$2,108.0**
Property, Plant and Equipment, net	3,442.0	3,469.0
Goodwill and Intangible Assets	784.0	781.0
Other Assets	140.0	155.0
Total Assets	**$6,341.0**	**$6,513.0**
Accounts Payable	307.0	313.0
Accrued Liabilities	407.0	393.0
Other Current Liabilities	627.0	631.0
Total Current Liabilities	**$1,341.0**	**$1,337.0**
Total Debt	1,048.0	1,047.0
Other Long-Term Liabilities	728.0	770.0
Total Liabilities	**$3,117.0**	**$3,154.0**
Noncontrolling Interest	-	-
Preferred Stock	-	-
Shareholders' Equity	3,224.0	3,359.0
Total Liabilities and Equity	**$6,341.0**	**$6,513.0**
Balance Check	*0.000*	*0.000*

Source: Author (2021).

And finally, there is a section aimed at calculating the fully diluted shares outstanding, shown in Figure A12, using the Treasury Stock Method. Excel automatically calculates the total proceeds from in-the-money options by comparing strikes with current prices. Those proceeds are used to repurchase some of the company's floating, per the theory in this work's **Valuation** section.

Figure A12 - Fully diluted shares outstanding

Calculation of Fully Diluted Shares Outstanding	
Basic Shares Outstanding	319.565
Plus: Shares from In-the-Money Options	12.600
Less: Shares Repurchased	(11.165)
Net New Shares from Options	**1.435**
Plus: Shares from Convertible Securities	-
Fully Diluted Shares Outstanding	**321.000**

Options/Warrants

Tranche	Number of Shares	Exercise Price	In-the-Money Shares	Proceeds
Tranche 1	1.600	$20.49	1.600	$32.8
Tranche 2	11.000	33.00	11.000	363.0
Tranche 3	9.200	43.73	-	-
Tranche 4	4.500	52.40	-	-
Tranche 5	-	-	-	-
Total	**26.300**		**12.600**	**$395.8**

Convertible Securities

	Amount	Conversion Price	Conversion Ratio	New Shares
Issue 1	-	-	-	-
Issue 2	-	-	-	-
Issue 3	-	-	-	-
Issue 4	-	-	-	-
Issue 5	-	-	-	-
Total				**-**

Source: Author (2021).

Appendix B - DCF Analysis sheets

The file is composed of the following sheets (*yellow cells are inputs*):

- *DCF*: A mostly-output page in which future cash flows are calculated from selected items' assumptions and then discounted to present value with a given WACC (sourced from a dedicated sheet). The sheet also estimates the perpetuity value, calculates EV and performs sensitivity analysis on some drivers;
- *NWC*: The projection of future NWC balance sheet items from given assumptions in terms of DPO, DIH, and DSO. The resulting values are used for estimating ΔNWC that will be used in the FCF computation;
- *WACC*: Estimates and performs a sensitivity analysis on the company's WACC;
- *Assumptions*: Two input pages to put all assumptions regarding the company's future projections. The sheet allows the inputting of several scenarios that can be selected on the DCF page for easy comparison.

The *DCF* sheet starts with representing the company's past and future fundamental income and cash flow statements' items. Future projections are calculated using what has been laid down on the *Assumptions* page, the calculated WACC, and the estimated ΔNWC (sourced from their dedicated sheets). It also contains a small cell in which it is possible to change the assumptions scenario by changing the reference number.

