SEPTEMBER 2020

KIMBALL INTERNATIONAL

Source: Kimball International

EQUITY **RESEARCH** REPORT

Equity Research Association

Kimball International

(NASDAQ:KBAL)

1 September 2020

Kimball has consistently performed well, bringing in stable positive net income even in FY2020. It hopes to accelerate its growth by becoming leaner with an absolute focus on custom-designed furniture supply. Workplace furniture contributes 60% of sales with the rest 40% being accounted for by the health and hospitality sector. Hence, its sales volatility is likely to be dictated by workplace trends and attitudes. Geographically, 98% of its sales and 90% of its operational facilities are in the US.

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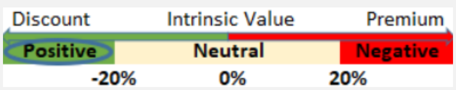
Company Data

Price (as at 01/09/2020)	$11.30
Currency	USD
Market Cap.	$416.8 M
Outstanding Shares	36.88 M
52 weeks range	$8.19-$22.40
Sector:	Consumer Discretionary
Industry:	Commercial Furnishing

Share Price Comparison

Recommendation

Intrinsic Value:	$16.33
Discount:	30.8 %
Rating:	Weak Positive



Key Financials

	2019A	2020A	2021E	2022E	2023E
Revenue($000)	768,070	727,859	528,321	550,445	646,187
% growth	*9.00%*	*-5.20%*	*-27.40%*	*4.20%*	*17.40%*
EBITDA ($000)	66,992	80,385	50,293	61,080	73,483
% margin	*8.72%*	*11.04%*	*9.52%*	*11.10%*	*11.37%*
Net Profit($000)	39344	41054	21879	28986	37142
% growth	*14.24%*	*4.35%*	*-46.71%*	*32.48%*	*28.14%*
EPS($)	1.07	1.11	0.59	0.79	1.01
P/E	10.56	10.18	19.05	14.38	11.22
EV/EBITDA	5.17	4.31	6.89	5.68	4.72

Highlights

- **Kimball's Strategic Initiatives**: to specialise in the furnishing market and achieve higher sales growth through acquisitions as they outsource their shipping fleet, spin-off Kimball Electronics, acquire other brands (D'style and David Edwards) and target cost savings via transformation plan. Given that the acquisitions have not realised material profits, the success of this strategy is uncertain. On the other hand, Kimball is pushing its Connect 2.0 strategy aiming to build deeper and more specialised market expertise via the establishment of 4 specialised business units.
- **Cut-throat Environment**: The commercial furniture industry is highly fragmented, with severe competition and little growth. Design and customisation provide marginally better short-term growth, while distant opportunities may rest on the adoption of smart furniture.
- **Outlook Amidst Covid-19:** Due to the unfavourable economic climate, we expect recovery of the commercial furniture industry to be slower than the wider economy, as the office furniture segment will likely face permanent reduction in demand due to Covid-19 accelerating remote working. We estimate Kimball will perform roughly in-line with the industry and return to the pre-Covid level by 2025.
- **Decent Financials:** Industry leading ROCE > 20% driven by high asset efficiency; FY20 revenue dropped only 5.2% and Q4 revenue declined 20.2% under the impact of Covid-19, outperforming competitors via efficient operational response, but it is overshadowed by sharper Q4 orders reduction of 41.6%.
- **Key Concerns:** Kimball's decreasing low R&D may further threaten its competitiveness. Its competitors - Herman Miller and Steelcase have R&D levels > 10x of Kimball's. Its subpar capital allocation (excess cash, ineffective acquisitions, and inappropriate share buybacks) is not creating incremental value for shareholders.

Valuations

We estimate the intrinsic value of Kimball to be **$16.33** for our base case through the DCF model. The current share price is $11.30, trading at a **discount of 30.8%** to its intrinsic value. Even the pessimistic case intrinsic value $12.86 is at premium to the market price. Kimball's trailing P/E (10x) is substantially lower than the average P/E of industry peers (15.1x). The trailing EV/EBITDA of Kimball is (4.3x), also lower than the industry average (7.7x). Using a 50% P/E & EV/EBITDA methodology of industry peers' averages and applying to Kimball's trailing $1.11 EPS and $72.65M EBITDA, the fair price is **$16.9** based on relative valuation. Both DCF and relative valuation indicate that Kimball is undervalued. Considering the valuation in conjunction with the key concerns and the lacklustre industry, we hold a **Weak Positive** outlook for Kimball International.

Risk

Extremely competitive industry: tight margins, relatively low barriers to entry, low concentration with few dominant firms with many small firms
The direct impact of Covid19, uncertain economic climate driving commodity price up, success of recent management restructuring is uncertain.

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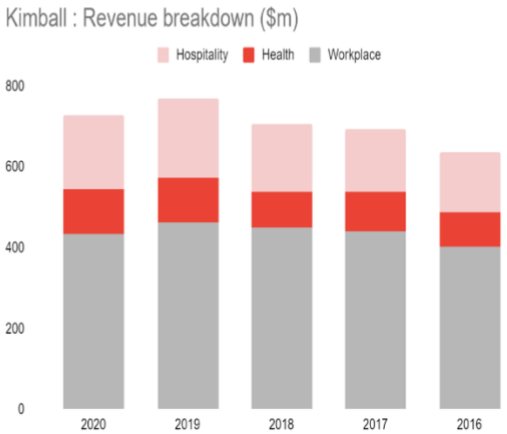
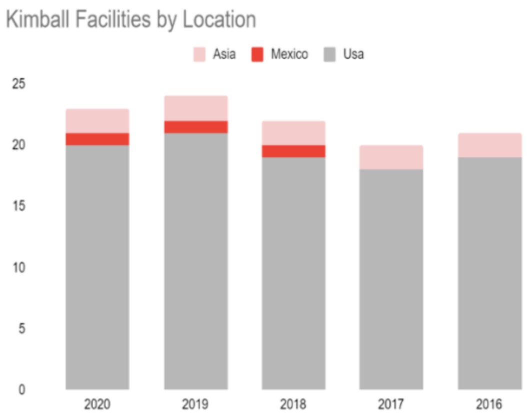
Company Overview

About the business:

Kimball International (Kimball) is a custom furniture manufacturer based in Indiana, USA. Established over 70 years ago, Kimball operates in three major markets: workplace, health, and hospitality. It services these markets using six different brands out of which two were acquired in fiscal year 2018 and 2019. In recent years, Kimball has sharpened its focus in the furnishing manufacturing with the spinoff of Kimball Electronics in 2014 and outsourcing of its shipping function in 2018. This is reflected in the new organisational structure and its restructuring strategy. Kimball listed on NASDAQ in 1974 and has provided a CAGR of 6% over the last 40 years (pre-covid).





