

TYSON FOODS, INC.

FOOD & BEVERAGES

ANALYSTS: LUÍS RODRIGUES; MARC BRANDER

COMPANY REPORT

4 JANUARY 2019

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A question of delivery

Testing the limits of growth

- We issue a **BUY recommendation**, considering our YE-19 PT of \$68,58. If we include the dividends expected for the year of 2019 (\$1,45 per share), this represents a **total shareholder return of 31%**.
- The year of 2018 has represented a certain paradox for Tyson: with some of the best results ever, stock performance has disappointed, with a 34% drop in the last twelve months, underperforming the S&P 500 index.
- **Key Opportunities:** Maximize synergies leveraging on its vast distribution network and client base; Keep up the pace in product and process innovation to modernize its legacy brands and develop new ones; Assume the trendsetter role in the industry fostering development of alternative meat and disruptive business models.
- **Key Risks:** Unfavourable input cost variations fluctuations; Trump Trade War and access to export markets; Overestimation of acquisition synergies.
- **Valuation:** our PT is modelled using DCF methodology in order to obtain the company's intrinsic value, with a WACC of 5,9% and a PGR of 1,7%. The positive outlook is mostly confirmed by the alternative valuation method we applied.

Company description

Founded in 1935, Tyson Foods is the U.S. leader in protein. With more than 120 thousand employees the company processes feeder cattle, life hogs and broiler flock into finished products. In the Prepared Foods segment, it operates under multiple, market leading brands, such as Jimmy Dean, Hillshire and BallPark, producing value-added frozen and refrigerated food products.

Recommendation: BUY

Price Target YE19: 68,58 \$

Price (as of 4-Jan-19) 53,35 \$

Reuters: TSN.N; Bloomberg: TSN

52-week range (\$)	56,2 – 82,3
Market Cap (\$m)	21.228,6
Outstanding Shares (m)	369
Expected Total Shareholder Return (%)	31,3

Source: Bloomberg, Analysts Estimates.



Source: Bloomberg.

(Values in \$ millions)	2017	2018	2019F
Revenues	38,260	40.052	41.177
Growth %, YoY	3,7	4,7	2,8
EBITDA	3,648	4.021	3,676
Margin %	9,5	10,0	8,9
Net Income (Loss)	1.778	3,027	1.742
Margin %	4,2	7,6	4,2
EPS (\$)	4,79	8,19	4,72
Growth %, YoY	5,7	71,0	-42,4

Source: Company report, Analysts Estimates.

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY LUÍS RODRIGUES AND MARC BRANDER, MASTER IN FINANCE STUDENTS OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

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Valuation summary | Tyson Foods, Inc.

Exhibit 1: DCF Valuation Summary

Tyson Foods DCF Valuation	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	Perp
(\$ millions)	Historical Financials								Forecasted Financials										
Free Cash Flows Calculation																			
Total Revenue	32.266	33.055	34.374	37.580	41.373	36.881	38.260	40.052	41.177	41.276	42.014	42.806	43.294	43.703	44.223	44.702	45.395	46.062	
y/y Growth- %					10,1%	-10,9%	3,7%	4,7%	2,8%	0,2%	1,8%	1,9%	1,1%	0,9%	1,2%	1,1%	1,6%	1,5%	-100,0%
EBIT	1.278	1.255	1.357	1.429	2.158	2.861	2.941	3.079	2.702	2.736	2.743	2.684	2.740	2.845	2.904	2.980	2.989	2.995	
EBIT Margin	4,0%	3,8%	3,9%	3,8%	5,2%	7,8%	7,7%	7,7%	6,6%	6,6%	6,5%	6,3%	6,3%	6,5%	6,6%	6,7%	6,6%	6,5%	6,5%
Operating Taxes	434	330	542	(1.449)	823	873	535	683	2.336	723	729	726	720	739	763	780	795	797	
NOPLAT	844	925	815	2.878	1.335	1.988	2.406	2.396	366	2.013	2.014	1.958	2.020	2.106	2.141	2.200	2.194	2.198	
Depreciations and Amortizations	506	499	519	520	701	697	748	933	974	965	967	984	1.003	1.014	1.024	1.036	1.047	1.063	
Changes in Working Capital	-	(273)	30	(113)	202	358	(125)	(241)	111	(5)	(46)	(52)	(28)	(21)	(30)	(555)	(51)	(49)	
Capex	-	(677)	(570)	(11.539)	(600)	(609)	(4.960)	(2.465)	(1.304)	(1.020)	(1.379)	(1.427)	(1.275)	(1.243)	(1.314)	(1.303)	(1.434)	(1.436)	
Changes in other assets	(41)	17	(57)	286	109	55	23	(26)	(187)	(28)	(20)	(20)	(23)	(24)	(23)	(23)	(21)	(21)	
Unlevered Free Cash Flow	1.309	491	737	(7.968)	1.747	2.489	(1.908)	597	(40)	1.924	1.535	1.444	1.697	1.832	1.798	1.354	1.735	1.755	1.755
Date factor (year-end)									-	0,8	1,8	2,8	3,8	4,8	5,8	6,8	7,8	8,8	
Discount factor									100,0%	95,7%	90,3%	85,2%	80,5%	75,9%	71,7%	67,6%	63,8%	60,3%	
% of year remaining									0%	76%	100%	100%	100%	100%	100%	100%	100%	100%	
PV of UFCF	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	-	1.402	1.387	1.231	1.365	1.391	1.288	916	1.108	1.057	

Assumptions	
Price target date	dez/19
WACC, %	5,9%
PGR, %	1,7%

Scenario Analysis		
	%	\$
Downward Scenario	20	54,2
Base Scenario	70	71,9
Upward Scenario	10	74,4
Scenario weighted average price	100	68,6

Value	PGR, %					
	0,7%	1,2%	1,7%	2,2%	2,7%	
Wacc, %	4,9%	78	89	102	121	148
	5,4%	67	75	85	98	116
	5,9%	58	64	72	81	94
	6,4%	51	56	61	69	78
	6,9%	44	48	53	59	66

Valuation @ YE2019		
	USDm	%
Sum of PV of UFCF	11.145,5	30,5%
PV of terminal value	25.440,0	69,5%
Value of Operations	36.585,4	100,0%
Excess cash and marketable securities	114,8	
Nonconsolidated investments	244,3	
Other financial assets	-	
Tax loss carryforwards	-	
Enterprise value	36.944,5	
Short-term debt	723,7	
Long-term debt	9.387,5	
Postretirement benefit liabilities, net of assets	304,8	
Other nonoperating provisions	-	
Value of outstanding options	-	
Noncontrolling interests	8,0	
Equity value	26.520,5	
Weighted Average Fully Dilluted Shares, million	369,0	
Equity Value per share	71,9	

Source: Company reports, Analysts estimates.

Our buy recommendation has an underlying target price of \$68,6 for year-end 2019, yielding a total return of 31,3% in one year's time.

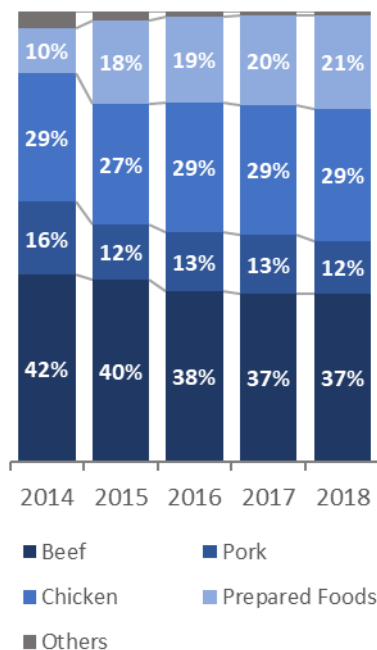
We consider the Discounted Cash Flow method to be the most comprehensive depiction of the drivers of intrinsic value. Exhibit 1, depicts a summary of the main captions driving DCF value in our base case. The Unlevered Cash Flow resulting from our operating assumptions is discounted at a WACC of 5,9%, and we apply a perpetual growth rate of 1,7%. At the end of this report a Football field is presented with the results of the alternative valuation methods, used to triangulate the DCF analysis.

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Company overview

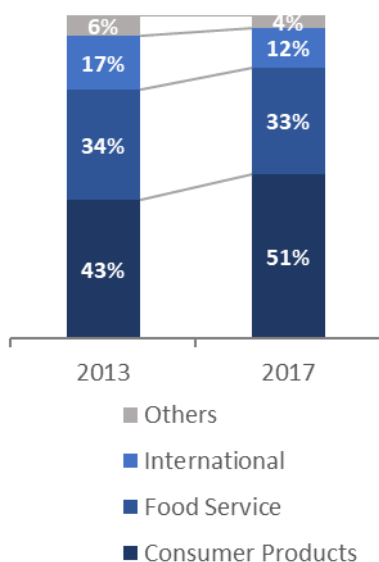
Company description

Exhibit 2: Sales Evolution by Segment, % of Total Revenues



Source: Company 10-K Reports.

Exhibit 3: Sales Evolution by Distribution Channel



Source: Company Fact Book 2017.

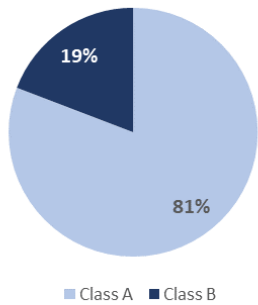
Tyson Foods, Inc. (TSN) is the biggest protein company in the U.S. and one of the largest food companies worldwide. Founded in 1935 by John W. Tyson, it started its activity by trading chickens in national markets. As time went by, the small family business started to grow through acquisitions along its supply chain as well as through internationalization. However, it was only in the 21st century that Tyson started to experience substantial growth with the acquisition of IBP, a beef and pork processor. This decision was the cornerstone in making Tyson a truly diversified company. Nowadays, the company employs 121.000 employees across the globe, 116.000 of which in the U.S. and operates mainly in four reportable segments: *Chicken, Pork, Beef and Prepared Foods*. In its wide product portfolio, it is offered primal and sub-primal meat cuts; case ready chicken, beef and pork; fully cooked meats and value-added frozen and refrigerated food products (branded). The first three business units described above sell its production mainly as commodities (meat). *Prepared Foods*, sells its value-added products under recognised brands, including 9 market leaders such as Tyson, Jimmy Dean (2 products), Hillshire Farm (2 Products), Ball Park, Wright, Aidells and State Fair. Overall the company has around 42 registered brands, most of them acquired throughout the years.

Tyson main clients are food retailers, foodservice distributors, restaurant operators, hotel chains and non-commercial foodservice establishments, as well as 125 countries worldwide being NAFTA, Central America, China, Hong Kong, Japan and South Korea its major international clients representing around 65% of the total international sales, depicted in Exhibit 8.

The group's revenue grew 4,7% in 2018 and 3,7% in 2017 reaching an all-time record of \$40 billion (excluding 2015 when the sales reached \$41 billion due to the integration of the results coming from the Hillshire Brands acquisition, later adjusted) compared to a growth of 1,2% in 2017 and of 1,9% in 2018 of the broad F&B industry¹. Furthermore, it can be observed in Exhibit 2 the increasing importance of the *Prepared Foods* segment in total revenues which shows the strategic shift from commodities to more value-added products, with higher margins. In Exhibit 3 it is also possible to confirm this conclusion, seeing that the share of sales coming from consumer products have been increasing in contrast

¹ Analysts Estimations based on Bloomberg data

Exhibit 4: Stock division by share class, % of 369M shares



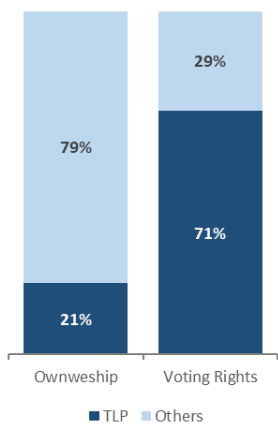
Source: Company 10-K Reports.

with the decreasing of food services (commodities). This strategic shift will be further discussed in the Strategic Analysis of this report.

Ownership structure and governance

As of January 2019, Tyson had a dual-class share system with Class A representing the floating stock, and Class B being mostly held by Tyson’s family members. Holders of Class B stock have the right to convert such stock into Class A stock on a share-for-share basis. Furthermore, holders of Class B stock are entitled to 10 votes per share and holders of Class A stock are entitled to one vote per share. In October 2018, there were approximately 21.000 holders of Class A stock and 6 holders of Class B stock. There are approximately 5x more Class A shares than Class B shares¹⁷.

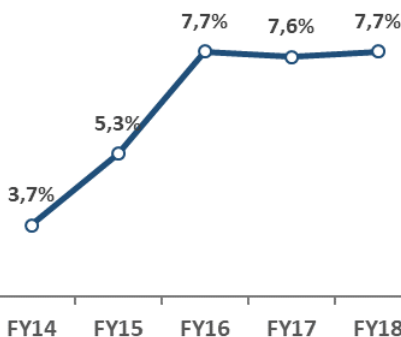
Exhibit 5: Ownership vs Control



Source: Company 10-K Reports.

This ownership structure allows the Tyson family through the rights over Tyson Limited Partnership (TLP), which owns 99.985% of the outstanding Class B shares, to have only 2,09% of the outstanding Class A shares and at the same time control 70,96% of the company’s total voting rights. Therefore, as a consequence of these holdings, the Tyson Family including Mr. John Tyson, Chairman of the Board of Directors and Ms. Barbara Tyson, a director of the Company, to have the ability to exercise significant influence over the company’s management decisions and all matters needful of action by the stockholders. This concentration of ownership may interfere with a change in control favourable to other stockholders (Class A) and could negatively impact Tyson Foods stock price. For this, investors are likely to price Tyson stock at a discount out of fear for the lack of control, specially under periods of high degree of uncertainty as it is happening in the U.S. right now.

Exhibit 6: Operating Margin Evolution



Source: Company 10-K Reports.

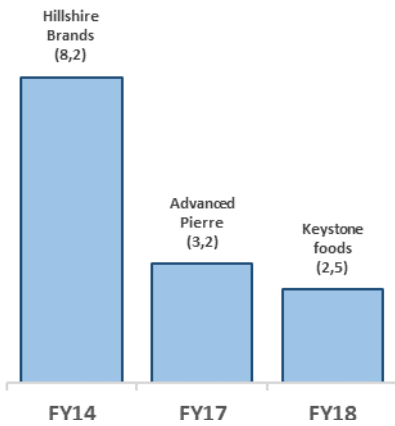
CEO replacement

In September 2018 Tyson Foods announced the replacement of its CEO Tom Hays, who had been on the role for only two years, by its formerly group president of Beef, Pork and International, Noel White. The company alleged personal reasons for the mentioned replacement². However, it is believed that the dropdown of more than 30%¹ on the stock price recorded in the FY 2018 was the real reason behind this decision. The board chose a “veteran” with high influence on the company’s international business to make a statement on Tyson’s future international focus. In the recent past the strategic focus was on sales of packaged and prepared foods, which didn’t yield the desired outcomes. Regardless of this change, the stock continued its free fall until the end of the year as the international panorama remains highly unpredictable.

