Specialty Value Retailing, USA
Date: 01/18/2019 **Ticker: FIVE (NASDAQ)**
Industry: Consumer Staples – Discount Stores
Valuation as of 01/11/2019

Investment Summary

We issue a hold recommendation on FIVE with target price of $108.86, -7.4% on the closing price of $117.57 as of 01/11/2019. Our investment summary focuses on the following key highlights:

1) Attractive top and bottom-line growth fueled by fast expansion and great same store sales.

FIVE has been growing its stores rapidly with CAGR 20% per year since 2013. This resulted in higher growth in revenue and earnings compared to competitors. The reason FIVE was able to do this was because FIVE still has huge market potential since it is now focused on the South and Northeast compared to major discount store chains. Brand awareness for FIVE has increased significantly in the past several years due to the rigorous marketing campaign and store expansion. FIVE expansion strategy focuses on penetrating deeper into existing markets such as the Northeast and South, and expanding its footprint in the Midwest and the West. Also, consistent store openings keeps FIVE reinvesting cash into new stores which translates into more cash given the growing popularity. In fact, 80% of same store sales growth comes from the 1st year after the store is opened. In addition to fast expansion, same store sales has maintained higher than other competitors due to FIVE dynamic product and pricing mix that is tailored to kids and teens.

2) Stable risk hedging strategies against growing uncertainty on tariffs and economic condition.

FIVE is exercising multiple hedging strategies for the biggest risk – trade tariffs. Several notable steps that have been taken include 1) maintaining negotiation power over Chinese suppliers for their import price guarantee, 2) constantly looking for optimal pricing mix on popular products, and 3) slowly outsourcing certain products in other countries besides China. Other risks are mitigated to different levels as well. Freight costs are a main concern since FIVE relies on third-party freight lines that are subject to fuel price increase and labor strikes. FIVE is planning on purchasing more distribution centers to reduce the risks from warehousing and shipping. One major grey area is the handling of store leasing obligations, because given rapid expansion, the operating leasing obligation has grown substantially. However, FIVE will be required to pay it off in the long run. We are concerned about this issue, which is often overlooked with operating lease obligation off-balance sheet. FIVE will need additional liquidity to satisfy even short-term leasing obligations.

3) New store opening might compromise store performance.

Even though FIVE has continued a rapid pace of new store openings, we are concerned that the expansion might be costly. New stores contribute 80% of same store sales growth against 20% from existing stores (open more than 15 months). The expansion had counter effects on the existing stores with $0.11 million decrease in annual sales per store in 2018. It seems that FIVE is compromising store performance in order to gain market share. We are concerned that the rapid expansion may result in operational inefficiency and declining margins if the store performance is not improved. Amid rougher economic outlook, we will be cautious about management's expansion decision.

Business Description

FIVE is a specialty value retailer with headquarters based out of Philadelphia, Pennsylvania. After being privately owned since 2002, FIVE completed its IPO on July 19, 2012 and is now listed on the NASDAQ Global Select Market. FIVE offers dynamic, trend-right merchandise, all for $5 or below, targeting the teen and pre-teen customer. FIVE has been accelerating its expansion across the Northeast, South, Midwest and West regions of the United States operating a total of 750 locations as of 2018 year-end with plans to reach 2,500 total stores long term.

Products and Customers. The typical FIVE store offers products across 8 major categories including Style, Room, Sports, Tech, Create, Party, Candy and Now. These can further be categorized into: **Leisure (~51.7%), Fashion and Home (~31%), and Party and Snack (~17.30%) (Fig. 1) (Appx. 2).** Leisure includes items such as sporting goods, games, toys, tech, books, electronic accessories, and arts and crafts which is the main traffic driver to the store. Fashion and home is a growing segment including items such as personal accessories, "attitude" t-shirts, beauty offerings, home goods and storage options. Products include both private labels representing ~1/3rd of store sales as well as brand names such as Disney, Lego, Star Wars, Marvel, etc. The focus is on trend-right products targeting **ages between 5 and 19** (~66 million people in U.S. or ~20% of US population equivalently as of 2018). Products come from approximately 800 different vendors with no single vendor representing more than 7% of purchases and no long-term supply agreements. And FIVE sourced 65% of its products from domestic vendors but the actual product manufacturers are mainly Chinese.

Geographic Locations. FIVE has operated **750 stores throughout 33 States in the Northeast, South, Midwest and West regions (Fig. 2) (Appx. 4&6)** where the population is at least 100,000. Each store averages 8,000 square feet and are all obtained through lease agreements. Store location is mostly targeted towards urban, suburban and semi-rural shopping centers with high traffic and visibility. New store openings transpire within both new and existing markets. Existing markets help drive brand awareness and advertising efficiencies. Thus, when moving into new markets, FIVE uses densification by opening multiple stores simultaneously to expand brand awareness and cut pre-opening costs. FIVE also leases distribution centers in Pedricktown, New Jersey (800,000 sq. ft.) and Olive Branch, Mississippi (600,000 sq. ft.) and plan to purchase Southeast distribution centers in 2019 to support projected growth. These distribution centers account for over 85% of merchandise with the remaining shipped directly from vendors.

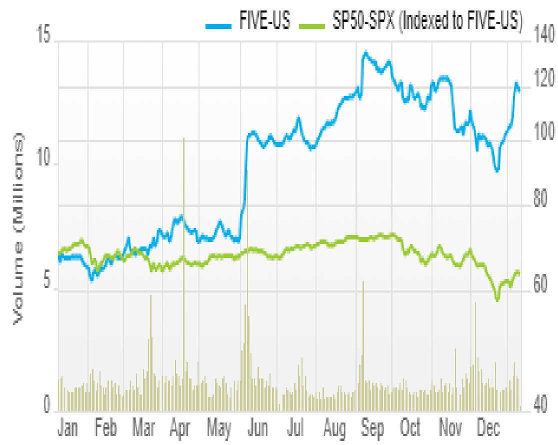
Business Strategies. **New and same store growth** remains at the top of the list for FIVE's market strategy. Following a rigorous site selection process and densification strategy, FIVE opened a total of 125 stores in 2018, a new store growth of 20%. Comparable sales also grew by 3.3% in 2018 driven by a **differentiated shopping experience driving store traffic,** a target in FIVE's strategy. Store shopping experience focuses on an engaging and stimulating atmosphere by creating an easy to navigate flow and

Recommendation

HOLD	
Share Price	$117.57
Target Price	$108.86
Potential	-7.4%

Key Figures

52 Week Range	$60.00-$136.13
Avg Daily Vol (3 Mo)	1,119,546.5
Basic Shares Out.	55.8
Market Cap	6,428
Enterprise Value	6,355
Float	97.30%
TTM P/E	50.3x
Beta	1.1
IPO Date	7/19/2012



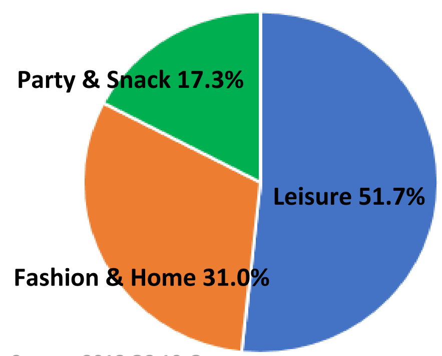
Source: FactSet

Valuation

DCF (75%)	$106.48
EV/EBITDAR (12.5%)	$114.42
PEG (12.5%)	$116.86
Target Price	$108.86

Financial Metrics	2016	2017	2018 Q3
EBITDA Margin	14.05%	14.91%	10.55%
Net Profit Margin	7.18%	8.02%	6.31%
FCF Yield	2.98%	2.85%	0.76%
Same Store Sales	2%	6.50%	4.80%
EPS	1.30	1.84	1.08
Revenue Growth %	20.25%	27.77%	21.64%
Number of Stores	522	625	745

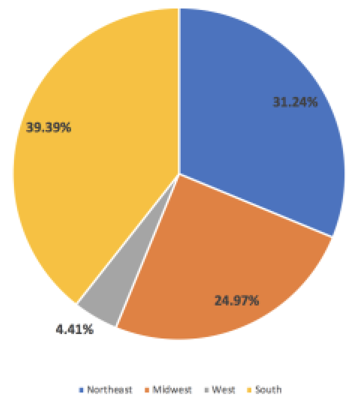
Figure 1: Sales by Business Segments



Source: 2018 Q3 10-Q

a dynamic product display. This approach encourages hands-on interaction with products creating an element of discovery, and has helped to maintain its customer retention. FIVE also focuses on **increasing brand awareness** through the use of newspaper circulars, television, digital, and local community marketing **(Appx. 5)**. The e-commerce site creates an extension of brick and mortar stores to expand customer base and experience. Through this strategy, FIVE continues to increase brand awareness since 2016 driving the 20% net sales per store. Increased net sales coupled with increased store base has helped leverage the cost structure and ultimately **enhanced operating margins**, a priority in FIVE's strategy. Gross margins have maintained consistent year over year and have increased by 5% in 2018. In addition, FIVE is able to continue widening margins through capitalization on supply chain opportunities. Supply chain is imperative as FIVE aims to **invest in trend-right merchandise and time to market**. According to CEO, Joel Anderson, FIVE stays up-to-date on the latest trends through feedback from customers, social media, and keeping an open line of communication between the field and home office. FIVE reduces its time to market by sourcing approximately 65% of its products from domestic vendors and utilizing its store densification strategy. This also helps reduce distribution costs allowing for an **exceptional value proposition for customers**, a target focus for FIVE. Maintaining a collaborative relationship with vendors and capitalizing on excess inventory opportunities further helps FIVE achieve high quality products at exceptional value price points of $5 and below **(Fig. 3)**.

Figure 2: Store Locations by Regions



Source: FIVE Website

Figure 3: Business Strategy

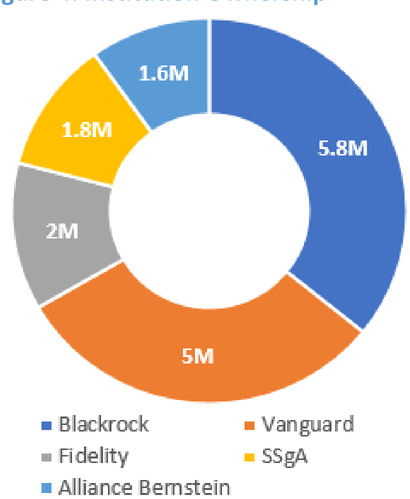
Source: 10-K, Team Assessment

Corporate Governance

Management and the Board of Directors. FIVE management and board has a total of 18 members with an average tenure of 6.02 years of service with the firm **(Appx. 9b)**. The Board is led by Executive Chairman and Founder, Thomas G. Vellios. The Board meets at least 4 times a year with directors expected to attend a minimum of 75% of meetings per year. The Board maintains an independent stance by ensuring no less than a majority of its members are independent directors. The current composition of the Board is sufficiently independent with 80% of the directors having an independent affiliation with the firm, and it is adequate to state that the firm is at no risk of entrenchment. The positions of chairman and CEO are held by different individuals, but the firm holds no fixed policy on separating or combining the responsibilities. **Management only attends board meetings per invitation and, upon invitation; management is expected to provide insight into the core business operations driving the firm.** President and CEO, Joel Anderson, has over 20 years of senior leadership experience in the retail industry with most notably holding past positions as President and CEO of Walmart.com and SVP for marketing at Babies "R" Us. Kenneth Bull acts as CFO, Treasurer and Public Accounting Officer of FIVE with other leadership experiences in the retail industry such as Urban Outfitters. Compensation of senior management is slightly under other industry competitors. Other notable senior management would include Eric Specter (CAO), David Makuen (EVP of Marketing and Strategy) and George S. Hill (EVP of Operations).

The Committees. The Board maintains three committees (Audit Committee, Compensation Committee and Nominating and Corporate Governance Committee). Each committee has a charter that has been approved by the Board and each committee is to be composed of independent members unless allowed under certain law. One of the most notable responsibilities is to maintain succession planning for management and board members. Both the Compensation Committee and the Nomination and Corporate Governance Committee control management succession and selection of key roles. The Nomination and Corporate Governance Committee holds the responsibility of filling any unexpected departures from the Board and maintaining the integrity of the firm's long-term business plans. In time of need, the committee's intended plan of action for above-mentioned items would be then sent to the overall Board for final approval. The Nominating and Corporate Governance Committee has the responsibility of suggesting qualified individuals to serve on the Board, also considering any individuals nominated by the company's shareholders. As stated in FIVE's corporate governance guidelines, such nominees should possess a strong record for integrity and business success. The committee takes into account the experience, conflicts of interest, and an overall willingness to serve the Board.

Figure 4: Institution Ownership



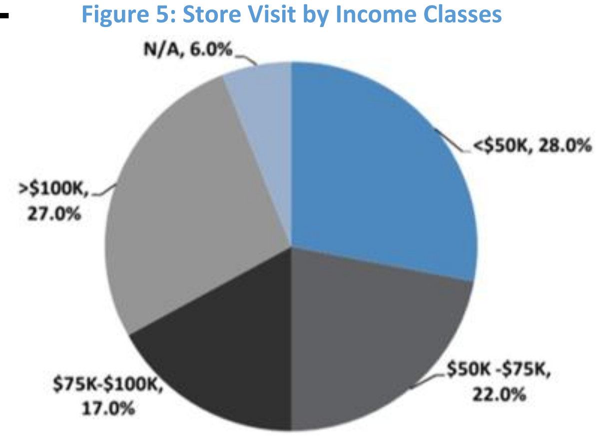
Source: FactSet

The Shareholders. Insider stakeholders represent 2.5% ownership of total outstanding shares with the Chairman and Founder, Thomas Vellios, holding nearly half of the 2.5% shares **(Appx. 9a)**. The rest 97.5% of shares are owned by institutions and individuals **(Fig. 4)**. The Board places no restriction on director ownership of company stocks and states that stock ownership has the potential of properly aligning director's interests with that of the firm. Based on the company's corporate governance guidelines, director compensation should be in line with that of peer competitors within the industry and **that a "substantial" amount of director compensation should be tied to overall company performance.** FIVE does not identify important long-term risk factors that can arise when tying compensation to company performance, except during the CEO annual evaluation.

Industry Overview

FIVE faces stable end-market growth but needs to capitalize more growth. Household disposable income has been growing steadily over the last 5 years from $40,000 in 2013 to $47,412 as of Q3 2018. Since this growth represents universal growth across different income classes, we believe that **the disposable income growth for lower income households (less than $75,000), which represents more than 50% of store visits (Fig. 5), will be approximately 4% annually.** There has also been a consistent increase in consumption of non-durable goods excluding gas and energy over the last few quarters. As a result, these households have a potential to spend more in FIVE stores as FIVE keeps expanding to increase its awareness. In addition, U.S. population of over 65 yrs has been increasing while other age groups (15-24 yrs. and 45-65 yrs.) have been decreasing in the last 5 years, indicating that the pre-teens and teens market might experience difficulty. However, because the decline in 15-24 year-old population is fairly small and the increase in 0-15 year-old has offset that decline, we believe that **FIVE is still facing a healthy and growing market of over 65 million pre-teens and teens (5-19 yrs).** In addition, FIVE's current presence and future expansion is focusing on the traffic centers in the East Coast, Southeast, South, and Pacific regions that FIVE could reach more lower income families. However, the widening gap between the expected consumer confidence and consumer spending rate shows worrying sign of the retail outlook; people are holding back current spending while remaining confident on future spending **(Appx. 10)**. We expect the impact to remain

Figure 5: Store Visit by Income Classes



Source: 2017 FIVE Investor Presentation

relatively small for FIVE allowing room for growth into new markets.

Discretionary aspect is offset by growth to mitigate industry cyclicality. Retail is often presented as a homogeneous industry. However, it can be classified into various segments based on business models, geographic locations, and consumer behaviors revolving around the products sold. FIVE's products are differentiated from other competitors which puts it into a more discretionary sector. This means FIVE is exposed more to the economic cycle. But FIVE's 3% market share makes it a growing player in the niche market that reduces cyclicality impact **(Appx. 3)**. Even though the industry is near maturity in the life cycle **(Fig. 6)**, FIVE's growth characteristics have placed it in the growth phase, which helps to mitigate economic cyclicality from the industry.

Industry growth is supported by other industries. Related industries such as food and beverage, apparel, and department stores have mostly enhanced their financials over the last several quarters. This supports FIVE's performance as FIVE offers products from those industries. Also, steady commercial real estate prices have given FIVE an advantage in expansion, because FIVE is able to get favorable terms on future store leases. This substantially reduces rental expenses as FIVE continues its expansion.

FIVE aims to create value for shareholders. From the standpoint of value creation, drivers **such as product quality, convenient locations, and product availability (Fig. 7) are more influential in store-selection decisions than the price.** FIVE has been outperformed in those areas in recent years compared to other competitors. Bringing high street designs at affordable prices, such that premium brands maintain their exclusive tag by partnering with FIVE, has successfully captured a unique niche with target audience. **Constantly changing price points on different products based on trends and seasonality has enabled FIVE to exploit maximum profits while reducing inventory level.** Store location is another important driver for FIVE business. FIVE has expanded its footprint in most parts of the Northeast and we believe it has room for further expansion. Two distribution center purchases in the Southeast and South indicates where FIVE is heading in the upcoming years. **The potential to grow from 750 stores in 2018 to 2,500 stores over the long term demonstrates the confidence of FIVE's management in the expansion.** In addition, FIVE locations span from rural, semi-urban, to urban to reach a vast majority of population in traffic centers (cities with more than 100,000 population). Product availability weighs little but FIVE's reasonable inventory control and store management make finding the right product easy. In fact, FIVE focuses on product presentation to please customers, partnering with private-labeled brands with 1/3 of FIVE sales **(Appx. 7)**. While demand is driven downstream from customers, supply of products is more constrained. More than 70% of goods sold in the discount stores sector are imported from China. FIVE has a negotiation advantage with the suppliers, and we expect as the company grows, the negotiation power will increase. Even though the tariffs might downplay the negotiation power hindering FIVE's financials, **the tariffs impact is still not material when compared to a strong U.S. consumer demand.** Thus, FIVE is able to provide needed and trendy products to customers without major disruption in the supply chain.

Differentiation in products and shopping experience are key in the discount stores sector. Management sets a differentiated tone for FIVE compared to other competitors. While the discount stores sector focuses solely on attracting sales from discounted price, FIVE differentiates itself with **customized, attractive, and exclusive products that focus on teens and drive higher margins (Appx. 8).** And more importantly, management is dedicated to changing the customer's mindset of discount stores. Even though similar products are available in other stores, FIVE provides a **distinguished shopping experience** where the stores are brighter and cleaner, the associates are more friendly, and the goods are fully stacked and properly organized. Based on our research, customers on average are spending more money in FIVE stores on each purchase than they do in other discount stores. We believe FIVE truly delivers a better shopping experience over its competitors. **FIVE will capture additional growth momentum to gain market share in the underserved regions such as the West and Midwest.** Moreover, because FIVE is in a monopolistic competition market with rivalry from other competitors and Amazon, FIVE will need to further differentiate itself to shield from intense competition.

Competitive Positioning

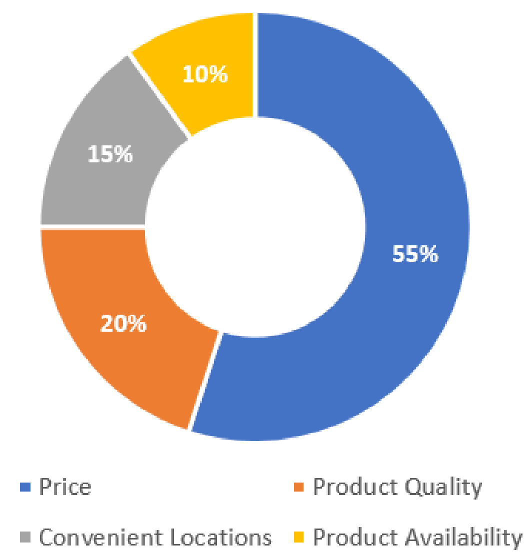
FIVE's unique differentiators set to outlast competitors. FIVE is in the consumer staples industry within a specialty retail market known as discount stores. The discount industry is aggressive with major competitors continuously vying for market share. There are few significant competitors in the industry such as Dollar Tree and Dollar General which experience stagnant growth. **FIVE, on the other hand, has been growing at CAGR 20% over the last 5 years (Fig. 8)**, indicating the business model success from its strategies. FIVE's specialized business model allows higher switching costs as **FIVE markets itself to young families with children.** In addition, the fixed costs are lower than other competitors due to favorable lease terms in stores and outsourced warehousing and shipping services. The most important factor within the discount sector is pricing. Depending on the range of competitors, FIVE is either considered high or low in terms of pricing. FIVE has a higher pricing scheme when compared to Dollar Tree but lower pricing scheme when compared to Amazon or Big Lots. Considering that FIVE already has a committed pricing scheme that is unlikely to change, and that differentiation within low-cost disposable products is difficult to ascertain, FIVE's ability to overcome strong competition within the industry must stem from its unique business model. FIVE places a large degree of confidence that its business model, which is based on the store's ability to create a WOW atmosphere, will drive significant future success. Also, **FIVE's ability to maintain relatively stable cost structure and growing economies of scale help profitability margins.** Considering this, we believe that FIVE is unique amongst its rivals as it aims to differentiate its overall shopping experience offering parents and their children more than just a product. This gives FIVE a competitive advantage in this industry which is highly dominated by pricing. Our SWOT analysis directly points out FIVE's situation in the market **(Appx. 11).**

High barriers for new entrants enable FIVE to focus on growth. FIVE considers threats of new rivals entering the industry on two separate levels. Considering the growing trend of online shopping, the first type of threat is e-commerce retailers that compete in the consumer discretionary industry such as Amazon. The never ending potential of technology and its ability to give e-commerce retailers an edge should not be taken lightly. Given the extensive amount of capital necessary to meet the

Figure 6: Retail Life Cycle

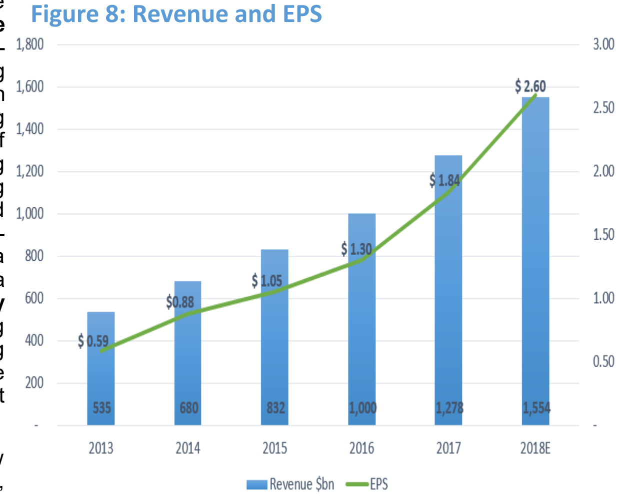
Source: Harvard Business Review

Figure 7: Value Drivers



Source: Team Assessment

Figure 8: Revenue and EPS



Source: 10-K, Team Assessment

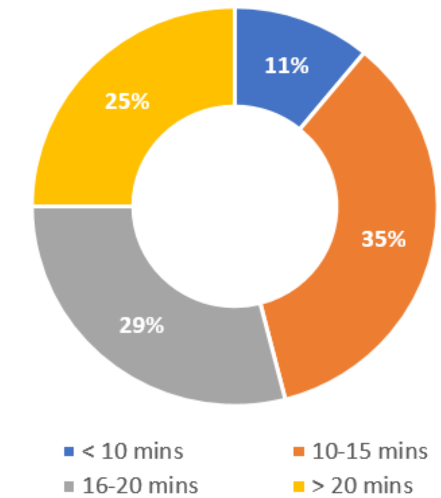
technology and marketing costs of e-commerce firms, the threat of new e-commerce retailers competing with FIVE is moderate. The other threat to FIVE is new brick-and-mortar discount stores entering the industry. Considering that discount stores offer low prices to consumers, economies of scale are of great importance such that the firm can drive down fixed costs per unit. **Achieving extensive economies of scale within an industry is not easy** and is especially difficult for firms in the early stages and not to mention it is difficult for independent firms to procure supply contracts. Given these variables, the threat of entry by new discount stores is relatively low. Furthermore, the discount retail industry is dominated by massive chains such as Wal-Mart, Target, Kroger, and Kmart, that already have well-established customer loyalty across a large portion of the market segment.