Source: Kimball Annual Reports

In 2019, Kimball introduced the 'Kimball Connect Strategy' to accelerate growth and unlock the full potential of its business as it attempts to escape the stagnating nature of the commercial furnishing industry. It aims to do so by investing in technology, training, and building an entrepreneurial spirit in the workplace. It intends to build efficiency through centralising the back-end functions such as finance, legal and technology. Kimball is also targeting standardising its operating procedures and infusing capital to accelerate its productivity. From the sales perspective, Kimball wants to focus on expanding its product offerings and selective expansion of its verticals. With R&D expenditure of only $7m (1%), its ability to innovate seems frail. Hence brand acquisitions for Kimball are crucial for it to achieve its goal of 'being our customers' first choice for shaping places'.

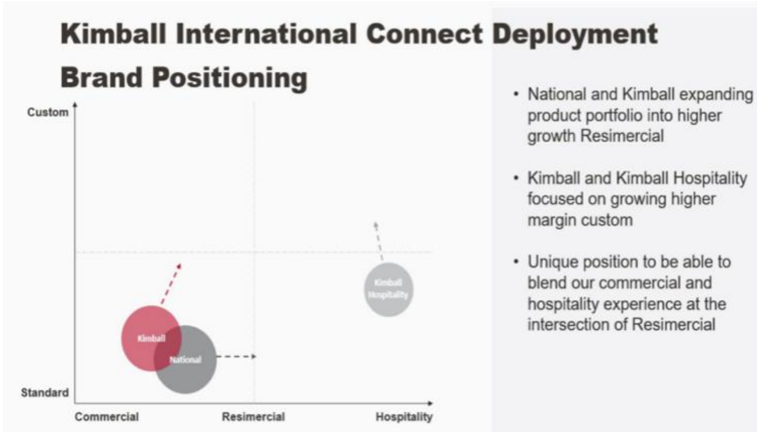
In August 2020, Kimball adapted its 'Kimball Connect Strategy' to reflect the changing landscape of the world due to the pandemic. Its response included reorganizing itself into four market-centric business units which are Workplace, Health, Hospitality, and eBusiness. While the first three units will help accelerate product development, the eBusiness unit will establish an e-commerce strategy across its brands and end markets. These business units will be supported by centralised support functions, and the structure forms a crucial part of its transformation and restructuring plan introduced in 2019. This new strategy was called 'Kimball connect strategy 2.0'.

Source: Baird 2019 Global Industrial Conference

Closely aligned with Kimball Connect Strategy, Kimball implemented phase 1 of its transformation and restructuring plan. Its aim was to use this plan to optimise its resource usage and improve its cost-efficiency. Through consolidating its manufacturing facilities geographically and between different brands, Kimball is hoping to use economies of scale to drive down the cost of production per product. Kimball also intends to divert its selling resources to more high growth markets as it shuts four barren showrooms. As a response to COVID-19, Kimball introduced part two of its transformation which in essence aims to streamline its production processes in response to volume fluctuations and to accelerate the implementation of 'Kimball Connect Strategy'.

Position in the market

Over the last few years, Kimball has made a conscious effort to provide its customers with customisable furnishing solutions rather than providing standard one-unit products. This allows Kimball to shift its target audience from small economic focused companies to large brand-valuing organisations, who have lower price sensitivity and more relevance to deal with the pandemic. This will assist Kimball to reduce uncertainty in its sales compared to its peers.



Source: Baird 2019 Global Industrial Conference

Specifics sources and uses of cash

Acquisitions

Through acquisitions, Kimball aims to add higher growth products to its portfolio and add new product categories in their existing channels of workplace, hospitality, and healthcare. There are two main financial filters they consider, accretive EPS within the first year and ROIC > WACC within three years. Although whether its recent acquisitions meet those targets is unclear from their vague disclosures.

In FY19, Kimball acquired all the assets and assumed certain liabilities of David Edward, headquartered in Baltimore, Maryland. This acquisition is in line with the overall acquisition criteria of Kimball as it designs and manufactures contract furniture sold in healthcare, hospitality, and education markets in North America. As part of the acquisition, Kimball also leased two David Edward manufacturing facilities which were consolidated into one as part of its transformation plan. Kimball paid $4.3m cash for this acquisition. So far, no material sales or profit has been realised by David Edward.

Prior to David Edward acquisition in FY18, Kimball orchestrated a partial purchase of D'style assets, a California based furniture manufacturer. Through this acquisition, Kimball's hospitality offerings have strengthened. Furthermore, the purchase consisted of capital stocks belonging to Diseños de Estilo S.A. de C.V. headquartered in Mexico, facilitating increased footprint in the Northern American manufacturing and serving as a distribution channel to the Mexico and Latin America hospitality markets. $18.2m were paid for this acquisition. So far no material sales or profit has been realised from Dstyle's acquisition.

Spinoffs and outsourcing

During FY18, Kimball completely outsourced its shipping facility to a dedicated freight provider. Kimball not only sold the shipping fleet but also disposed of tractors and trailers associated with the delivery services. By outsourcing their shipping, the freight occurs via specialised companies with better economies of scale, which reduces the price shipping companies offer, hence it partially mitigated the increased transportation costs for FY18.

In 2014, Kimball spun-off its electronic manufacturing services by allocating shares of Kimball Electronics to their shareholders on a pro-rata basis. Hence its exposure to the electronic manufacturing market is minimal.

Both incidents are consistent with their overall narrative to become a leaner and meaner organization. Overall, Kimball aims to use its restructuring plan to increase its efficiency and drive down its manufacturing costs. To grow its sales, it primarily aims to use acquisitions within the commercial furnishing industry, along with the help of the recently created eBusiness unit. But their acquisitions are yet to bear fruit and are unlikely to do so for some time after the alteration in the furniture industry due to the pandemic.

Dividends and Buybacks

Payout ratio

Yr	2016	2017	2018	2019	2020
Payout ratio (%)	40	24	30	30	32

Dividend yield

Yr	2016	2017	2018	2019	2020
Div per share ($)	0.22	0.24	0.28	0.32	0.36
Price (High) ($)	12.99	18.94	18.14	20.96	21.76
Yield	1.69%	1.31%	1.54%	1.53%	1.65%

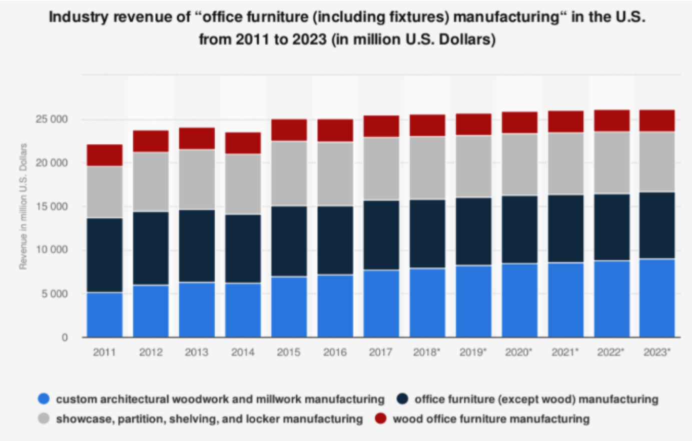
Source: Kimball Annual Reports, ERA estimates