² Tyson Investor Relations Website, News, 17 Sep 2018

Core strategy

Exhibit 7: Major Strategic Acquisitions, in billion U.S. \$



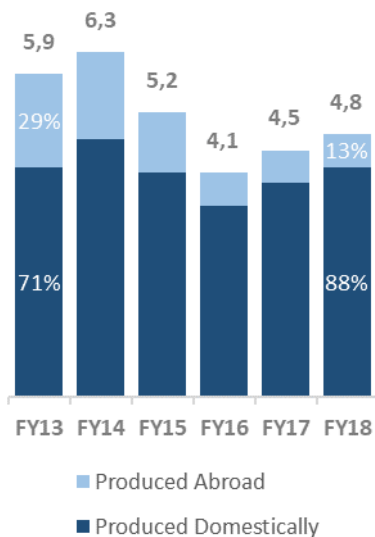
Source: Company 10-K Reports.

In a well consolidated food and beverage industry with low growth, as in the United States, the most efficient way of sustaining growth is through acquisitions or through global expansion. During 2018 first three quarters alone, there were 157 transactions in the industry, 40% of which by Tyson’s direct related parties³.

As we can see in Exhibit 6, Tyson’s operating margins have more than doubled in the last 5 years, mainly due to heavy M&A activity in companies specialized on sales of packaged and prepared foods, which have higher profit margins than raw meat. The observed growth relies namely on the 2014 Hillshire Brands acquisition. Likewise, prepared Foods operating margins range between 10%-12% compared with 3%-5% for beef/pork and around 8% for chicken¹⁷.

Tyson strategic goal is to achieve market leading positions for their brands or acquire brands in identified high growth target markets for value-added products to take advantage of concentrated production, sales and marketing efforts so they can enhance demand from those markets and utilize their distribution and customer support systems to quickly adapt to customer specific needs. In the Exhibit 9 we can observe the company’s success in the past year regarding the implementation of such strategy.

Exhibit 8: Tyson Foods International Sales Evolution, in billion U.S. \$

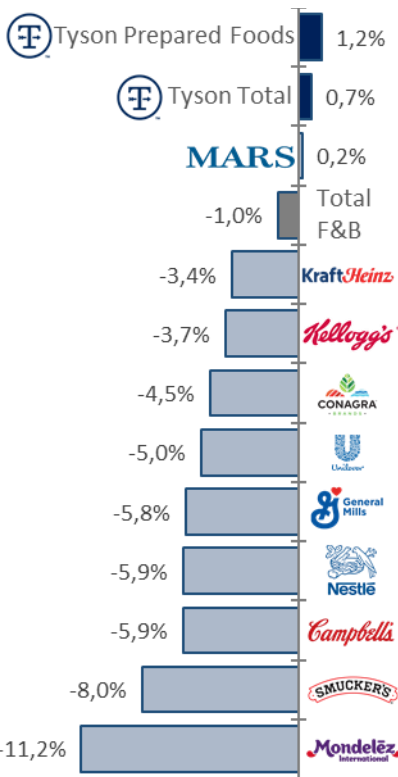


Source: Company 10-K Reports.

Moreover, Mr. Tyson himself said on the CEO replacement² conference that the company wants to continue to expand in to new product categories and maintain the focus on global growth, innovation, value-added capabilities and customer partnerships to drive long-term value. Coupled with this, we expect the firm to continue the investments in M&A that boost their higher margin segment as it happened in 2017 with the acquisition of AdvancePierre and with acquisitions that enhance global expansion as it happened with the purchase of Keystone Foods in 2018. However, we do not believe that this strategic shift to the higher margin segment will outweigh Tyson’s commodity businesses. At the same time, we do not attribute the same amount of confidence in the international expansion as the company does. Taking a closer look into the evolution of international sales (Exhibit 8), it is possible to conclude that despite Tyson past efforts and the growth in the company’s overall sales, this class of sales have fell (Exhibit 2). One should also bear in mind that international sales from goods produced abroad decreased in the past years which mirrors the struggle that the company has in producing abroad since they can’t leverage their domestic competitive advantages in the foreign landscape.

³ Source: “Food and Beverage, Merger & Acquisitions overview”, Capstone Headwaters (2018)

Exhibit 9: Prepared Foods Retail Volume Performance, Top 10 F&B Branded Companies



Source: IRI Total U.S. Multi-Outlet, Volume Sales 52 weeks ending 12/31/2017.

Nevertheless, 90% of the increase in protein consumption is going to come from outside the U.S.⁴ in the long run. The acquisition of Keystone, a leading provider of chicken, beef, fish and pork to the growing global foodservice industry such as Asia Pacific region, Europe, the Middle East and Africa⁵, gives the sign that the company wants to follow this international growth as previously mentioned. However, taking in consideration the company's track record performance in foreign markets and the instability verified in the U.S. trade policies (later analysed in higher detail), it is still early to say if this acquisition will pay off.

Sector Overview

Within the broad food and beverage sector, Tyson operates in two very distinct segments: **beef, pork and chicken production**, which are largely commodities, where the main source of competitive advantage are operating efficiencies, and the revenue is driven by market demand; and the **prepared food market**, where brand awareness and values are relevant for customer buying decisions and operating margins.

Market size and growth

The commodity business is favoured by an increasing demand

Worldwide demand for meat has sharply increased over the last decades, with the meat production growing from 80 million in 1968 to more than 300 million tons (Mt.) in 2018, according to FAO data. This trend is expected to continue in the foreseeable future, fuelled by an increasing demand mainly from the growing middle classes in developing countries, with projections showing an increase in global per capital meat consumption to 35,4 kg, up from 34,3 kg in 2017⁶. Furthermore, declines in mortality rates surpassing declines in birth rates in developing countries and an overall increase in life expectancy leads to a global increase in the world population, which is expected to reach 8,5 billion people by 2030⁷, increasing this way the number of consumers of meat worldwide.

Meat production is expected to expand by 48 Mt. until 2027, but the production growth is concentrated: developing countries account for 76% of the total increase in worldwide meat production, and poultry is the main driver, accounting for 44% of the growth. More than half of the mentioned increase is expected to be attributed to China, the U.S. and Brazil.

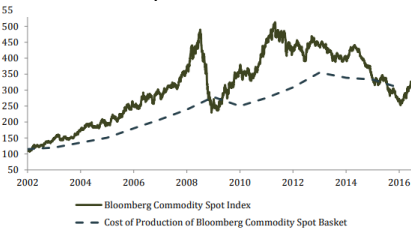
⁴ Q4 2018 Earnings Call Presentation

⁵ Investor Presentation, Keystone Acquisition, August 2018

⁶ Source: OECD-FAO Agricultural Outlook.

⁷ Source: "Shaping the Future of Global Food Systems: A Scenarios Analysis", World Economic Forum (2017).

Exhibit 10: Bloomberg commodity returns vs. production cost

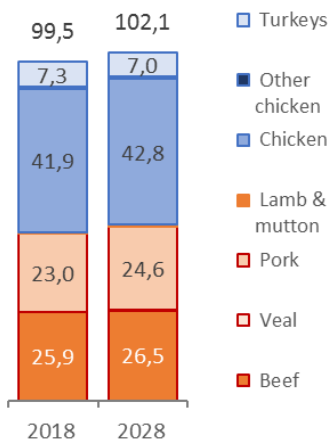


Source: Core Commodity.

Drivers of industry growth are strongly influenced by environmental legislation: the availability of natural resources and the possibilities of increases in productivity are the only long-term constraints to livestock production growth, and both are dependent on the regulatory framework put in place.

Adverse shocks can take a significant toll in the industry: trade disputes, like the meat import ban put in place by the Russian Federation as a response to the economic sanctions, animal disease outbreaks, e.g. swine fever, or extreme climate events, such as droughts or floods, have shown the volatility the industry faces. These events are largely unpredictable, and their effects tend to be regionally contained and have a short- to medium-term impact.

Exhibit 11: U.S. per capita meat consumption evolution, by category



Source: USDA.

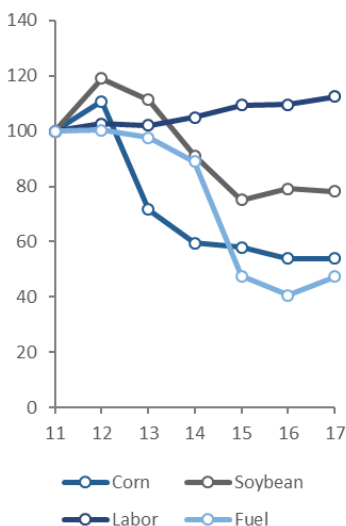
The U.S. market: stagnation, a (very) high level

The United States have one of the highest per capita meat consumptions in the world, with 99,5 kg.⁸ in 2018. However, per capita meet consumption is expected to remain stable from 2018 onwards in all the major meat categories, according to estimates by the United States Department of Agriculture (USDA). Conversely, meat production levels are also expected to remain stable.

The pricing game: input prices vs. supply-demand dynamics

Research shows that commodity prices are tightly linked to the respective production (see Exhibit 10), which in this industry is translated mainly by the meat-to-feed price ratio (Exhibit 13). As depicted in Exhibit 12, these input costs tend to be very volatile. However, input costs are not the only relevant variable in play, as changing profit dynamics create incentives to increase or decrease production, which leads to situations of over-demand or over-supply. As a result, price fluctuations are considerable, and double-digit YoY variations are not a rare occasion. Real prices are expected to follow the downward trend initiated in 2012, particularly in beef, reflecting the rapid herd rebuilding in North America and the vast supply.

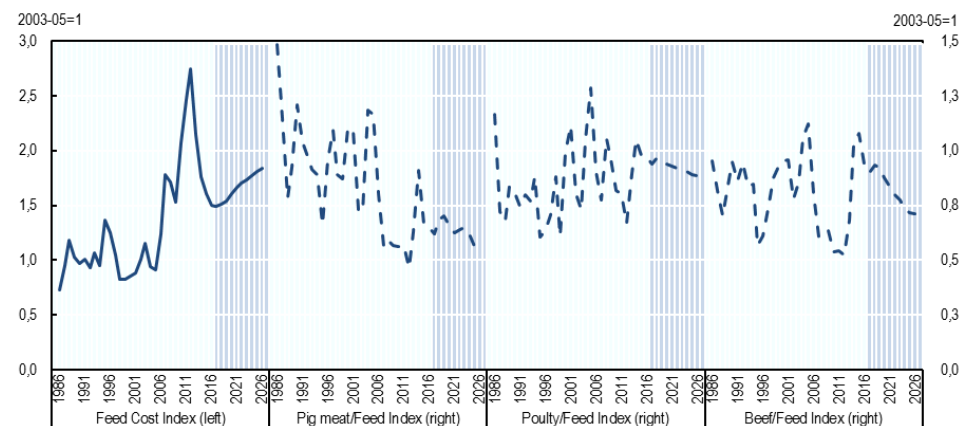
Exhibit 12: Evolution of selected input costs, Index (2011=100)



Source: USDA, Bureau of Labor Statistics, IMF. (up)

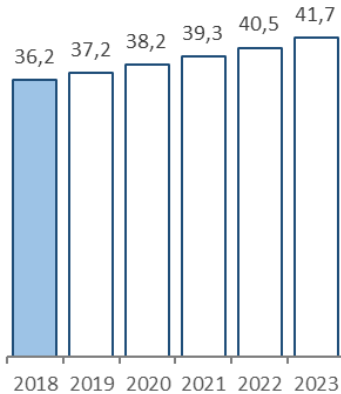
Source: FAO-OECD Agricultural Outlook 2017-26. (left)

Exhibit 13: Feed cost index and meat to feed price ratios



⁸ Includes Red meat and poultry.

Exhibit 14: Processed U.S. meat and seafood market, \$ billions



Source: Passport Euromonitor International.

Changing consumer preferences boost the prepared foods market

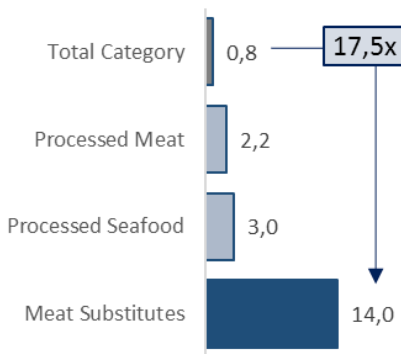
Processed meat and seafood is a \$36,2 billion segment of the global packaged food industry (worth \$2,4 trillion)⁹. It is experiencing a considerable growth momentum, displaying a CAGR of 2,3% (2004-18) and a forecasted annual growth of 2,9% until 2023, as more people around the world – particularly in developed countries and in younger generations – seek to reduce the hassle of meal preparation, making convenience an area of opportunity. Within the segment, meat substitutes is, by far, the category with the highest growth (Exhibit 15), and even though its growth impetus is expected to slow down, it should remain the segment’s top performer.

Competitive landscape

There is fierce rivalry and a heavy regulatory burden in the Food and Beverage industry. Even though corporate consolidation is a reality in the industry, with a few big players generally concentrating more than half of the market share in the various sub-segments, the commodity segment’s low switching costs and a very homogeneous product, yield a low customer loyalty. In the brand and value-added segment, niche producers and substitutes are increasingly playing a relevant role and threatening incumbents’ positions. In both segments, the norm is some concentration of distribution channels, with a small number of buyers representing big customer accounts.

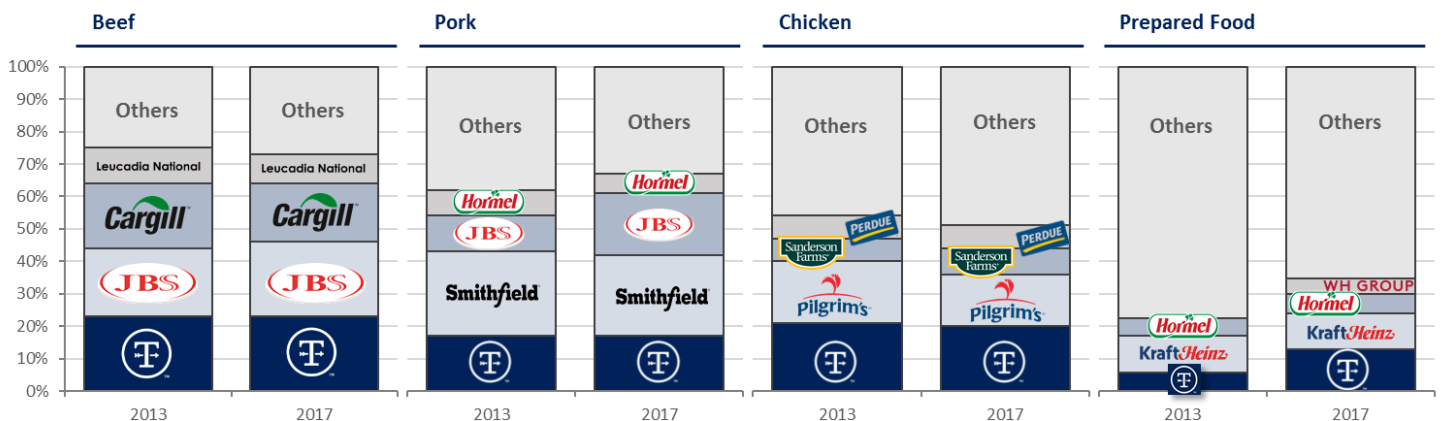
Tyson Foods is a leading player in all its reportable segments, being the number one player in Beef, Chicken, and Prepared Foods¹⁰. Exhibit 16 details the most relevant competitors in each of Tyson’s business unit.