Certain customers are relatively sticky to FIVE. The target customer of FIVE is pre-teen and teen age group, which means the buyers are concentrated on the families with those children. David Schlessinger, the co-founder of FIVE, has been in the discount retail industry his entire life, from running a discount bookstore in Philadelphia at the age of 18 to starting FIVE a couple decades later, and he most aptly understands that satisfying his customer base is the cornerstone of his business success. In the retail industry customers at an individual level have a very small amount of bargaining power but as an entire segment, customers can have a lot of bargaining power, demanding the newest trends at the lowest prices. FIVE has been an innovator at both of those ends, combining trendy toys, games and clothes with rock bottom prices. Blending both trends and low prices is the core business model of FIVE. The founders of FIVE understand the customer and understand that pre-teens and teenagers are impulsive buyers attracted to the newest and latest trends. Approximately 89% of customers spend more than 10 minutes in the store and 25% spend more than 20 minutes in the store **(Fig. 9)**. **This demonstrates that teens prefer exploring the store longer than in other discount stores, as FIVE provides attractive and fun products.** Also, FIVE is poised to market over 65 million pre-teens and teens in the U.S. so the buyer's volume is high and unique. Furthermore, FIVE's targeted customer segment has limited disposable income in hand, even as minimal as a weekly allowance, but the products are inexpensive, short-lived, and disposable items that have little profound effect on an individuals well-being. However, the model hinges on reoccurring purchases and providing an attractive store environment which is essential to generating the strong image to customers. **FIVE offers a fun in-store experience where teens and parents can spend their time and money on affordable products.** There is little competition that offers this rare combination which is highly demanded by this buyer group.

FIVE has maintained negotiation power over tariffs. The nature of the retail industry gives suppliers very little power in terms of bargaining privileges when dealing with discount firms. The number of suppliers is numerous while the number of discount retailers is relatively small, each with a clearly defined footprint and business model. So FIVE, a relatively well-established chain discount retail store, gives most suppliers limited negotiation power due to the variety of products it outsources. Even though the largest suppliers like Hasbro and Tootsie would push off the price of their exclusive products **(Fig. 10)**, **hundreds of Chinese suppliers are focused on specific products that would not have enough economies of scale** to negotiate with FIVE. Due to product differentiation and numerous similar suppliers, FIVE does not offer much bargaining room for suppliers to work with, considering that FIVE must keep COGS down to maintain profit margins and to satisfy store policy (keeping prices $5 and below) regardless of product quality. Therefore, it is incumbent for suppliers to keep prices down to FIVE to continue doing business successfully even with potential tariffs. Also FIVE buys in bulk to lower fixed costs, giving the suppliers a high incentive to provide products at a good price.

FIVE faces high threat of substitutes. FIVE offers easily replaceable products that are similar to competitors' merchandise. This gives FIVE a high threat of substitution, but FIVE has the ability to deal with product substitution through its service-orientated business model that has driven most of the company's early success. While many firms can offer these products at a relatively low cost, FIVE has succeeded in being able to offer the in-store experience and certain exclusive brands in toys and beauty products that propels much of it foot traffic. Given that discount retailers offer non-durable products, the ability to continuously attract consumers by giving them more than just a product at a low cost gives FIVE a slight advantage in terms of substitution within the discount retail industry. **But since most products available aren't unique and are available online, there is a risk of losing market share to online and other competitors (Appx. 12a&b).**

Figure 9: Average Store Visit Time Spent



Source: 2017 FIVE Investor Presentation

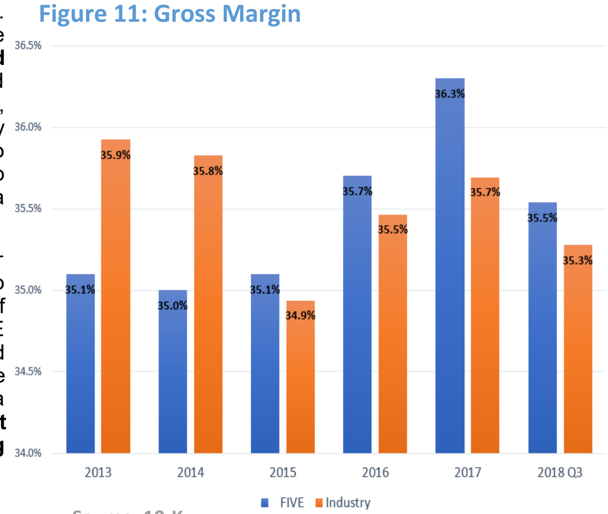
Figure 10: Largest Vendors

Hasbro Inc	0.13%
Tootsie Roll Industry	0.02%
Mondelez International	0.01%
Funko Inc	0.01%

*Quantified as % of COGS as of Q3 2018

Source: Bloomberg

Figure 11: Gross Margin

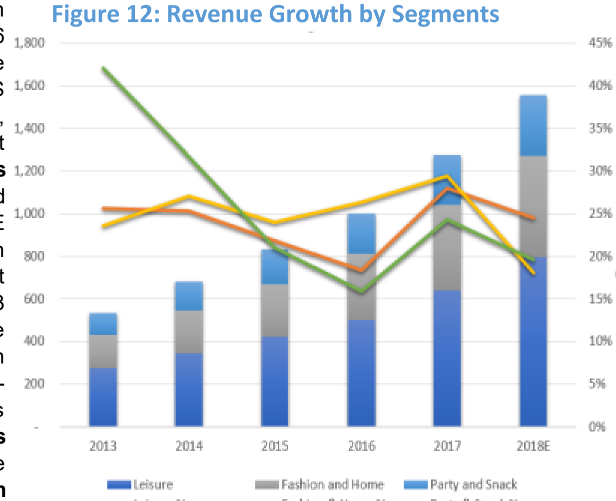


Source: 10-K

Financial Analysis

Top side growth and cost control helps improve profitability. Since IPO in 2012, FIVE has been flat on gross margin from 35.3% to 35.5% in Q3 2018 **(Fig. 11)**. CAGR in sales was 20% in the last 6 years compared to 13% industry average primarily due to faster store openings and increasing same store sales from average transactions and average transaction sales increase. Main factors for COGS are well controlled such as prices of goods from China, freight and shipping costs, warehousing costs, and rent expenses. Tariffs have not yet imposed material harm to gross margin at this point but might see effects in the long run. Gross margin is expected to maintain 36% to reflect **consistent sales growth and effective outsourcing strategy.** FIVE's gross margin is competitive as it has maintained higher-than-industry revenue growth in last few years **(Fig. 12)**. But concern remains as how FIVE could enhance operation performance in its existing and new stores and how FIVE could maintain COGS from tariffs. Operating margin has increased from 8.8% to 12.3% in 2017 driven by efficient control of SG&A and other expenses. In 2018 FIVE opened 125 new stores with 53 opening in Q3 alone. FIVE purchased the Southeast distribution center for $42 million and plans to purchase the Southwest distribution center in 2020. FIVE closed out Q3 with completion of POS system, which could ease the transaction process and roll out customer loyalty program in 2019. In addition, significant effort of digital marketing campaign has been put in place since Q3 to push the holiday sales higher. Hence, operating margin will close at 12% in 2018, indicating **stable margin from higher sales but higher new-store related expense and all other expenses**. FIVE's operating margin is at the high end of industry comps, luring more landlords to open stores in their communities given **less than 1 year payback ratio.** Profit margin has increased from 4.8% to 8.0% mainly due to top-line

Figure 12: Revenue Growth by Segments



Source: 10-K, Team Assessment

margin improvement in 2017. Forecasted profit margin is 9.3% due to significant lower tax which is at the high end of industry. Overall, FIVE has shown stable and slightly improving profitability margins, which is expected to continue in 2019, even though store performance might not see much improvement **(Appx. 13c)**.

CapEx increase follows the rapid expansion. EBITDAR margin rides out rent expense since rent expense takes a big part of EBITDA and it isn't directly related to business operation. EBITDAR margin has increased from 19.1% in 2013 to 22.6% in 2017, showing consistent improvement mostly due to steadily increasing store count. In 2018 EBITDAR margin will be 22.5% because of increased rent expense on 125 new stores **(Fig. 13)**. CapEx as percent of sales has been higher than that of competitors because of **store-related expenses from new store openings and other expenses such as new distribution centers and IT projects.** Average new store cash investment of approximately $0.3 million included store build-out (net of tenant allowances), inventory (net of payables) and cash pre-opening expenses in 2017. Final 2018 CapEx will be $135 million, reflecting 125 new stores ($38 million or $0.3 million per store), the Southeast distribution center ($42 million), remodeling some existing stores, and other corporate infrastructure projects. Therefore, FIVE's CapEx as percent of revenue will be 2-4% higher than industry median in 2018. CapEx as percent of gross PPE for FIVE has been significantly higher than other competitors, indicating its larger investments in new stores and related property and equipment that stratify faster growth. Over the years, CapEx as percent of gross PPE has stayed approximately 22-23% compared to the industry average of 13% **(Fig. 14)**. Moreover, from accumulated depreciation as percent of total assets, we can see that this percentage for FIVE has been higher than other competitors, signaling faster depreciation on PPE and other assets to support expansion. Fairly stable depreciation as percent of total assets indicates that FIVE has not severely manipulated the depreciation for earning estimates **(Appx. 13b)**.

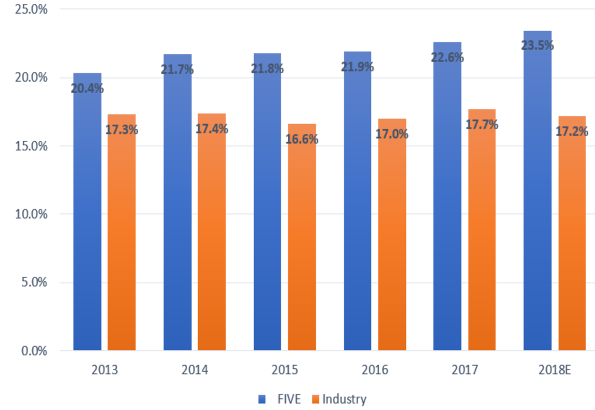
Inventory level is cyclical and impacted by trade expectations. FIVE's Inventory level is typically higher in Q3 in order to prepare for the holiday season. Inventory turnover historically is higher than industry median (aside from 2015 and 2016), because of the higher inventory level compared to lower COGS. Inventory moved faster in 2017 because of the fidget spinner trend. Notably, in Q3 2018, COGS increased 4% YoY compared to regular quarter 20+% increase YoY. This signals that FIVE stacked up enough inventory for the holiday season **(Fig. 15)**. We believe the trade conditions will encourage higher levels of inventory. Thus, FIVE will remain cautious and stack up **inventory to prepare for any headwind from tariffs.** FIVE inventory turnover will be around industry median given that it won't capitalize on any trending product.

Growing number of stores pushes FIVE footprint into multiple markets. FIVE has been growing the number of stores at an average 21.5% per year from 2013 to 2018. However, even though management is targeting 2,500 stores long term, FIVE's current store count (750) is still low compared to 15,000+ stores of Dollar Tree and Dollar General. FIVE's next expansion will focus on the Northeast, Midwest, and Southeast with Georgia distribution center planned in Q1 2019 and Missouri distribution in 2020. Also, to serve over 65 million pre-teens and teens (20% of 331 million US population), FIVE is **penetrating deeper into the existing markets and expanding new markets** such as the South and Southeast with 125+ stores per year over the next two years.

Store-level financial metrics are driven higher but concerned sustainability. Sales per store for FIVE have increased consistently over the past 5 years, indicating revenue has been generated faster than store openings. Sales per retail sq.ft have increased at a decelerating rate from 2014-16 but boosted in 2017 due to higher sales from fidget spinner and store remodeling that utilized the retail space more effectively. Average store size of approximately 8,000 square feet achieved sales of approximately $1.6 million in its first full year of operation in 2017 and FIVE will increase sales per store to $2.1 million in 2018 from new stores with more efficient retail space. Across the industry, FIVE's sales per store is competitive and **sales per retail sq.ft is the highest given its store size and locations.** Store locations target high-traffic centers in urban, suburban, and semi-rural areas mainly in the East Coast, Midwest, and South where the lower-income families are concentrated. But the question is whether the sales per store is driven by new stores or existing stores. Same store sales growth has been stellar, averaging 1.1% higher than that of competitors over the last 6 years **(Fig.16)**. Same store sales have been driven by **1) average sales per ticket and 2) average transaction volume,** because same store sales only measure comparable store performance (15+ months since opening) to weed out new store opening effect, given 80% of same store sales comes from new stores. Average transaction has been decreasing from 6.9% to -0.4% over the years but increase to 5.8% in 2017 driven by high-trending product sales, which contributed to 90% of same store sales growth that year. We are concerned about transaction growth as **FIVE customers are sensitive to trendy products which could push FIVE to be more discretionary.** Average ticket sales has fluctuated over the years with a high of 2.4% in 2016 and a low of -0.8% in 2013. The main driver of this is to constantly switch to a more discretionary product mix with different price points such as $3.59 eyeshadows. Plus, pilot program "Ten Below" takes place in certain stores in order to test price sensitivity and drive more sales from more different products. Same store sales growth also depends on spending of disposable income from all income classes. All the uncertain factors translate into a 3.3% same store sales growth in 2018 which reflect our conservative view of sustaining high growth **(Appx. 13a)**.

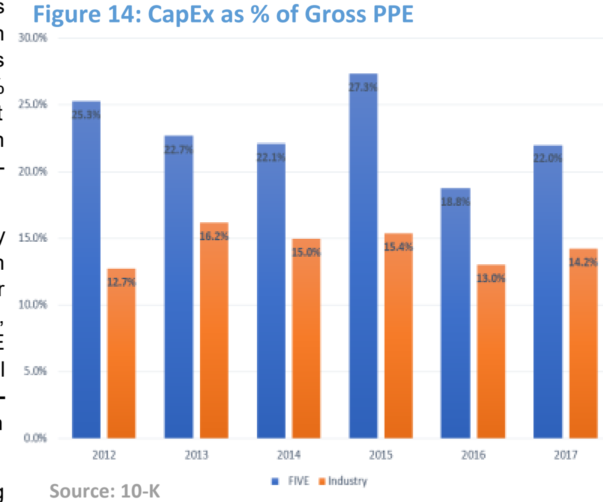
Cannibalization of old stores has been hurting store-level performance. Estimated revenue per existing store is the sales expected from existing stores with current same store sales growth. Cannibalization of old stores is the difference between current sales per store and estimated revenue added per existing store. Combining these two metrics shows if the new store opening has any counter impact on the existing stores' performance. Over the past 6 years, FIVE has grown estimated

Figure 13: EBITDAR Margin



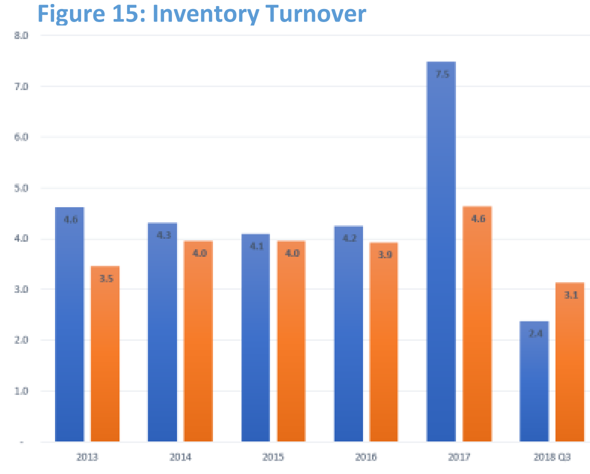
Source: 10-K, Team Assessment

Figure 14: CapEx as % of Gross PPE



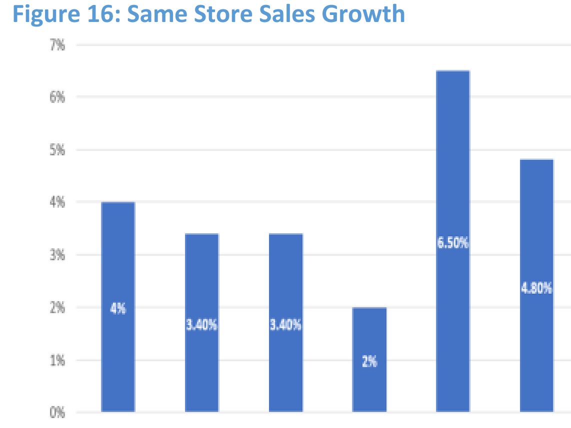
Source: 10-K

Figure 15: Inventory Turnover



Source: 10-K

Figure 16: Same Store Sales Growth



Avg. Transaction	4.80%	1.40%	1.80%	-0.40%	5.80%	N/A
Avg. Ticket Sales	-0.80%	2%	1.60%	2.40%	0.70%	N/A

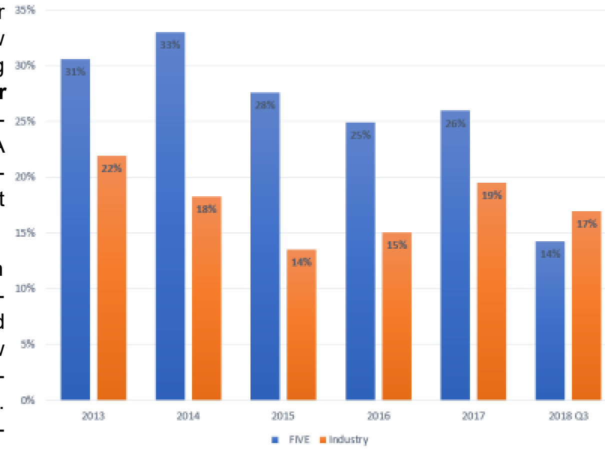
Source: 2018 Q3 10-Q, 2017 FIVE Investor Presentation revenue per existing store from 1.7 to 2.2 million which outpaced growth of Dollar Tree and Dollar General. Its cannibalization of old store, however, posts question on fast expansion because new stores harmed same store sales in 2013, 2015, and 2016. Even though in 2017 new store opening contributed $0.09 million/store increase, we expect a dip in sales per store in 2018, concerning **faster store opening might not improve the bottom line at the store level.** Big Lots has higher estimated sales per existing store due to stagnant store opening. Ollie's Bargain Outlet, a Harrisburg, PA based discount store chain, has been rapidly opening stores as well and increasing estimated revenue per existing store at faster pace and catching up with FIVE in certain markets such as the East Coast and South regions **(Appx. 13d)**.

Great bottom line drives the return metrics. ROIC was 25.9% in 2017 and projected 27.8% in 2018 driven by higher bottom line versus invested capital from new store opening, indicating a growing economies of scale **(Fig. 17)**. FIVE has been leading the industry due to faster expansion and higher margins, demonstrating ROIC is supported by higher return generated from CapEx on new stores. Therefore, ROA (14.2% vs. 12.2% industry median 2017) has been higher than comps because of faster return growth than asset growth, showing efficiency on utilizing assets in operations. ROE (22.3% vs. 26.7% industry median 2017) is fairly attractive due to relative high valuation reflected in equity, driving ROE lower than industry median. ROIC, ROA, and ROE are projected at 27.8%, 16.6%, and 27.4% to show growth and consistent operation improvement.