Dividends paid to the shareholders are rising steadily over the past 5 years as the profits of the company increases. Although there was a sharp dip in the payout ratio and dividend yield in 2017 as the company prepared itself for the two acquisitions occurring in FY18 and FY19. Overall, the payout ratios and yields are in line with the NASDAQ Averages of 39.2% (trailing 12 months) & 1.57% respectively (Marketline, 2020). However, Kimball's mediocre ability to generate returns on reinvested capital does not seem to justify such a high retention ratio. *(Further analysis see Capital Allocation section)*

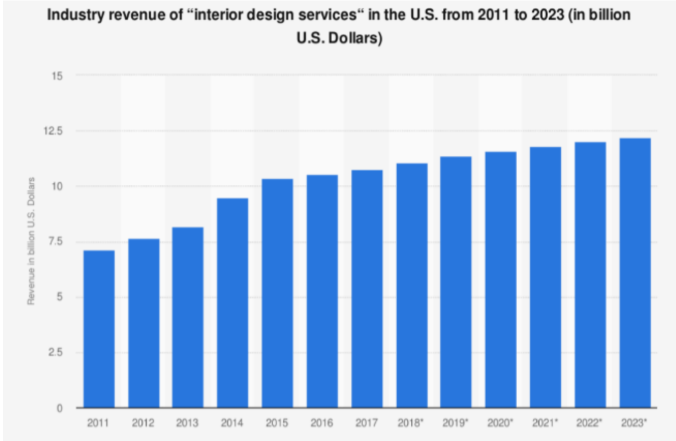
In Aug 2015, Kimball announced a share repurchase program of its 2m Class B stock. This program was further expanded in February 2019 to allow for further two million shares to be repurchased. Currently, 2.5m shares remain available under this program. This share repurchases program accounts for 6.8% of the total number of shares currently outstanding.

Industry

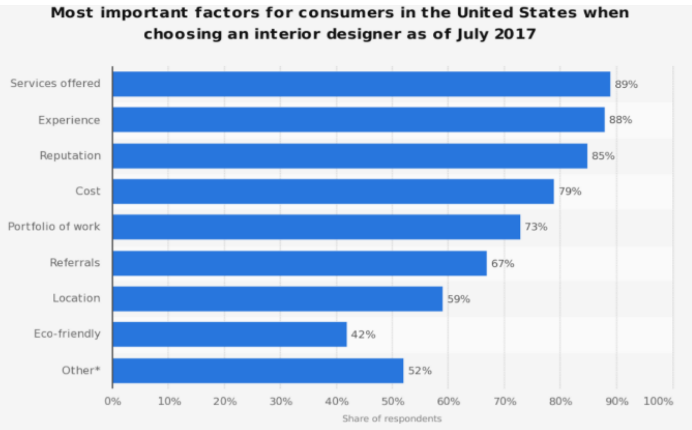
Past Performance of the Office Furniture Industry



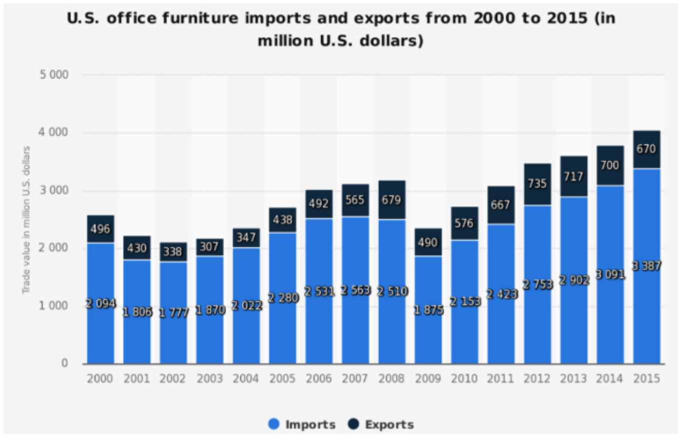
Source: US Census Bureau, Statista



Source: Statista

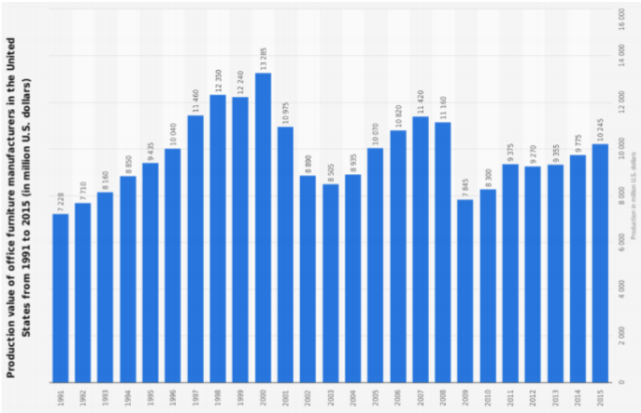


Source: Furniture Today, Statista



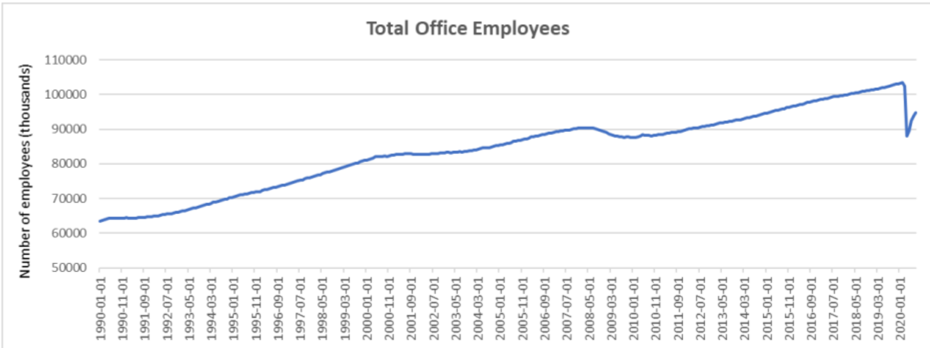
Source: BIFMA, Statista

The office furniture manufacturing industry in the U.S. has experienced lacklustre and slowing growth over the past 8 years (2011-2019 2.47% p.a.). Considering commercial furniture PPI growth 1.89% p.a. (as a proxy for inflation in this industry) over the same time, the real industry growth is only 0.57% p.a. Most of this growth is driven by increasing demand for customised design furniture, as people increasingly desire comfort, luxury and health (impact of designs on chronic physical health), seeing decent growth in interior design services (2011-2019 5.96%p.a.) commercial furniture being the largest contributor). In the design furniture segment, a survey by Furniture Today indicates that despite the cost is important, services offered, designer experience and reputation are valued more, leading to less price competition and greater differentiation. Meanwhile, increasing office furniture import (from countries with cheaper labour) is putting pressure on domestic producers' market share of standard products, contributing to the slight negative growth in the standard office furniture segment.