Exhibit 15: Estimated CAGR of Processed Meat and Seafood Industry in the U.S., 2018-23.



Source: Passport Euromonitor International.

Exhibit 16: Tyson Foods market shares in its business segments



Note: Beef based on maximum U.S. capacity (head per day); Pork based on estimated daily U.S. capacity (heads per day); Chicken based on ready-to-cook pounds produced. Prepared Foods based on Processed meat and Seafood industry (Retail Value RSP). Kraft Heinz Corp. was formerly Kraft Foods Group Inc. (until 2014). Source: Cattle Buyers Weekly, 2017; EMI Analytics, 2017; Watt Poultry, 2018; Passport International, 2018; Analysts Estimates.

⁹ Source: Passport “Processed meat and seafood in the US” (Nov/18) and “World market for packaged food” (Nov/18)
¹⁰ Considers the Processed Meat and Seafood sub-category.

Relevant trends

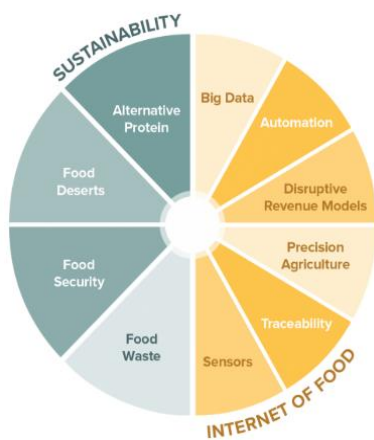
Three main trends are identifiable in the industry:

1. **Healthy and sustainable eating:** there is increased awareness of consumers for the environmental issues associated with meat production, is pushing the higher end of the value tier of the market. An increasing number of consumers are willing to pay price premiums for products they consider beneficial for their health, e.g. in 2016, 68% of consumers were willing to pay more for products that do not contain undesired ingredients (up 26% from 2015)¹¹. Moreover, meat substitution is already one of the fastest growing categories in the processed food and seafood industry⁹.
2. **Convenient, personalized and transparent eating:** consumers are looking for food that meets their own nutrition and health needs, with the least amount of hassle possible in the preparation process, being willing to pay in order to avoid spending unnecessary time; it is estimated that by 2020, 58% of meal orders is done via dedicated online platforms¹¹. Sourcing and traceability are also gaining relevance, with customers starting to ask more questions about their food, and demanding production disclosures.
3. **Experiential eating:** more than three out of four millennials say they prefer to spend money on desirable experiences than things¹²; not surprisingly, in the age of the experience economy, the act of eating is no longer reduced to the satisfaction of a physiological need but is seen as a form of cultural self-expression and exploration. Brands that are consumed passively in “auto-pilot” risk losing their identity.

To cope with these new trends Tyson had created a venture capital fund in the Fall of 2016 (Tyson New Ventures LLC). It aims to invest “in companies developing breakthrough technologies, business models and products to sustainably feed the growing world population”. With a commitment of \$150 million from Tyson, its investments rotate around two core pillars of Sustainability, and the Internet of Food – see Exhibit 17. Even though these seed stage investments in start are marginal for the company, they allow Tyson to be on top of potential paradigm shifts in the industry.

One of the fund’s most disruptive investments is Future Meat Technologies, which is focused on the production of lab-grown meat, i.e. real meat grown from

Exhibit 17: Tyson New Ventures fund strategy



Source: Company data.

¹¹ Source: “Have you met the new consumer?”, Deloitte 2017 (content in Portuguese).

¹² Source: “Millennials: Fueling the Experience Economy”, Eventbrite (2014).

cells in the lab, without any actual animals being part of the process. The first lab-meat burger was “grown” in at Maastricht University, back in the year of 2013, by Professor Mark Post, but the method is still far too expensive to be viable for mass production. If successful, this idea would considerably reduce the environmental costs of meat production and could help cover the increasing demand generated by the growing middle class in developing countries.

Financial and operating performance

Relevant competitors

Considering the size and diversified business of Tyson Foods, no company can be considered a direct comparable. The company selects 14 companies¹³ as peer group to benchmark its stock market performance. Even though this selection may be reasonable for the purposes of stock benchmarking, companies as Coca-Cola or Kellogg have no evident correlation with Tyson’s operations.

Henceforth, we prepare two peer groups for the purposes of our valuation:

1. **Close Peers:** group of companies with closest ties in operations to Tyson, used to benchmark operational and financial performance. List of selected companies and a short description below.
2. **Adjusted Bloomberg Peers:** companies with levels of growth and ROIC closest with Tyson out of Bloomberg’s selected comparables, as we will further elaborate in the Valuation section.

The companies considered in our Close Peers are Hormel Foods, Pilgrim's Pride, Sanderson Farms, and JBS:

Hormel Foods Corp.: producing and marketing branded consumer foods worldwide, mainly focusing on meat derivatives (pork, chicken, beef and lamb). With 20 thousand employees in 2017 this company’s size is a fraction of Tyson, we chose this company given the strong relation between its operations, not only to the prepared foods unit, but also to the others as they too involve meat input processing.

Pilgrim’s Pride Corp.: producing one in every five chickens in the U.S.¹⁴, this JBS subsidiary (current JBS stake is 78,5%¹⁵), is one of the world’s largest poultry producers. We find this company relevant, as it also encompasses the

¹³ Company defined peer group: Archer-Daniels-Midland Company, Bunge Limited, Campbell Soup Company, ConAgra Foods, Inc., General Mills, Inc., Hormel Foods Corp., Kellogg Co., Kraft Heinz Company, Mondelez International Inc., PepsiCo, Inc., Pilgrim’s Pride Corporation, The Coca-Cola Company, The Hershey Company and The J.M. Smucker Company.

¹⁴ Source: Company information.

¹⁵ Source: Pilgrim’s 10-Q SEC filing, November 1st, 2018.

whole chicken value chain, from hatchery to distribution of fresh, frozen and value-added chicken products.

Sanderson Farms, Inc.: integrated poultry processing company, produces, processes, markets, and distributes fresh, frozen, and prepared chicken products in the United States. We consider its strategic focus on natural production, with no additives or artificial ingredients, and operating efficiency to be best practice in the industry.

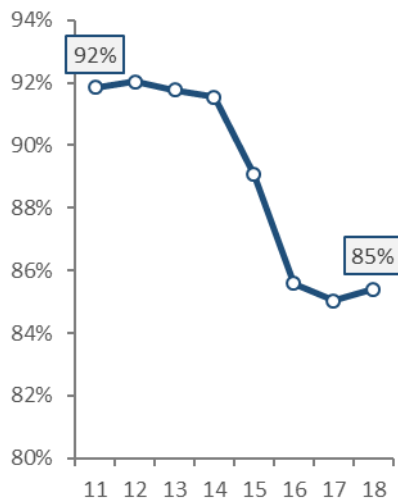
JBS S.A.: the largest meet processing company in the world, processing beef, chicken and pork it is the company most closely resembling Tyson, which is why we decided to include it in this selection. Notwithstanding, one needs to exercise caution when establishing direct comparisons, as it is a Brazilian-based company, which falls under a different regulatory environment, and naturally has a different cost structure. Any non-operating comparisons lack meaningful insight, given the difference in country-risk premiums between the U.S. and Brazil and the volatility of the Brazilian real.

Performance analysis and benchmarking

Operating metrics

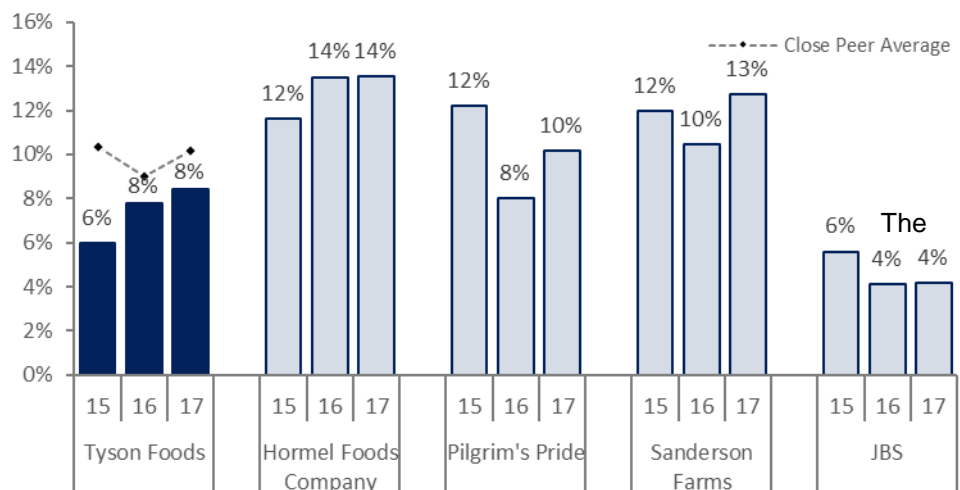
Tyson's revenues have grown at an average of 3,1% since 2011, which is a high value for a mature industry. High volatility in the annual variations, confirms the expectation that acquisitions and disposals are the greatest driver of this evolution. The operating margins have had an increasing trend in the last years but remain below the Close Peer average as we can see in the chart below. The Cost of Sales as % of Revenue has decreased from 92% to 85% from 2011 to 2018, mainly due to decreasing input costs, such as corn, soybean and fuel as well as from realized synergies from the Hillshire acquisition in 2014.

Exhibit 18: COGS evolution in percentage of sales



Source: Company 10-K.

Exhibit 19: Operating Margin evolution, %



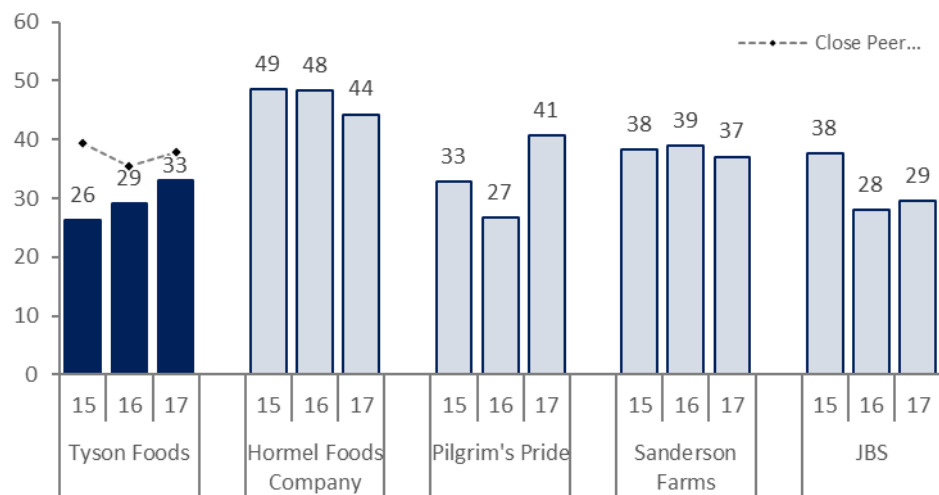
Source: Company data, Analysts Estimates.

operating profit per employee has been increasing, reaching \$26 thousand in 2017, only surpassed by Hormel Foods (\$61 thousand). This evidence seems to justify recent layoffs¹⁶, in as far as employee efficiency may apparently be improved. As such, we expect this metric to further increase in the future, particularly as the full potential of smart farming gets unleashed and new technologies get incorporated in the production process.

Activity efficiency

Cash management is vital for any company operating in the food and beverage industry. Overall, Tyson’s Cash Conversion Cycle has been deteriorating in the last years, from 26 to 32 days. Even so, it is still one of the best values in the Close Peer group, only surpassed by JBS, which has been seeing a remarkable improvement in the recent past. The main drivers for this efficiency are the Average Collection Period and the Average Inventory Holding Period which are below average, even though the later has been deteriorating significantly in the last years. On the other hand, the Average Payable Period has been historically below industry practices, pointing towards a difficulty from Tyson to get favourable payment terms from its suppliers.

Exhibit 20: Cash conversion cycle, days



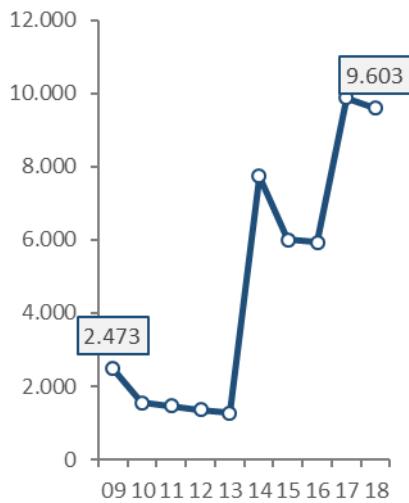
Source: Company data, Analysts Estimates.

Capital structure

Tyson’s net debt has increased almost fourfold between 2009 and 2018, reaching record \$9,8 Billion in 2017, due to the mainly debt financed M&A activity. In relative terms this evolution is less significant, as Net Debt to Equity increasing 1,4 times over the same time period. Moreover, Net Debt to EBITDA is moving closer to the desired value of 2,0x EBITDA. Since a bad year does not survive a bad financial policy, we believe there to be some risk if, due to an

¹⁶ The Financial Fitness Program encompasses the elimination of 550 positions across several areas and job levels.

Exhibit 21: Tyson Foods Net Debt evolution, 2009-2018



Source: Bloomberg.

economic downturn, hidden liabilities, or others, revenues fall short of expectations, which could easily put the company in breach of covenants, or lead to a downgrade of its credit worthiness, restricting access to the financial markets and tampering future growth prospects. In fact, of the analysed benchmark, only JBS had higher levels of debt. Thus, good liquidity management is key to minimize the inherent risks of the pursued strategy. Even so, the company has constantly maintained investment grade on its debt, with a “BBB” Standard & Poor’s¹⁷. Furthermore, the company always showed the ability to repay its debt and it generates enough cash to cover its obligations (see Exhibit 26).