Figure B1 - Free Cash Flow Estimation

Operating Scenario	1											
Mid-Year Convention	N	**Historical Period**			**CAGR**		**Projection Period**					**CAGR**
		2013	**2014**	**2015**	**('09 - '11)**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**('12 - '17)**
Sales		**$12,917.0**	**$14,194.0**	**$15,389.0**	*9.2%*	**$15,724.0**	**$16,007.0**	**$16,655.3**	**$17,521.4**	**$18,187.2**	**$18,696.4**	*3.5%*
% growth		*NA*	*9.9%*	*8.4%*		*2.2%*	*1.8%*	*4.1%*	*5.2%*	*3.8%*	*2.8%*	
Cost of Goods Sold		7,949.0	8,773.0	9,534.0		9,815.0	10,084.4	10,492.8	11,003.4	11,367.0	11,685.3	
Gross Profit		**$4,968.0**	**$5,421.0**	**$5,855.0**	*8.6%*	**$5,909.0**	**$5,922.6**	**$6,162.5**	**$6,518.0**	**$6,820.2**	**$7,011.2**	*3.5%*
% margin		*38.5%*	*38.2%*	*38.0%*		*37.6%*	*37.0%*	*37.0%*	*37.2%*	*37.5%*	*37.5%*	
Selling, General & Administrative		3,682.0	4,032.0	4,472.0		4,477.0	4,642.0	4,830.0	4,993.6	5,183.4	5,328.5	
EBITDA		**$1,286.0**	**$1,389.0**	**$1,383.0**	*3.7%*	**$1,432.0**	**$1,280.6**	**$1,332.4**	**$1,524.4**	**$1,636.8**	**$1,682.7**	*3.3%*
% margin		*10.0%*	*9.8%*	*9.0%*		*9.1%*	*8.0%*	*8.0%*	*8.7%*	*9.0%*	*9.0%*	
Depreciation & Amortization		339.0	377.0	439.0		498.0	560.2	582.9	595.7	582.0	598.3	
EBIT		**$947.0**	**$1,012.0**	**$944.0**	*-0.2%*	**$934.0**	**$720.3**	**$749.5**	**$928.6**	**$1,054.9**	**$1,084.4**	*3.0%*
% margin		*7.3%*	*7.1%*	*6.1%*		*5.9%*	*4.5%*	*4.5%*	*5.3%*	*5.8%*	*5.8%*	
Taxes		-	392.7	368.2		361.5	280.9	292.3	362.2	411.4	422.9	
EBIAT		**$947.0**	**$619.3**	**$575.8**	*-22.0%*	**$572.5**	**$439.4**	**$457.2**	**$566.5**	**$643.5**	**$661.5**	*2.9%*
Plus: Depreciation & Amortization		339.0	377.0	439.0		498.0	560.2	582.9	595.7	582.0	598.3	
Less: Capital Expenditures		(537.0)	(710.0)	(851.0)		(716.0)	(768.3)	(799.5)	(823.5)	(836.6)	(860.0)	
Less: Inc./(Dec.) in Net Working Capital							51.0	6.3	15.0	12.1	8.5	
Unlevered Free Cash Flow							**$282.3**	**$247.0**	**$353.7**	**$400.9**	**$408.2**	
WACC		5.0%										
Discount Period							1.0	2.0	3.0	4.0	5.0	
Discount Factor							0.95	0.91	0.86	0.82	0.78	
Present Value of Free Cash Flow							**$268.8**	**$224.0**	**$305.4**	**$329.7**	**$319.6**	

Source: Author (2021).

Then, the sheet contains the estimation of the enterprise value from the sum of the discounted cash flows with the terminal value, calculated with the perpetuity growth method from an inputted growth rate. It also calculates equity value from balance sheet data and estimates share price, as shown in Figure B2. Fully diluted shares outstanding are computed with the TSM.

Figure B2 - Enterprise value and share price estimations.

Enterprise Value	
Cumulative Present Value of FCF	**$1,447.5**
Terminal Value	
Terminal Year Free Cash Flow (2021E)	$408.2
Perpetuity growth rate	2.0%
Terminal Value	**$13,814.0**
Discount Factor	0.78
Present Value of Terminal Value	**$10,816.4**
% of Enterprise Value	*88.2%*
Enterprise Value	**$12,263.8**

Implied Equity Value and Share Price	
Enterprise Value	$12,263.8
Less: Total Debt	(1,121.0)
Less: Preferred Stock	-
Less: Noncontrolling Interest	-
Plus: Cash and Cash Equivalents	1,012.0
Implied Equity Value	**$12,154.8**
Fully Diluted Shares Outstanding	321.7
Implied Share Price	**$37.78**

Source: Author (2021).