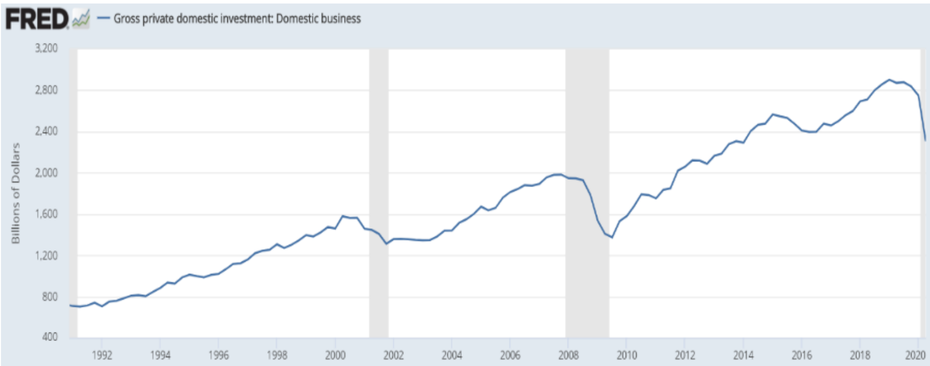


Source: BIFMA, Statis

Source: FRED, ERA estimates



Source: US Census Bureau,

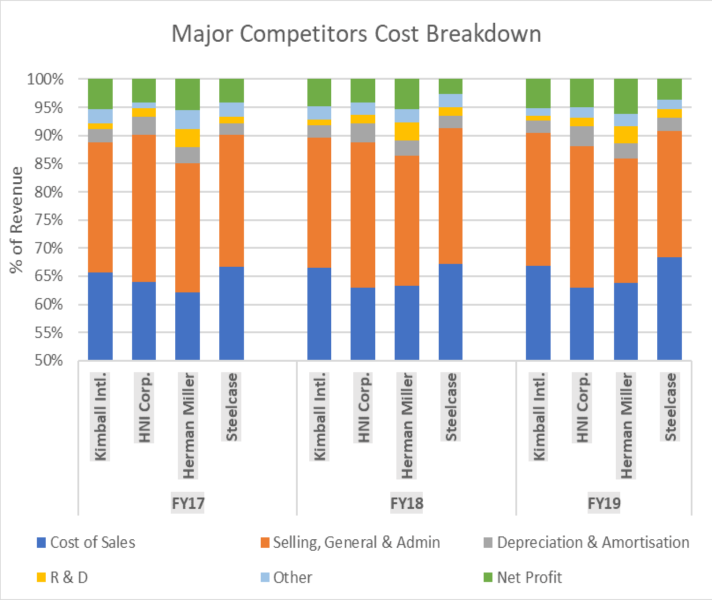


Source: FRED

From a macro perspective, there is a clear cyclical pattern to the office furniture production value over the past 30 years, mainly driven by business confidence and resulting capital investments throughout the business cycles. For example, the production value plummeted by 36% and 32.3% (year's peak-trough) while capital investment dropped by 17% and 30.3% (quarters peak-trough) during the early 2000s recession and the GFC respectively. However, unlike the expanding economy, the office furniture industry did not emerge stronger post-recession. We breakdown the reasons as follows. Fundamentally, the industry revenue mainly comes from new building constructions and replacements/renovations, the demand for both sources should grow in line with total office workers in the long-term if all else is unchanged. Then such expenditures are necessary for businesses in the long-term, but they are deferrable in the short-term, resulting in the large fluctuations of office furniture production value corresponding to business cycles. However, we note that over the past 8 years total office workers grew at 1.75%p.a. while the real office furniture industry growth is only 0.57%p.a. (2011-2019, as above). Hence, such a gap is likely due to office space usage efficiency improvements and the growing trend of remote working. *(The relevance of these factors for future trends will be discussed in the outlook section.)*

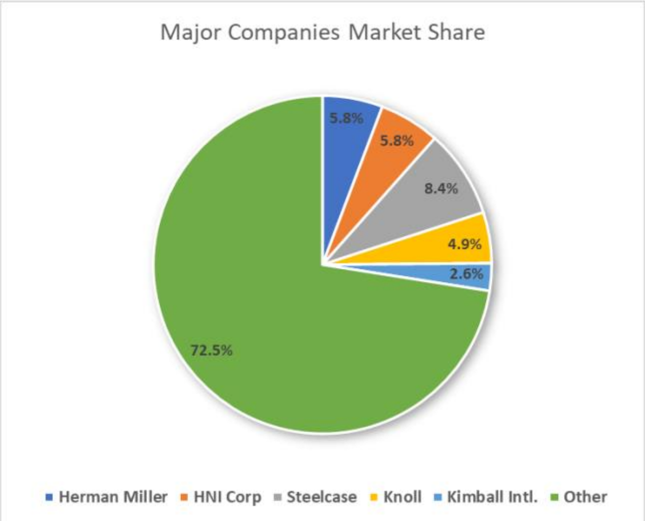
Cost Breakdown

Over the past few years, the commercial furniture industry is experiencing significant cost pressure from both operational expenses and the cost of materials. Most companies can offset higher labour costs with greater operational efficiency. However, as cost of sales takes a massive 65% of revenue in this industry, increases in prices of core inputs such as steel, aluminium, wood and freight cost pushed gross margin down by approx. 1% for most major competitors, exerting significant pressure on the already thin net profit margins. While the tariff hike on furniture products and parts to 25% in Jun 2019 worsened the blow to the cost side of the businesses. The lowering of the corporate tax rate from 35% to 21% since Jan 2018 offered the only major relief for all companies in this industry. Generally, companies source materials globally which allow some flexibility of switching, but the prices of some commodity materials are determined by large exchanges and hence provides little bargaining power against suppliers. Brands have low value in this industry, and the industry is relatively fragmented with many players, leaving participants little bargaining power against buyers.



Source: FY17/18/19 Annual Reports, ERA estimates

Competitive Landscape

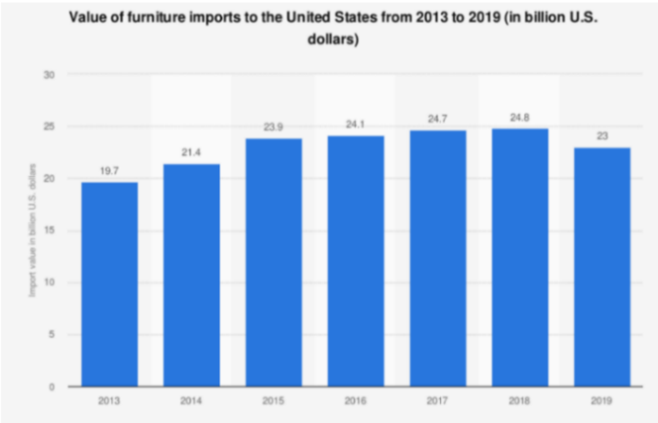


Source: FY19 Annual Reports, ERA estimates

Commercial furniture industry has very low concentration, the top 3 companies take <20% market size. Over the past decade, market share has been gradually concentrating towards the top competitors, largely driven by the acquisition of smaller niche companies and organic growth from their increasing focus on design furniture (where brands receive slightly stronger recognition). Low concentration makes entry easier while the entry of small firms keeps concentration low, but small firms' lack of access to capital and expertise outside their niche prevent them from fast expansion. While the lack of disruptive opportunities limits both large and small firms' ability to quickly gain market share. Despite the wide varieties of designs that differs between companies, such differentiation is ineffective at retaining customers, who are more likely to compare around to find styles, quality and price that suit for each purchase, along with low switching costs.