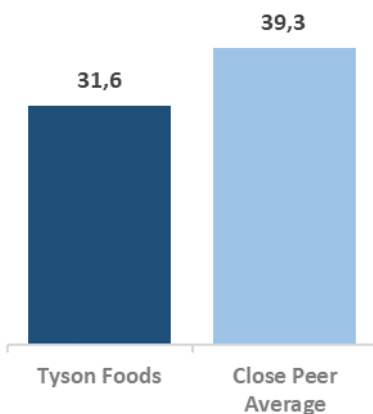
The investment case

We believe that Tyson’s corporate strategy is aligned with the main trends in the Food industry, and that the company is in a leading position to seize its latent opportunities. In our assessment, if Tyson consistently implements the proposed strategy, a sustainable competitive advantage can be achieved, and the company can remain the dominant player in the industry. Notwithstanding, a thorough analysis of Tyson’s competitive environment, yields material risks that can, in our opinion, significantly impact the company’s long-term ability to generate shareholder returns.

Business launchpads

Leveraging the leading position: as the biggest U.S. company in the sector, Tyson is in the pole-position to fully realize synergies and cost efficiencies. As we have seen in the company strategic overview of this report Tyson have successfully been able to leverage such capabilities. Therefore, it is important to understand that one of Tyson’s biggest competitive advantages is its distribution network, that allows the company to efficiently implement its market orientated strategy. Internally, they trust on a wide network of food distributors, supported by Tyson owned or leased cold storage warehouses, public cold storage facilities and their transportation system. Additionally, the company relies on its distribution centres to storage fresh and frozen goods in a way they can serve large and small customers. By having its products concentrated in one location they can combine partial-truckload orders into full truckloads, thus reducing shipping costs while growing client service making Tyson Foods a highly efficient operator in the market. As Exhibit 22 demonstrates, Tyson’s inventory turnover is lower in about 9 days when compared with its closest competitors.

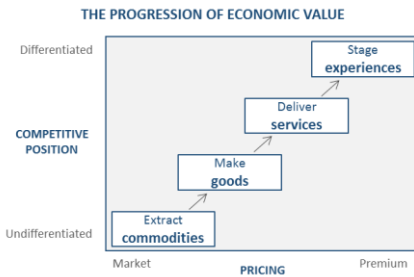
Exhibit 22: Average inventory holding period, days



Source: Analysts calculations based on Bloomberg data.

¹⁷ Source: Company 10-K SEC filing, 2018.

Exhibit 23: Harvard’s Progression of Economic Value Framework



Source: Adapted from Harvard Business Review.

Escaping the commodity trap: as proposed by Harvard’s landmark article “Welcome to the Experience Economy”, back in 1998 with its Progression of Economic Value framework (see Exhibit 23), in order to escape the handcuffs of exogenous market prices, typical for commodities, companies have to differentiate their offering. Tyson’s determination to achieve this goal is visible not only by focusing on the prepared food segment, but also when analysing the business model disruption of some of the companies it has been investing in, e.g. Tovala which offers an innovative internet-connected steam oven, which makes home cooking virtually effortless, in a very clever way of bringing Tyson’s raw materials to the end consumer in a more sophisticated way and with increased added value.

Move to healthy proteins: meat consumption in general is getting under increased scrutiny because of negative externalities for the environment. A shift away from red meat toward chicken and alternative proteins is already verifiable today. What, at first sight, could be considered a threat for Tyson for the potential erosion of the company’s biggest revenue generator, ends up revealing itself as a big opportunity, since the company can position itself as front-runner embracing these new trends. Tyson New Ventures is the perfect example of how the company pretends to be a trend-setter in the market, rather than a trend-follower.

Business risks

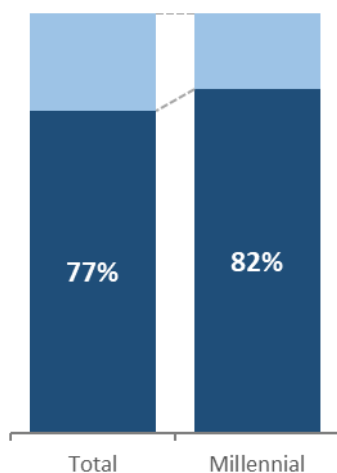
Environmental and anti-trust issues may be a hidden liability: as one would expect from a big company, there are multiple court cases pending against Tyson. Particularly allegations of price fixing in the chicken segment, following an SEC investigation could result in multi-million plea agreements.

First on January 2017¹⁷ and later in 2018¹⁸ a group of poultry farmers and supermarket chains, such as Supervalu and Haff Poultry, filed a class complain action against Tyson, Pilgrim’s Pride, Perdue and other top players in the poultry industry. The plaintiffs alleged that the vertically integrated chicken corporations colluded to fix prices and stabilize grower compensation below competitive levels. Meanwhile, Tyson states on its 10-k report that a motion against the 2017 claims was filled, which is still pending, and makes no reference concerning the 2018 claims. Although it is not likely that Tyson will be convicted, based on its past relations with the SEC, these allegations are already damaging its reputation around its stakeholders, which can lead to potential loss of clients. Nevertheless, price fixing allegation conviction fines can vary from a few million dollars, as

¹⁸ Bloomberg, Justina Vasquez (3 Jul 2018).

happened last year with the biggest tuna company in the U.S. Bumble Bee, that was forced to pay a \$25 million fine¹⁹, up to \$1,7 billion dollars as it happened in 2011 with 21 global airlines being caught in the largest antitrust scheme of the U.S history²⁰. To sum up, if Tyson were to be declared guilty, the damage caused, both monetary and reputationally, would materially affect its valuation.

Exhibit 24: Consumer store selection based on the assortment of private label products offered



Source: IRI® Consumer Connect™ survey results, 8 Nov.

Adverse changes in the competitive setting: Tyson is heavily dependent on a small number of customers, which have the size and bargaining power of cutting the company out if they were to make significant investment; this is also related with the emergence of private label competition, which have grown to become mainstream products particularly after the economic downturn of 2008, when shrinking household budgets forced customers to look towards cheaper alternatives in their grocery shopping. However, an interesting study published by IRI, one of largest big data analytics operator, suggests that consumers are still turning to private labels despite economic growth²¹. In fact, 80% of Americans buy private label products frequently or occasionally to save money. In Spite all of this, in 2018 National Brands grew at 1,5% compared to a 1,2% growth verified in Private Label Brands²¹.

High One-Client Dependency: Agreements with customers are mostly short-term, largely due to the nature of the products, industry practices and fluctuations in supply, demand and price for such products which creates an environment of low switching costs for Tyson clients in the commoditized business segments. Tyson’s biggest client is Walmart representing 17,3% of sales in 2018 and 18,6% of the accounts receivable. No other customer represents more than 10% of net accounts receivable. A loss of a client as Walmart would obviously represent a big downside on the company’s performance. In the past this threat was considered low due to the good relation between the two companies. However, in December 2018, Costco another Tyson client, like Walmart, announced an investment of \$440 million on a chicken farm to fulfil 40% of its chicken supply²². This shows that business relationships are, by nature, ephemeral and if the company fails to consistently deliver an attractive value proposition, relying on the oligopolistic industry setting, reactions like this are to be expected.

The Trump effect: the trade war recently started by the Trump Administration, and the following introduction of retaliatory tariffs by China that can go as high as 25%, the questioning of several trade agreements, such as NAFTA, amongst others, has had negative effects on Tyson’s performance, and it is highly

¹⁹ Fortune, Chris Morris (17 May 2018).
²⁰ NBC, Alicia A. Caldwell (3 May 2011).
²¹ IRI® Consumer Connect™ survey results, 8 Nov 2018.
²² CNBC, Karin Shedd (5 Dec 2018).

uncertain how it will end. If this adverse trading climate were to be maintained, it could seriously harm the company's growth prospects, as it would have hindered access to the main international growth markets. In fact, the trade wars lived in the past year has been pointed out as one of the biggest drivers for the stock poor performance in 2018.

Operating model

Revenues

Tyson's aggressive M&A strategy has yielded the company high revenue growth rates in the recent past. We focus our revenue growth forecasts on organic growth expectations, considering the unpredictable nature of such acquisitions and disposals and the vast empirical evidence showing that many acquisitions transfer the value of synergies from the acquirers' shareholders to the seller's shareholders, and as many as two-thirds of all mergers and acquisitions destroying value for the acquirer²³.

We use a bottom-up approach to derive Tyson's revenue per business segment, given as annual production times segment revenue. Regarding quantity, we expect the company to maintain its competitive position in the commodity segments (Beef, Pork, and Chicken), leading the production in these segments to increase in tandem with the evolution of the United States production, as forecasted by the USDA. In the Prepared Foods segment, we expect production to grow at real annual growth of the processed meat and seafood market in the U.S., which is expected to be 0,8%.

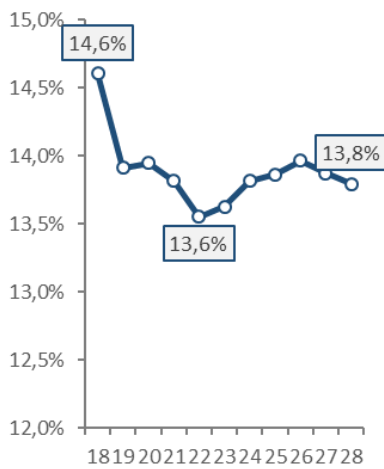
Regarding pricing, the key driver is the extent up to which Tyson can pass on changes in input prices to its end consumers. According to the company, efforts are made to reflect such input cost volatility in the pricing strategy, nonetheless the intense competition in the industry can lead competitors to adopt more aggressive pricing strategies, accepting cuts in operational margins to gain market share. Conversely, the price elasticity of demand, can prevent the company from price increases in order to avoid reducing customer demand.

As such, we estimate the price-cost elasticity (PCE)²⁴ per business unit, based on the historical movements of prices and the estimated variation of input costs. Even though displaying the biggest volatility in prices, Pork has shown to be the unit with the greatest PCE values, followed by Beef and Chicken. As non-commodity, Prepared Food is more subject to customer preferences and brand

²³ See "Divide and Conquer: How Successful M&A Deals Split the Synergies", BCG Focus (2013).

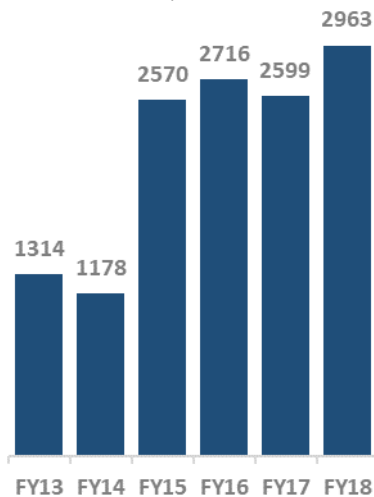
²⁴ Price-cost elasticity is a metric intended to analyze the extent up to which Tyson can pass on variations in input costs to its final customers, being calculated as the ratio between the variation of the weighted input costs, in the respective business unit, and the price variation.

Exhibit 25: Gross Margin forecast



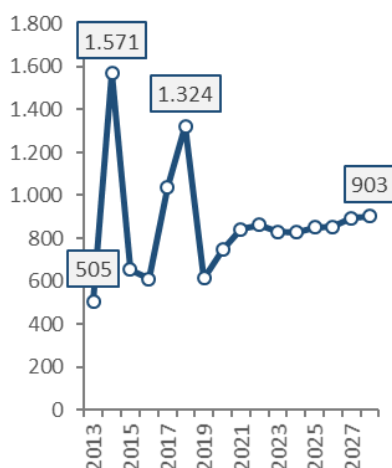
Source: Analysts Estimates

Exhibit 26: Operating Cash Flows, in millions U.S. \$



Source: Analysts Estimates

Exhibit 27: Capex Evolution



Source: Analysts Estimates

awareness and the aforementioned dynamic is not equally relevant in determining pricing patterns. Thus, we make a simplifying assumption that price variations in price equal variations in costs, setting the PCE at 100%.

Cost of Sales

The mentioned input costs refer to the cost of sales caption in the GAAP Income Statement. Historically, these costs represented more than 90% of revenues, but in the last three years, Tyson has remarkably improved this figure, with a record 85% in 2017. A favourable paradigm of low supply costs and a dynamic macro-economic environment has created one-of-a-kind paradigm, which will most certainly not be sustainable for the long-run.

Hence, we expect the gross margin to decrease close to 1 p.p. in 2019, to 13,9% down from current 13,9%, mainly drive by the cost increase in Chicken, and partially offset by the increasing relevance of Prepared Foods, which typically achieves higher profit margins (Exhibit 25).

Other operating expenses

We expect Selling, General and Administrative (SG&A) to continue their increasing trend, mainly driven by increasing R&D expenses. These expenses are vital to achieve the company’s innovation goals and to respond to the demands of this changing industry. This increase is partially offset by the implementation of the company’s Financial Fitness Program, which is expected to deliver cumulated savings of \$600 Million by 2020.

Capital Expenditures

Tyson Foods is a mature company following an inorganic growth strategy. Thus, it is expected to witness an increase in average Capex spending in the years to come as it happened in the recent past. To carry on with this level of investment the firm must be able to secure financing which we believe it can, giving its strong cash generation history observed in Exhibit 26. Historically, Capex represented 1,5%-4,2% of the company’s total sales being the peaks directly related with the years of intense M&A activities and the lower values related with the divestures in non-core businesses. As in our model we do not directly incorporate acquisitions, it may be indirectly predicted in the future growth of Capex of about 2%. Furthermore, besides acquisitions and disposables the company consistently invest in its distribution network as it is one of its biggest competitive advantages, IT developments and operational infrastructures.

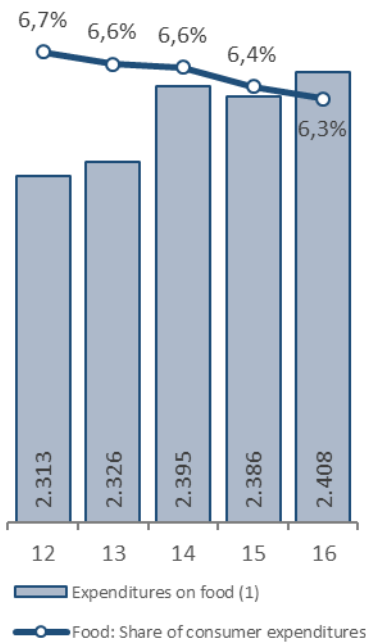
Valuation

Exhibit 28: WACC estimation

Target D/E	32%
Industry Average Unlevered Beta	0,49
Tyson Foods Relevered Beta	0,65
Risk-free rate	3,03%
Market risk premium	5,50%
Cost of Equity	6,59%
Cost of Debt	5,38%
Marginal Tax Rate	28%
D/V=	24%
E/V=	76%
WACC	5,94%

Source: Analysts Estimates.

Exhibit 29: Evolution of food expenditures in the U.S.



(1) Expenditures in US dollars per person. Includes nonalcoholic beverages.
Source: USDA, Analysts Estimates.

Cost of Capital and Growth Rate

To derive Tyson Foods overall cost of capital and properly discount the company cash flows we must determine the weighted average cost of capital (WACC). This approach relies on computing the company’s cost of equity under the Capital Asset Pricing Model (CAPM); cost of debt and the respective target Debt to Equity ratio.