Operation metrics have sent positive signals of FIVE efficiency. **1) Healthy DuPont analysis.** Asset turnover and pretax margin have been offsetting each other to maintain ROA at 25% over the years. This seems healthy because faster store expansion drags asset turnover on quick asset build-up but consistently increases margins due to better store operation. Positive tax impact is in line with the industry where FIVE has been reinvesting the tax benefits back to store operation and its products, contributing consistent improvements in ROA. Decreasing equity multiplier (assets/equity) - faster equity growth than asset growth due to profit growth and the overweighed stock - stabilizes ROE over the years. Given zero dividend payout ratio, return on investment is the same as ROE, indicating all of the return is reinvested in the firm to fund better operation. **2) Fair operational efficiency but swinging cycle.** Since FIVE doesn't offer credit sales and all transactions are recorded at point-of-sales, receivables turnover has been zero and won't change in near future. Inventory turnover is maintained at 4.0-5.0 which is slightly lower than DLTR and DG, indicating its more discretionary product offering. Inventory turnover is expected at 4.1 which is in line with our expectation because of more inventory pile-up from tariffs and no outstanding trends this year. Payables turnover has edged higher last year to show better negotiation position with suppliers. With escalating tariffs, such position is important going forward to mitigate trade risks, with projected payables turnover at 14.2 for 2018 compared to industry median 10.7. Working capital turnover has been decreasing due to faster store expansion and will decrease further to 3.8 this year. Thus, **net operating cycle is decreased from mid-50 to 48 days in 2017 but forecasted at 56 in 2018 (Fig. 18)**, eying on increasing days in inventory due to tariffs and slower increase of days in payables from maintaining relationships with suppliers. Free cash flow has grown faster than the industry but we expect lower than industry growth in 2018 due to the purchasing of a distribution center in Georgia for $20 million and other corporate projects **(Fig. 20) (Appx. 14)**.

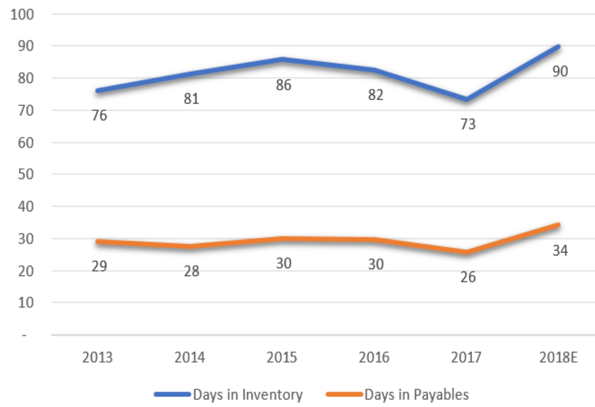
Operating lease obligations presents potential liquidity risk. Management is reluctant to take leverage, and going forward management is not planning to increase leverage, because FIVE is risk averse. Liquidity and solvency have been stable over the last 5 years. Major concern, however, is the ability to cover capitalized operating leases because of rapidly increasing store expansion, even though they are off-balance sheet. Outstanding operating lease obligations are $948 million in 2017 and expected to be over $1billion in 2018, while expected FCF in 2018 is $167 million. Even with $20 million short-term borrowing, we are concerned **FIVE will not able to cover all leasing obligations anytime soon, posting a significant risk with higher store operation volatility from recession and tariffs ahead (Fig. 19).** Also due to new accounting practice changes, incorporating operating lease obligations into balance sheet starting in 2019 will result in a significant increase in total assets and total liabilities and the impact would be material in FIVE financials.

Figure 17: ROIC



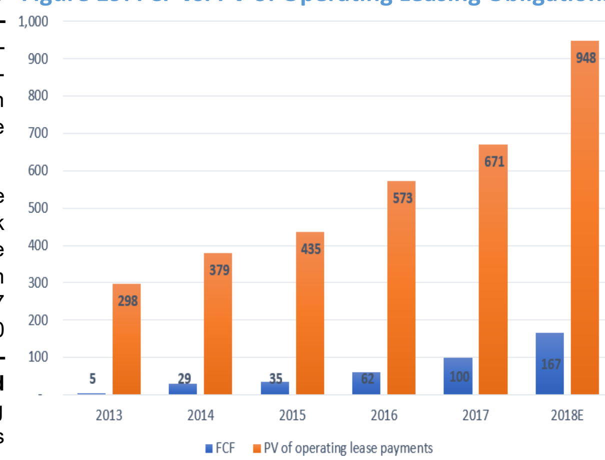
Source: 10-K, Team Assessment

Figure 18: Net Operating Cycle



Source: 10-K, Team Assessment

Figure 19: FCF vs. PV of Operating Leasing Obligations



Source: 10-K, Team Assessment

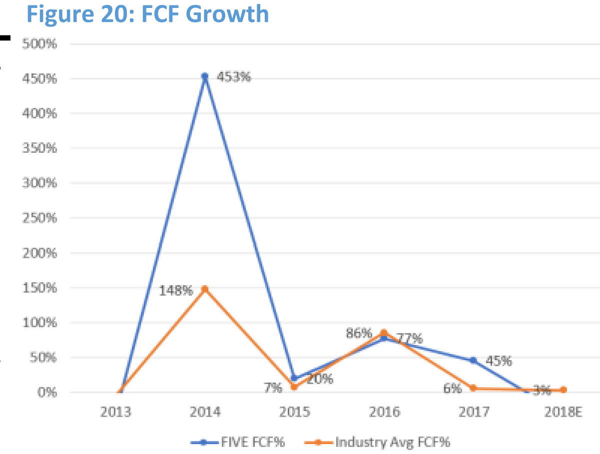
Valuation

The price target is at $108.86 as of 01/11/2019 a downside potential of –7.4%. Thus, a hold recommendation is issued on FIVE. The price target is based on the weighted average of absolute and relative methods: DCF and market multiples. 75% weight is applied to DCF since this method includes fundamental analysis and forecast. 25% weight is applied to market multiples. The intrinsic value per share from DCF is $106.48, while averaging $114.42 from EV/EBITDAR and $116.86 from PEG.

Discount Cash Flow Valuation. The DCF model represents the fundamental, bottom-up analysis and forecast of FIVE. Since the company is established, operating in the retail industry, and has steadily growing free cash flow, DCF reflects future growth aspects of FIVE.

Capital Structure. **FIVE is debt-free.** Despite a couple of short-term notes issued in 2013 and 2014, FIVE has not issued any corporate debt and it does not intend to increase leverage in the near future. In addition, the $20 million current line of credit before 2022 with option to increase to $50 million is available if the company faces a liquidity issue. The company has been operating efficiently and growing cash quickly so it won't utilize this borrowing facility soon. The capital structure will be stable in the near future with zero debt and all equity-funded, with the debt-to-equity ratio is 0. Across

Figure 20: FCF Growth



Source: 10-K, Team Assessment

the industry, FIVE's zero-debt capital structure is unique and other competitors have never come close, giving FIVE great liquidity position.

Comparable Company Selection. FIVE's closest competitors are **Dollar Tree (DLTR), Dollar General (DG), Big Lots (BIG), and Ollie's Bargain Outlet (OLLI).** They are operating in the retail industry and categorized as discount stores. Even though all four competitors offer similar product lines, FIVE offers fewer and lighter product selections and tightly controls $5 threshold for each product. From the financial and market perspective, FIVE is in a niche market that its products and pricing attract teenagers, a very large population that is underserved by its competitors. Plus, the company is able to maintain the margin through good outsourcing strategies and delivering trendy products. FIVE has grown and expanded faster than other established store chains, making it a favorable retail stock.

Weighted Average Cost of Capital. Given zero debt, WACC only accounted for cost of equity. The Capital Asset Pricing Model was used in cost of equity calculation. Regressed beta were calculated for each comparable using the time period since 07/19/2012, FIVE's IPO date. We neutralized the regressed beta by taking 2/3 of it plus 1/3 to market average over time. To take out leverage effect on adjusted beta on the after-tax basis, the adjusted beta was unlevered by applying debt-to-equity ratio and tax rate for each comparable company. Even though the current adjusted beta for FIVE is 1.01, we expected it to decline to the industry median 0.76 due to its long-term growth reversion. Since FIVE doesn't have debt, the levered beta is the same as the unlevered beta 0.76 **(Fig. 21)**. We used current 10-year and 30-year treasury bonds' yields as of 01/11/2019 and expected no rate hike before year-end 2019. We used country risk premium 8.19% for 10-yr and 30-yr treasury. **Equally weighted average WACC using 10-year and 30-year WACC was 9.10%.** Compared to Fama-French 3-factor model, we generated cost of equity of 8.35% which is in line of long-term retail market WACC. However, our estimated WACC 9.10% is more tailored to a selection of closer comps and to reflect more hefty valuation on FIVE. Thus, 9.10% was used for WACC **(Fig. 22)**.

Conservative Balance Sheet Forecast. FIVE is characterized as a more discretionary retailer, indicating that the company's performance would be negatively impacted during economic downturn. In fact, the U.S. market has peaked and a recession will likely happen within next two years. Also, **geopolitical uncertainty and trade tariffs continue to threaten the growth of the company, as FIVE relies heavily on Chinese imports.** FIVE has been taking precautions such as **leveraging its scalability among suppliers and vendors, changing product mix, and outsourcing certain products from other countries.** But the inventory level has been increased YTD compared to last year primarily due to new store openings and the holiday season. In fact, comparing to Q1 and Q2 in 2018, days in inventory have actually gone down, indicating strong demand driven by growing US economy. Q3 days in inventory were up due to seasonality but since more sales are expected in Q4, Q4 days in inventory is forecasted 61 days, a 28% drop YoY. The rationale behind the decrease is that FIVE is able to continue the trendy product sales in the busy holiday seasons as well as increasing sales from digital marketing effort. However, 5% inventory increase per store in Q3 and the increasing inventory level in the full year indicate conservative inventory forecast by FIVE due to tariffs. Going forward we believe FIVE will **increase its inventory level due to 1) two near-term distribution centers and more coming up in the future that will support more inventory in store for higher sales growth, and 2) uncertain impact of future tariffs and its ability to quickly adjust to other alternatives.** Account receivables are not considered in forecast since FIVE does not offer credit sales. Account payables are estimated based on 2017 to maintain FIVE's negotiation advantage against suppliers. Income tax payable is expected lower over time as tax cut benefits phase out. Property, plant, and equipment is the largest expenditure in CapEx since FIVE plans to open 125+ stores every year before 2021. So, we maintained that new store opening rate until 2020 and graded down that pace after 2021. Another noticeable item is accrued payroll. Even though management is comfortable with the staff growth and current wage level, which on average is $8.67/hr for FIVE's sales associates, we expect **wage increase in 2019 due to higher industry wages led by Amazon and wage growth from inflation.** But FIVE's high store employee turnover could be mitigated by higher wages and better training. So other current liabilities including accrued payroll will be seen higher in the next two years **(Fig. 23)**.

Continuing high growth in sales. As of 2017, the percentage of sales of each segment was 50%, 32%, and 18%. We believe FIVE will maintain its product mix ratio with 51%, 31%, and 18% for leisure, fashion and home, and party and snack, respectively for 2018 and beyond in our revenue forecast **(Fig. 24)**. FIVE has leveraged its outsourcing strategy very effectively in the last few years and been able to identify popular trends such as the fidget spinner in 2017. Even during the years without trendy items, FIVE was able to **maintain higher than industry same store sales due to more effective pricing and marketing strategies.** We observed that most of the fashion and home products use fractional pricing ($3.59 for eyeshadow), which could attract a wider range of customers while improving margins. Party and snack remains stable as customers are able to grab a few snacks easily when they shop. Given deteriorating trade and economic conditions and rising inflation, FIVE has rolled out strategies to mitigate headwinds for top line. Regarding trade, lower than 15% of sales is expected to be affected by trade tariffs this year. So FIVE focuses on switching product mix to get optimal pricing and increasing brand awareness through digital marketing campaign throughout Q3 and Q4 to drive more sales. The company has rolled out **pilot program of Ten Below on selected items** to see customer's feedback on potential price increase and it has received very positive turnout. Management has been putting effort into online sales strategy as seen by the increasing followers on social media. We expect the current 10% **online sales as of total sales to increase over time because 1) more teens are shopping online, 2) other competitors are increasing e-commerce**

Figure 21: Beta

Company Name	Beta to Index	Adjusted Beta	Tax Rate	Unlevered Beta
Five Below	1.01	1.01	28.2%	1.01
Dollar Tree	0.80	0.87	17.1%	0.72
Dollar General	0.69	0.79	29.9%	0.60
Big Lots	0.89	0.93	33.2%	0.75
Ollie's Bargain Outlet	0.95	0.96	14.2%	0.96
			Average	0.76
			Median	0.76

Source: FactSet, Team Assessment

Figure 22: WACC

WACC Calculation			
10-Yr Treasury	2.71%	30-Yr Treasury	3.04%
10-Yr Market Premium	8.19%	30-Yr Market Premium	3.04%
FIVE Levered Beta	0.76	FIVE Levered Beta	0.76
Cost of Equity	8.93%	Cost of Equity	9.26%
		Average	9.10%

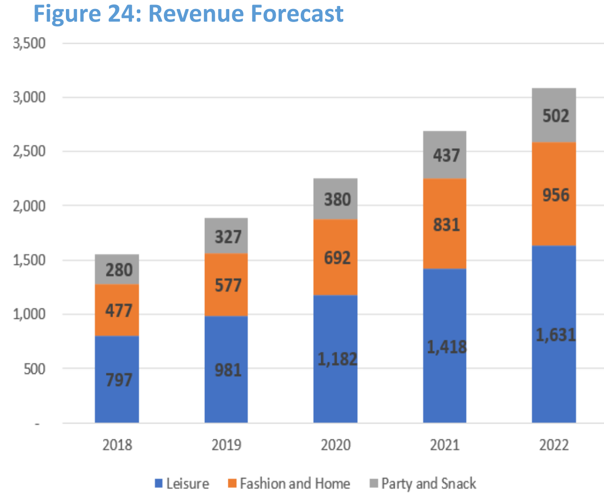
Source: Team Assessment

Figure 23: Balance Sheet Forecast Assumptions

Days	JAN '19 Q4	JAN '19 FY	JAN' 20 FY
Working cash	7.3	7.3	7.3
Short-Term Receivables*	-	-	-
Inventories*	60.66	90.0	89.0
Other Current Assets*	8.6	13.3	12.8
Operating current assets	76.6	110.5	109.0
Accounts Payable*	23.0	34.1	34.1
Income Tax Payable*	4.6	7.0	6.9
Deferred Income*	-	-	-
Other Current Liabilities*	12.0	18.4	18.9
Operating current liabilities	39.5	59.5	59.9
Operating working capital*/Sales	5.30%	8.15%	9.64%
Net Property, Plant & Equipment*	10.93%	16.80%	16.80%
Net Other Operating Assets*	-3.52%	-5.41%	-5.41%
Invested capital (Uses) Operating	50.03%	48.05%	21.03%

Source: Team Assessment

Figure 24: Revenue Forecast



Source: Team Assessment

presence, and 3) FIVE plans to roll out online order pick-up in 2019. Note that the one additional week for 2018 will add approximate $16 million sales. As a result, we expect 21.6% overall growth in sales in 2018 and 21% in 2019, a stable growth that meets management expectation **(Appx. 15)**.

Speculating cost of goods sold. 15% of total product receipts affected by tariffs is expected to have greater impact on COGS. Sub-suppliers for FIVE's suppliers are mainly from China. We estimated that **more than 80% of overall products are Chinese imports.** Due to increasing holiday demand and impact from tariffs, COGS will grow at 20% in Q4 and full year 18% to maintain gross margin excluding D&A at 38%. Looking ahead, as transactions grow with more stores, FIVE will **leverage its bargaining power to negotiate better deals with suppliers**, especially those who manufacture electronics, toys, and games that FIVE generates most transactions. By taking an advantage of Toys R Us' bankruptcy and **digesting the effect from tariffs through changing pricing strategy, leveraging vendors' scalability, and outsourcing from other countries**, FIVE could mitigate the risk of increasing COGS. Even though no further raise in tariffs at this point, the reliance on Chinese imports will still need to be addressed. **FIVE has started to outsource some t-shirts from Southeast Asia and Central America.** Another way to control COGS is that **FIVE will open two distribution centers in early 2019 (Southeast) and 2020 (Southwest)** which will decrease inbound freight cost, as well as shipping and handling, store occupancy, distribution and buying expenses. Furthermore, freight costs continues to be effectively mitigated due to higher bargaining power with freight carriers despite higher fuel charges. But risks might rise because of no freight hedge in place. However, COGS remains as a challenge for FIVE because of uncertain trade tariffs situation. Therefore, growth in COGS is estimated either in line or slightly lower than growth of sales over the years.

Steadily increasing expenses supports business expansion. SG&A is expected to increase in 2018 due to associated expenses on new stores and increased digital marketing campaign for holiday season. FIVE has initiated a series of marketing campaigns to drive foot traffic in the tapped market and to increase brand awareness in the untapped markets. We expect advertising expense to increase steadily 20% YoY to around $37 million in 2018. Employee headcount will increase as more stores are opening and also amid pressure from Amazon and other retailers on higher wages, total payroll will likely increase in Q4 2018 and going forward. Other expenses such as tax reform-related investments will increase in Q4 2018, which will deleverage operating margin. But this is not expected to continue in 2019 as it is not related to recurring operation. Looking ahead, **purchasing new distribution centers will add to SG&A expense but in the long run will help reduce freight and shipping costs and warehousing costs in COGS.** Other corporate projects such as IT system upgrade will continue to add expenses as the company grows to improve performance. So SG&A will grow 27% YoY in 2018 and average 20% over the years going forward. Depreciation and amortization will increase significantly 79% in 2018 due to distribution center purchase and 125 new stores, similar to 2015 and 2016 when FIVE leased distribution centers in New Jersey and Mississippi. Going forward the depreciation and amortization will be stable at 20% growth due to steady new store opening. The 2018 forecasted EBIT bridge is shown in **Fig. 25** to show each expense as % of revenue. And the complete base case income statement forecast assumptions are shown in **Fig. 26**.

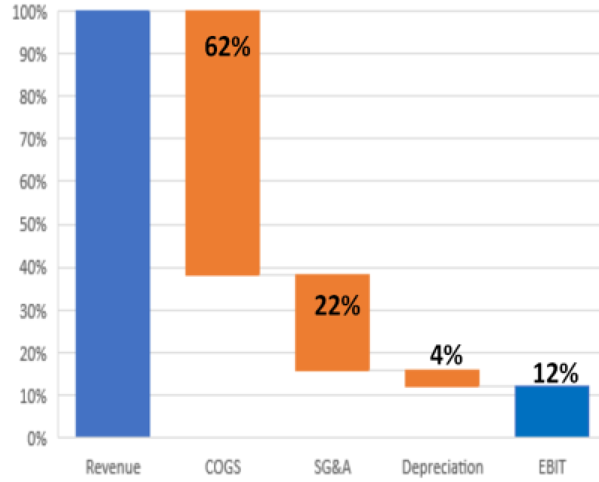
DCF reveals fair valuation. There is no difference using FCFF or FCFE as the FCF input for DCF model because of zero debt, as shown in FCF forecast **(Fig. 27)**. FCF is expected to increase faster than NOPLAT due to less change in working capital caused by greater economies of scale. Based on discussion of previous forecast assumptions, **intrinsic enterprise value is $5,418 million** after subtracting accrued payroll and employee stock options from the sum of DCF. Employee stock options value was estimated using Black-Scholes-Merton model with adjusted input. Strike price of $42 was determined to match $18.5 million of total unrecognized compensation costs related to non-vested share-based compensation arrangements (including stock options, restricted stock units and performance-based restricted stock units) granted under the Plan as of Q3 2018. 10% implied volatility was assumed due to minimum risk tolerance level **(Appx. 15)**. **Long term ROIC was set at 10% and terminal growth rate 2.5% to reflect long term U.S. GDP growth. Adjusted with timing difference, the price target is $106.48 (Appx. 16a).** We validated this target price based on Z-Score and M-Score, indicating no earnings manipulation or near future bankruptcy **(Appx. 18)**.

Multiple Valuation. Using market multiples for valuation is a straightforward comparison with other competitors. We calculated multiples based on our forecasted FIVE 2019 financials to value FIVE. **Averaging forward EV/EBITDAR and PEG multiple valuation we estimated $116 (Appx. 17).**

EV/EBITDAR. Forward EV/EBITDA (20.62x), forward EV/EBITDAR (14.15x), forward EV/sales (3.38x), and forward EV/FCF (38.01x) were included. These multiples were based on our 2019 financials. In retail industry, EV/EBITDAR is particularly representative because rent expense is so significant on leased retail stores that retailers isolate it in their valuation. **This multiple focuses on operation without the effect of leasing obligations or in other words, leverage.** Thus, it was used to proxy our enterprise multiple valuation. EV/EBITDA tells the story after taking the rent expense into account to show the impact of rent expense on bottom line. **Using EV/EBITDAR multiple the target price is $114.42 (Fig. 28).**

PEG. Price multiples are also good to use since FIVE does not have debt and has a simple capital structure. Forward P/E (37.48x), forward PEG (1.33x), forward P/S (3.48x), forward P/B (9.13x), and forward P/FCF (39.06x) were included. The forward P/E was fairly expensive compared to that of other competitors, indicating hefty valuation for FIVE. So forward PEG was more appropriate multiple than P/E because it sought to account for FIVE's expected continued high growth.