Finally, some sensitivity analyses, shown in Figure B3, are performed on the inputs to provide a range of possible values and account for uncertainty. It is done through the Data Table function on Excel (What-If Analysis).

Figure B3 - Sensitivity Analyses

Enterprise Value

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	14,423	15,525	16,827	18,388	20,295
4.6%	12,471	13,279	14,209	15,295	16,577
5.0%	10,979	11,593	$12,288	13,083	14,000
5.4%	9,800	10,281	10,819	11,424	12,109
5.8%	8,845	9,231	9,658	10,132	10,662

Implied Equity Value

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	14,314	15,416	16,718	18,279	20,186
4.6%	12,362	13,170	14,100	15,186	16,468
5.0%	10,870	11,484	$12,179	12,974	13,891
5.4%	9,691	10,172	10,710	11,315	12,000
5.8%	8,736	9,122	9,549	10,023	10,553

Implied Exit Multiple

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	9.5x	10.3x	11.2x	12.3x	13.7x
4.6%	8.2x	8.8x	9.5x	10.3x	11.2x
5.0%	7.2x	7.7x	8.2x	8.8x	9.5x
5.4%	6.5x	6.8x	7.3x	7.7x	8.3x
5.8%	5.9x	6.2x	6.5x	6.9x	7.3x

Implied Enterprise Value / LTM EBITDA

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	10.3x	11.1x	12.0x	13.1x	14.5x
4.6%	8.9x	9.5x	10.2x	10.9x	11.8x
5.0%	7.8x	8.3x	8.8x	9.4x	10.0x
5.4%	7.0x	7.3x	7.7x	8.2x	8.7x
5.8%	6.3x	6.6x	6.9x	7.2x	7.6x

PV of Terminal Value % of Enterprise Value

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	89.7%	90.4%	91.2%	91.9%	92.7%
4.6%	88.3%	89.0%	89.7%	90.4%	91.2%
5.0%	86.8%	87.5%	88.2%	88.9%	89.7%
5.4%	85.4%	86.1%	86.8%	87.5%	88.2%
5.8%	84.0%	84.7%	85.4%	86.0%	86.7%

Implied Price

WACC \ Perpetuity growth rate	1.6%	1.8%	2.0%	2.2%	2.4%
4.2%	44.27	47.50	51.31	55.84	61.35
4.6%	38.41	40.84	43.64	46.82	50.58
5.0%	33.92	35.76	$37.86	40.25	43.01
5.4%	30.28	31.77	33.43	35.25	37.32
5.8%	27.30	28.51	29.84	31.31	32.96

Source: Author (2021).

The *NWC* sheet (Figure B4) includes a historical projection of current balance sheet items used to understand better their levels (in terms of days or % sales) and trends. Then, future projections are calculated using the set of formulas presented on the **Valuation** section of this work using the assumptions sourced from a dedicated page.