The CAPM model uses as inputs a risk-free rate, a market risk premium, and a beta. For the risk-free rate, we used the U.S.10-Year treasury bill of 3,03%²⁵, since it is denominated in the same currency as cash flows and is perceived as a risk-free asset. Regarding the market risk-premium, we used the generally accepted 5,5%²⁶ average suggested by the literature. In order to estimate beta, 12 comparable firms from the same industry exposed to a similar risk profile were chosen. For this purpose, we selected Archer Daniels Midland Company, Bunge Limited, Campbell Soup Company, Conagra Foods, Inc., General Mills, Inc., Hormel Foods Corp., Kellogg Co., Kraft Heinz Company, Mondelez International Inc., PepsiCo, Inc., Pilgrim's Pride Corporation, The Coca-Cola Company, The Hershey Company and The J.M. Smucker Company since they all are food & beverage companies and are influenced by the same economic and industry movements. We found appropriate to use the industry beta since Tyson has made several significant acquisitions in the past years, which may cause uncharacteristic movements in its stock behaviour and consequently, its beta. Furthermore, beta was computed by using the weighted-average of unlevered rolling (5 years) betas of the industry peers that focus on operating risk and then it was releveled using the company estimated debt-to-equity ratio (specific risk) reaching a value of 0,65.

Seeing that Tyson follows an inorganic growth strategy (acquisitions), the company needs to have a certain level of debt. To compute the target Debt to Equity ratio it was assumed the company estimation of its own target Debt as 2x EBITDA²⁷. So, we averaged the last five years of EBITDA and used it to compute the target level of Debt. As these years presented expansion through the usage debt, we found a fairly proxy for the future. This way we estimate a target Debt to Equity ratio of 32%.

²⁵ US Department of the Treasury (29/11/2018)

²⁶ Mckinsey Valuation – “Measuring and Managing the Value of Companies” – 6th Edition

²⁷ Company Reports, “Clear strategy. Real results.”, Consumer Analyst Group of New York Presentation (Feb 2018)

To derive the cost of debt, we used the yield to maturity of 5,38%²⁸ which is the YTM of the company's outstanding bond with the longest maturity (2044). Considering all the above-mentioned assumptions, we arrive at a cost of equity of 6,59% and a WACC of 5,94%.

As the company operates in vastly mature and consolidated industries, which have already experienced real price decreases in the last years, we assume the real perpetual growth rate to be 0%. This is not unreasonable, as increased disposable income tend to be directed to consumption of superfluous items and basic needs, such as food expenditures tend to be relatively inelastic. In fact, in the commoditized business units, we forecast growth to be largely negative already in the explicit forecast period. As we perform our analysis in nominal terms, we compute the implicit inflation²⁹, to arrive at a nominal growth rate of 1,7% as detailed in Exhibit 30. Both WACC and the terminal growth rate will be further challenged in the sensitivity analysis section.

Exhibit 30: Perpetual growth rate

g real	0,0%
US TIPS	1,0%
Expected inflation	1,7%
g	1,7%

Source: Analysts Estimates.

Considered scenarios

Considering the most plausible variations to our base investment case, we construct two alternative scenarios, which are constructed based on the following hypotheses:

Downward scenario: trade disputes are not solved and Tyson is impacted by the enduring uncertainty, tampering the internationalization prospects. Domestically, claims of price-fixing are substantiated and reputational damages reduce sales, and increase payments to contract growers. Furthermore, political pressures related to the environmental issues surrounding meat production, represent hurdles to production, with tighter legislation being put into place, increasing red tape costs.

Upward scenario: Tyson realizes the expected benefits of the Financial Fitness Program, improving its production efficiency and remains the leading company, with strong bargaining power and unmatched economies of scale. Trade uncertainties stabilize and economic relations with foreign countries resume without any surcharges or additional limitations.

The most relevant drivers that can be impacted as per our operational model are the produced quantity and the Price-Cost Elasticity, that being as explained in the Operating Model section above, the ability of the company to pass on fluctuations

²⁸ FINRA's Market Data Centre.

²⁹ Implicit inflation is calculated as the difference between U.S. Treasury Inflation-Protected Securities (TIPS) and the U.S. Treasury Bond yield for equal 10 year maturity.

in input costs to final customers. The table below presents the incremental changes on each of these metrics in the various scenarios:

DOWNWARD SCENARIO	DESCRIPTION	IMPACT (relative to base case)
Quantity	Environmental concerns and political pressure forces overall reduction of meat consumption	Beef, Pork and Prepared Food: 5% decrease. Chicken: 10% decrease.
Price-Cost Elasticity	Competitive pressure damages the company's ability to adapt prices to volatility in input costs, eroding the top-line and tapering operational margins.	20% decrease in PCE across all BU's.
Others	Legal settlements of price-fixing allegations and imparity's on non-realized goodwill.	\$53 million decrease in debt and debt equivalents ³⁰ .
UPWARD SCENARIO	DESCRIPTION	IMPACT (relative to base case)
Quantity	The U.S. gains international competitiveness in meat production, and exports surpass the baseline USDA expectations, increasing the expected production.	Beef, Pork, Chicken and Prepared Food: 5% increase.
Price-Cost Elasticity	Economies of scale and integration of technology in the production process, ease the pressure on margins, and the move towards more value-added products, allows for more wiggle room in pricing strategies.	Remains stable.
Others	Investments in Tyson New Ventures are successful and excess returns exceed expectations.	\$ 158 million increase in Nonconsolidated investments ³¹ .

³⁰ High-level estimation: average between the highest historic settlement (\$1,7B for 21 airlines, yielding \$81M per airline on average) and the Bumble Bee case (which payed \$25 M), the most comparable value in the food industry, as elaborated in the business risks section of this report.

³¹ High level estimation: the average return of venture capital funds in the consumer and retail industry (the closest to Tyson New Ventures' profile) was 12,19% between 2000-16, according to Cambridge Associates' US Venture Capital Index and Selected Benchmark Statistics (December 2017). This would yield an expected annual return of \$18,2 million for the invested capital of \$150 million, which discounted by the WACC results in a fair value of \$307,9 million. The proposed \$158 million are thus the difference between our assessed fair value and the book value (Tyson uses the cost method whenever its voting rights do not exceed 20%).

Valuation outcome

Considering the three scenarios we modelled, the Downward Scenario, the Base Scenario and the Upward Scenario, with an assigned a probability of 20, 70 and 10 percent, respectively, our DCF model assigns an intrinsic value of \$68,6 to Tyson’s common stock, what yields an 29% markup to its current price, as depicted in Exhibit 31. The increased weight of the Downward Scenario, when

Exhibit 31: Scenario-weighted DCF outcomes

	Scenario		
	Downward	Base	Upward
Average revenue growth, CAGR 2018-28, %	0,6	1,4	1,9
Average ROIC including goodwill, 2018-28, %	6,7	7,4	7,5
Enterprise Value, \$ Billion	29.078,3	36.944,5	38.967,3
Equity Value, \$ Billion	19.991,0	26.520,5	27.441,9
Equity value per share, \$	54,2	71,9	74,4
Probability, %	20,0	70,0	10,0
Expected value per share, \$	68,6		

Source: Analysts Estimates.

comparing to the Upward scenario is determined by the bearish outlook for stock markets in the coming year, with increased volatility. In the long-term, looking at the competitive setting of Tyson’s industry, we believe that the conjectured risks are more likely to happen than the benefits of the Upward Scenario³². The Base Scenario represents the highest as we believe to be a fair representation of the most likely evolution of the main value driver of value.

Sensitivity analysis

Exhibit 32: Sensitivity table

Value	PGR, %				
	0,7%	1,2%	1,7%	2,2%	2,7%
4,9%	78	89	102	121	148
5,4%	67	75	85	98	116
5,9%	58	64	72	81	94
6,4%	51	56	61	69	78
6,9%	44	48	53	59	66

Source: Analysts Estimates.

In the mentioned scenario analysis, we test our model to volatility in the forecasted operating metrics. Nonetheless, small incremental changes in the WACC and perpetual growth rate assumption have a sizeable impact on the valuation outcome, making it imperative to test the intrinsic value derivation to changes in those inputs. Exhibit 32 presents the valuation outcome for combinations of these inputs. Three of the resulting input combinations, which range from \$44 to \$148 per share, bring the intrinsic value bellow current share prices. Even so, in most cases our recommendation remains unchanged.

³² The probability assignment exercise is speculative by nature and based on our research on the company and the market conditions, as off the elaboration of this report.

Triangulation

Exhibit 33.1: Multiples for selected peers, times denominator

Multiples Summary	Low	Base	High
EV/ EBITDA current	7,5	11,9	17,4
EV/ EBITDA forward	7,7	11,0	16,8
EV/ EBITDA cyclicalidad	4,0	11,3	24,1
P/ E current	5,6	12,8	28,7

Source: Analysts Estimates.

Exhibit 33.2: Value per share, \$

Valuation Summary	Low	Base	High
EV/ EBITDA current	75	118	173
EV/ EBITDA forward	77	109	168
EV/ EBITDA cyclicalidad	40	113	240
P/ E current	26	61	136

Source: Analysts Estimates.

Dividend Discount Model: Although Tyson is a consolidated company, operating in a mostly mature market, due to the vast M&A activity, dividend payout has been below what would be expected for a company in its circumstances. For these reasons, we consider this dividend-based valuation method to have several limitations. Even so we believe it to be meaningful for the intrinsic stock value determination as it enables a sanity check on the achieved values.

Relative analysis^{33,34}: Even though Tyson is a one-of-a-kind company, as we mentioned before, it operates in consolidated industries. Thus, other companies in these industries are expected to have similar cost structures and valuation fundamentals. We test four types of multiples, predominantly based on EV/ EBITDA, which best translates the operating performance, ignoring effects of capital structure. Exhibit 33 presents a summary of the obtained results.

1. EV/ EBITDA – median of the selected peers, based on 2018 values for EBITDA and EV.
2. EV/ EBITDA on forward earnings – median of the selected peers based on 2019 EBITDA, as forecasted by Bloomberg, and 2018 EV³⁵.
3. EV/ EBITDA adjusted for cyclicalidad – median of the selected peers, based on the median EBITDA and EV values between 2009 and 2017.
4. P/ E – median of the selected peers, based on 2018 values for market capitalization and net income.

Valuation Football field

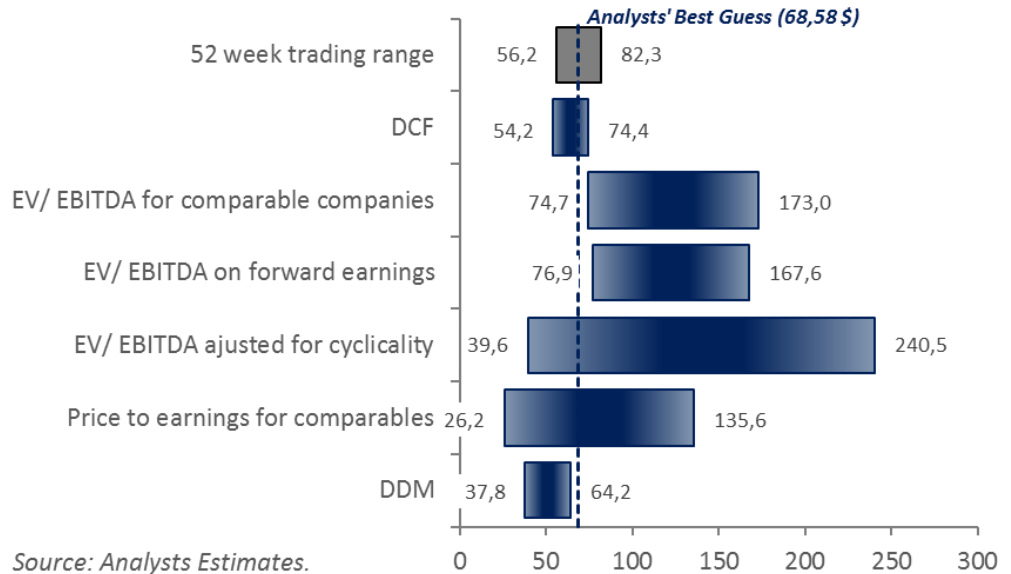
Considering the results from the several applied valuation methods, we obtain a vast range of outcomes from \$26,2 to \$240,5 per share, see Exhibit 34. As we believe the DCF method to be the most complete analysis of the company's value drivers, our recommendation follows the scenario weighted DCF valuation outcomes.

³³ Selected peers: adjusted Bloomberg peer group based on similarity of historic revenue growth and ROIC. Resulting companies: Archer-Daniels-Midland Company; Campbell Soup Company; Conagra Brands, Inc.; Hormel Foods Corporation; Pilgrim's Pride Corporation; The Hershey Company; The J. M. Smucker Company; Industrias Bachoco, S.A.; besides Tyson Foods itself.

³⁴ All the EBITDA based multiples are applied to our forecasted 2019 EBITDA.

³⁵ Excludes Industrias Bachoco, S.A. for lack of data.

Exhibit 34: Valuation Football Field



Limitations

The results obtained in this report are conditioned to the following limitations:

- **We perform an intrinsic stock valuation.** Any exogenous factors such as investor sentiment, the ability to find the right underwriters in cases of equity issues, the potential effects of technical selling of professional investors with mandates, amongst others, are excluded of the analysis.
- **We forecast organic growth only, assuming acquisitions as zero NPV transactions for Tyson’s shareholders.** This does not imply that we deem the M&A strategy do be incorrect, as zero-NPV transaction may be desirable, as they can improve the equity story of the stock and so indirectly increase the stock price.
- **We chose comparable companies based on available public information.** Tyson’s one-of-a-kind business model, makes peer-to-peer comparisons less insightful, potentially reducing forecasts’ accuracy.
- **We rely upon the accuracy of the company’s financial reporting.** Some forecasts may rely upon non-audited or forward-looking statements, based on our qualitative assessment on their reasonability.
- **We chose sources we deemed credible for our input costs and macroeconomic forecasts.** We did not perform our own estimations, nor checked the correctness of the respective sources’ methodologies. Forecasts are accepted as is, and unexpected fluctuations may significantly impact the obtained results.