Competition from importers:

Importers have access to lower labour overseas, putting significant pressure on domestic producers' market share of standardised products, but they are unable to compete on custom designs. While the tariff hike increases the cost of materials for domestic manufacturers, it also relieves the competition from importers.

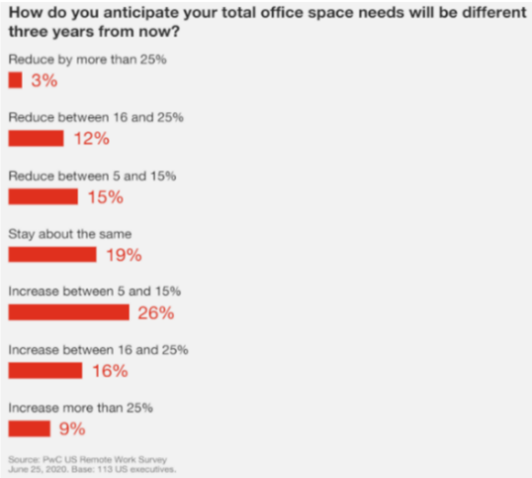


Source: Furniture Today, Statista

Industry Outlook:

Behavioural Impact of Covid-19 on the growth of the office furniture industry:

The exact advantages/disadvantages (see appendix) of remote working differ between companies. Global Workplace Analytics estimated 7.3%p.a. growth in the number of remote workers over the past 15 years, much faster than growth in white-collar workers. It is likely that Covid-19 is rapidly accelerating the shift to remote working in the short-term, but it was already an ongoing long-term trend.



Interestingly, according to PwC's US Remote Work Survey, more executives anticipate an increase than decrease in office space needed, likely due to expanding workforce and social distancing requiring more space per employee, despite some shifts to remote working. However, this survey may not be a fair representation of the whole industry, as the respondents are mainly from large corporations (likely have greater financial strength than smaller companies), and that larger space per employee will not translate into greater office furniture demand. Though this survey does indicate that the business sentiment is not very negative.

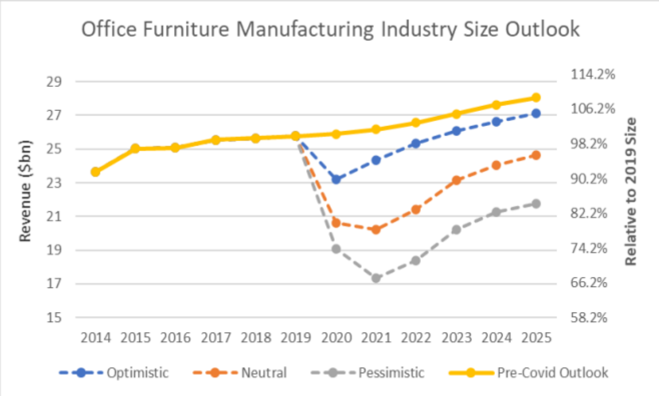
The prospect of the office furniture industry is highly uncertain due to the impact of Covid-19. In light of this, we propose three scenarios for its future development (see table below), which will also be incorporated into our model.

Possible outlook scenarios:

	V-Shaped	**Shallow L-Shaped**	**Deep L-Shaped**
Description	Business sentiment rebounds sharply, some Capex are deferred while many companies wish to continue the investment/ expansion plans soon after lockdown; most staff return to office as before disadvantages significantly outweigh advantages; a few companies allow flexibility between working from home and office	Businesses retain neutral outlook towards the post-Covid economy, but need to significantly defer Capex to maintain financial viability; in the long-term, some companies realise office is not essential for some activities and sees scope to reduce office space; switching between home and office to maintain communication becomes relatively common	Businesses hold depressed outlook towards the post-Covid economy and attempt to cut Capex vigorously to ensure survival, most decide to postpone expansion for a few years; in the long-term, many companies realise office is not essential for many activities and decide to reduce office space; switching between home/ office and hiring remote talents become widespread
Quantitative Impact			
Pre-Covid: white-collar work remotely >half time	4.5%[1]	4.5%[1]	4.5%[1]
Short-term: white-collar work remotely >half time	>70%[2]	>70%[2]	>70%[2]
reduction in industry size	~10%[3]	~20%[4]	~30%[5]
Long-term: white-collar work remotely >half time	~10%[7]	~20%[7]	~30%[6]
reduction in industry size	<5%[7]	~10%[7]	~20%[7]
Probability	Low	Medium	Low

Source: 1. Flexjobs 4.7m, 2. PwC's US Remote Work Survey – 25/06/2020, 3. Statista, 4. IBISWorld, 5. Decline in orders of major players, 6. Global Workplace Analytics, 7. ERA estimates

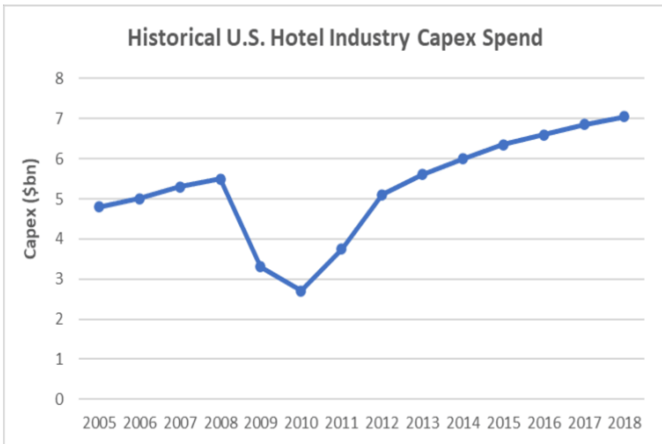
Long term prospect of office furniture industry:



For long-term growth, the Census Bureau projects the US population growth 0.49%p.a. over the next 40 years with growth rates slowing. While the increase in automation and education should see growths in white-collar employees continue to outpace population growth slightly. However, we expect this growth to be insufficient to drive the higher office demand and hence office furniture demand due to space usage improvements and the continuing trend of shifting to remote work in the long term.

Despite some scope for the production process and design improvements, these factors won't spark rapid growth, while the increasing durability of office furniture due to competition decreases replacement demand. As a currently mature industry entering the decline stage which is further accelerated by Covid-19, it is hard to see significant growth for the long

Impact of Covid-19 on the Capex of lodging industry:



Source: NYU Jonathan M. Tisch Center of Hospitality

The large scale domestic and international lockdowns are taking a massive toll on the travel and tourism industry in the short-term, with a 60% decline in Capex by hotels in 2Q 2020. However, an increase in disposable income and the rising middle class should continue to support the propensity to travel from both domestic and international visitors in the long-term. While the increasing use of online conferencing may result in some companies permanently reducing business travels. Demand for design furniture from hotels should recover gradually post-Covid as lockdowns ease and fear of infection declines. Overall, we expect a U-shaped recovery and 5-10% permanent reduction in Capex due to less business travel, with long-term growth of 3%p.a. due to the rising travel demand, slightly outpacing inflation, and in-line with pre-Covid growth.