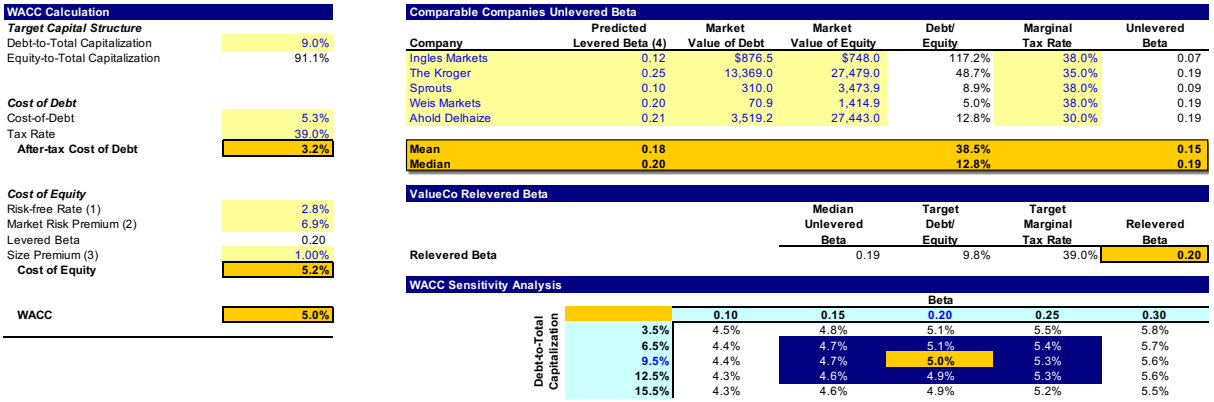
Figure B4 - NWC Calculation

	Historical Period				Projection Period				
	2013	2014	2015	2016	2017	2018	2019	2020	2021
Sales	$12,917.0	$14,194.0	$15,389.0	$15,724.0	$16,007.0	$16,655.3	$17,521.4	$18,187.2	$18,696.4
Cost of Goods Sold	7,949.0	8,773.0	9,534.0	9,815.0	10,084.4	10,492.8	11,003.4	11,367.0	11,685.3
Current Assets									
Accounts Receivable	-	198.0	218.0	242.0	258.7	273.8	288.0	299.0	307.3
Inventories	-	441.0	500.0	517.0	511.1	531.8	557.7	576.1	592.3
Prepaid Expenses and Other	-	265.0	307.0	364.0	320.1	333.1	350.4	363.7	373.9
Total Current Assets	**-**	**$904.0**	**$1,025.0**	**$1,123.0**	**$1,090.0**	**$1,138.7**	**$1,196.2**	**$1,238.8**	**$1,273.5**
Current Liabilities									
Accounts Payable	-	276.0	295.0	307.0	318.6	331.5	347.6	359.1	369.1
Accrued Liabilities	-	379.0	436.0	407.0	400.2	416.4	438.0	454.7	467.4
Other Current Liabilities	-	602.0	521.0	627.0	640.3	666.2	700.9	727.5	747.9
Total Current Liabilities	**-**	**$1,257.0**	**$1,252.0**	**$1,341.0**	**$1,359.0**	**$1,414.1**	**$1,486.5**	**$1,541.3**	**$1,584.4**
Net Working Capital	**-**	**($353.0)**	**($227.0)**	**($218.0)**	**($269.0)**	**($275.3)**	**($290.3)**	**($302.4)**	**($310.9)**
% sales	-	*(2.5%)*	*(1.5%)*	*(1.4%)*	*(1.7%)*	*(1.7%)*	*(1.7%)*	*(1.7%)*	*(1.7%)*
(Increase) / Decrease in NWC		**$353.0**	**($126.0)**	**($9.0)**	**$51.0**	**$6.3**	**$15.0**	**$12.1**	**$8.5**
Assumptions									
Current Assets									
Days Sales Outstanding	-	5.1	5.2	5.2	5.9	6.0	6.0	6.0	6.0
Days Inventory Held	-	18.3	19.1	19.1	18.5	18.5	18.5	18.5	18.5
Prepaids and Other CA (% of sales)	- %	1.9%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Current Liabilities									
Days Payable Outstanding	-	11.5	11.3	11.3	11.5	11.5	11.5	11.5	11.5
Accrued Liabilities (% of sales)	- %	2.7%	2.8%	2.8%	2.5%	2.5%	2.5%	2.5%	2.5%
Other Current Liabilities (% of sales)	- %	4.2%	3.4%	3.4%	4.0%	4.0%	4.0%	4.0%	4.0%

Source: Author (2021).

The *WACC* sheet (Figure B5) receives inputs regarding the company's cost of equity and debt, such as market risk premium and comparable's betas, to estimate cost of capital. The sheet also performs a sensitivity analysis to transform the WACC value into a possible range by changing some of the main inputs.