Appendix

Income Statement
in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Sales	32.266	33.055	34.374	37.580	41.373	36.881	38.260	40.052	41.177	41.276	42.014	42.806	43.294	43.703	44.223	44.702	45.395	46.062
Cost of Sales, net of depreciation	29.634	30.422	31.542	34.401	36.847	31.567	32.535	34.203	35.449	35.519	36.211	37.005	37.394	37.667	38.092	38.459	39.097	39.710
Gross Profit, net of depreciation	2.632	2.633	2.832	3.179	4.526	5.314	5.725	5.849	5.728	5.757	5.803	5.801	5.900	6.036	6.131	6.243	6.298	6.353
Selling, General and Administrative, net of amortization	841	848	938	1.229	1.656	1.784	2.046	1.861	2.051	2.056	2.093	2.133	2.157	2.177	2.203	2.227	2.262	2.295
Other, Net	(20)	(23)	(20)	53	(36)	(8)	31	(33)	-	-	-	-	-	-	-	-	-	-
EBITDA	1.811	1.808	1.914	1.897	2.906	3.538	3.648	4.021	3.676	3.700	3.710	3.668	3.743	3.859	3.928	4.016	4.036	4.058
Depreciation	433	443	474	494	609	617	642	723	747	731	733	746	760	768	776	785	793	806
Amortization	73	56	45	26	92	80	106	210	227	234	234	238	243	246	248	251	254	258
EBIT (Operating Income)	1.305	1.309	1.395	1.377	2.205	2.841	2.900	3.088	2.702	2.736	2.743	2.684	2.740	2.845	2.904	2.980	2.989	2.995
Interest income	11	12	7	7	9	6	7	7	6	7	7	8	8	8	8	8	8	63
Interest expense	242	356	145	132	293	249	279	350	339	347	293	252	212	163	108	54	27	27
EBT	1.074	965	1.257	1.252	1.921	2.598	2.628	2.745	2.369	2.396	2.458	2.440	2.536	2.690	2.803	2.933	2.990	3.030
Income Tax Expense	341	351	409	396	697	826	850	(282)	627	635	651	647	673	715	746	781	797	808
Loss from Discontinued Operation, Net of Tax	-	38	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Net Income	733	576	778	856	1.224	1.772	1.778	3.027	1.742	1.762	1.806	1.793	1.863	1.975	2.058	2.152	2.193	2.222
Check [Calculation = Reporting]	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	TRUE										
Other Comprehensive Income (Loss), Net of Taxes:																		
Derivatives accounted for as cash flow hedges	(17)	17	(14)	1	2	(1)	-	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
Investments	(8)	-	(3)	4	(1)	-	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Currency translation	(41)	3	(37)	(30)	36	4	6	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)
Postretirement benefits	(13)	(4)	9	(14)	20	42	56	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
Total Other Comprehensive Income (Loss), Net of Taxes	(79)	16	(45)	(39)	57	45	61	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)
Comprehensive Income	654	592	733	817	1.281	1.817	1.839	2.983	1.698	1.718	1.762	1.749	1.819	1.931	2.014	2.108	2.149	2.178
Less: Comprehensive Income Attributable to Noncontrolling Interests	(17)	(7)	-	(8)	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Comprehensive Income Attributable to Tyson	671	599	733	825	1.277	1.813	1.835	2.980	1.695	1.715	1.759	1.746	1.816	1.928	2.011	2.105	2.146	2.175

Statement of Changes in Shareholders' Equity
in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Initial Balance	5.166	5.657	6.012	6.201	8.890	9.691	9.608	10.541	12.803	14.406	16.026	17.688	19.341	21.055	22.867	24.750	26.717	28.720
Comprehensive Income																		
Net Income	733	576	778	856	1.224	1.772	1.778	3.027	1.742	1.762	1.806	1.793	1.863	1.975	2.058	2.152	2.193	2.222
Other Comprehensive Income	(79)	16	(45)	(39)	57	45	61	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)	(44)
Less: Comprehensive Income Attributable to Noncontrolling Interests	(17)	(7)	-	(8)	4	4	4	3	3	3	3	3	3	3	3	3	3	3
Total Comprehensive Income	671	599	733	825	1.277	1.813	1.835	2.980	1.695	1.715	1.759	1.746	1.816	1.928	2.011	2.105	2.146	2.175
Transactions with Shareholders																		
Dividends	(59)	(57)	(106)	(115)	(155)	(233)	(346)	(458)	(264)	(267)	(273)	(271)	(282)	(299)	(311)	(326)	(332)	(336)
Share repurchases, net shares issued	(210)	(264)	(614)	1.833	(495)	(1.943)	(858)	(427)	-	-	-	-	-	-	-	-	-	-
Share based compensation	89	77	176	146	174	280	302	167	172	172	175	178	181	182	184	186	189	192
Net Transactions with Shareholders	(180)	(244)	(544)	1.864	(476)	(1.896)	(902)	(718)	(92)	(94)	(98)	(93)	(101)	(117)	(127)	(139)	(143)	(144)
Closing Balance	5.657	6.012	6.201	8.890	9.691	9.608	10.541	12.803	14.406	16.026	17.688	19.341	21.055	22.867	24.750	26.717	28.720	30.752

THIS REPORT WAS PREPARED EXCLUSIVELY FOR ACADEMIC PURPOSES BY LUÍS RODRIGUES AND MARC BRANDER, MASTER IN FINANCE STUDENTS OF THE NOVA SCHOOL OF BUSINESS AND ECONOMICS. THE REPORT WAS SUPERVISED BY A NOVA SBE FACULTY MEMBER, ACTING IN A MERE ACADEMIC CAPACITY, WHO REVIEWED THE VALUATION METHODOLOGY AND THE FINANCIAL MODEL. (PLEASE REFER TO THE DISCLOSURES AND DISCLAIMERS AT END OF THE DOCUMENT)

Balance Sheet

Total Funds Invested: Uses

in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Operating Cash	645	661	687	438	688	349	318	270	336	337	343	350	354	357	361	894	908	921
Operating cash, in % of sales	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%	2%
Accounts Receivable	1.321	1.378	1.497	1.684	1.620	1.542	1.675	1.723	1.744	1.748	1.779	1.813	1.833	1.851	1.873	1.893	1.922	1.950
Inventories	2.587	2.809	2.817	3.274	2.878	2.732	3.239	3.513	3.239	3.246	3.309	3.382	3.417	3.442	3.481	3.514	3.573	3.629
Other Current Assets	156	145	144	378	193	261	216	181	235	236	240	244	247	250	253	255	259	263
Total Operating Current Assets	4.709	4.993	5.145	5.774	5.379	4.884	5.448	5.687	5.555	5.567	5.671	5.788	5.851	5.899	5.967	6.557	6.662	6.763
Accounts Payable	1.264	1.372	1.359	1.806	1.662	1.511	1.698	1.694	1.768	1.771	1.806	1.845	1.865	1.878	1.899	1.918	1.949	1.980
Other current liabilities	1.040	943	1.138	1.207	1.158	1.172	1.424	1.426	1.331	1.334	1.358	1.384	1.399	1.413	1.429	1.445	1.467	1.489
Total Operating Current Liabilities	2.304	2.315	2.497	3.013	2.820	2.683	3.122	3.120	3.098	3.105	3.163	3.229	3.264	3.291	3.329	3.362	3.417	3.469
Operating Working Capital	2.405	2.678	2.648	2.761	2.559	2.201	2.326	2.567	2.456	2.461	2.508	2.560	2.587	2.609	2.639	3.194	3.245	3.295
Net PP&E	3.823	4.022	4.053	5.130	5.176	5.170	5.568	6.169	6.036	6.050	6.158	6.274	6.346	6.406	6.482	6.552	6.654	6.752
Net Intangible Assets	149	129	138	5.276	5.168	5.084	4.728	5.244	6.949	6.966	7.090	7.224	7.306	7.375	7.463	7.544	7.661	7.773
Other Operating Assets	150	180	214	233	231	254	295	316	260	261	266	271	274	276	280	283	287	291
Other Operating Liabilities	345	389	403	738	809	883	941	965	752	753	767	781	790	798	807	816	829	841
Other Operating assets, net liabilities	(195)	(209)	(189)	(505)	(578)	(629)	(646)	(649)	(491)	(492)	(501)	(511)	(516)	(521)	(527)	(533)	(541)	(549)
Invested Capital (Excluding GoodWill)	6.182	6.620	6.650	12.662	12.325	11.826	11.976	13.331	14.949	14.985	15.255	15.547	15.723	15.868	16.056	16.757	17.019	17.270
Goodwill and acquired intangibles	1.892	1.891	1.902	6.706	6.667	6.669	10.839	11.254	10.012	10.037	10.216	10.409	10.527	10.627	10.753	10.870	11.038	11.200
Cumulative amortization and depreciation	589	589	589	594	617	617	617	617	-	-	-	-	-	-	-	-	-	-
Invested Capital (Including GoodWill)	8.663	9.100	9.141	19.962	19.609	19.112	23.432	25.202	24.962	25.022	25.471	25.956	26.250	26.495	26.810	27.627	28.057	28.471
Excess Cash	71	410	458	-	-	-	-	-	-	-	-	-	-	-	-	366	1.952	3.582
Assets Held For Sale	-	-	-	305	-	-	803	-	-	-	-	-	-	-	-	-	-	-
Investments in joint ventures and other entities	153	151	173	298	253	215	239	280	244	245	249	254	257	259	262	265	269	273
Available for Sale Securities	124	120	94	93	95	97	98	98	115	115	117	119	121	122	123	125	127	128
Post Retirement Benefit Assets	-	-	-	-	-	-	44	61	14	14	14	14	14	15	15	15	15	15
Total Funds Invested	9.011	9.781	9.866	20.658	19.957	19.424	24.616	25.641	25.335	25.395	25.851	26.344	26.642	26.891	27.210	28.397	30.420	32.469

Total Funds Invested: Sorces
in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Short-Term Debt	70	515	513	643	715	79	906	1.911	724	725	738	752	761	768	777	786	798	810
Long-Term Debt	2.112	1.917	1.895	7.535	5.975	6.200	9.297	7.962	9.388	7.819	6.594	5.424	3.986	2.393	805	-	-	-
Post Retirement Benefit Liabilities	131	160	157	532	495	359	258	233	319	319	325	331	335	338	342	346	351	356
Noncontrolling interests	28	30	32	14	15	16	18	8	8	8	8	8	8	8	8	8	8	8
Debt and Debt Equivalents	2.341	2.622	2.597	8.724	7.200	6.654	10.479	10.114	10.438	8.872	7.666	6.515	5.089	3.507	1.932	1.139	1.157	1.174
Deferred Tax Liabilities, Operating	424	558	479	2.450	2.449	2.545	2.979	2.107	491	497	498	488	498	517	528	541	543	544
Cumulative amortization and depreciation	589	589	589	594	617	617	617	617	-	-	-	-	-	-	-	-	-	-
Shareholders's Equity	5.657	6.012	6.201	8.890	9.691	9.608	10.541	12.803	14.406	16.026	17.688	19.341	21.055	22.867	24.750	26.717	28.720	30.752
Equity and equity equivalents	6.670	7.159	7.269	11.934	12.757	12.770	14.137	15.527	14.897	16.523	18.186	19.828	21.553	23.384	25.278	27.258	29.263	31.296
Total Funds Invested	9.011	9.781	9.866	20.658	19.957	19.424	24.616	25.641	25.335	25.395	25.851	26.344	26.642	26.891	27.210	28.397	30.420	32.469

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Income Statement, Reformulated
in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Revenues	32.266	33.055	34.374	37.580	41.373	36.881	38.260	40.052	41.177	41.276	42.014	42.806	43.294	43.703	44.223	44.702	45.395	46.062
Cost of Sales, operational	29.634	30.422	31.542	34.401	36.847	31.567	32.535	34.203	35.449	35.519	36.211	37.005	37.394	37.667	38.092	38.459	39.097	39.710
Add: Pension adjustment	(7)	(31)	(18)	(1)	(11)	28	10	24	-	-	-	-	-	-	-	-	-	-
S,G&A	841	848	938	1.229	1.656	1.784	2.046	1.861	2.051	2.056	2.093	2.133	2.157	2.177	2.203	2.227	2.262	2.295
EBITDA, adjusted	1.784	1.754	1.876	1.949	2.859	3.558	3.689	4.012	3.676	3.700	3.710	3.668	3.743	3.859	3.928	4.016	4.036	4.058
Depreciation	433	443	474	494	609	617	642	723	747	731	733	746	760	768	776	785	793	806
Amortization	73	56	45	26	92	80	106	210	227	234	234	238	243	246	248	251	254	258
EBIT	1.278	1.255	1.357	1.429	2.158	2.861	2.941	3.079	2.702	2.736	2.743	2.684	2.740	2.845	2.904	2.980	2.989	2.995
Operating cash taxes	434	330	542	(1.449)	823	873	535	683	2.336	723	729	726	720	739	763	780	795	797
NOPLAT	844	925	815	2.878	1.335	1.988	2.406	2.396	366	2.013	2.014	1.958	2.020	2.106	2.141	2.200	2.194	2.198

Reconciliation with Net Income

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Net Income	733	576	778	856	1.224	1.772	1.778	3.027	1.742	1.762	1.806	1.793	1.863	1.975	2.058	2.152	2.193	2.222
Nonoperating taxes	(93)	(113)	(54)	(126)	(125)	(143)	(119)	(93)	(93)	(94)	(79)	(68)	(57)	(43)	(28)	(13)	0	10
Increase (decrease) in operating deferred taxes	-	134	(79)	1.971	(1)	96	434	(872)	(1.616)	6	1	(11)	10	19	11	14	2	1
Interest expense	242	356	145	132	293	249	279	350	339	347	293	252	212	163	108	54	27	27
Interest income	(11)	(12)	(7)	(7)	(9)	(6)	(7)	(7)	(6)	(7)	(7)	(8)	(8)	(8)	(8)	(8)	(28)	(63)
Nonoperating expenses	(20)	(23)	(20)	53	(36)	(8)	31	(33)	-	-	-	-	-	-	-	-	-	-
Net pension adjustments	(7)	(31)	(18)	(1)	(11)	28	10	24	-	-	-	-	-	-	-	-	-	-
Loss from Discontinued Operation, Net of Tax	-	38	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
NOPLAT	844	925	815	2.878	1.335	1.988	2.406	2.396	366	2.013	2.014	1.958	2.020	2.106	2.141	2.200	2.194	2.198