Impact of Covid-19 on competitions and market shares:

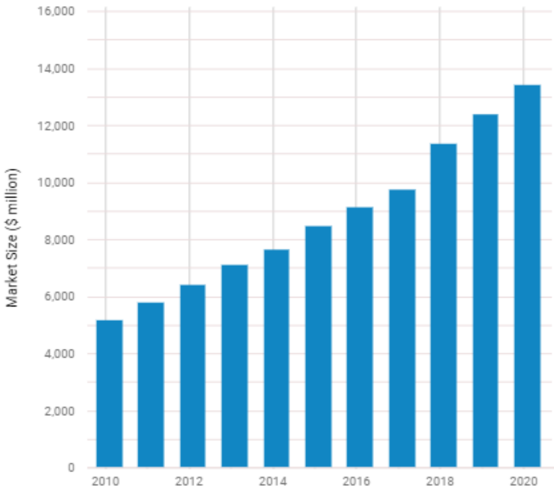
	HNI Corp	**Herman Miller**	**Steelcase**	**Knoll**	**Kimball Intl.**	**Competitor Avg**
Debt & lease to total assets	20.52%	37.49%	38.38%	44.82%	**5.59%**	35.30%
Cash to total assets	1.99%	22.10%	25.10%	0.57%	**23.76%**	12.44%
Current Ratio	1.2	1.8	1.6	1.4	**2.1**	1.5

Source: most recent 10-Q Reports, ERA estimates

Kimball has the strongest financial health among competitors, placing it in a prime position to survive Covid-19. However, despite the impact of Covid-19, none of the major competitors has raised capital, except that Herman Miller only obtained an additional bank loan, indicating liquidity is generally not a big concern among major competitors in this industry. This is probably due to variable cost being the major cost and other expenditures being relatively low, though smaller competitors are likely in worse financial position and have lower access to capital, especially those with low cash holdings. Hence, there might be some limited opportunity for market share expansions via bankruptcy of others.

Innovation/technological disruptions:

- E-Commerce:
  Online Office Furniture Sales in the US



Source: IBISWorld

Online office furniture sales grew rapidly at 9.94%p.a. over the last 10 years, offering mainly standard office products (e.g. tables, chairs, storage) and allowing customers to easily compare a wide range of products. Online channels such as Wayfair and Amazon provide a direct link between manufacturer and clients, allowing some margins to be passed on to customers, which may contribute to some revenue growth, but it likely introduces more price competition among sellers. Note that office furniture is discretionary in the short-term but almost non-discretionary in the long-term (to meet the size of the workforce), so such cost-savings are not expected to significantly increase sales, rather it will be more of a proportional shift from physical to online channels. It is likely that manufacturers have to adopt e-commerce more so as a way to remain competitive than gaining new growths. Additionally, e-commerce has limited scope for design or luxury furniture, as clients prefer to communicate with the provider closely and try them out in stores.

- Smart furniture:
  Smart furniture is an emerging concept that adopts the flexibility of design and IoT, which could significantly disrupt the furniture industry in the distant future. Current products are at very early stages and far from fully incorporating the IoT elements, while most buildings also lack the necessary infrastructure to adopt them. Companies with agility and ability to adapt to changes quickly can potentially benefit from high growth in this segment.

Competitors

There are numerous furniture manufacturers competing within the marketplace, with a significant number of competitors offering similar products. Although Kimball does not have a huge market share, it has a solid track record on being innovative and introducing new products to the area they specialise in - contract furniture and hospitality.

In this era of modernisation, Kimball has recently decided to embrace digital transformation, incorporating automation into their production process was aimed to drive higher efficiency and differentiate its products from competitors. Moreover, built-in 3D rendering tools, Solid Edge, not only allows consumers to make a wiser purchase but also targeted to improve the enjoyability of the process. As a pioneer in digitising the furnishing designs, Kimball is well ahead of most of its competitors. It is also a benefit to them as consumers are shopping online due to the recent restrictions. However, such an advantage may not be sustainable in the long-term due to the fast evolution of technologies, and its competitors can similarly decide to imitate the adoption of these third-party technologies.

Being in an industry with many competitors, these firms strive to achieve similar strengths. They include price in relation to quality and appearance, product design, the utility of the product, supplier lead time, reliability of on-time delivery, sustainability, and the ability to respond to requests for special and non-standard products. However, as most firms in this industry are equipped with them, it has slowly become a benchmark for furnishing companies. Despite that, given that Kimball can maintain a stable sales growth suggests that they are able to secure and leverage its competitive advantages.

In short, it poses a question of whether Kimball can remain a strong contestant in the furnishing industry. Due to Kimball's relatively smaller market share in the office furnishing sector in comparison to its peers, the potential reduction in the office furnishing market size might significantly damage Kimball's current advantages. Moreover, with a business model that is largely reliant on providing furnishing products and services to offices, there might be a much smaller pie left for Kimball in this sector. Viewing this in conjunction with its advantage in digital customisation, we projected that the two effects offset each other, resulting in its revenue growth to be in-line with the wider industry for the base case. As pointed before, it is pre-emptive to make any conclusion about the future.