Figure 25: EBIT Bridge



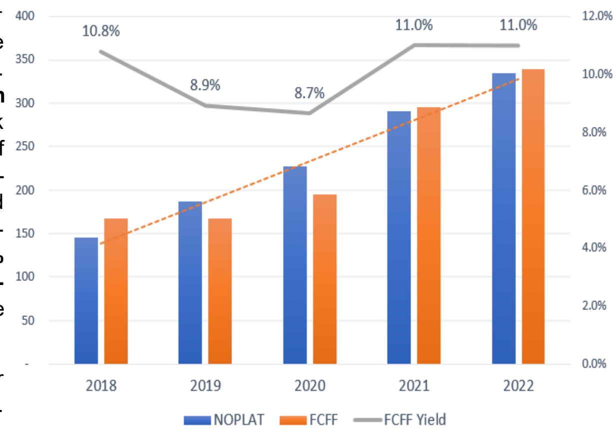
Source: Team Assessment

Figure 26: Income Statement Forecast Assumptions

YoY Growth %	JAN '19 Q4	JAN '19 FY	JAN' 20 FY
Sales YoY Growth	18.27%	21.57%	21.31%
Leisure	20.00%	24.12%	23.00%
Fashion and Home	18.00%	22.80%	21.00%
Party and Snack	14.00%	17.90%	17.00%
COGS excluding D&A	20.00%	17.85%	20.00%
Gross Profit	15.79%	27.66%	23.43%
SG&A	20.00%	27.16%	22.00%
Depreciation and Amortization	20.00%	79.46%	20.00%
Earnings before interest & taxes (EBIT)	11.56%	18.26%	27.20%
Operating cash taxes rate	24.50%	22.50%	21.00%
NOPLAT	45.90%	42.84%	29.00%

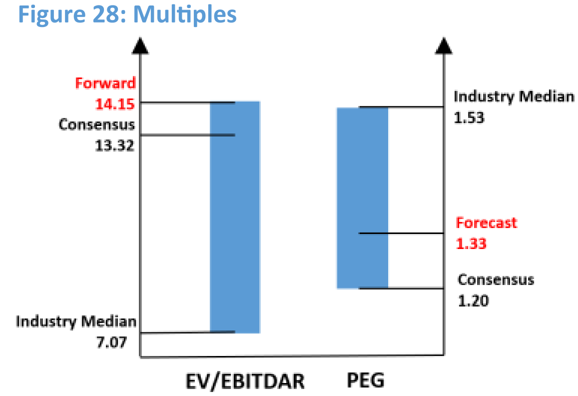
Source: Team Assessment

Figure 27: NOPLAT vs. Free Cash Flow



Source: Team Assessment

Figure 28: Multiples



Source: Team Assessment

We believe that forward **PEG is a better proxy for our multiple valuation than other price multiples because 1) the forward PE was based on our earnings forecast which reflected our forecast assumptions, and 2) PEG ratio accounted for the expected high growth of the company (Fig. 29). Using this multiple the target price is $116.86 (Fig. 28).**

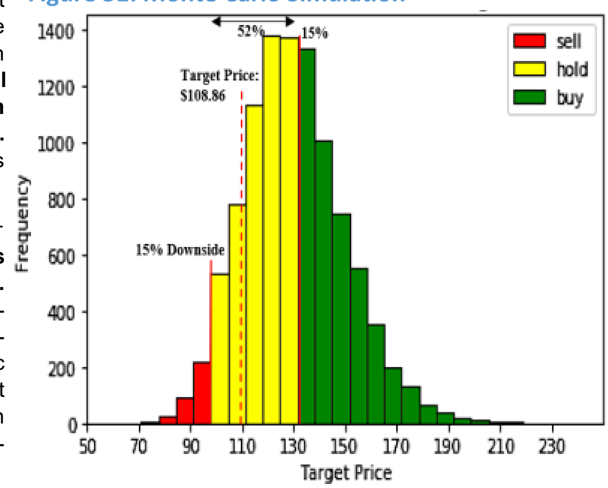
Risk to the Target Price

Among the many factors that could shift our target price, growth assumption is the most important factor in our valuation. The revenue growth may increase due to the fast expansion of new store openings in the Southwest and Southeast. But it is possible that COGS may also increase faster than revenue due to lower than expected operational efficiency. **If the company overestimates the potential market in those areas and assumes the revenue growth rate is similar to that of others, then revenue growth rate could be less than the increase in COGS, resulting in lower gross margin.** Moreover, operating expenses should be correlated to changes from store expansion. Higher gross profit might drive up expenses which might lower FCF, hence a lower target price.

Sensitivity Analysis. We ran sensitivity analysis over three scenarios: base, bull, and bear **(Appx. 16a,b, &c)**. **FIVE is subject to economic condition changes more than other competitors and we based our analysis on changes in those conditions that will affect FIVE performance.** Bull case represents a more optimistic outlook for sales given a later, shorter, and less severe recession and less aggressive in COGS and expenses given more mitigation regarding tariffs. This translates to a buy recommendation with target price $131.45. Bear case represents a more pessimistic outlook given worse economic conditions driving lower return. The recommendation is sell and target price is $74.64. Under each scenario we compared the target price using different terminal growth rate and WACC combinations in order to see the impact on FIVE stock price range. Base case sensitivity metrics are driven by terminal growth and WACC in **Fig. 30**.

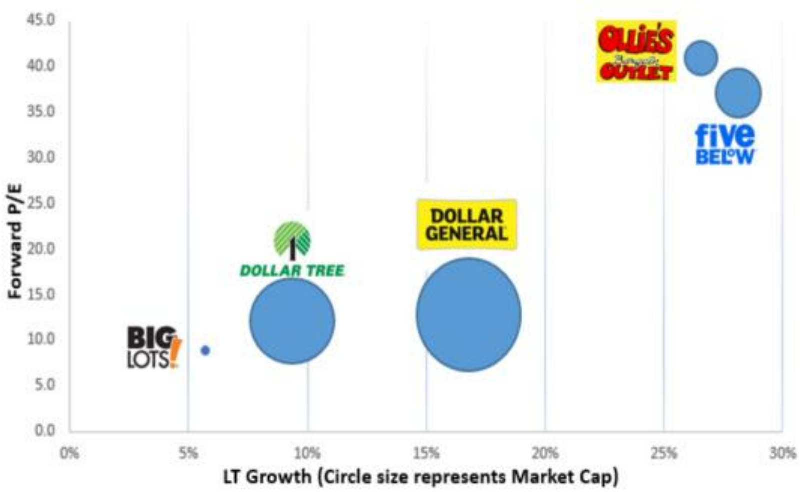
Monte Carlo Simulation. We performed a Monte Carlo Simulation to analyze the price potential outcomes of FIVE's price growth. The model evaluates a range of possible outcomes for the future stock price based on a Markov process. Key inputs include: current stock price ($117.57 as of January 11, 2019), implied volatility (30.1%), number of trading days (252 per year), CAGR (20%), and drift which is assumed to follow the expected annual return. 10,000 simulations were run accounting for various combinations of changes to the key variables on the target price. **The results validate a hold recommendation with confidence of 52% given roughly a +/- 15% upside/downside potential from our current stock price (Fig. 31).**

Figure 31: Monte Carlo Simulation



Source: Team Assessment

Figure 29: PEG Analysis



Source: Team Assessment

Figure 30: Sensitivity Analysis

Value of Operations									
WACC	Perpetual Growth								
	0.5%	1.0%	1.5%	2.0%	2.5%	3.0%	3.5%	4.0%	4.5%
7.1%	142	147	154	164	178	201	245	363	1,667
7.6%	126	129	133	139	146	157	176	210	302
8.1%	113	115	118	121	125	130	139	152	178
8.6%	103	104	105	107	109	112	116	122	131
9.1%	100	102	104	105	106	107	108	110	112
9.6%	87	87	87	87	88	88	89	89	90
10.1%	80	80	80	80	80	80	80	80	80
10.6%	75	75	74	74	74	73	73	72	72
11.1%	70	70	69	69	68	68	67	66	65

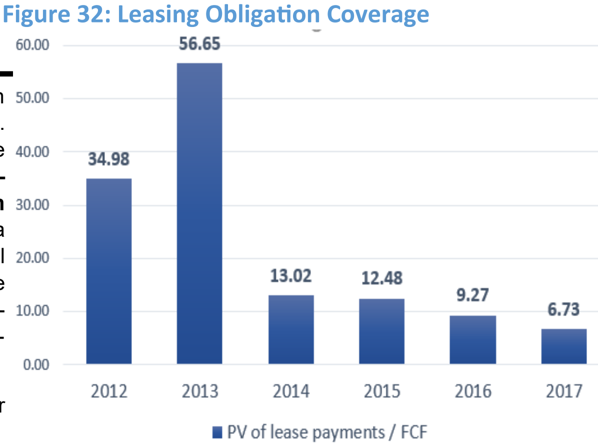
Source: Team Assessment

Investment Risks

Economic Risk. The inflation rate in the United States is currently under 2%. With the assumption that it stays at this level over the next 10 years, costs will generally increase by approximately 22%. However, with little room for price increases due to the $5 restriction, FIVE's margin would decrease significantly with other conditions held equal. Moreover**, with the market speculating the U.S. economy downturn in the next 1 to 2 years, it is a question whether or not FIVE can continue its high growth strategy during a recession.** Current market volatility and the worsening economic data from China and Europe indicate that the U.S. still-strong economy might contract soon, which will impact discretionary spending of consumers. Considering FIVE's huge leasing obligations, we are concerned about its liquidity if the downturn is more severe than expected. The coverage ratio of leasing obligations versus FCF is 6.82 for 2017, and we expect a higher ratio in 2018 due to faster expansion **(Fig. 32)**.

Supply Chain Risk. The majority of FIVE's products are manufactured in China due to cheaper labor costs and raw material costs. Based on guidance from management, **current tariffs could**

Figure 32: Leasing Obligation Coverage



Source: 10-K, Team Assessment

have 15% negative impact on its sales. However, with the potential tariff rate up to 25%, the actual impact could be more severe than estimated. FIVE could face the challenge of **finding alternative suppliers from other countries, while maintaining current price levels,** to retain the profit margin. In addition, **headwinds from freight shipping and inefficiency to utilize distribution centers** would increase the supply chain risk. Also FIVE would be vulnerable if **its vendors fail to supply products in a timely manner.**

Labor Risk. Even though FIVE has grown the employee base very quickly due to fast expansion, FIVE struggles to keep loyal employees in store **(Fig. 33). A major cause is that the wage (average $8.67/hr) is too low to retain employees** or attract higher skilled employees, which may have a negative impact on margins because of higher training expense for new employees.

Operational Risk. FIVE is highly dependent on the third-party shipping services to distribute its products from its distribution centers to the stores. FIVE doesn't have its own truck line to deliver its products, so **third party transportation risk and fuel price increases would cause vulnerability in the cost structure which would drive down margins.**

Product Risk. FIVE caters to the pre-teen and teen customer (ages 5 to 17). Based on its customers' segment, the sales are highly driven by the trends among adolescents, and the company has to keep up with those interests. **If the company fails to keep up with the trend, it could lower its store traffic, posing a negative impact on revenue**. Additionally, parents are concerned about the **safety of FIVE products and other ESG aspects**, which remains a factor in product risk.

IT Risk. Any IT glitch could impair the regular operation of the business. Specifically **if FIVE fails to secure customers' financial and personal information, or corporate data related to the company or employees, it will lead to a significantly public relations problem and impairment of customer loyalty.**

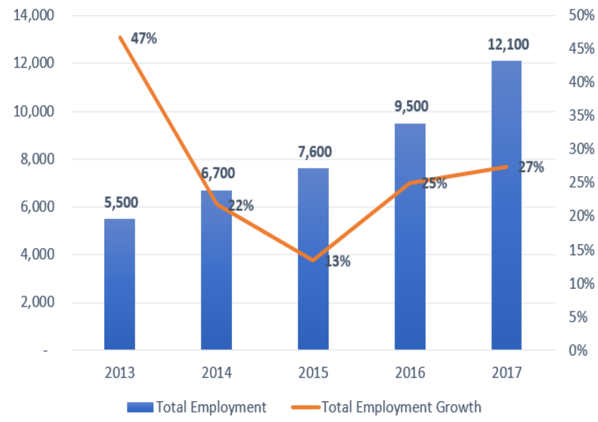
Liquidity Risk. FIVE has a line of credit up to $20 million under the condition that FIVE maintains eligible inventory equal to at least $100 million. The line of credit could hedge against a shortage of cash flow to cover its expenses and leasing obligations. However, FIVE is planning to open 3 new distribution centers in the next 3 years, along with the annual 125+ new stores planned in the pipeline. **FIVE could face a difficult financing situation if it is unable to maintain the inventory level above $100 million as required due to: 1) trade tariffs that increase the cost of Chinese imports, 2) the volatility of currency exchange rates, and 3) weaker than expected demand.**

Competitive Risk. FIVE prices all of its product from $1 to $5 to attract different income classes. On one hand, bigger retailers, such as Walmart and Amazon, would offer better quality products with the same or slightly higher prices. On the other hand, other discount stores, such as Dollar Tree, Dollar General, and so on, have price advantage over certain products with equal quality. **Due to relatively low sensitivity on price change across different income classes, competitors' pricing strategy substantially affects FIVE's performance.** A price comparison with Amazon with a selection of products indicates that FIVE does in fact have some pricing advantages. However, given the price is already low, customers may not have a particular store preference **(Fig. 34)**. Rivals could lure away different customers from FIVE and create both top and bottom price pressure to FIVE.

Law and Regulation Risk. A congressional debate regarding a cutback to the provision of food stamps is underway. If entitlements like food stamps are reduced, there could be a reduction in the ability for lower income classes to purchase discretionary items from those discount stores. For FIVE, revenue would decrease significantly, because more than 85% sales come from discretionary items.

Other Risks. Extreme weather, natural disaster, pandemic outbreaks, global political events, war, terrorism, and other small factors could also impact FIVE's growth but have a low probability of occurrence so they are not significant risks in the foreseeable future **(Fig. 35)**.

Figure 33: Total Employment



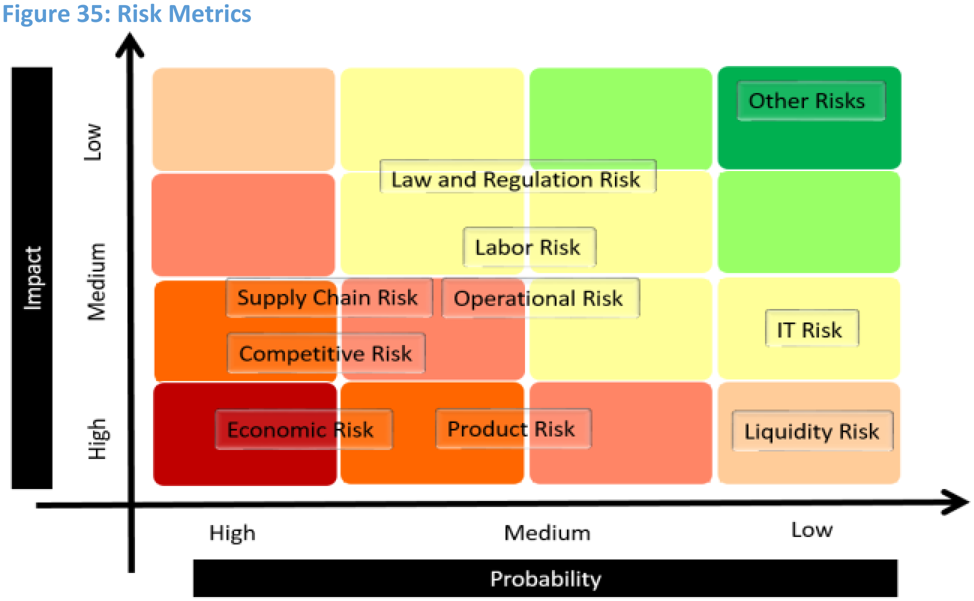
Source: eMarketer

Figure 34: Price Comparison to Amazon

Items	FIVE	Amazon	Diff %
18oz Mug	$3.00	$2.99	0%
Jumbo Soft Football	$5.00	$3.59	39%
26-inch Yoga Ball	$5.00	$9.59	-48%
Knit Sneakers - Kid	$5.00	$11.99	-58%
Remote Control Heli-Car	$5.00	$4.99	0%
Squishy Ball	$5.00	$4.29	17%
Bluetooth Speaker	$5.00	$5.10	-2%
Stereo Headphones	$5.00	$5.88	-15%
24-Color Eyeshadow	$5.00	$6.49	-23%
14oz Jelly Beans	$2.49	$4.72	-47%
26oz Wine Class	$5.00	$5.61	-11%
Windbreaker - Junior	$5.00	$1.49	236%