Free Cash Flow
in millions of US\$

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	
NOPLAT	844	925	815	2.878	1.335	1.988	2.406	2.396	366	2.013	2.014	1.958	2.020	2.106	2.141	2.200	2.194	2.198	
Depreciation	433	443	474	494	609	617	642	723	747	731	733	746	760	768	776	785	793	806	
Amortization	73	56	45	26	92	80	106	210	227	234	234	238	243	246	248	251	254	258	
Gross cash flow	1.350	1.424	1.334	3.398	2.036	2.685	3.154	3.329	1.340	2.978	2.981	2.942	3.023	3.120	3.165	3.236	3.242	3.261	
Decrease (increase) in operating working capital		(273)	30	(113)	202	358	(125)	(241)	111	(5)	(46)	(52)	(28)	(21)	(30)	(555)	(51)	(49)	
Capital expenditures, net of disposals		(642)	(505)	(1.571)	(655)	(611)	(1.040)	(1.324)	(614)	(745)	(841)	(862)	(831)	(828)	(852)	(855)	(895)	(903)	
Investments in internal intangible assets		(36)	(54)	(5.164)	16	4	250	(726)	(1.932)	(251)	(359)	(372)	(325)	(315)	(336)	(332)	(371)	(370)	
Investments in goodwill and acquired intangibles		1	(11)	(4.804)	39	(2)	(4.170)	(415)	1.242	(24)	(179)	(193)	(119)	(99)	(126)	(116)	(169)	(162)	
Decrease (increase) in other operating assets, net other liabilities		14	(20)	316	73	51	17	3	(158)	1	9	9	6	5	6	6	8	8	
Foreign currency translation	(41)	3	(37)	(30)	36	4	6	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	(29)	
Gross investmet	(41)	(933)	(597)	(11.366)	(289)	(196)	(5.062)	(2.732)	(1.380)	(1.053)	(1.445)	(1.498)	(1.326)	(1.288)	(1.367)	(1.882)	(1.506)	(1.506)	
Free Cash Flow	1.309	491	737	(7.968)	1.747	2.489	(1.908)	597	(40)	1.924	1.535	1.444	1.697	1.832	1.798	1.354	1.735	1.755	
Nonoperating income and expenses	20	23	20	(53)	36	8	(31)	33	-	-	-	-	-	-	-	-	-	-	
Interest income	11	12	7	7	9	6	7	7	6	7	7	8	8	8	8	8	28	63	
Other Comprehensive Income, excluding currency	(38)	13	(8)	(9)	21	41	55	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)	
Nonoperating taxes	93	113	54	126	125	143	119	93	93	94	79	68	57	43	28	13	(0)	(10)	
Decrease (increase) in excess cash		(339)	(48)	458	-	-	-	-	-	-	-	-	-	-	-	(366)	(1.586)	(1.629)	
Decrease (increase) in investments		6	4	(429)	348	36	(828)	762	19	(1)	(6)	(7)	(4)	(4)	(5)	(4)	(6)	(6)	
Loss (gain) from discontinued operations	-	38	70	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Nonoperating cash flow	86	(135)	99	99	539	234	(678)	880	102	86	65	53	45	32	16	(364)	(1.580)	(1.597)	
Cash flow available to investors	1.394	357	836	(7.868)	2.286	2.723	(2.586)	1.477	63	2.010	1.601	1.498	1.742	1.865	1.814	989	155	158	
Reconciliation of cash available to investors																			
Interest expense	242	356	145	132	293	249	279	350	339	347	293	252	212	163	108	54	27	27	
Decrease (increase) in short-term debt		(445)	2	(130)	(72)	636	(827)	(1.005)	1.187	(2)	(13)	(14)	(9)	(7)	(9)	(8)	(12)	(12)	
Decrease (increase) in long-term debt		255	164	(5.655)	1.575	(173)	(3.037)	1.335	(1.426)	1.569	1.225	1.170	1.438	1.592	1.589	805	-	-	
Pension and postretirements benefits, net cash out (in)	9	(45)	(17)	(362)	10	111	95	66	(133)	(1)	(5)	(6)	(4)	(3)	(4)	(4)	(5)	(5)	
Flows to debt holders	251	122	294	(6.014)	1.807	824	(3.490)	746	(32)	1.913	1.500	1.402	1.638	1.745	1.684	847	10	11	
Dividends	59	57	106	115	155	233	346	458	264	267	273	271	282	299	311	326	332	336	
Repurchased (issued) shares	210	264	614	(1.833)	495	1.943	858	427	-	-	-	-	-	-	-	-	-	-	
Share based compensation	(89)	(77)	(176)	(146)	(174)	(280)	(302)	(167)	(172)	(172)	(175)	(178)	(181)	(182)	(184)	(186)	(189)	(192)	
Minority interest earnings	(17)	(7)	-	(8)	4	4	4	3	3	3	3	3	3	3	3	3	3	3	
Decrease (increase) in noncontrolling interests		(2)	(2)	18	(1)	(1)	(2)	10	0	0	0	0	0	0	0	0	0	0	
Flows to equity holders	163	235	542	(1.854)	479	1.899	904	731	95	98	101	96	104	120	130	142	146	147	
Cash flow available to investors	414	357	836	(7.868)	2.286	2.723	(2.586)	1.477	63	2.010	1.601	1.498	1.742	1.865	1.814	989	155	158	

Operating Model

	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028
Beef Unit																		
Weekly capacity ('000 Heads)	175	174	173	173	176	165	162	156	157	159	161	162	164	165	167	168	170	172
Annual capacity ('000 Heads)	9.100	9.048	8.996	8.996	9.152	8.580	8.424	8.112	8.190	8.268	8.347	8.426	8.507	8.588	8.670	8.753	8.837	8.921
Utilization rate (%)	81%	76%	78%	77%	73%	76%	80%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%	85%
Annual Production ('000 Heads)	7.371	6.876	7.017	6.927	6.681	6.521	6.739	6.895	6.961	7.028	7.095	7.163	7.231	7.300	7.370	7.440	7.511	7.583
Average Revenue per Head (\$)	1.838	2.000	2.052	2.335	2.580	2.226	2.200	2.244	2.271	2.234	2.212	2.205	2.197	2.181	2.160	2.152	2.150	2.148
Segment Revenue ('000 000\$)	13.549	13.755	14.400	16.177	17.236	14.513	14.823	15.473	15.808	15.698	15.692	15.792	15.889	15.920	15.921	16.009	16.152	16.287
Y/Y % Growth	-	1,5%	4,7%	12,3%	6,5%	-15,8%	2,1%	4,4%	2,2%	-0,7%	0,0%	0,6%	0,6%	0,2%	0,0%	0,6%	0,9%	0,8%
Pork Unit																		
Weekly capacity ('000 Heads)	448	448	444	445	456	456	456	458	464	471	478	484	491	498	505	512	520	527
Annual capacity ('000 Heads)	23.296	23.296	23.088	23.140	23.712	23.712	23.712	23.816	24.153	24.495	24.841	25.193	25.549	25.911	26.277	26.649	27.026	27.408
Utilization rate (%)	89%	90%	88%	86%	88%	91%	93%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%
Annual Production ('000 Heads)	20.733	20.966	20.317	19.900	20.867	21.578	22.052	21.196	21.496	21.800	22.109	22.421	22.739	23.060	23.387	23.718	24.053	24.393
Average Revenue per Head (\$)	263,34	262,80	266,18	316,78	252,17	227,50	237,53	230,18	234,11	223,17	230,01	232,52	233,34	235,16	236,97	237,50	238,92	239,35
Segment Revenue ('000 000\$)	5.460	5.510	5.408	6.304	5.262	4.909	5.238	4.879	5.033	4.865	5.085	5.214	5.306	5.423	5.542	5.633	5.747	5.838
Y/Y % Growth	-	0,9%	-1,9%	16,6%	-16,5%	-6,7%	6,7%	-6,9%	3,1%	-3,3%	4,5%	2,5%	1,8%	2,2%	2,2%	1,6%	2,0%	1,6%
Chicken Unit																		
Weekly capacity ('000 Heads)	46.000	47.000	47.000	40.000	39.000	39.000	39.000	42.000	42.406	42.816	43.230	43.648	44.070	44.496	44.927	45.361	45.800	46.242
Annual capacity ('000 Heads)	2.392.000	2.444.000	2.444.000	2.080.000	2.028.000	2.028.000	2.028.000	2.184.000	2.205.117	2.226.439	2.247.967	2.269.703	2.291.649	2.313.807	2.336.180	2.358.769	2.381.576	2.404.604
Utilization rate (%)	92%	88%	87%	90%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%	89%
Annual Production ('000 Heads)	2.200.640	2.150.720	2.126.280	1.872.000	1.804.920	1.804.920	1.804.920	1.943.760	1.962.555	1.981.531	2.000.691	2.020.036	2.039.568	2.059.289	2.079.200	2.099.304	2.119.603	2.140.098
Average Revenue per Head (\$)	5,01	5,29	5,17	5,94	6,31	6,05	6,32	6,20	6,39	6,48	6,59	6,71	6,70	6,67	6,70	6,68	6,72	6,76
Segment Revenue ('000 000\$)	11.017	11.368	10.988	11.116	11.390	10.927	11.409	12.044	12.538	12.846	13.183	13.554	13.664	13.732	13.936	14.033	14.253	14.476
Y/Y % Growth	-	3,2%	-3,3%	1,2%	2,5%	-4,1%	4,4%	5,6%	4,1%	2,5%	2,6%	2,8%	0,8%	0,5%	1,5%	0,7%	1,6%	1,6%
Prepared Foods Unit																		
Weekly capacity ('000 000 Pounds)	45	46	49	85	78	78	88	77	78	78	79	79	80	81	81	82	83	83
Annual capacity ('000 000 Pounds)	2.340	2.392	2.548	4.420	4.056	4.056	4.576	4.004	4.036	4.068	4.101	4.134	4.167	4.200	4.234	4.268	4.302	4.336
Utilization rate (%)	85%	85%	83%	86%	87%	84%	85%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%	86%
Annual Production ('000 000 Pounds)	1.989	2.033	2.115	3.801	3.529	3.407	3.890	3.443	3.471	3.499	3.527	3.555	3.583	3.612	3.641	3.670	3.699	3.729
Average Revenue per Pound (\$)	1,62	1,59	1,57	1,03	2,22	2,16	2,02	2,52	2,58	2,58	2,62	2,67	2,71	2,75	2,79	2,84	2,88	2,93
Segment Revenue ('000 000\$)	3.215	3.237	3.322	3.927	7.822	7.346	7.853	8.668	8.947	9.028	9.251	9.482	9.707	9.937	10.172	10.414	10.672	10.932
Y/Y % Growth	-	0,7%	2,6%	18,2%	99,2%	-6,1%	6,9%	10,4%	3,2%	0,9%	2,5%	2,5%	2,4%	2,4%	2,4%	2,4%	2,5%	2,4%
Others Unit																		
Segment Revenue ('000 000\$)	127	167	1.370	1.381	879	380	349	305	305	305	305	305	305	305	305	305	305	305
Y/Y % Growth	-	31,5%	720,4%	0,8%	-36,4%	-56,8%	-8,2%	-12,6%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%	0,0%
Intersegment Sales Unit																		
Segment Revenue ('000 000\$)	(1.102)	(982)	(1.114)	(1.325)	(1.216)	(1.194)	(1.412)	(1.317)	(1.453)	(1.466)	(1.503)	(1.540)	(1.577)	(1.614)	(1.652)	(1.692)	(1.734)	(1.776)
In % of Prepared Food sales	34,3%	30,3%	33,5%	33,7%	15,5%	16,3%	18,0%	15,2%	16,2%	16,2%	16,2%	16,2%	16,2%	16,2%	16,2%	16,2%	16,2%	16,2%

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Buy	Expected total return (including expected capital gains and expected dividend yield) of more than 10% over a 12-month period.
Hold	Expected total return (including expected capital gains and expected dividend yield) between 0% and 10% over a 12-month period.
Sell	Expected negative total return (including expected capital gains and expected dividend yield) over a 12-month period.

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Tyson Foods, a Case of Successful Strategic M&A Growth

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Abstract

Companies in mature industries have a constraint on organic growth. Market leaders typically avoid the stagnation trap with an aggressive M&A strategy, Tyson Foods being a textbook example of such a reality. This paradigm assumes that the latent synergies of the combined businesses, allow the acquirer to pay a price premium. However, empirical evidence has questioned this theory, as a considerable share of M&A transactions have been shown to destroy value. Thus, even though the materialization of synergies may not be “low-hanging fruit”, considering past successes, it is believed that Keystone and future acquisitions have a strong value-adding potential, despite the international challenges.

Keywords: M&A, Synergies, Limits on organic growth.

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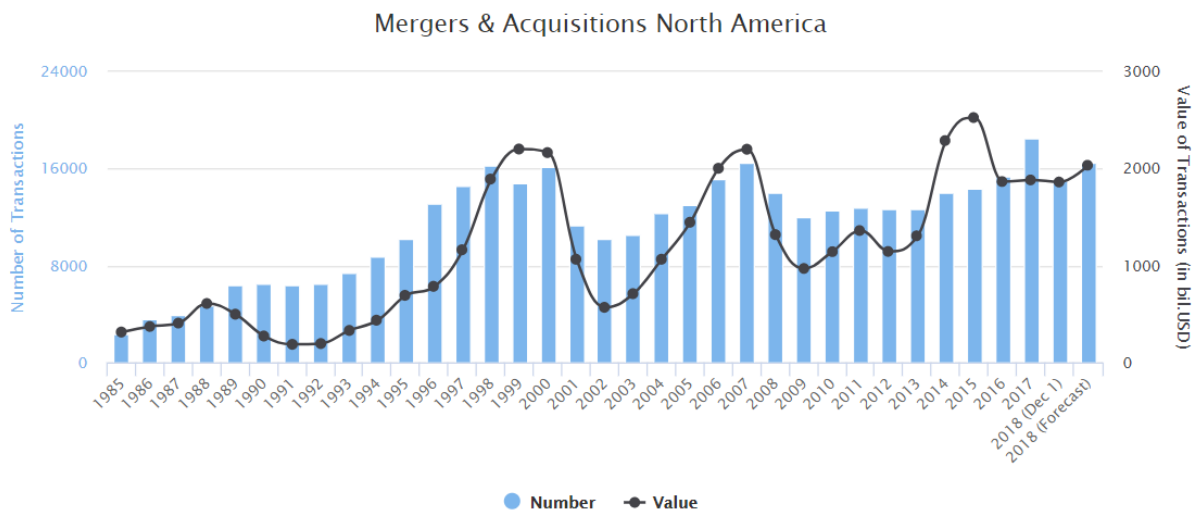
Contextualization

In a well consolidated food and beverage industry with low growth, as in the United States, the most efficient way of sustaining growth is through acquisitions and through global expansion. During 2018 first three quarters alone, there were 157 transactions in the industry, 40% of which by Tyson's direct related parties (Capstone Headwaters, 2018). Historically most of the growth observed in Tyson is related to acquisitions throughout its value chain, and through companies that could provide new capabilities, new brands to grow, increased scale/synergies and new geographic markets. It seems that the company have successfully acquired and integrated these new businesses throughout the years maximizing their synergies and dispose what wasn't aligned with the company core strategy. Thus, Tyson built a truly diversified portfolio within the protein industry due to heavy M&A activity. The purpose of this report it to analyse if, indeed, the biggest Tyson's acquisitions of the 21st century generated the desired synergies/growth and to analyse if the recent acquisitions will be the launchpad for the company's future growth.

Acquisitions' Impact on Valuations

General literature points out that more than half of M&A transactions destroy value for the buyer instead of realizing the proposed "synergies" announced upfront purchasing (The Boston Consulting Group and Technische Universität München, 2013). In fact, two out of three transactions fail to deliver shareholders returns at least in the short run. However, corporate consolidation continues to be a phenomenon highly seen in modern economies, such as the U.S. as it can be perceived in the graph below¹.