Figure B5 - WACC Estimation



WACC Calculation

Target Capital Structure	
Debt-to-Total Capitalization	9.0%
Equity-to-Total Capitalization	91.1%
Cost of Debt	
Cost-of-Debt	5.3%
Tax Rate	39.0%
After-tax Cost of Debt	**3.2%**
Cost of Equity	
Risk-free Rate (1)	2.8%
Market Risk Premium (2)	6.9%
Levered Beta	0.20
Size Premium (3)	1.00%
Cost of Equity	**5.2%**
WACC	**5.0%**

Comparable Companies Unlevered Beta

Company	Predicted Levered Beta (4)	Market Value of Debt	Market Value of Equity	Debt/ Equity	Marginal Tax Rate	Unlevered Beta
Ingles Markets	0.12	$876.5	$748.0	117.2%	38.0%	0.07
The Kroger	0.25	13,369.0	27,479.0	48.7%	35.0%	0.19
Sprouts	0.10	310.0	3,473.9	8.9%	38.0%	0.09
Weis Markets	0.20	70.9	1,414.9	5.0%	38.0%	0.19
Ahold Delhaize	0.21	3,519.2	27,443.0	12.8%	30.0%	0.19
Mean	**0.18**			**38.5%**		**0.15**
Median	**0.20**			**12.8%**		**0.19**

ValueCo Relevered Beta

	Median Unlevered Beta	Target Debt/ Equity	Target Marginal Tax Rate	Relevered Beta
Relevered Beta	0.19	9.8%	39.0%	**0.20**

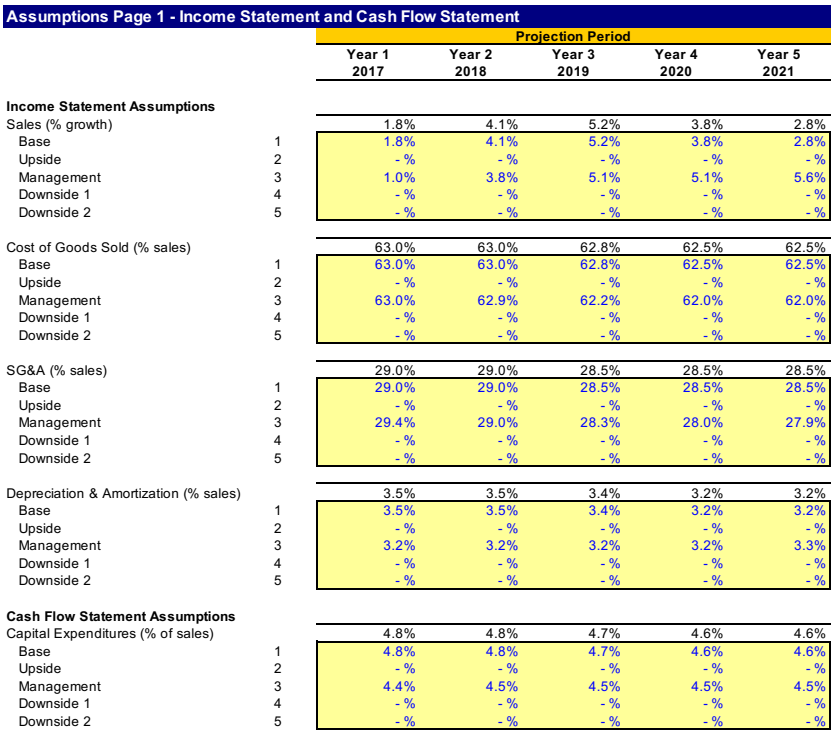
WACC Sensitivity Analysis

Debt-to-Total Capitalization \ Beta	0.10	0.15	0.20	0.25	0.30
3.5%	4.5%	4.8%	5.1%	5.5%	5.8%
6.5%	4.4%	4.7%	5.1%	5.4%	5.7%
9.5%	4.4%	4.7%	**5.0%**	5.3%	5.6%
12.5%	4.3%	4.6%	4.9%	5.3%	5.6%
15.5%	4.3%	4.6%	4.9%	5.2%	5.5%

Source: Author (2021).

Finally, there are two *Assumptions* pages (Figure B6 and Figure B7) in which all the assumptions regarding future projections, including growth and Capex, are inputted. In addition, the sheets contain several scenarios defined by a numeric code that can be inserted in the DCF page to change all assumptions at once.