Source: FIVE and Amazon Website

Figure 35: Risk Metrics



Source: Team Assessment

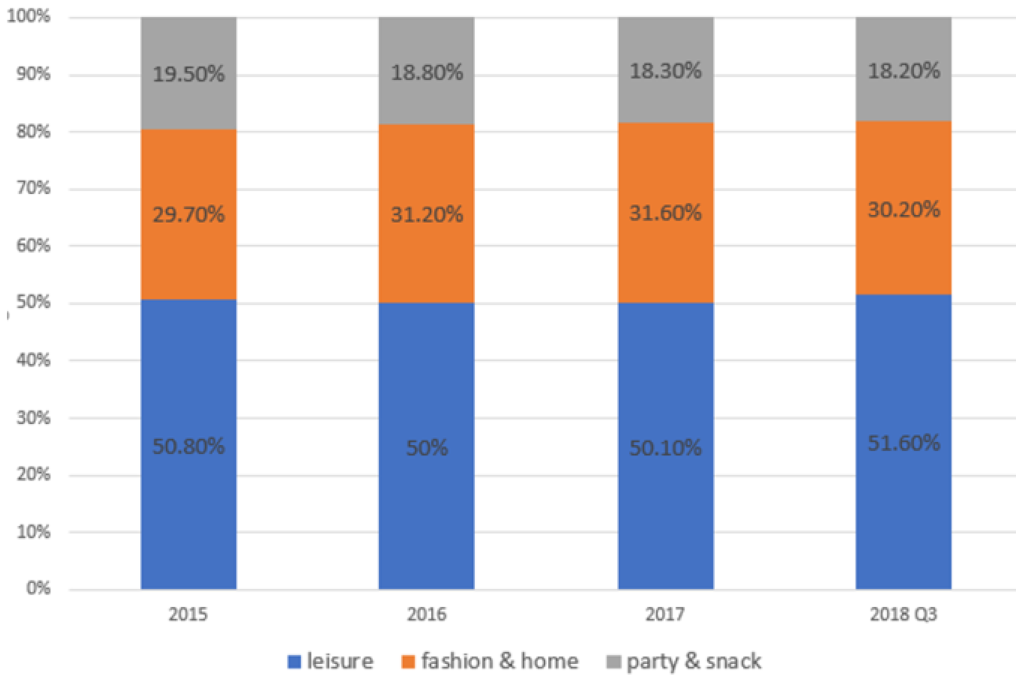
APPENDIX 1 In Store Visit

Beauty Section

Candy Section

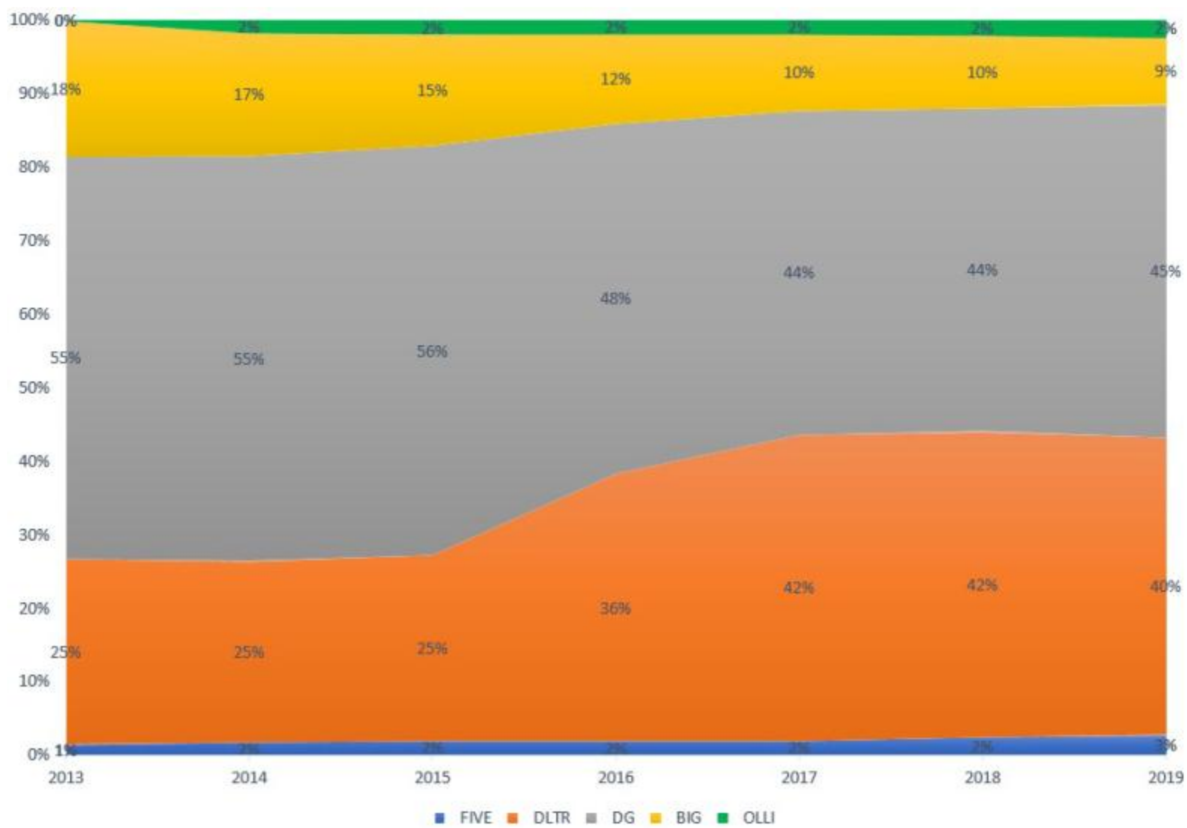
Store Layout

APPENDIX 2 Sales by Segments



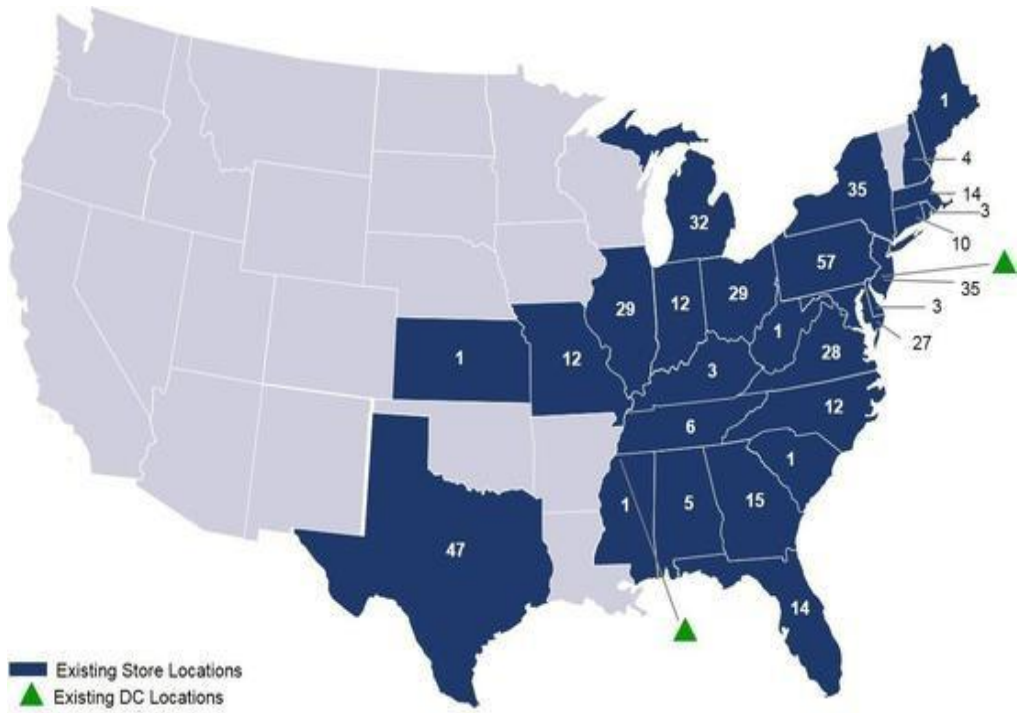
Source: 10-K, 2018 Q3 10-Q

APPENDIX 3 Market Share



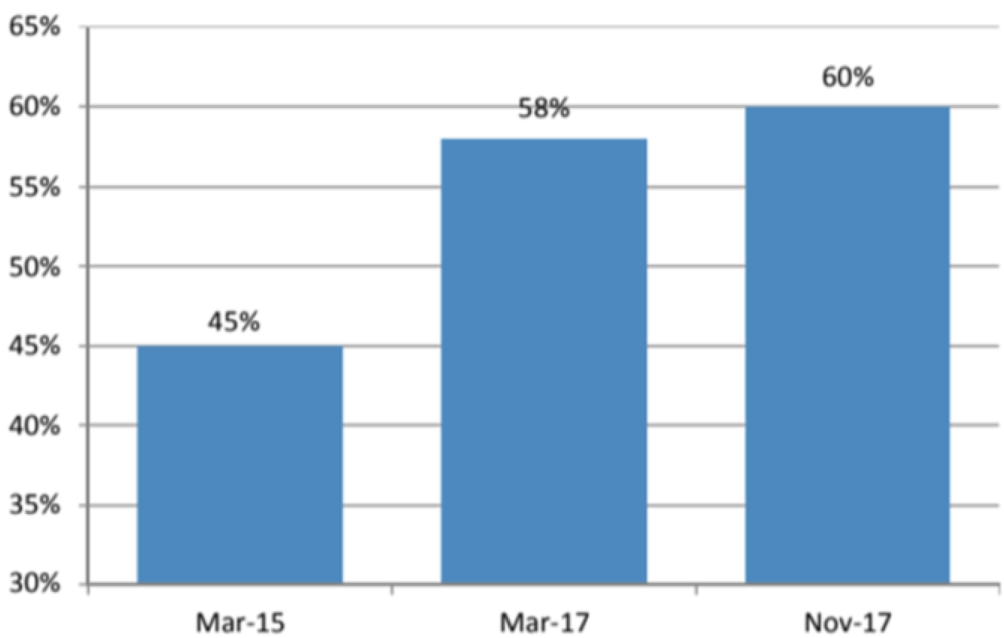
Source: 10-K, Team Assessment

APPENDIX 4 Store Geographic Map



Source: 10-K

APPENDIX 5 Brand Awareness



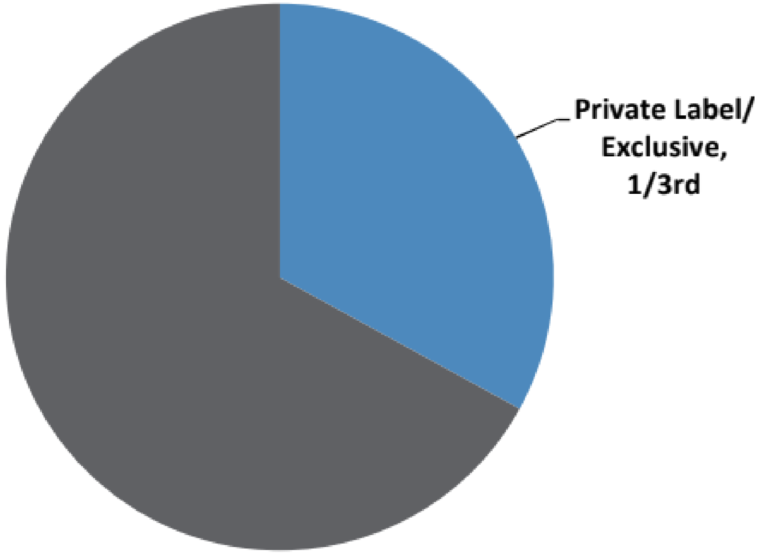
Source: FIVE Investor Presentation

APPENDIX 6 Store Locations by States

State	2013	2014	2015	2016	2017	2018	2019E
Alabama	-	-	5	5	8	14	19
Alaska	-	-	-	-	-	-	-
Arizona	-	-	-	-	-	-	7
Arkansas	-	-	-	-	-	5	7
California	-	-	-	-	15	33	47
Colorado	-	-	-	-	-	-	-
Connecticut	7	10	10	10	13	13	13
Delaware	3	3	3	4	4	4	4
District of Columbia	-	-	-	1	2	2	2
Florida	-	-	14	25	40	60	78
Georgia	13	15	15	16	18	24	32
Guam	-	-	-	-	-	-	-
Hawaii	-	-	-	-	-	-	-
Idaho	-	-	-	-	-	-	-
Illinois	22	26	29	35	38	43	45
Indiana	5	8	12	13	15	22	25
Iowa	-	-	-	-	-	-	8
Kansas	-	-	1	2	5	6	9
Kentucky	-	-	3	5	6	7	9
Louisiana	-	-	-	4	5	7	12
Maine	-	1	1	1	2	2	2
Maryland	24	26	27	30	31	34	36
Massachusetts	11	13	14	15	16	18	19
Michigan	27	30	32	37	40	41	46
Minnesota	-	-	-	4	8	10	15
Mississippi	-	-	1	2	3	4	5
Missouri	6	7	12	15	18	20	23
Montana	-	-	-	-	-	-	-
Nebraska	-	-	-	-	-	-	6
Nevada	-	-	-	-	-	-	-
New Hampshire	3	4	4	4	5	5	5
New Jersey	33	34	35	36	38	41	45
New Mexico	-	-	-	-	-	-	-
New York	24	31	35	40	46	55	63
North Carolina	9	11	12	15	18	21	24
North Dakota	-	-	-	-	-	-	-
Ohio	18	26	29	29	37	37	43
Oklahoma	-	-	-	3	5	8	10
Oregon	-	-	-	-	-	-	-
Pennsylvania	55	57	57	61	61	64	65
Puerto Rico	-	-	-	-	-	-	-
Rhode Island	3	3	3	3	3	3	3
South Carolina	-	-	1	2	3	8	11
South Dakota	-	-	-	-	-	-	-
Tennessee	-	5	6	8	11	17	22
Texas	17	29	47	62	71	80	90
US Virgin Islands	-	-	-	-	-	-	-
Utah	-	-	-	-	-	-	-
Vermont	-	-	-	-	-	-	-
Virginia	23	26	28	29	31	31	31
Washington	-	-	-	-	-	-	-
West Virginia	1	1	1	2	2	3	3
Wisconsin	-	-	-	-	7	8	12
Wyoming	-	-	-	-	-	-	-
Total US Stores	**304**	**366**	**437**	**522**	**625**	**750**	**896**

Source: FIVE Website

APPENDIX 7 Private Label/Exclusive Brands as % of Sales

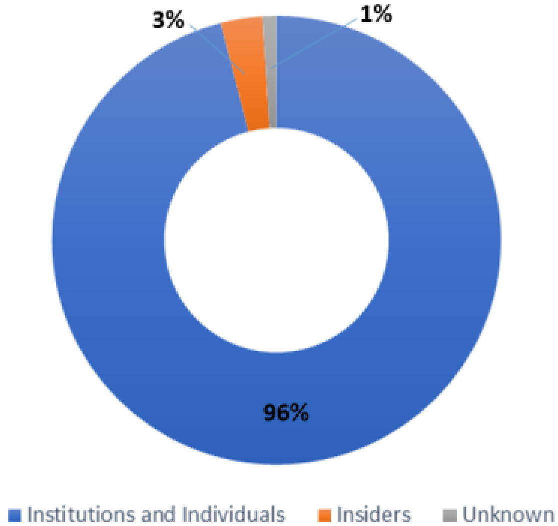


Source: JPMorgan

APPENDIX 8 Selected Partner Brands

Source: JPMorgan

APPENDIX 9a Ownership Summary



Source: FactSet

APPENDIX 9b Board of Directors

Board of Directors

Name	Background	Experience
Thomas Vellios*	Co-Founder of Five Below. Acts as executive chairman of the board. Held other notable board positions at Zany Brainy and Hot Topic.	17
Joel Anderson*	President, CEO and Director of Five Below. Held other board positions at Second Harvest Heartland. Received his MBA from Harvard Business School.	4
Dinesh Lathi	Independent board member, bringing external expertise to Five Below from acting as executive chairman of Tailored Brands, Inc., which is a holding company for multiple fashion stores across the country (i.e. Men's Wearhouse). MBA from Harvard Business School.	1
Richard Markee	Independent board member, bringing external expertise to Five Below from leading multiple different firms across many industries. Most notably he held senior positions at Vitamin Shoppe, Inc. and Irvin Place Capital Management LP.	3
Daniel Kaufman	Independent board member who acts as secretary, chief legal and administrative officer at GameStop Corp. He is also a board member at Entertainment Merchant Association.	4
Kathleen Barclay	Independent board member who sits on 8 different boards. Ms. Barclay offers expertise that stems from her extensive career in HR. Has held senior positions in HR at General Motors and Kroger.	4
Kate Buggeln	Independent board member who brings business expertise from the non-profit sector. Ms. Buggeln acts as chief business growth strategist for Business Council for Peace. She has worked extensively with business development in impoverished countries.	4
Michael Devine III	Independent board member who sits on multiple different boards. Mr. Devine has held many senior positions in finance and operation at places such as McMaster-Carr Supply Co. and Tapestry, Inc. MBA from the Wharton School of Business.	6
Thomas Ryan	Independent board member who sits on 5 different boards. Mr. Ryan was the CEO of CVS Health Corp. and is the founders of Interstate Cash Register, Inc.	8
Ronald Sargent	The most senior independent board member who sits on 7 different boards. Mr. Sargent is the CEO at Medical Arts Press, Inc. He was also the Chairman of Staples. Received a undergraduate degree from Harvard.	15

*Internal Board Member

Source: FIVE Website

APPENDIX 10 Widening Gap Between CPI and Consumer Spending U.S. Population Age Groups

Source: Commerce Department, Conference Board, Bloomberg

Name	2018	2017	2016	2015	2014
Population					
United States Population (M)	331.026M	328.131M	325.245M	322.371M	319.511M
% 15-24 Yrs	13.0	13.1	13.2	13.3	13.5
% 15-19 Yrs	6.5	6.5	6.5	6.5	6.5
% 20-24 Yrs	6.5	6.6	6.7	6.8	7.0
% 25-44 Yrs	26.2	26.2	26.2	26.4	26.4
% 25-29 Yrs	6.9	6.9	6.9	6.9	6.8
% 30-34 Yrs	6.7	6.7	6.7	6.8	6.8
% 35-39 Yrs	6.6	6.6	6.5	6.4	6.3
% 40-44 Yrs	6.0	6.0	6.1	6.3	6.5
% 45-64 Yrs	25.5	25.6	25.8	25.9	25.9
% 45-49 Yrs	6.3	6.4	6.5	6.5	6.5
% 49-54 Yrs	6.4	6.5	6.7	6.9	7.0
% 55-59 Yrs	6.7	6.7	6.7	6.7	6.7
% 60-64 Yrs	6.1	6.0	5.9	5.8	5.7
% Over 65 Yrs	15.4	15.3	14.9	14.5	14.3

Source: Bloomberg

APPENDIX 11 SWOT Analysis

Strengths
- Rapid store expansion
- Excellent shopping experience
- Experienced and management
- Concentrated product line
- Debt free
- Increasing market share
- Loyal customer base
- High same store sales growth rate

Weaknesses
- $5-cap Pricing limitation
- Limited product offering
- Sensitive to product trends
- Low e-commerce presence
- Outsourced distribution centers and freight lines

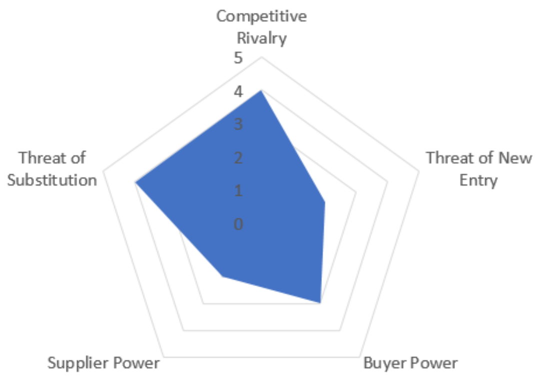
Opportunities
- Huge untapped market potential across the South, the West, and the Midwest.
- IT upgrade will increase operational efficiency and drive sales
- Purchased distribution centers will reduce supply chain costs.

Threats
- Vulnerable to tariffs
- Potential threat of cannibalization by Amazon
- ESG guidelines on plastic toys and other products
- Inability to capture trendy items
- Increase in interest rates might affect store expansion
- Increase in inflation affects pricing

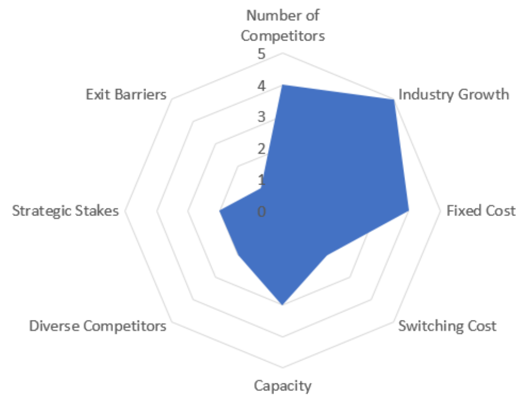
Source: Team Assessment

APPENDIX 12a Porter's Five Forces Radar Chart

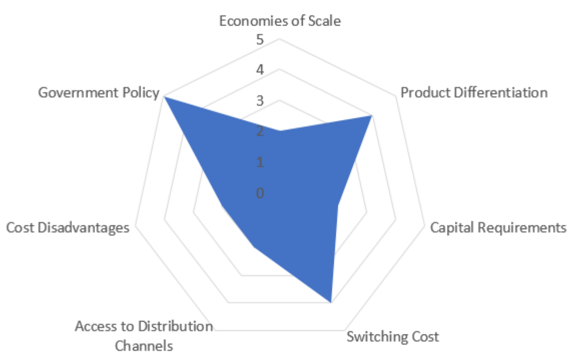
Porter's Five Forces



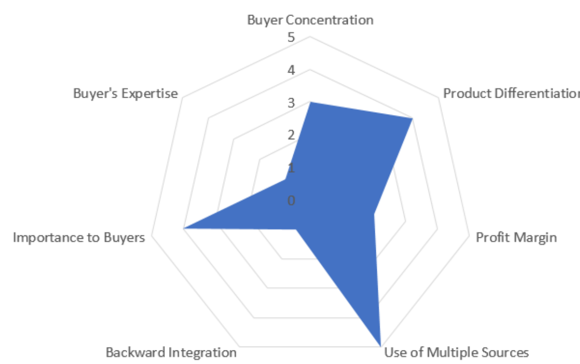
Competitive Rivalry



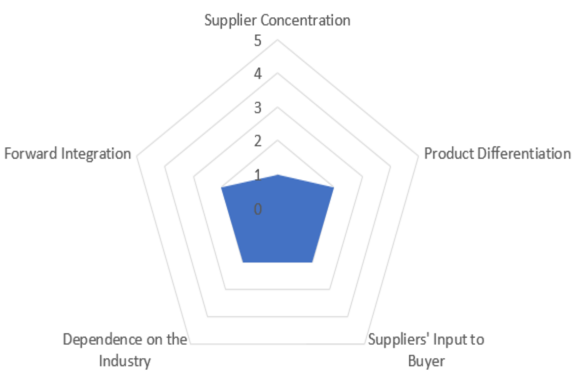
Threat of New Entrants



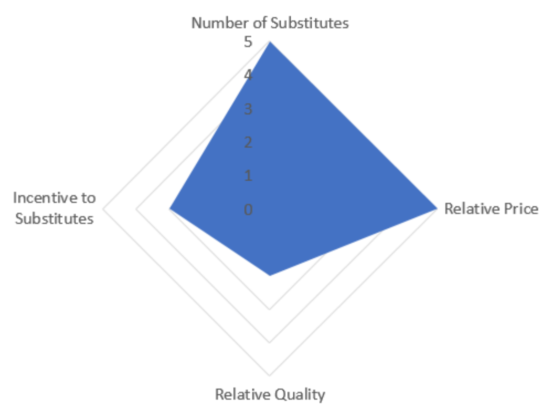
Buyer's Power



Supplier's Power



Threat of Substitutes



Source: MaRs, Team Assessment

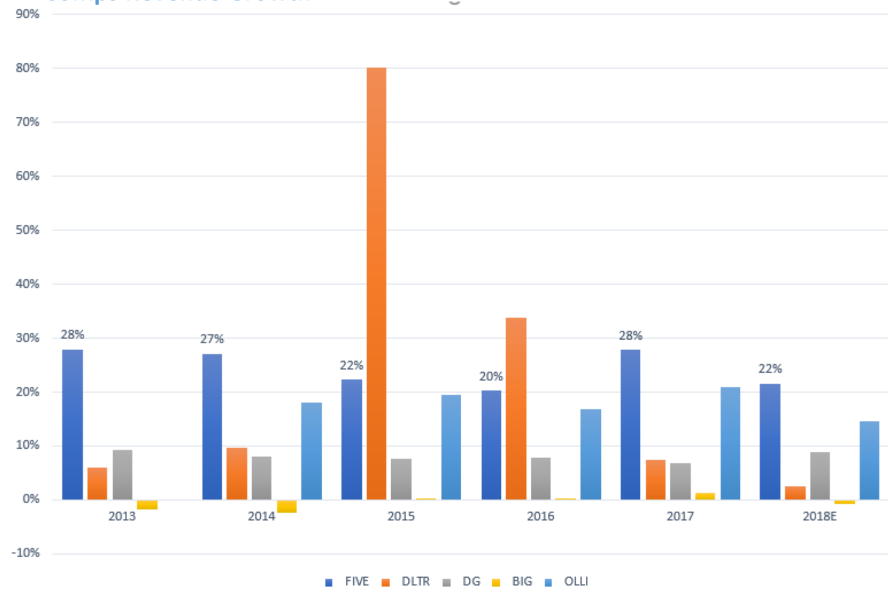
APPENDIX 12b Porter's Five Forces Analysis

Main Categories	Sub-categories	Assessment
Competitive Rivalry	Number of equally-balanced competitors	Several public similar comps that offer similar products at low price. But FIVE offering focuses on teens (toys, electronics, sports, etc) that other comps don't serve much.
	Industry growth	The discount store industry growth average single digit growth, increasing competition for market share.
	Fixed or storage costs	High fixed costs for bigger chains to fend off new entrants. Since products are discretionary, storage or inventory costs may be higher.
	Differentiation or switching costs	Product differentiation is relatively high for FIVE given its specialty and thus, higher switching costs for customers if they want these products.
	Capacity	Economies of scale are building for FIVE but haven't reached a large capacity, which won't result in disruption in supply/demand and overcapacity.(agreed 100%)
	Diverse competitors	Except main comps, no direct diverse or foreign competitors exist in discount stores sector. Only possible diverse competitors are big retailers like Walmart and Target and e-commerce companies like Amazon.
	Strategic stakes	Strategic stakes are aggressive in terms of store openings but not that significant compared to other comps. Also no M&A. At the same time, FIVE is able to maintain or increase profitability that makes the model more attractive.
	Exit barriers	No specialized assets but high fixed costs for exit. Low on strategic interrelationships, emotional barriers, and government and social restrictions.
Threat of New Entry	Economies of scale	Economies of scale is hard to reach for discount stores sector because it involves numerous vendors and suppliers for various products. These force the entrant to either come in at a large scale (risking strong reaction from incumbents) or a small scale (forcing a cost disadvantage).
	Product differentiation	It needs certain level of product differentiation to enter the market because the market is saturated. New entrants need to communicate well to their target customers. FIVE is able to target teens and kids.
	Capital requirements	Relatively high in order to pose major threat to FIVE due to high fixed costs for new stores, infrastructure, and outsourcing costs.
	Switching costs	Switching costs are low not only customers can go to competitors but there are many substitutes of just one product.
	Access to distribution channels	Distribution channels are exclusive due to the size of the industries, and companies like Dollar Tree and Dollar General have their own distribution centers and truck lines. FIVE leverages third-party distributors and freight lines but is increasingly building its own distribution centers.
	Cost disadvantages	The discount stores sector have substantial advantage in costs due to its volume and pricing. Any single new entrant would face tremendous pressure of its supply chain.
	Government policy	Not much regulations for new entrants.
Buyer Power	Buyer concentration	FIVE's customers are mostly families with children between 5-17 years old, with other age groups as well. From our observation, buyers are not typically concentrated but indeed a focus on teens and kids. They only purchase about $15 per transaction.
	Product differentiation	Products (toys, electronics, and other fun products) are relatively differentiated from other comps, which lowers buyer power.
	Profit margin	FIVE's profit margin is high compared to comps, indicating that the customers accept the pricing and purchase from FIVE.
	Use of multiple sources	Switching costs are low for buyers because other comps provide similar products.
	Backward integration	Retail customers do not have ability to produce these products so no backward integration.
	Importance to buyers	The products are not very important to buyers so buyers won't concern the quality much given the below $5 pricing.
	Buyer's expertise	Customers have most information of the products since products are sold in multiple sources. However, buyer's expertise does not play major role here due to low specialty of the products.
Supplier Power	Supplier concentration	Numerous vendors and suppliers for FIVE so the outsourcing process is complicated, which lowers supplier power.
	Product differentiation	Products are differentiated in certain categories so suppliers like Disney and Hasbro have high supplier power, but most products could be easily outsourced from one supplier to another supplier.
	Suppliers' input to buyer	Suppliers has low power as FIVE could outsource from many suppliers at low cost in China. But long-term suppliers could pose threat due to its cost advantage.
	Dependance on the industry	A lot of foreign suppliers depend on orders from FIVE.
	Forward integration	Most suppliers don't sell their products. However, suppliers could export the products to other comps due to better deals.
Threat of Substitution	Number of substitutes	High as their products are sold in multiple sources.
	Relative price	High because products are not specialized and customers mostly concern pricing.
	Relative quality	Moderate as customers expect what quality they get within $5. Customers also concern about the safety of the products.
	Incentive to substitutes	Moderate because although customers like the idea of everything priced below $5, they still have alternatives since people won't get sensitive on a few dollars increase. In other words, FIVE's customers are not very loyal.