Table of Comparison

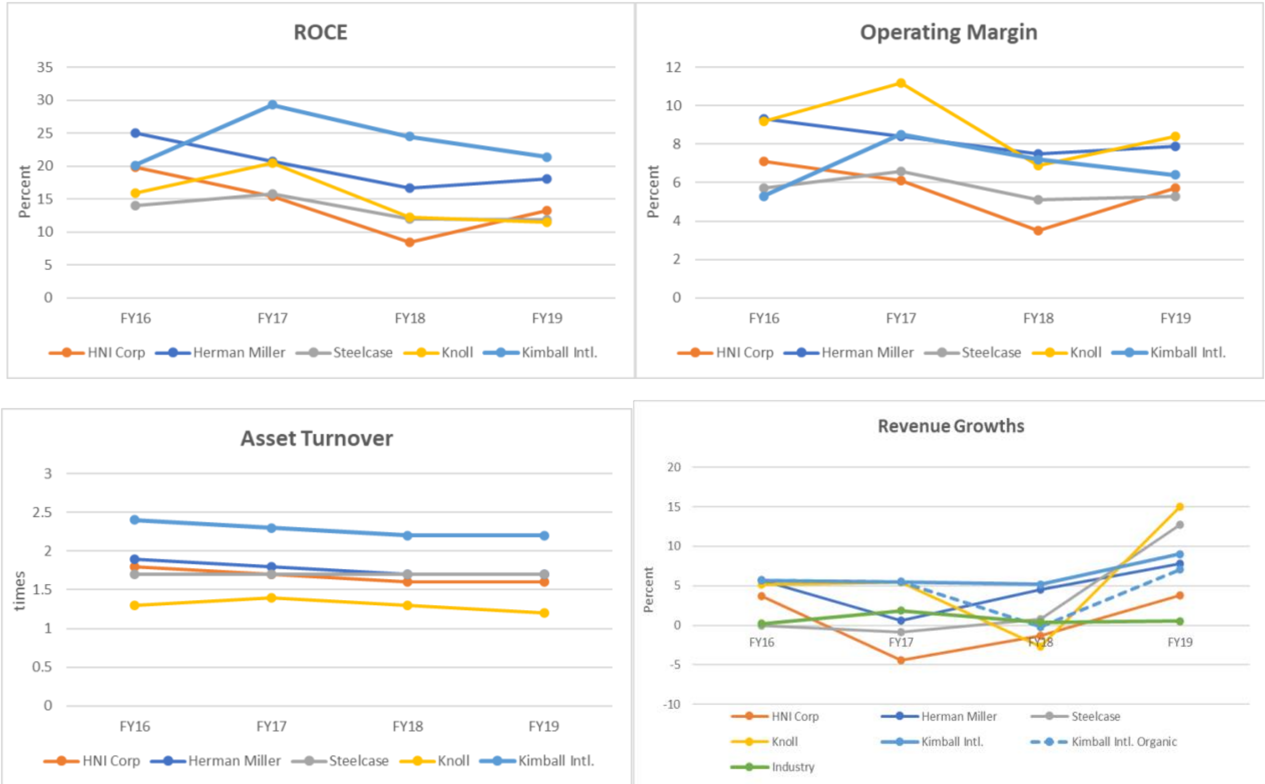
	Kimball International	Herman Miller	Steelcase	HNI Corp
Founding Date	1950	1905	1912	1944
Valuation	433.6 M	2 B	1.4 B	1.4 B
Revenue	727.9 M	2.5 B	3.7 B	2.2 B
Net Income	41.1 M	(14.4 M)	199.7 M	110.5 M
About	Home improvement Consumer goods Interior design Furniture	Home improvement Consumer products and services Interior design Distribution Furniture Textiles	Home improvement Interior design Architecture Furniture	Home improvement Home garden Furniture
Locations	Jasper, US (HQ) Multiple production facilities worldwide	15 Locations Worldwide	15 Locations Worldwide	10 Locations Worldwide
Target Market Segment	Manufacturer of office and hospitality furniture	Global provider of interior furnishing and technology solutions	Furniture manufacturer, interior architecture	Furniture designer, manufacturer and distributor of office furniture

Source: Craft.co

These are some of Kimball's direct competitors which are involved in the commercial furniture industry. Note, it is difficult to compare apples to apples due to the size of the companies and differentiation in target market segment. Despite that, this provides a clear view of their major competitors used as comparisons in our report.

Financial Performance

Key Historical Metrics

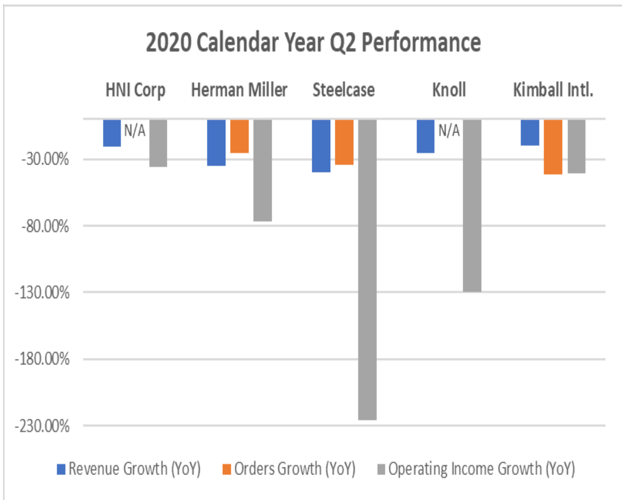


Source: FY16/17/18/19 Annual Reports, MarketLine Advantage, ERA estimates

Over the past 5 years, Kimball consistently achieved ROCE >20% vs WACC 8.1%. After taking away 21~35% tax (ROCE is before tax), it is creating positive economic value for shareholders. Additionally, Kimball's ROCE is much higher than the competitors', which we try to explain using operating margin and asset turns. As shown above, its operating margin is relatively in line with competitors, but its asset turns consistently outperformed. Firstly, we try to eliminate the non-operational effects of Kimball's high asset turns, as Kimball's high asset turns is partially due to its old assets and low goodwill, while Knoll's low asset turns mainly partially due to high goodwill. After adjusting for these effects, Kimball's FY19 asset turn of 1.49x is still higher than all major competitors (range of 1.25~1.36x). We suggest that it is likely a result of Kimball offering design-focused products while maintaining its mark-up similar to other competitors, via effective use of tools such as Solid Edge, and hence being able to sell products more efficiently (the only way to confirm is to obtain quotes for their design service).

Kimball's organic revenue growth (excl. effect of acquisitions and changes in revenue recognition policy) are mostly higher than industry growths, as do other major competitors, due to the increasing market share discussed above. However, apart from the industry-wide factors identified above, Kimball's declining margins can be largely attributable to the negative impact of acquisition costs associated with D'Style and David Edward and their lower operating margins. The potential synergy from acquisitions is not yet realised, as D'Style contributed revenue $20.2m and net income $0.7m, while David Edward recorded revenue $9.4m and net loss $1.7m, in FY19 (FY20 undisclosed). The acquirees' sales represent 3.9% of FY19 sales and the acquisition price is also 3.9% of our base-case enterprise value, but their lower margin dragged down the group's net income by approx. $2.5m (33bp on margin).

Recent Performance

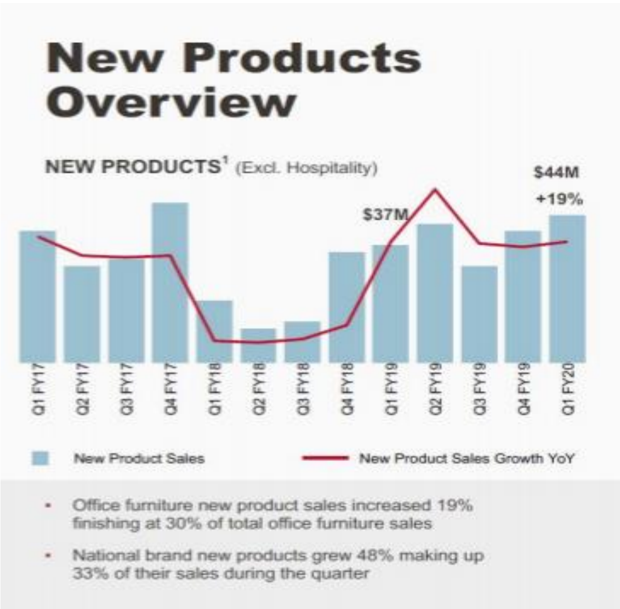


Source: relevant 10-Q Reports; adjusted to exclude one-off items

During the FY2020 Q2, Kimball generally adapted to the condition better than competitors, as it adjusted the operations of manufacturing facilities faster and adopted Quickship program for healthcare. This largely prevented large accumulation of orders backlog that other competitors faced, but such delays mainly affect the timing of revenue recognition rather than fundamentally much worse performance, as the orders are expected to be shipped while Covid-19 eases. Additionally, Kimball redesigned some products to fit the post-Covid environment, as did other competitors. The less drastic fall in Kimball's operating profit is also partially due to the $3.0m net savings from the transformation plan ($5.7m savings and $1.9m restructuring costs less tax). However, Kimball's orders declined more than Herman Miller and Steelcase, likely due to Kimball's America focus while the competitors' sales are more diversified globally.