Figure B6 - First assumptions page



Assumptions Page 1 - Income Statement and Cash Flow Statement

		Projection Period Year 1 2017	Year 2 2018	Year 3 2019	Year 4 2020	Year 5 2021
Income Statement Assumptions						
Sales (% growth)		1.8%	4.1%	5.2%	3.8%	2.8%
Base	1	1.8%	4.1%	5.2%	3.8%	2.8%
Upside	2	- %	- %	- %	- %	- %
Management	3	1.0%	3.8%	5.1%	5.1%	5.6%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
Cost of Goods Sold (% sales)		63.0%	63.0%	62.8%	62.5%	62.5%
Base	1	63.0%	63.0%	62.8%	62.5%	62.5%
Upside	2	- %	- %	- %	- %	- %
Management	3	63.0%	62.9%	62.2%	62.0%	62.0%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
SG&A (% sales)		29.0%	29.0%	28.5%	28.5%	28.5%
Base	1	29.0%	29.0%	28.5%	28.5%	28.5%
Upside	2	- %	- %	- %	- %	- %
Management	3	29.4%	29.0%	28.3%	28.0%	27.9%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
Depreciation & Amortization (% sales)		3.5%	3.5%	3.4%	3.2%	3.2%
Base	1	3.5%	3.5%	3.4%	3.2%	3.2%
Upside	2	- %	- %	- %	- %	- %
Management	3	3.2%	3.2%	3.2%	3.2%	3.3%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
Cash Flow Statement Assumptions						
Capital Expenditures (% of sales)		4.8%	4.8%	4.7%	4.6%	4.6%
Base	1	4.8%	4.8%	4.7%	4.6%	4.6%
Upside	2	- %	- %	- %	- %	- %
Management	3	4.4%	4.5%	4.5%	4.5%	4.5%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %

Source: Author (2021).

Figure B7 - Second assumptions page

Assumptions Page 2 - Balance Sheet		Projection Period				
		Year 1 2017	Year 2 2018	Year 3 2019	Year 4 2020	Year 5 2021
Current Assets						
Days Sales Outstanding (DSO)		5.9	6.0	6.0	6.0	6.0
Base	1	5.9	6.0	6.0	6.0	6.0
Upside	2	-	-	-	-	-
Management	3	6.0	6.0	6.0	6.0	6.0
Downside 1	4	-	-	-	-	-
Downside 2	5	-	-	-	-	-
Days Inventory Held (DIH)		18.5	18.5	18.5	18.5	18.5
Base	1	18.5	18.5	18.5	18.5	18.5
Upside	2	-	-	-	-	-
Management	3	18.5	18.5	18.5	18.5	18.5
Downside 1	4	-	-	-	-	-
Downside 2	5	-	-	-	-	-
Prepaid and Other Current Assets (% of sales)		2.0%	2.0%	2.0%	2.0%	2.0%
Base	1	2.0%	2.0%	2.0%	2.0%	2.0%
Upside	2	- %	- %	- %	- %	- %
Management	3	2.0%	2.0%	2.0%	2.0%	2.0%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
Current Liabilities						
Days Payable Outstanding (DPO)		11.5	11.5	11.5	11.5	11.5
Base	1	11.5	11.5	11.5	11.5	11.5
Upside	2	-	-	-	-	-
Management	3	11.5	11.5	11.5	11.5	11.5
Downside 1	4	-	-	-	-	-
Downside 2	5	-	-	-	-	-
Accrued Liabilities (% of sales)		2.5%	2.5%	2.5%	2.5%	2.5%
Base	1	2.5%	2.5%	2.5%	2.5%	2.5%
Upside	2	- %	- %	- %	- %	- %
Management	3	2.5%	2.5%	2.5%	2.5%	2.5%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %
Other Current Liabilities (% of sales)		4.0%	4.0%	4.0%	4.0%	4.0%
Base	1	4.0%	4.0%	4.0%	4.0%	4.0%
Upside	2	- %	- %	- %	- %	- %
Management	3	4.0%	4.0%	4.0%	4.0%	4.0%
Downside 1	4	- %	- %	- %	- %	- %
Downside 2	5	- %	- %	- %	- %	- %

Source: Author (2021).