Source: MaRs, Team Assessment

APPENDIX 13a Comparables Store Performance

Comps Revenue Growth

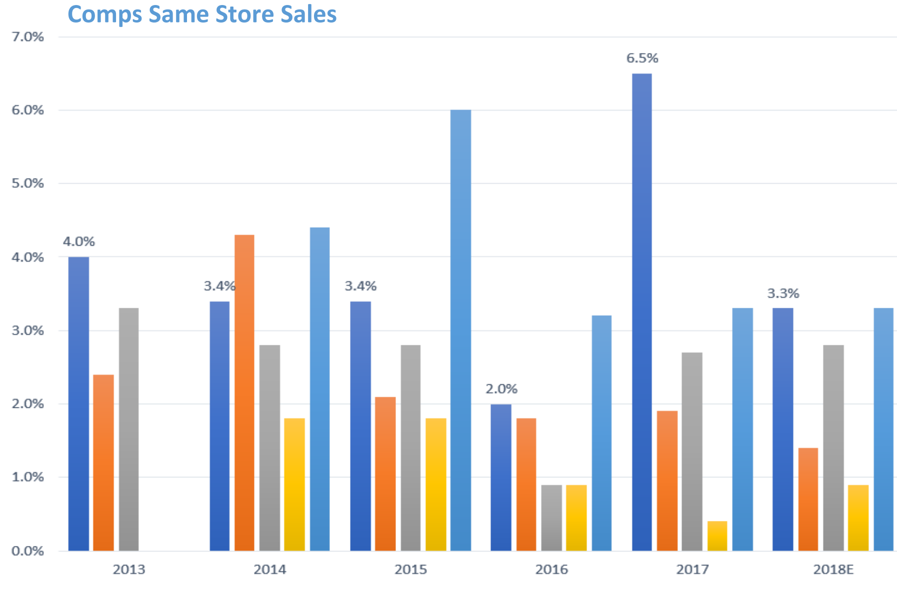


Source: 10-K, Team Assessment

Comps Store Growth

Source: 10-K, Team Assessment

Comps Same Store Sales



Source: 10-K, Team Assessment

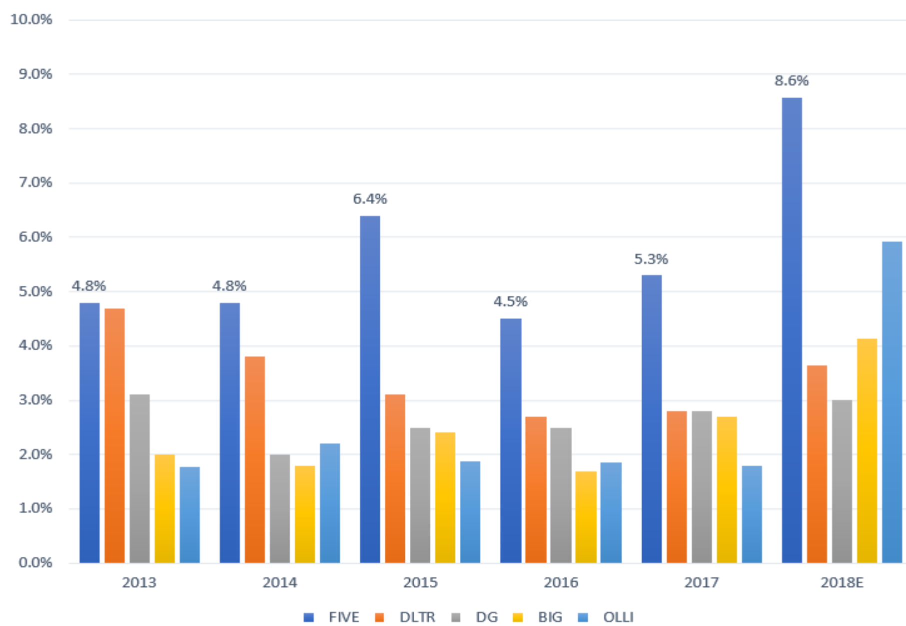
APPENDIX 13b Comparables Store and CapEx Analysis

Selected Comps Store Metrics

	FIVE	OLLI	DG
Store Size	8k Sq. Ft	30k Sq. Ft	7.4k Sq. Ft
Year 1 Sales ($ in M)	$1.60	$3.90	NA
Year 1 Sales Per Sq Ft	$0.20	$0.13	NA
Net Investment	$300k	$1M	$250k
Payback Period	< 1 year	< 2 years	< 2 years

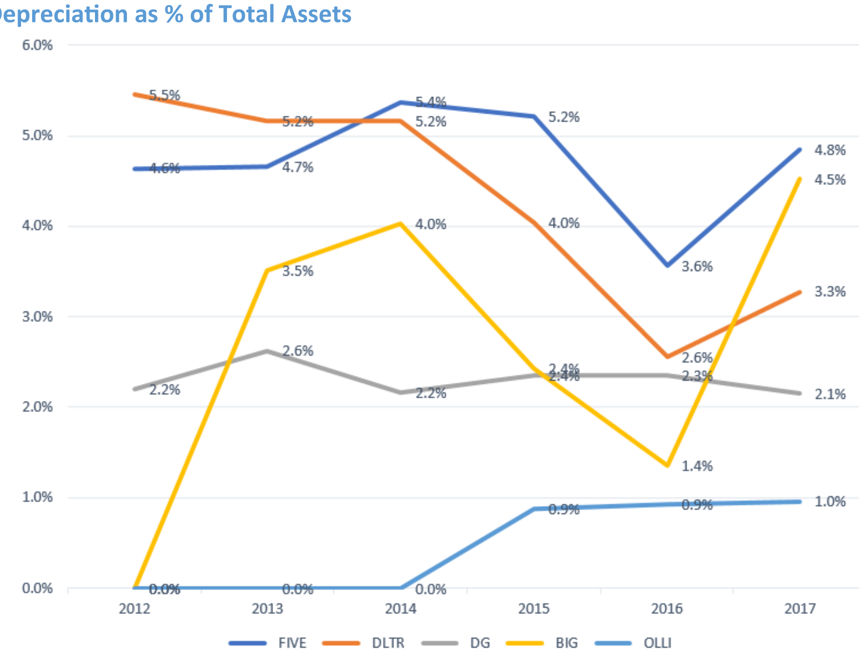
Source: 10-K, FactSet

CapEx as % of Revenue



Source: 10-K, Team Assessment

Depreciation as % of Total Assets



Source: 10-K, Team Assessment

APPENDIX 13c Comparables Profitability and Return Analysis

Profitability Metrics

Profitability	JAN '10 FY	JAN '11 FY	JAN '12 FY	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY
Gross Margin	32.0%	33.5%	35.3%	35.8%	35.6%	35.3%	35.1%	35.7%	36.3%	38.1%
FIVE	32.0%	33.5%	35.3%	35.8%	35.1%	35.0%	35.1%	35.7%	36.3%	38.1%
DLTR	35.5%	35.5%	35.9%	35.9%	35.6%	35.3%	30.0%	30.9%	31.6%	30.9%
DG	31.3%	32.0%	31.7%	31.7%	31.1%	30.7%	31.0%	30.8%	30.8%	30.7%
BIG	40.6%	40.6%	40.0%	39.4%	39.2%	39.5%	39.8%	40.4%	40.6%	40.6%
OLLI	0.0%	0.0%	0.0%	0.0%	38.6%	38.6%	38.8%	39.5%	39.2%	40.1%
Operating Margin	6.9%	7.2%	8.8%	9.0%	9.9%	9.9%	9.5%	9.4%	9.0%	8.6%
FIVE	5.5%	6.0%	8.8%	9.0%	10.0%	11.3%	11.2%	11.4%	12.3%	12.0%
DLTR	9.8%	10.7%	11.8%	12.4%	12.4%	12.1%	6.8%	8.2%	9.0%	8.2%
DG	8.1%	9.8%	10.1%	10.3%	9.9%	9.4%	9.5%	9.4%	8.6%	8.6%
BIG	6.9%	7.2%	6.7%	5.6%	4.5%	4.3%	4.5%	4.8%	5.7%	4.8%
OLLI	0.0%	0.0%	0.0%	0.0%	9.4%	9.9%	10.5%	11.5%	13.3%	13.0%
EBITDAR Margin	13.7%	16.2%	17.4%	17.6%	18.1%	15.8%	15.9%	16.8%	17.9%	16.7%
FIVE	8.4%	17.0%	19.1%	19.1%	20.4%	21.7%	21.8%	21.9%	22.6%	23.5%
DLTR	19.6%	20.0%	20.7%	21.0%	21.2%	21.1%	16.6%	17.5%	17.9%	16.7%
DG	13.8%	15.4%	15.6%	16.0%	15.8%	15.4%	15.5%	15.5%	15.1%	14.5%
BIG	13.6%	14.1%	13.9%	13.3%	12.0%	12.8%	13.3%	13.2%	14.2%	13.4%
OLLI	-	-	-	-	-	15.8%	15.9%	16.8%	18.6%	17.7%
Profit Margin	4.2%	4.5%	5.2%	4.8%	5.9%	5.6%	4.7%	5.7%	7.7%	6.4%
FIVE	9.3%	3.6%	5.4%	4.8%	6.0%	7.1%	6.9%	7.2%	8.0%	9.3%
DLTR	6.1%	6.8%	7.4%	8.4%	7.6%	7.0%	1.8%	4.3%	7.7%	5.7%
DG	2.9%	4.8%	5.2%	5.9%	5.9%	5.6%	5.7%	5.7%	6.6%	6.4%
BIG	4.2%	4.5%	4.0%	3.3%	2.4%	2.2%	2.8%	2.9%	3.6%	3.5%
OLLI	0.0%	0.0%	0.0%	0.0%	3.6%	4.2%	4.7%	6.7%	11.9%	9.4%
CapEx as % of Sales	2.7%	3.1%	3.4%	3.7%	3.1%	2.2%	2.5%	2.5%	2.8%	4.1%
FIVE	5.8%	7.5%	6.2%	5.5%	4.8%	4.8%	6.4%	4.5%	5.3%	8.6%
DLTR	3.2%	3.0%	3.3%	3.7%	4.7%	3.8%	3.1%	2.7%	2.8%	3.6%
DG	2.1%	3.2%	3.5%	3.6%	3.1%	2.0%	2.5%	2.5%	2.8%	3.0%
BIG	1.7%	2.2%	2.5%	2.4%	2.0%	1.8%	2.4%	1.7%	2.7%	4.1%
OLLI	-	-	-	-	1.8%	2.2%	1.9%	1.8%	1.8%	5.9%
Inventory Turnover	3.9	4.0	4.2	4.3	4.1	4.3	4.1	4.1	4.4	4.0
FIVE	-	-	5.9	5.4	4.6	4.3	4.1	4.2	7.5	4.0
DLTR	4.1	4.2	4.2	4.3	4.1	4.4	4.5	4.1	4.4	4.8
DG	5.5	5.4	5.4	5.0	4.9	4.9	4.8	4.8	4.7	4.5
BIG	3.9	4.0	4.1	3.9	3.7	3.7	3.8	3.8	3.8	3.6
OLLI	-	-	-	-	-	2.5	2.6	2.7	2.8	2.6

Source: 10-K, Team Assessment

Return Metrics

Return	JAN '10 FY	JAN '11 FY	JAN '12 FY	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY
ROIC	20.1%	22.9%	26.1%	21.0%	21.8%	14.8%	14.0%	15.2%	18.3%	17.8%
FIVE	-	-	30.4%	22.5%	30.6%	33.0%	27.6%	25.0%	25.9%	27.8%
DLTR	20.1%	23.5%	29.6%	35.2%	31.0%	26.8%	4.0%	7.7%	14.6%	15.1%
DG	4.9%	8.9%	10.5%	12.7%	12.9%	12.9%	14.0%	15.2%	18.3%	20.2%
BIG	22.7%	22.9%	22.6%	19.5%	13.1%	14.8%	17.3%	19.8%	23.3%	13.8%
OLLI	-	-	-	-	-	3.8%	4.8%	7.5%	15.2%	17.8%
ROA	13.0%	11.4%	12.1%	9.8%	11.7%	9.6%	8.7%	9.4%	12.2%	10.2%
FIVE	-	9.2%	12.0%	9.0%	13.7%	16.3%	13.7%	13.5%	14.2%	16.6%
DLTR	14.8%	17.0%	20.7%	24.4%	21.6%	18.9%	2.9%	5.6%	10.6%	7.5%
DG	3.8%	6.8%	8.0%	9.5%	9.7%	9.6%	10.3%	10.7%	12.6%	12.4%
BIG	13.0%	13.5%	12.3%	10.1%	7.1%	8.1%	8.7%	9.4%	11.7%	10.10%
OLLI	-	-	-	-	-	3.0%	3.8%	6.0%	12.2%	10.20%
ROE	22.7%	19.8%	24.7%	23.3%	23.4%	19.2%	18.9%	21.7%	26.7%	24.2%
FIVE	-	16.3%	25.9%	24.2%	27.1%	27.5%	23.6%	21.7%	22.3%	27.4%
DLTR	23.9%	27.5%	34.8%	41.1%	42.1%	40.5%	9.1%	18.3%	27.3%	16.5%
DG	10.9%	16.8%	17.6%	19.7%	19.7%	19.2%	21.0%	23.2%	26.7%	24.2%
BIG	22.7%	22.9%	23.4%	22.4%	15.0%	16.2%	18.9%	22.3%	28.8%	26.50%
OLLI	-	-	-	-	-	6.3%	7.3%	9.9%	17.6%	12.50%

Source: 10-K, Team Assessment

APPENDIX 13d Comparables Store Metrics

Store Analysis Metrics

Store Analysis	JAN '10 FY	JAN '11 FY	JAN '12 FY	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY
# of Stores										
FIVE	-	-	192	244	304	366	437	522	625	750
DLTR	3,806	4,101	4,351	4,671	4,992	5,367	13,851	14,334	14,610	15,339
DG	8,828	9,372	9,937	10,506	11,132	11,789	12,483	13,320	14,534	15,396
BIG	1,361	1,398	1,533	1,574	1,570	1,460	1,449	1,432	1,416	1,409
OLLI	-	-	-	-	134	176	203	234	268	305
Sales per Store										
FIVE	-	-	1.5	1.7	1.8	1.9	1.9	1.9	2.0	2.1
YoY%	-	-	-	*10.9%*	*2.6%*	*5.5%*	*2.4%*	*0.7%*	*6.7%*	1.3%
DLTR	1.4	1.4	1.5	1.6	1.6	1.6	1.1	1.4	1.5	1.5
YoY%	-	*4.4%*	*6.2%*	*3.9%*	*-0.8%*	*2.1%*	*-30.2%*	*29.2%*	*1.9%*	-2.4%
DG	1.3	1.4	1.5	1.5	1.6	1.6	1.6	1.7	1.6	1.7
YoY%	-	*4.1%*	*7.1%*	*2.3%*	*3.1%*	*2.0%*	*1.7%*	*1.2%*	*-2.2%*	2.9%
BIG	3.5	3.5	3.4	3.4	3.4	3.5	3.6	3.6	3.7	3.7
YoY%	-	*2.0%*	*-4.2%*	*1.1%*	*-1.6%*	*5.0%*	*1.0%*	*1.4%*	*2.5%*	-0.2%
OLLI	-	-	-	-	4.0	3.6	3.8	3.8	4.0	4.0
YoY%	-	-	-	-	-	*-10.2%*	*3.6%*	*1.3%*	*5.6%*	0.7%
Same Store Sales Growth										
FIVE	12.1%	15.6%	7.9%	7.1%	4.0%	3.4%	3.4%	2.0%	6.5%	3.3%
DLTR	7.2%	6.3%	6.0%	3.4%	2.4%	4.3%	2.1%	1.8%	1.9%	1.4%
DG	9.5%	4.9%	6.0%	4.7%	3.3%	2.8%	2.8%	0.9%	2.7%	2.8%
BIG	0.7%	2.5%	0.1%	0.0%	0.0%	1.8%	1.8%	0.9%	0.4%	0.9%
OLLI	-	-	-	-	-	4.4%	6.0%	3.2%	3.3%	3.3%
Sales / Retail Sq. Ft.										
FIVE	-	215.5	237.2	256.2	260.5	270.7	276.3	268.4	278.6	221.4
YoY%	-	-	*10.1%*	*8.0%*	*1.7%*	*3.9%*	*2.1%*	*-2.9%*	*3.8%*	-20.5%
DLTR	167.0	174.0	182.0	190.0	187.0	192.0	191.0	188.0	194.0	308.3
YoY%	*5.7%*	*4.2%*	*4.6%*	*4.4%*	*-1.6%*	*2.7%*	*-0.5%*	*-1.6%*	*3.2%*	58.9%
DG	194.8	201.0	213.0	216.0	220.0	223.0	226.0	229.0	227.0	341.6
YoY%	*8.4%*	*3.2%*	*6.0%*	*1.4%*	*1.9%*	*1.4%*	*1.4%*	*1.3%*	*-0.9%*	50.5%
BIG	160.0	162.0	166.0	166.0	163.0	151.1	163.2	165.1	167.9	167.3
YoY%	*1.3%*	*2.5%*	*2.5%*	*0.0%*	*-1.8%*	*-7.3%*	*8.0%*	*1.1%*	*1.7%*	-0.3%
OLLI	-	-	-	-	-	109.8	113.8	115.3	123.7	124.8
YoY%	-	-	-	-	-	-	0.0	0.0	0.1	0.9%

Source: 10-K, Team Assessment

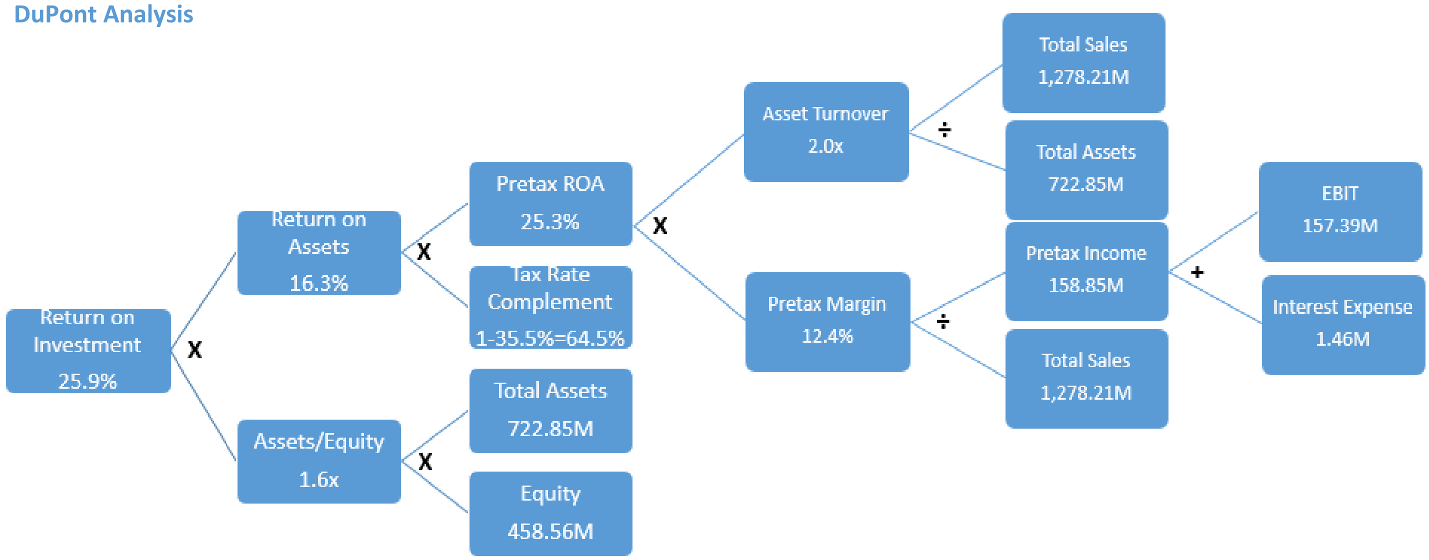
Cannibalization on Old Stores from New Stores