¹ Source: *IMAAanalysis; imaa-institute.org*



Therefore, it is perfectly understandable to raise the question of why the number and volume of M&A keeps increasing throughout the years, given these hard historical evidence.

There are 4 main drivers for a company to pursue a successful inorganic growth strategy (McKinsey & Company, 2017):

1. Take advantage of the buyer scale, client base, distribution network, cost structure, marketing capabilities, etc. to improve the targets profitability and performance.
2. Remove capacity from the market to effectively “control” prices and decrease competition in a way that sustainable margins can be developed. Also, to become bigger since organic growth is generally much slower in achieving the same market share.
3. Get access to technologies that otherwise would be hard to develop internally or too costly to be outsourced, new capabilities.
4. Identify related targets in order to diversify business risk and the acquirer portfolio.

Most targets identified along the supply/value chain

Nonetheless, it is important to refer that if the buyer overprice the target, no synergy will ever be proven to positively impact shareholder’s returns.

Besides the above-mentioned benefits on the company's value there are other not so obvious impacts on a company valuation due to M&A activity. For instance, by buying a foreign company and move the merged entity's tax base overseas to a lower-tax jurisdiction, will substantially reduce its tax bill. This behaviour was commonly seen in countries as the U.S.A. since until recently it had one of the highest corporate tax rates in the developed economies landscape (Congressional Budget Office, 2017). Furthermore, M&A will change the company's Capital Structure and impact its WACC. Whereas these operations normally require increases in a company's indebtedness, the higher debt share may well be justified by the added cash flows contributed by the target firm. Lastly, among many other not analysed in this report, another reason to buy a company is the accretive acquisition where a company with a higher price-earnings ratio acquires a firm with a lower ratio. This way the merged company will have a boost in its earnings per share without creating any additional intrinsic value.

Integration Track Record, Strategic Acquisition Growth

Throughout the 21st century Tyson have been involved in some large acquisitions following its strategy referred in the main report as we can observe with higher detail in Appendix 1. For the purpose of this report it is only going to be discussed the integration of Tyson's 3 major acquisitions: IBP (2001), Hillshire Brands (2014) and Advanced Pierre (2017). Back in 2001 Tyson was already a multinational company but with a sole focus on chicken integrated production. It was with the acquisition of IBP that Tyson become a truly diversified business and built the business units it operates under, nowadays. This \$4,6 b investment made Tyson's sales more than double in just one year from 10,5 b up to 23,3 b as well as its net operating income rose in about 400% and its earnings per share passed from 0,4\$ up to 1,08€. This acquisition was paid partially with 1,7 b in cash, 1,2 b by issuing class A shares and the 1,7 b in debt IBP had was assumed as a way of payment. Approximately, 1,8 b was generated in goodwill. This premium was justified due to all the future benefits the acquisition would bring.

These benefits happened to be verified with the pass of time as the share price more than double ever since pass the acquisition until now being this purchase one of the key enablers of Tyson's current success. The more recent acquisitions of Hillshire Brands and Advanced Pierre produced the same good results as IBP did back in 2001 however this acquisition were related with the company strategy of moving from its commodity business to the Value-added branded segment. Furthermore the acquisition of Hillshire Brands allowed the company to reduced it COGS in percentage of sales from about 90% to around 85% which impact massively Tyson's profitability.

Tyson's Future Outlook

With the change of CEO occurred in September 2018 the strategic focus of the company is being leaned more than ever upon international growth. The acquisition of Keystone Foods, happening in the first quarter of 2019 will set the pace at which this strategy will success or fail. Keystone is a leading provider of chicken, beef, fish and pork to the growing global foodservice industry such as Asia Pacific region, Europe, the Middle East and Africa. This will be the perfect opportunity for Tyson to take advantage of the growth experienced in international markets at the same time it will deliver new IT capabilities and benefit from Tyson scale as it happened in the past. To sum up, based on the company's past acquisitions we do believe that the company will be able to integrate this new business however it is still unclear if it will be able to succeed in foreign markets giving all the international instability and its past failures at Brazil, Mexico and partially in China.

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APPENDIXES

1. Tyson’s Major M&A Deals in the 21st Century; *Source: Company’s 10-K Reports*

	2001	2002	2008	2009	2011	2013	2014	2017	2018
Aquisitions	Business unit impacted: Beef, Pork and Prepared Foods	Business unit impacted: Prepared Foods, Pork	Business unit impacted: Chicken	Business unit impacted: Others, Chicken	Business unit impacted: Others, Chicken	Business unit impacted: Prepared Foods	Business unit impacted: Prepared Foods	Business unit impacted: Prepared Foods, Chicken	Business unit impacted: Prepared Foods, Chicken
	Description: *(A) IBP, inc., the world’s largest supplier of premium beef and pork products at the time, and its Foodbrands prepared foods division.	Description: *(A) Acquisition of Millard Processing Services, a bacon processing operation	Description: *(A) Acquired 51% of Godrej Foods, a poultry processing businesses in India *(B) Acquisition of Macedo, Avita and Frangobrás chicken companies in southern Brazil.	Description: *(A) Investment on 60% of the capital of the now designed Tyson Xinchang Foods	Description: *(A) Became 100% owner of the poultry operation in the Shandong province of China. Now known as Tyson Shandong.	Description: *(A) Assets of Don Julio Foods of Utah	Description: *(A) Acquisition of Hillshire Brands *(B) Acquisition of a Value added food business	Description: *(A) Acquisition of Advanced Pierre *(B) Acquisition of Original Philly Holdings, Inc.	Description: *(A) Acquisition of American Proteins, Inc., AMPRO Products *(B) Acquisition of Keystone foods announced 1st quarter 2019 *(C.) Acquisition of Tecumseh Poultry, LLC
	n.a.	Business unit impacted: Prepared Foods, Pork	n.a.	Business unit impacted: Beef	Business unit impacted: Chicken	Business unit impacted: Chicken	Business unit impacted: Prepared Foods	Business unit impacted: Prepared Foods	n.a.
		Description: *(D) Mallard’s Foods processing plants		Description: *(D) Sold Canadian Beef operations, Lakeside	Description: *(D) Harrisonburg, Va., poultry complex sold to George’s, Inc.	Description: *(D) Sold assets in Weifang, China.	Description: *(D) Sold Mexican poltry operations *(E.) Sold Brazilian poltry operations *(F) sold 50 percent ownership interest of Dynamic Fuels LLC	Description: *(D) Sale of a non-protein business, Kettle *(E.) Sale of non-protein Sara Lee Frozen Bakery and Van’s businesses *(F) Sale of non-protein TNT Crust business	
Disposals	n.a.	Description: *(E.) Sale of Specialty Brands, Inc., acquired in the IBP acquisition	n.a.						

Acquisition Price	A	4.600	73	50	114	66	52	8.244	3.217	866
	B	-	-	83	-	-	54	56	226	2.160
	C	-	-	-	-	-	-	-	-	382
in millions (\$)		4.600	73	133	114	66	106	8.300	3.443	3.408
Sale Price	D	-	n.d.	-	147	n.d.	n.d.	374	125	-
	E	-	131	-	-	-	-	148	623	-
	F	-	-	-	-	-	-	30	57	-
in millions (\$)		0	131	0	147	0	0	552	805	0

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TRUMPING BUSINESS VALUE

The effects of the tax cuts and jobs act on corporate value

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Abstract

Historically burdened by a high corporate tax environment, the so-called Tax Cuts and Jobs Act, enacted in December 2017, aimed to increase the country’s international tax competitiveness. In practice, this meant multi-million tax relieves for American corporations, with soaring market valuations. Increasing cash available to shareholders, its short-term impact seems undoubtable, however secondary effects companies’ optimal capital structure and the effectiveness of the application of the reform’s cash blessing are yet to be determined, and the very sustainability of the reform is yet questionable. Thus, prudence in the forecast of future tax payments is advisable.

Keywords: Trump tax reform, Tax Act, Tax impact in valuation, Tax savings.

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Contextualization

Historically, the United States have had one of the highest corporate tax rates of the developed countries, as depicted in Exhibit 1 (CBO, 2017). This reality has prompted American companies to develop intricate tax avoidance schemes, mainly by moving corporate centers outside of the U.S.

Exhibit 1: Corporate Tax Rates in selected G20 countries in 2012, %



Source: Adapted from the Congressional Budget Office.

The Tax Cuts and Jobs Act

Signed into law by President Trump on December 22th, 2017, the Tax Cuts and Jobs Act (hereafter referred to as Tax Act) is described as the most sweeping tax legislation since the Tax Reform Act of 1986 (Smith & Howard, 2018).

Main changes for businesses at a glance:

- 1. Reduction of the corporate income tax rate to 21%:** starting in 2018, this represents a significant reduction to the former rate of 35%.

2. **Changes in credits and deductions:** limiting the deductibility of net interest expense to 30% of EBIT¹, the elimination of domestic production activity deduction or net operating loss carrybacks and limiting carryforwards to 80% of taxable income (Tax Foundation, 2017) can materially impact the taxable income.
3. **Move to a territorial tax system:** traditionally the U.S. applied a so-called worldwide tax system². With the new system, corporations only pay the U.S. tax rate for U.S. generated income. Base erosion rules, relating to Controlled Foreign Operations (CFC)³ where strengthened, changing dispositions on the base erosion payment's calculation, an introducing GILTI⁴.

Impacts on Valuation

The Tax Act has a twofold effect for valuation purposes, on the one side it reduces the corporate tax rate, and on the other side it introduces changes to the determination of the taxable income. These effects impact the following valuation metrics:

1. **Unlevered Free Cash Flows:** operating cash taxes are expected to decrease for most companies in the U.S., which increases UFCF's as a direct consequence. Even though the effect may seem straightforward, changes in deductions and other provisions affecting taxable income can unfold differently amongst different companies.
2. **WACC:** the marginal tax rate is a direct input of the WACC formula, for its impact on the cost of debt (debt tax shield), which is expected to increase. Nonetheless, indirect effects in the cost of equity due to the increased uncertainty on the achievement of the expected cash flows, as changing political majorities could revert the Tax Act's

¹ In the first four years 30% limit is applied to EBITDA.

² U.S. based corporations payed tax on their global revenues, deducting a credit for taxes paid to overseas countries.

³ Provisions typically targeting "highly mobile passive income" such as dividends, interest royalties, etc. (Tax Foundation, 2017)

⁴ New provision to tax Global Intangible Low-Taxed Income.

changes. This material change in the cost of equity and debt, can change the capital structure, making the overall effect in the WACC uncertain and, again, dependent on company specificities (EY, 2017).

3. **Terminal Value:** certain provisions of the Tax Act are temporary, e.g. “Temporary 100 percent expensing for certain business assets”⁵, or the “New employer credit for paid family and medical leave”⁶, according to the Internal Revenue Service (2018). Considering such temporary incentives in the perpetuity calculation may lead to valuation errors.
4. **ROIC:** incentives to repatriate overseas money and generally lower taxes leaves companies “sitting” on a pile of money. Thus, it become pivotal to address how companies are planning to use this cash. As pointed out by Deloitte (2018), the 2004 Bush tax break lead to increased M&A activity and share buyback programs. Other possibilities such as debt repayments or increased dividends are also likely to be considered. The resulting allocation decisions will impact the Invested Capital and ROIC.

Summing up, even though the company-specific implications are not yet fully known, the 12% soar in the S&P 500 index between September 2017, when Tax Reform first became the center of political attention, and the end of January 2018, when the Tax Act was enacted (St. Louis Business Journal, 2018), seems to point for the overall positive market sentiment on company value impact.

⁵ Allows 100% expensing for business property acquired and placed in service after Sept. 27, 2017 and before Jan. 1, 2023.

⁶ Allows a tax credit on ages paid in taxable years beginning after December 31, 2017, and before January 1, 2020, for paid family and medical leave.

The case of Tyson

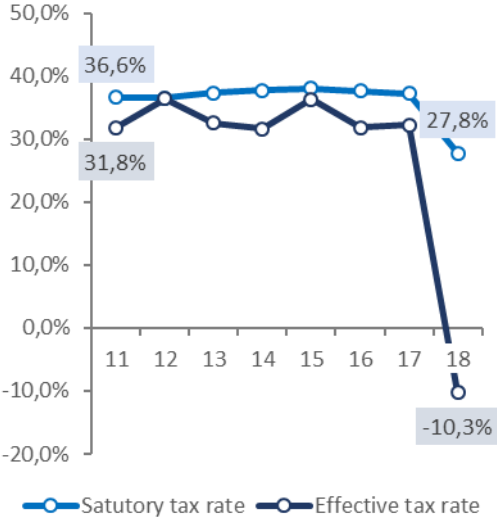
Tyson Foods’ fiscal year does not coincide with the calendar year, the impacts of the Tax act were not fully felt in fiscal 18 (FY18), as a blended federal income tax rate of 24,5% was applied.

According to the company, the Tax Act resulted in a benefit of \$1.004 million in FY18, mainly due to deferred tax remeasurement (Tyson Foods, 2018).

This yielded a negative effective tax rate for FY18 of -10,3%, check Exhibit 2. As a result, the

company announced a one-time cash bonus of \$100 million to its employees (Tyson Foods, 2018).

Exhibit 2: Tyson Foods tax rates, 2011-18, %



Source: Company data.

In order to fully understand the tax impact a simulation was prepared, in which the base case considers a moderate tax scenario, with the statutory tax rate remaining 27,8% on average in the future. Alternatively, the aggressive case considers

Exhibit 3: Tyson Foods tax valuation scenarios

	Scenario		Comments
	Base case	Aggressive case	
Cost of equity, %	6,6	6,6	(1)
After-tax cost of debt, %	1,5	1,1	
WACC, %	5,9	6,0	
Average operating cash taxes, million \$	911,0	739,0	
Average operating cash taxes, %	26,6	20,1	
Enterprise value, million \$	36.944,5	40.167,6	(2)
Equity value, million \$	26.520,5	29.753,7	
Expected value per share, \$	71,9	80,6	(3)

Note: (1) Ignores the risk effect in the beta and market risk premium; (2) Ignores the allocation of excess cash; (3) Ignores potential effects of share buybacks.
Source: Analysts Estimates.

full materialization of the Tax Act in perpetuity. Exhibit 3 shows the main impacted metrics and the effect on intrinsic value.

Outlook

Given the lack of popular support for the Act with an approval rate of 46% (Bloomberg, 2018), which is low for a structural reform, even more so considering it is a tax decrease, and strong opposition from democrats, as this is viewed as a Republican flagship, practitioners have been questioning the sustainability of these tax cuts. Nonetheless, the evidence that a 35% corporate tax rate is high for a developed economy and the unpopularity of tax raises in general, seem to make a plain repeal of the bill unlikely, but should democrats win the 2020 elections, the Tax Act is likely to be rewritten. Moreover, the OECD has declared the fight against base erosion and profit-shifting one of its priorities for the upcoming years, and pressures are mounting up on low-tax jurisdictions to revoke certain dispositions. On the long-run this could imply a slightly higher effective tax rate than one could assume.

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