Estimated revenue per Existing Store	JAN '10 FY	JAN '11 FY	JAN '12 FY	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY
FIVE	-	-	-	1.7	1.8	1.8	1.9	2.0	2.0	2.2
DLTR	-	1.5	1.5	1.6	1.6	1.6	1.7	1.1	1.5	1.6
DG	-	1.5	1.5	1.6	1.6	1.6	1.6	1.7	1.7	1.7
BIG	-	3.5	3.6	3.4	3.4	3.4	3.6	3.6	3.7	3.7
OLLI	-	-	-	-	-	-	3.8	4.0	3.9	4.2
Cannibalization from New Stores										
FIVE	-	-	-	0.05	(0.08)	0.03	(0.02)	(0.05)	0.09	(0.11)
DLTR	-	(0.04)	(0.00)	(0.03)	(0.07)	(0.01)	(0.55)	0.30	0.05	(0.06)
DG	-	(0.07)	0.03	(0.05)	(0.02)	(0.02)	(0.02)	(0.03)	(0.05)	0.00
BIG	-	0.04	(0.24)	0.03	(0.05)	0.17	(0.03)	(0.02)	0.06	(0.02)
OLLI	-	-	-	-	-	-	(0.03)	(0.18)	0.09	(0.10)

Source: 10-K, Team Assessment

APPENDIX 14 DuPont Analysis and Operation Metrics

DuPont Analysis



Source: 10-K, Team Assessment

Operation Metrics

Five Below	JAN '10 FY	JAN '11 FY	JAN '12 FY	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY
Operating Efficiency									
Revenue/Employee (actual)	-	-	100,376.0	111,686.7	97,345.8	101,525.1	109,467.6	105,306.3	105,637.0
Net Income/Employee (actual)	-	-	5,431.8	4,566.9	5,759.5	7,164.8	7,589.5	7,562.1	8,467.0
Assets/Employee (actual)	-	-	45,448.3	50,576.0	42,191.6	44,009.3	55,426.4	56,037.2	59,739.8
Receivables Turnover (x)	-	-	29,711.3	-	-	-	-	-	-
Inventory Turnover (x)	-	-	6.1	5.6	4.8	4.5	4.3	4.4	5.0
Payables Turnover (x)	-	-	12.6	11.7	12.6	13.3	12.2	12.4	14.2
Asset Turnover (x)	-	-	2.8	2.6	2.5	2.6	2.3	2.1	2.0
Working Capital Turnover (x)	-	7.1	7.0	6.9	6.6	5.3	5.1	4.5	4.1
Operating Cycle									
Days of Inventory on Hand	-	-	60.0	65.3	76.0	81.4	85.7	82.5	73.5
+ Days of Sales Outstanding	-	-	0.0	-	-	-	-	-	-
= Operating Cycle	-	-	60.0	65.3	76.0	81.4	85.7	82.5	73.5
- Days of Payables Outstanding	-	-	29.0	31.3	29.0	27.5	29.9	29.5	25.7
= Net Operating Cycle	-	-	31.0	34.0	46.9	53.9	55.8	53.0	47.7
Liquidity									
Current Ratio	-	2.5%	1.8%	1.9%	2.0%	2.6%	2.6%	2.9%	2.9%
Quick Ratio	-	1.1%	1.1%	1.0%	0.9%	1.2%	1.1%	1.6%	1.8%
Cash Ratio	-	0.7%	0.8%	0.8%	0.6%	0.8%	1.0%	1.3%	1.5%
Cash & ST Inv/Current Assets (%)	-	26.5%	44.8%	43.2%	31.2%	30.4%	37.6%	45.3%	51.0%
CFO/Current Liabilities (%)	-	82.6%	93.5%	44.1%	39.1%	77.4%	86.0%	91.5%	101.8%
Leverage									
LT Debt/Total Equity	-	0.6%	0.4%	27.6%	-	-	-	-	-
LT Debt/Total Capital	-	0.6%	0.4%	18.5%	-	-	-	-	-
LT Debt/Total Assets	-	0.3%	0.2%	10.3%	-	-	-	-	-
Total Debt/Total Assets	-	0.3%	0.2%	18.2%	8.4%	-	-	-	-
Net Debt/Total Equity	-	-27.6%	-66.1%	-30.5%	-26.3%	-36.3%	-40.7%	-46.4%	-53.3%
Total Debt/Equity	-	0.6%	0.4%	48.8%	16.7%	-	-	-	-
Net Debt/Total Capital	-	-27.5%	-65.8%	-20.5%	-22.5%	-36.3%	-40.7%	-46.4%	-53.3%
Total Debt/Total Capital	-	0.6%	0.4%	32.8%	14.3%	-	-	-	-
Coverage									
Net Debt/EBITDA	-	(0.7)	(1.2)	(0.5)	(0.5)	(0.7)	(0.9)	(1.1)	(1.3)
Net Debt/(EBITDA-Capex)	-	(6.9)	(2.8)	(0.9)	(0.7)	(1.0)	(1.6)	(1.6)	(2.0)
Total Debt/EBITDA	-	0.0	0.0	0.7	0.3	-	-	-	-
EBIT/Interest Expense (Int. Coverage)	94.2	421.6	-	15.9	35.5	616.1	-	-	-
EBITDA/Interest Expense	144.4	593.2	-	19.9	44.4	753.7	-	-	-
Fixed-charge Coverage Ratio	94.2	421.6	-	0.3	35.5	616.1	-	-	-
CFO/Interest Expense	126.4	537.3	-	12.8	20.6	491.4	-	-	-
Cash Dividend Coverage Ratio	-	0.1	-	0.5	-	-	-	-	-
LT Debt/EBITDA	-	0.0	0.0	0.4	-	-	-	-	-
Net Debt/FFO	-	(0.9)	(1.7)	(0.5)	(0.6)	(0.9)	(1.1)	(1.4)	(1.6)
LT Debt/FFO	-	0.0	0.0	0.4	-	-	-	-	-
FCF/Total Debt	-	0.6	112.5	0.2	0.3	-	-	-	-
CFO/Total Debt	-	60.2	186.8	0.9	1.6	-	-	-	-

Source: FactSet

APPENDIX 15 Sales Forecast and Black-Scholes Option Model

Sales Forecast—Base Case

	JAN '10	JAN '11	JAN '12	JAN '13	JAN '14	JAN '15	JAN '16	JAN '17	JAN '18	JAN '19	JAN' 20	JAN' 21	JAN' 22	JAN' 23	JAN' 24
Net sales	**125.14**	**197.19**	**297.11**	**418.83**	**535.40**	**680.22**	**831.95**	**1,000.41**	**1,278.21**	**1,553.94**	**1,885.03**	**2,253.84**	**2,685.63**	**3,088.47**	**3,551.74**
Net sales growth	*N/A*	*58%*	*51%*	*41%*	*28%*	*27%*	*22%*	*20%*	*28%*	*22%*	*21%*	*20%*	*19%*	*15%*	*15%*
Net Sales/Invested Capital	*N/A*	*573%*	*1050%*	*709%*	*554%*	*542%*	*543%*	*568%*	*623%*	*512%*	*476%*	*462%*	*490%*	*521%*	*555%*
Leisure	64.69	99.78	150.34	220.30	276.80	346.91	422.63	500.21	640.38	797.27	980.64	1,181.67	1,418.01	1,630.71	1,875.31
% Net sales	*52%*	*51%*	*51%*	*53%*	*52%*	*51%*	*51%*	*50%*	*50%*	*51%*	*52%*	*52%*	*53%*	*53%*	*53%*
YoY %	*N/A*	*54%*	*51%*	*47%*	*26%*	*25%*	*22%*	*18%*	*28%*	*24%*	*23%*	*21%*	*20%*	*15%*	*15%*
Fashion and Home	39.67	63.49	94.18	126.90	156.87	199.30	247.09	312.13	403.91	476.93	577.08	692.50	831.00	955.65	1,099.00
% Net sales	*32%*	*32%*	*32%*	*30%*	*29%*	*29%*	*30%*	*31%*	*32%*	*31%*	*31%*	*31%*	*31%*	*31%*	*31%*
YoY %	*N/A*	*60%*	*48%*	*35%*	*24%*	*27%*	*24%*	*26%*	*29%*	*23%*	*21%*	*20%*	*20%*	*15%*	*15%*
Party and Snack	20.77	33.92	52.59	71.62	101.73	134.00	162.23	188.08	233.91	279.75	327.30	379.67	436.62	502.12	577.44
% Net sales	*17%*	*17%*	*18%*	*17%*	*19%*	*20%*	*20%*	*19%*	*18%*	*18%*	*17%*	*17%*	*16%*	*16%*	*16%*
YoY %	*N/A*	*63%*	*55%*	*36%*	*42%*	*32%*	*21%*	*16%*	*24%*	*18%*	*17%*	*16%*	*15%*	*15%*	*15%*
Cost of sales, excl. D&A	(85.04)	(131.05)	(192.25)	(268.99)	(347.39)	(442.43)	(540.02)	(643.37)	(814.80)	(962.34)	(1,154.81)	(1,374.22)	(1,621.59)	(1,864.82)	(2,144.55)
% Net sales	*68%*	*66%*	*65%*	*64%*	*65%*	*65%*	*65%*	*64%*	*64%*	*62%*	*61%*	*61%*	*60%*	*60%*	*60%*
YoY %	*N/A*	*54%*	*47%*	*40%*	*29%*	*27%*	*22%*	*19%*	*27%*	*18%*	*20%*	*19%*	*18%*	*15%*	*15%*

Source: Team Assessment

Black-Scholes Option Model

Enter the current stock price =	117.57	
Enter the strike price on the option =	42	
Enter the expiration of the option =	1.06	
Enter the standard deviation in stock prices =	10.00%	(assumed volatility)
Enter the annualized dividend yield on stock =	0.00%	
Enter the treasury bond rate =	2.71%	as of 01/11/2019
Enter the number of warrants (options) outstanding =	0.32	As of Q3 2018
Enter the number of shares outstanding =	56.19	As of Q3 2018

VALUING WARRANTS WHEN THERE IS DILUTION

Stock Price=	**117.57**	# Warrants issued=	**0.32**
Strike Price=	**42.00**	# Shares outstanding=	**56.19**
Adjusted S =	**117.34**	T.Bond rate=	**2.71%**
Adjusted K=	**42.00**	Variance=	**0.0100**
Expiration (in years) =	**1.06**	Annualized dividend yield=	**0.00%**
		Div. Adj. interest rate=	**2.71%**

d1 =	10.32951426
N (d1) =	1
d2 =	10.22677403
N (d2) =	1

Value of the call = $76.52

Source: Team Assessment

APPENDIX 16a DCF - Base Case

in $ millions

	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN' 20 FY	JAN' 21 FY	JAN' 22 FY	JAN' 23 FY	JAN' 24 FY
Working cash	8.38	10.71	13.60	16.64	20.01	25.56	31.08	37.70	45.08	53.71	61.77	71.03
Short-Term Receivables	-	-	-	-	-	-	-	-	-	-	-	-
Inventories	60.83	89.38	115.65	148.37	154.45	187.04	237.20	281.48	331.19	386.36	439.21	499.21
Other Current Assets	12.76	21.34	28.74	16.96	31.46	47.70	56.41	65.85	75.65	86.46	95.20	104.61
Operating current assets	**81.97**	**121.42**	**158.00**	**181.97**	**205.92**	**260.30**	**324.69**	**385.03**	**451.91**	**526.53**	**596.18**	**674.86**
Accounts Payable	27.95	34.01	39.22	58.23	51.18	73.03	89.90	107.88	128.38	151.49	174.21	200.34
Income Tax Payable	7.08	6.01	14.44	11.94	23.94	25.28	29.89	35.75	42.12	49.46	56.03	63.46
Deferred Income	28.90	35.20	-	-	-	-	-	-	-	-	-	-
Other Current Liabilities	18.75	20.22	25.74	32.03	41.45	66.15	78.24	59.72	72.95	83.86	93.89	105.04
Operating current liabilities	**82.69**	**95.44**	**79.40**	**102.20**	**116.56**	**164.46**	**198.03**	**203.35**	**243.45**	**284.81**	**324.13**	**368.83**
Operating working capital	**(0.71)**	**25.98**	**78.60**	**79.77**	**89.36**	**95.84**	**126.66**	**181.68**	**208.46**	**241.73**	**272.05**	**306.03**
Net Property, Plant & Equipment	59.04	70.38	87.00	119.78	138.38	180.35	261.06	316.69	378.65	424.33	457.10	490.14
Net Other Operating Assets	0.76	0.30	(40.17)	(46.36)	(51.75)	(71.07)	(84.06)	(101.96)	(99.38)	(118.41)	(136.18)	(156.60)
Invested capital (Uses) Operating	**59.09**	**96.67**	**125.43**	**153.20**	**175.98**	**205.12**	**303.67**	**396.40**	**487.73**	**547.65**	**592.97**	**639.57**
Net sales	**418.83**	**535.40**	**680.22**	**831.95**	**1,000.41**	**1,278.21**	**1,553.94**	**1,885.03**	**2,253.84**	**2,685.63**	**3,088.47**	**3,551.74**
Leisure	220.30	276.80	346.91	422.63	500.21	640.38	797.27	980.64	1,181.67	1,418.01	1,630.71	1,875.31
YoY %	*47%*	*26%*	*25%*	*22%*	*18%*	*28%*	*24%*	*23%*	*21%*	*20%*	*15%*	*15%*
Fashion and Home	126.90	156.87	199.30	247.09	312.13	403.91	476.93	577.08	692.50	831.00	955.65	1,099.00
YoY %	*35%*	*24%*	*27%*	*24%*	*26%*	*29%*	*23%*	*21%*	*20%*	*20%*	*15%*	*15%*
Party and Snack	71.62	101.73	134.00	162.23	188.08	233.91	279.75	327.30	379.67	436.62	502.12	577.44
YoY %	*36%*	*42%*	*32%*	*21%*	*16%*	*24%*	*18%*	*17%*	*16%*	*15%*	*15%*	*15%*
Cost of sales, excl. D&A	(268.99)	(347.39)	(442.43)	(540.02)	(643.37)	(814.80)	(962.34)	(1,154.81)	(1,374.22)	(1,621.59)	(1,864.82)	(2,144.55)
YoY %	*40%*	*29%*	*27%*	*22%*	*19%*	*27%*	*18%*	*20%*	*19%*	*18%*	*15%*	*15%*
Gross Profit	149.84	188.02	237.79	291.93	357.04	463.41	591.60	730.22	879.62	1,064.04	1,223.65	1,407.20
Gross margin	*36%*	*35%*	*35%*	*35%*	*36%*	*36%*	*38%*	*39%*	*39%*	*40%*	*40%*	*40%*
SG&A	(102.58)	(120.81)	(143.57)	(176.77)	(216.44)	(272.78)	(344.97)	(420.87)	(505.04)	(595.95)	(685.34)	(788.14)
Deprecation and Amortization	(9.60)	(13.47)	(17.20)	(22.23)	(26.63)	(33.24)	(60.49)	(72.59)	(87.11)	(100.17)	(115.20)	(132.48)
Adjusted EBIT	**37.65**	**53.74**	**77.02**	**92.94**	**113.96**	**157.39**	**186.14**	**236.76**	**287.47**	**367.92**	**423.11**	**486.58**
Operating margin	*9%*	*10%*	*11%*	*11%*	*11%*	*12%*	*12%*	*13%*	*13%*	*14%*	*14%*	*14%*
Operating cash taxes	(15.54)	(20.49)	(28.77)	(35.08)	(42.31)	(55.88)	(41.14)	(49.72)	(60.37)	(77.26)	(88.85)	(102.18)
Tax rate	*41%*	*38%*	*37%*	*38%*	*37%*	*36%*	*23%*	*21%*	*21%*	*21%*	*21%*	*21%*
NOPLAT	**22.12**	**33.24**	**48.25**	**57.86**	**71.65**	**101.51**	**145.00**	**187.04**	**227.10**	**290.66**	**334.26**	**384.39**
YoY %	*38%*	*50%*	*45%*	*20%*	*24%*	*42%*	*43%*	*29%*	*21%*	*28%*	*15%*	*15%*
ROIC	**37.43%**	**34.39%**	**38.47%**	**37.77%**	**40.72%**	**49.49%**	**47.75%**	**47.18%**	**46.56%**	**53.07%**	**56.37%**	**60.10%**

in $ millions	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN '20 FY	JAN '21 FY	JAN '22 FY	JAN '23 FY	JAN '24 FY
NOPLAT	22.12	33.24	48.25	57.86	71.65	101.51	145.00	187.04	227.10	290.66	334.26	384.39
Depreciation	9.60	13.47	17.20	22.23	26.63	33.24	60.49	72.59	87.11	100.17	115.20	132.48
Gross Cash Flow	31.71	46.71	65.45	80.08	98.28	134.75	205.49	259.63	314.21	390.83	449.46	516.87
Change in Invested Capital												
Operating Working Capital	(13.26)	(26.70)	(52.61)	(1.17)	(9.58)	(6.48)	(30.82)	(55.02)	(26.78)	(33.27)	(30.32)	(33.98)
PPE, Net	(24.07)	(20.94)	(30.09)	(49.99)	(40.82)	(68.60)	(20.22)	(54.68)	(89.70)	(81.14)	(97.44)	(112.05)
Net Operating Assets	(0.53)	0.46	40.47	6.19	5.39	19.32	12.98	17.91	(2.59)	19.04	17.76	20.43
FCFF	**(6.14)**	**(0.46)**	**23.22**	**35.11**	**53.27**	**78.98**	**167.43**	**167.84**	**195.14**	**295.47**	**339.46**	**391.27**

Year	Free Cash Flow	Discount Factor	PV of Cash Flows
2019	$ 167.4	1.09	$ 153.5
2020	$ 167.8	1.19	$ 141.0
2021	$ 195.1	1.30	$ 150.3
2022	$ 295.5	1.42	$ 208.6
2023	$ 339.5	1.55	$ 219.6
2024	$ 391.3	1.69	$ 232.0
2025	$ 443.1	1.84	$ 240.9
2026	$ 487.1	2.01	$ 242.7
2027	$ 535.8	2.19	$ 244.7
2028	$ 589.4	2.39	$ 246.7
2029	$ 648.3	2.61	$ 248.7
2030	$ 680.2	2.84	$ 2,917.4
Core Operating Value			$ 5,246.0
Excess cash			$ 219.1
Gross Enterprise Value			$ 5,465.1
ST Debt and Current maturities of long-term debt			$ -
Long-term debt			$ -
Accrued Payroll			$ (22.9)
Employee Stock Options			$ (24.6)
Intrinsic Equity Value			$ 5,417.6
Number of shares			55.76
Intrinsic Equity Value per Share			**$ 97.16**

Key Value Drivers	
$ROIC_{NEW}$	**10.0%**
WACC	9.1%
Spread	0.9%
Growth	2.5%

Timing Concerns	
P_0	$ 97.16
time until NTM	1.04
rE	9.1%
Value per share	**$ 106.48**

Current Price	**$ 117.57**
Change %	**-9.4%**
Recommendation	**HOLD**

Source: Team Assessment

APPENDIX 16b DCF - Bull Case

in $ millions

	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN' 20 FY	JAN' 21 FY	JAN' 22 FY	JAN' 23 FY	JAN' 24 FY
Working cash	8.38	10.71	13.60	16.64	20.01	25.56	31.13	37.92	45.53	54.47	62.92	72.67
Short-Term Receivables	-	-	-	-	-	-	-	-	-	-	-	-
Inventories	60.83	89.38	115.65	148.37	154.45	187.04	237.20	281.48	331.19	386.36	439.21	499.21
Other Current Assets	12.76	21.34	28.74	16.96	31.46	47.70	56.65	66.41	76.61	87.94	97.26	107.36
Operating current assets	**81.97**	**121.42**	**158.00**	**181.97**	**205.92**	**260.30**	**324.98**	**385.80**	**453.33**	**528.78**	**599.39**	**679.25**
Accounts Payable	27.95	34.01	39.22	58.23	51.18	73.03	89.90	107.88	128.38	151.49	174.21	200.34
Income Tax Payable	7.08	6.01	14.44	11.94	23.94	25.28	30.02	36.05	42.65	50.29	57.23	65.10
Deferred Income	28.90	35.20	-	-	-	-	-	-	-	-	-	-
Other Current Liabilities	18.75	20.22	25.74	32.03	41.45	66.15	78.57	59.88	73.13	84.08	94.13	105.32
Operating current liabilities	**82.69**	**95.44**	**79.40**	**102.20**	**116.56**	**164.46**	**198.49**	**203.80**	**244.17**	**285.86**	**325.57**	**370.76**
Operating working capital	**(0.71)**	**25.98**	**78.60**	**79.77**	**89.36**	**95.84**	**126.49**	**182.00**	**209.16**	**242.93**	**273.82**	**308.49**
Net Property, Plant & Equipment	59.04	70.38	87.00	119.78	138.38	180.35	262.17	319.34	383.41	431.54	466.97	503.02
Net Other Operating Assets	0.76	0.30	(40.17)	(46.36)	(51.75)	(71.07)	(84.41)	(102.82)	(100.69)	(120.48)	(139.15)	(160.72)
Invested capital (Uses) Operating	**59.09**	**96.67**	**125.43**	**153.20**	**175.98**	**205.12**	**304.25**	**398.52**	**491.89**	**553.99**	**601.64**	**650.79**
Net sales	**418.83**	**535.40**	**680.22**	**831.95**	**1,000.41**	**1,278.21**	**1,556.47**	**1,895.87**	**2,276.29**	**2,723.75**	**3,145.93**	**3,633.54**
Leisure	220.30	276.80	346.91	422.63	500.21	640.38	798.53	986.19	1,193.29	1,437.91	1,660.79	1,918.21
YoY %	*47%*	*26%*	*25%*	*22%*	*18%*	*28%*	*24%*	*24%*	*21%*	*21%*	*16%*	*16%*
Fashion and Home	126.90	156.87	199.30	247.09	312.13	403.91	477.73	580.44	699.43	842.81	973.44	1,124.33
YoY %	*35%*	*24%*	*27%*	*24%*	*26%*	*29%*	*23%*	*22%*	*21%*	*21%*	*16%*	*16%*
Party and Snack	71.62	101.73	134.00	162.23	188.08	233.91	280.21	329.25	383.57	443.03	511.69	591.01
YoY %	*36%*	*42%*	*32%*	*21%*	*16%*	*24%*	*18%*	*18%*	*17%*	*16%*	*16%*	*16%*
Cost of sales, excl. D&A	(268.99)	(347.39)	(442.43)	(540.02)	(643.37)	(814.80)	(962.34)	(1,154.81)	(1,374.22)	(1,621.59)	(1,864.82)	(2,144.55)
YoY %	*40%*	*29%*	*27%*	*22%*	*19%*	*27%*	*18%*	*20%*	*19%*	*18%*	*15%*	*15%*
Gross Profit	149.84	188.02	237.79	291.93	357.04	463.41	594.13	741.06	902.06	1,102.16	1,281.10	1,489.00
Gross margin	*36%*	*35%*	*35%*	*35%*	*36%*	*36%*	*38%*	*39%*	*40%*	*40%*	*41%*	*41%*
SG&A	(102.58)	(120.81)	(143.57)	(176.77)	(216.44)	(272.78)	(344.97)	(420.87)	(505.04)	(595.95)	(685.34)	(788.14)
Deprecation and Amortization	(9.60)	(13.47)	(17.20)	(22.23)	(26.63)	(33.24)	(60.49)	(72.59)	(87.11)	(100.17)	(115.20)	(132.48)
Adjusted EBIT	**37.65**	**53.74**	**77.02**	**92.94**	**113.96**	**157.39**	**188.66**	**247.60**	**309.91**	**406.04**	**480.56**	**568.38**
Operating margin	*9%*	*10%*	*11%*	*11%*	*11%*	*12%*	*12%*	*13%*	*14%*	*15%*	*15%*	*16%*
Operating cash taxes	(15.54)	(20.49)	(28.77)	(35.08)	(42.31)	(55.88)	(41.76)	(52.00)	(65.08)	(85.27)	(100.92)	(119.36)
Tax rate	*41%*	*38%*	*37%*	*38%*	*37%*	*36%*	*23%*	*21%*	*21%*	*21%*	*21%*	*21%*
NOPLAT	**22.12**	**33.24**	**48.25**	**57.86**	**71.65**	**101.51**	**146.90**	**195.61**	**244.83**	**320.77**	**379.64**	**449.02**
YoY %	*38%*	*50%*	*45%*	*20%*	*24%*	*42%*	*45%*	*33%*	*25%*	*31%*	*18%*	*18%*
ROIC	**37.43%**	**34.39%**	**38.47%**	**37.77%**	**40.72%**	**49.49%**	**48.28%**	**49.08%**	**49.77%**	**57.90%**	**63.10%**	**69.00%**

in $ millions	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN '20 FY	JAN '21 FY	JAN '22 FY	JAN '23 FY	JAN '24 FY
NOPLAT	22.12	33.24	48.25	57.86	71.65	101.51	146.90	195.61	244.83	320.77	379.64	449.02
Depreciation	9.60	13.47	17.20	22.23	26.63	33.24	60.49	72.59	87.11	100.17	115.20	132.48
Gross Cash Flow	31.71	46.71	65.45	80.08	98.28	134.75	207.39	268.20	331.94	420.94	494.84	581.50
Change in Invested Capital												
Operating Working Capital	(13.26)	(26.70)	(52.61)	(1.17)	(9.58)	(6.48)	(30.65)	(55.51)	(27.17)	(33.76)	(30.90)	(34.67)
PPE, Net	(24.07)	(20.94)	(30.09)	(49.99)	(40.82)	(68.60)	(21.33)	(54.18)	(89.24)	(80.38)	(96.53)	(110.91)
Net Operating Assets	(0.53)	0.46	40.47	6.19	5.39	19.32	13.34	18.41	(2.13)	19.79	18.67	21.57
FCFF	**(6.14)**	**(0.46)**	**23.22**	**35.11**	**53.27**	**78.98**	**168.75**	**176.91**	**213.40**	**326.59**	**386.09**	**457.49**

Year	Free Cash Flow	Discount Factor	PV of Cash Flows
2019	$ 168.8	1.09	$ 154.7
2020	$ 176.9	1.19	$ 148.6
2021	$ 213.4	1.30	$ 164.3
2022	$ 326.6	1.42	$ 230.5
2023	$ 386.1	1.55	$ 249.8
2024	$ 457.5	1.69	$ 271.3
2025	$ 533.7	1.84	$ 290.1
2026	$ 603.2	2.01	$ 300.5
2027	$ 681.9	2.19	$ 311.4
2028	$ 770.5	2.39	$ 322.5
2029	$ 870.1	2.61	$ 333.8
2030	$ 937.2	2.84	$ 3,745.4
Core Operating Value			**$ 6,523.0**
Excess cash			$ 219.1
Gross Enterprise Value			**$ 6,742.1**
ST Debt and Current maturities of long-term debt			$ -
Long-term debt			$ -
Accrued Payroll			$ (22.9)
Employee Stock Options			$ (24.6)
Intrinsic Equity Value			**$ 6,694.6**
Number of shares			55.76
Intrinsic Equity Value per Share			**$ 120.06**

Key Value Drivers	
$ROIC_{NEW}$	**10.0%**
WACC	9.1%
Spread	0.9%
Growth	2.5%

Timing Concerns		
P_0	$	120.06
time until NTM		1.04
rE		9.1%
Value per share	**$**	**131.45**

Current Price	**$**	**117.57**
Change %		**11.8%**
Recommendation		**HOLD**

Source: Team Assessment

APPENDIX 16c DCF - Bear Case

in $ millions

	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN' 20 FY	JAN' 21 FY	JAN' 22 FY	JAN' 23 FY	JAN' 24 FY
Working cash	8.38	10.71	13.60	16.64	20.01	25.56	31.03	37.48	44.63	52.96	60.64	69.43
Short-Term Receivables	-	-	-	-	-	-	-	-	-	-	-	-
Inventories	60.83	89.38	115.65	148.37	154.45	187.04	237.20	281.48	331.19	386.36	439.21	499.21
Other Current Assets	12.76	21.34	28.74	16.96	31.46	47.70	56.17	65.29	74.69	84.99	93.16	101.92
Operating current assets	**81.97**	**121.42**	**158.00**	**181.97**	**205.92**	**260.30**	**324.40**	**384.25**	**450.51**	**524.32**	**593.01**	**670.56**
Accounts Payable	27.95	34.01	39.22	58.23	51.18	73.03	89.90	107.88	128.38	151.49	174.21	200.34
Income Tax Payable	7.08	6.01	14.44	11.94	23.94	25.28	29.77	35.45	41.59	48.63	54.85	61.85
Deferred Income	28.90	35.20	-	-	-	-	-	-	-	-	-	-
Other Current Liabilities	18.75	20.22	25.74	32.03	41.45	66.15	77.91	59.57	72.77	83.65	93.65	104.75
Operating current liabilities	**82.69**	**95.44**	**79.40**	**102.20**	**116.56**	**164.46**	**197.57**	**202.90**	**242.74**	**283.76**	**322.70**	**366.94**
Operating working capital	**(0.71)**	**25.98**	**78.60**	**79.77**	**89.36**	**95.84**	**126.83**	**181.36**	**207.76**	**240.55**	**270.31**	**303.62**
Net Property, Plant & Equipment	59.04	70.38	87.00	119.78	138.38	180.35	259.96	314.05	373.92	417.21	447.39	477.54
Net Other Operating Assets	0.76	0.30	(40.17)	(46.36)	(51.75)	(71.07)	(83.70)	(101.12)	(98.08)	(116.38)	(133.25)	(152.57)
Invested capital (Uses) Operating	**59.09**	**96.67**	**125.43**	**153.20**	**175.98**	**205.12**	**303.09**	**394.29**	**483.61**	**541.38**	**584.44**	**628.59**
Net sales	**418.83**	**535.40**	**680.22**	**831.95**	**1,000.41**	**1,278.21**	**1,551.42**	**1,874.21**	**2,231.54**	**2,647.90**	**3,031.85**	**3,471.46**
Leisure	220.30	276.80	346.91	422.63	500.21	640.38	796.00	975.10	1,170.13	1,398.30	1,601.05	1,833.21
YoY %	*47%*	*26%*	*25%*	*22%*	*18%*	*28%*	*24%*	*23%*	*20%*	*20%*	*15%*	*15%*
Fashion and Home	126.90	156.87	199.30	247.09	312.13	403.91	476.13	573.74	685.62	819.31	938.11	1,074.14
YoY %	*35%*	*24%*	*27%*	*24%*	*26%*	*29%*	*23%*	*21%*	*20%*	*20%*	*15%*	*15%*
Party and Snack	71.62	101.73	134.00	162.23	188.08	233.91	279.29	325.37	375.80	430.29	492.68	564.12
YoY %	*36%*	*42%*	*32%*	*21%*	*16%*	*24%*	*18%*	*17%*	*16%*	*15%*	*15%*	*15%*
Cost of sales, excl. D&A	(268.99)	(347.39)	(442.43)	(540.02)	(643.37)	(814.80)	(962.34)	(1,154.81)	(1,374.22)	(1,621.59)	(1,864.82)	(2,144.55)
YoY %	*40%*	*29%*	*27%*	*22%*	*19%*	*27%*	*18%*	*20%*	*19%*	*18%*	*15%*	*15%*
Gross Profit	149.84	188.02	237.79	291.93	357.04	463.41	589.08	719.40	857.32	1,026.32	1,167.02	1,326.92
Gross margin	*36%*	*35%*	*35%*	*35%*	*36%*	*36%*	*38%*	*38%*	*38%*	*39%*	*38%*	*38%*
SG&A	(102.58)	(120.81)	(143.57)	(176.77)	(216.44)	(272.78)	(344.97)	(420.87)	(505.04)	(595.95)	(685.34)	(788.14)
Deprecation and Amortization	(9.60)	(13.47)	(17.20)	(22.23)	(26.63)	(33.24)	(60.49)	(72.59)	(87.11)	(100.17)	(115.20)	(132.48)
Adjusted EBIT	**37.65**	**53.74**	**77.02**	**92.94**	**113.96**	**157.39**	**183.61**	**225.94**	**265.17**	**330.19**	**366.48**	**406.30**
Operating margin	*9%*	*10%*	*11%*	*11%*	*11%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*	*12%*
Operating cash taxes	(15.54)	(20.49)	(28.77)	(35.08)	(42.31)	(55.88)	(40.52)	(47.45)	(55.69)	(69.34)	(76.96)	(85.32)
Tax rate	*41%*	*38%*	*37%*	*38%*	*37%*	*36%*	*23%*	*21%*	*21%*	*21%*	*21%*	*21%*
NOPLAT	**22.12**	**33.24**	**48.25**	**57.86**	**71.65**	**101.51**	**143.09**	**178.49**	**209.48**	**260.85**	**289.52**	**320.97**
YoY %	*38%*	*50%*	*45%*	*20%*	*24%*	*42%*	*41%*	*25%*	*17%*	*25%*	*11%*	*11%*
ROIC	37.43%	34.39%	38.47%	37.77%	40.72%	49.49%	47.21%	45.27%	43.32%	48.18%	49.54%	51.06%

in $ millions	JAN '13 FY	JAN '14 FY	JAN '15 FY	JAN '16 FY	JAN '17 FY	JAN '18 FY	JAN '19 FY	JAN '20 FY	JAN '21 FY	JAN '22 FY	JAN '23 FY	JAN '24 FY
NOPLAT	22.12	33.24	48.25	57.86	71.65	101.51	143.09	178.49	209.48	260.85	289.52	320.97
Depreciation	9.60	13.47	17.20	22.23	26.63	33.24	60.49	72.59	87.11	100.17	115.20	132.48
Gross Cash Flow	31.71	46.71	65.45	80.08	98.28	134.75	203.58	251.08	296.59	361.03	404.72	453.45
Change in Invested Capital												
Operating Working Capital	(13.26)	(26.70)	(52.61)	(1.17)	(9.58)	(6.48)	(30.99)	(54.53)	(26.41)	(32.79)	(29.76)	(33.31)
PPE, Net	(24.07)	(20.94)	(30.09)	(49.99)	(40.82)	(68.60)	(19.12)	(55.18)	(90.14)	(81.87)	(98.33)	(113.16)
Net Operating Assets	(0.53)	0.46	40.47	6.19	5.39	19.32	12.63	17.41	(3.04)	18.30	16.87	19.32
FCFF	**(6.14)**	**(0.46)**	**23.22**	**35.11**	**53.27**	**78.98**	**166.10**	**158.80**	**177.00**	**264.67**	**293.51**	**326.31**

Year	Free Cash Flow	Discount Factor	PV of Cash Flows
2019	$ 166.1	1.09	$ 152.2
2020	$ 158.8	1.19	$ 133.4
2021	$ 177.0	1.30	$ 136.3
2022	$ 264.7	1.42	$ 186.8
2023	$ 293.5	1.55	$ 189.9
2024	$ 326.3	1.69	$ 193.5
2025	$ 354.7	1.84	$ 192.8
2026	$ 374.2	2.01	$ 186.4
2027	$ 394.3	2.19	$ 180.1
2028	$ 414.8	2.39	$ 173.6
2029	$ 435.6	2.61	$ 167.1
2030	$ 434.8	2.84	$ 1,737.6
Core Operating Value			$ 3,629.8
Excess cash			$ 219.1
Gross Enterprise Value			$ 3,848.9
ST Debt and Current maturities of long-term debt			$ -
Long-term debt			$ -
Accrued Payroll			$ (22.9)
Employee Stock Options			$ (24.6)
Intrinsic Equity Value			$ 3,801.4
Number of shares			55.76
Intrinsic Equity Value per Share			**$ 68.17**

Key Value Drivers	
$ROIC_{NEW}$	**10.0%**
WACC	9.1%
Spread	0.9%
Growth	2.5%

Timing Concerns		
P_0	$	68.17
time until NTM		1.04
rE		9.1%
Value per share	$	**74.64**

Current Price	**$**	**117.57**
Change %		**-36.5%**
Recommendation	**SELL**	

Source: Team Assessment

APPENDIX 17 Multiple Valuation

Enterprise Value Multiples	EV/EBITDAR		EV/EBITDA		EV/Sales		EV/FCF	
	2018 Q3	Forward +1	2018 Q3	Forward +1	2018 Q3	Forward +1	2018 Q3	Forward +1
FIVE	11.64X	14.15X	17.63X	20.62X	2.63X	3.38X	42.55X	38.01X
DLTR	8.00X	6.23X	12.40X	9.47X	1.34X	1.03X	25.17X	19.59X
DG	7.61X	7.90X	10.74X	10.93X	1.11X	1.13X	21.86X	21.27X
BIG	3.63X	2.93X	6.84X	5.45X	0.49X	0.40X	19.38X	13.93X
OLLI	15.81X	22.24X	19.68X	26.87X	2.87X	3.97X	63.45X	67.21X
Mean	**9.34X**	**9.83X**	**13.46X**	**14.67X**	**1.69X**	**1.98X**	**34.48X**	**32.00X**
Median	**8.00X**	**7.07X**	**12.40X**	**10.93X**	**1.34X**	**1.13X**	**25.17X**	**21.27X**

Price Multiples	PEG		P/E		P/S		P/B		P/FCF	
	2018 Q3	Forward +1	2018 Q3	Forward +1	2018 Q3	Forward +1	2018 Q3	Forward +1	2018 Q3	Forward +1
FIVE	1.18X	1.33X	35.21X	37.48X	2.82X	3.48X	7.87X	9.13X	45.67X	39.06X
DLTR	1.88X	1.51X	19.54X	14.21X	1.12X	0.83X	3.03X	2.02X	21.02X	15.73X
DG	0.98X	0.98X	15.53X	16.09X	0.99X	1.02X	3.78X	4.21X	19.54X	19.36X
BIG	2.29X	1.57X	12.83X	8.94X	0.45X	0.32X	3.38X	1.63X	17.87X	11.12X
OLLI	1.11X	1.54X	29.16X	40.86X	2.87X	3.98X	3.83X	5.35X	63.45X	67.30X
Mean	**1.49X**	**1.39X**	**22.45X**	**23.52X**	**1.65X**	**1.92X**	**4.38X**	**4.47X**	**33.51X**	**30.51X**
Median	**1.18X**	**1.51X**	**19.54X**	**16.09X**	**1.12X**	**1.02X**	**3.78X**	**4.21X**	**21.02X**	**19.36X**

EV Multiples

Forward EV/EBITDA	$ 107.73
Forward EV/EBITDAR	$ 114.42
Forward EV/Sales	$ 109.34
Forward EV/FCF	$ 107.67
Average	**$ 109.79**
Current Price	$ 117.57
Potential %	**-6.62%**

Price Multiples

Forward P/E	$ 107.80
Forward PEG	$ 106.86
Forward P/S	$ 110.85
Forward P/B	$ 115.33
Forward P/FCF	$ 105.55
Average	**$ 109.28**
Current Price	$ 117.57
Potential %	**-5.23%**

Source: Team Assessment

APPENDIX 18 Beneish M-Score and Altman Z-Score

Beneish M-Score Calculator

Five Below

Analysis	Variable	Assessment
Day Sales in Receivable Index	0.823	Neutral
Gross Margin Index	0.884	Neutral
Asset Quality Index	1.211	Assess expense capitalization
Sales Growth Index	1.216	High sales growth
Depreciation Index	0.948	Neutral
SG&A Index	1.040	Neutral
Accruals to Total Assets	-0.035	Neutral
Leverage Index	0.982	Neutral

Additional Computations	2019	2018
Days in receivables	0.00	0.00
Gross Margin	38.1%	33.7%
Depreciation Rate	43.7%	41.5%
Capital Intensity (PPE/A)	24.1%	24.9%
SG&A to Sales	22.2%	21.3%
Leverage ((CL+LTD/A))	22.4%	22.8%
Accruals to total assets	-3.5%	-9.0%
Profit Margin (NI/S)	9.5%	8.0%
Asset Turnover (S/A)	1.75	1.77
Return on Assets (NI/A)	16.7%	14.2%
Return on Equity (NI/SE)	21.5%	18.3%

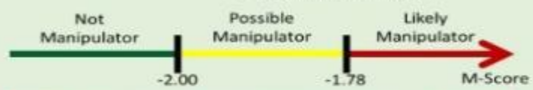
M-Score	-2.598	No manipulation
Estimated Probability	0.005	

Odds Ratio	0.68 to 1

Interpreting the M-Score

M-Score is a transformation of the estimated probability of manipulation implied by firm characteristics.

M – Score = -4.840 + .920 Days is Receivables Index
+ .528 Gross Margin Index
+ .404 Asset Quality Index
+ .892 Sales Growth
+ .115 Depreciation Index
- .172 SGA Index
+ 4.679 Accruals to Total Assets
- .327 Leverage Index



The cut-off for this model is NOT -2.22

Source: Kelly Business School, Team Assessment

Altman Z-Score Analysis					
Income Statement (in $ millions)	Jan'2015	Jan'2016	Jan'2017	Jan'2018	Jan'2019E
Net Sales	680.22	831.95	1000.41	1278.21	1553.94
Operating Income	77.02	92.94	113.96	157.39	186.14
Balance Sheet					
Current Assets	207.58	264.75	339.79	479.36	579
Total Assets	294.86	421.24	532.35	722.85	886
Current Liabilities	79.4	102.2	116.56	164.46	198.03
Total Liabilities	120.59	176.76	200.95	264.29	340
Retained Earnings	-120.27	-62.59	9.25	111.7	230
Public Companies	Yes	Yes	Yes	Yes	Yes
Market Value of Equity	174.27	244.48	331.41	458.56	525
Calculation					
Working Capital/Total Assets (X_1)	0.434715	0.385885	0.419329	0.4356367	0.42998871
Retained earning/Total Assets (X_2)	-0.40789	-0.14859	0.017376	0.1545272	0.25959368
EBIT/Total Assets(X_3)	0.261209	0.220634	0.21407	0.2177354	0.21009029
Market Value of Equity/Total Liabilities(X_4)	1.445145	1.383118	1.649216	1.7350638	1.54411765
Net Sales/Total Assets (X_5)	2.306925	1.975002	1.879234	1.7682922	1.75388262
Z-Score (=1.2*X1+1.4*X2+3.3*X3+0.6*X4+1*X5)	3.986615	3.788009	4.102715	4.2669593	4.25306878

Z Score is the output of a credit-strength test that gauges a publicly traded manufacturing company's likelihood of bankruptcy.
A score below 1.8 means it's likely the company is headed for bankruptcy, while companies with scores above 3 are not likely to go bankrupt. Investors can use Altman Z-scores to determine whether they should buy or sell a stock if they're concerned about the underlying company's financial strength. Investors may consider purchasing a stock if its Altman Z-Score value is closer to 3 and selling or shorting a stock if the value is closer to 1.8.

Source: Team Assessment