FY20 cost savings: Phase 1 of the transformation plan realised $17.1m net savings ($25.6m gross savings and $8.5m restructuring costs pre-tax), exceeding the $16m gross savings target. This partially contributed to the decrease in the cost of sales (centralised facilities and supply chain management reduced cost of materials and manufacturing costs) and SGA expenses (reduced lease expenses from exited facilities and showrooms, centre-led functions improved efficiencies). Along with lower commissions, incentive compensations (inc. a one-off favourable accrual adjustment) and lower CEO transition costs, SGA expenses decreased 77bp (to revenue). Meanwhile, gross profit margin increased 140bp to 34.5%, due to transformation benefits and increased product pricing, partially offset by a shift in sales mix to lower margin products. Part of the transformation benefits on cost of sales may be sustainable, but the higher product prices are unlikely to last due to Covid-19 causing a significant reduction in demand, so we expect the gross profit margin to decline to 33.8% for the upcoming years.

For transformation plan phase 2, the guidance is $14-15m restructuring costs in FY21 and around $3m in FY22, primarily arising from severance/other employee-related costs, facility costs and lease/other asset impairments, whilst aiming to deliver $20m cost savings in FY21 in response to Covid-19. However, we believe only facility cost is expected to deliver long-term benefits (via streamlining production processes), hence we predict $1m additional annual SGA savings (in the absence of further guidance, assume the $4m facility cost will generate a similar level of ROCE).



Source: Baird 2019 Global Industrial Conference

Noticeably, Kimball's R&D expenses continue to decline, being $7m/6m/5m for FY18/19/20 respectively vs major competitors like Herman Miller and Steelcase whose R&D is more than 10x that of Kimball's. Despite the management's continuous verbal emphasis on new products (around 30% of office furniture sales) and given Kimball's design focus, such low R&D is not ideal for competitive advantage.

During the FY20 Investor presentation, the CEO admits that Kimball is a late entrant to e-commerce (especially compared to Herman Miller, Steelcase). Kimball has recently launched commercial and work from home assortments on wayfair.com with commercial and hospitality grade (between commercial and residential) products. In the long-term, both direct and third-party platforms will be considered. She also expressed the intention to expand the hospitality segment, into senior living, student housing and multi-family housing. These factors represent some opportunities for growth, but we have not modelled them into our DCF, as these ideas are at an early stage and the exact impacts are unclear. Should they have positive effects on valuations, they will likely be marginal given the high competitiveness of the industry.

Capital Allocation

Source: FY20 Investor Presentation

Despite the recent capital allocation appearing seemingly reasonable, we would like to point out several major issues. Firstly, the diagram shows the allocation of cash flows available for investment and distribution, but Kimball holds substantial surplus cash on hand (cash + available-for-sale securities 28.4% of total assets and 41.8% of current assets). It might be argued that this cash helps Kimball survive Covid-19, but this does not justify keeping so much excess cash at the first place, as other competitors can survive Covid-19 with little cash and no capital raising *discussed in the previous point*. Secondly, Kimball's ROCE is excellent, but the management might have become complacent, as it could have been much higher should Kimball used cash more effectively or distribute it out as a special dividend. Despite its consistent dividend and buyback, they are insufficient to reduce the excess cash. Thirdly, the two recent acquisitions (especially David Edwards) are yet to create positive value for shareholders, which significantly reduced ROCE. If the performance of acquirees does not materially improve over the next few years, it would reflect the management's lack of expertise even in its own niche field. Finally, the share repurchase plan shall be criticised, as the management did not disclose the price range of repurchase and indicated that the primary purpose is to offset dilution from equity compensation. The repurchase is suspended due to Covid-19. Such justification for repurchase is inappropriate, repurchase should be conducted if the management believes the market price is below intrinsic value to enhance shareholder value and be a separate decision from offsetting dilution. Hence, the management's action of repurchasing shares pre-Covid at high prices and suspending repurchase during Covid-19 at low prices is unjustifiable.

Valuation

Base case DCF General Assumptions

- Due to the extreme uncertainty of the long-term impact of Covid-19 and the change in the political environment to the economic recovery, we performed the scenario analysis on the optimistic, base, and pessimistic cases.
- Since the long-term treasury yield is unusually low currently, we use the 10-year trailing average of 20-Year U.S. government bonds (2.7%) to be our risk-free rate for all scenarios. Considering the expected inflation rate in the US is 2%, 2.7% is a reasonable risk-free rate.
- The perpetuity growth rate is assumed to be equal to the US long-term inflation rate (2%) for all scenarios. The long-term inflation rate in the US is projected at around 2% according to the Federal Reserve of the US. Considering that the furniture industry has little real growth lagging behind the economy in the long-run, and that Kimball's potential competitive advantages will likely be eroded away in this highly competitive industry, 2% perpetuity growth rate would be appropriate.
- We expect the Capex as % of total PP&E to be 17% in FY2021, like that of FY2020 assuming Kimball will reduce capital expenditure during Covid-19. We predict the Capex growth rate to be 22.8% in FY 2022-2025 for all scenarios. Two thirds of Kimball's total PP&E has gone through useful life, given a past 50-year machinery price index of 1.91% p.a. and commercial real estate of 2.88%p.a. The future Capex must be greater than D&A by at least 3.5-4% (relative to PPE) to renew its PPE to a similar age of competitors'.

(in thousands)	Actual				Forecast period					CAGR	CAGR
	2017A	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	2017-2020A	2020-2025
Workplace	441,000	449,300	462,700	435,400	365,736	373,051	399,164	423,114	433,692		
		1.9%	3.0%	-5.9%	-16%	2%	7%	6%	3%		
Health	98,200	88,600	110,400	108,900	70,785	92,021	110,425	120,363	123,974		
		-9.8%	24.6%	-1.4%	-35%	30%	20%	9%	3%		
Hospitality	153,800	166,700	195,000	183,600	91,800	85,374	136,598	184,408	197,316		
		8.4%	17.0%	-5.8%	-50%	-7%	60%	35%	7%		
Net sales	**692,967**	**704,554**	**768,070**	**727,859**	**528,321**	**550,445**	**646,187**	**727,885**	**754,982**	***1.7%***	***0.7%***
growth, %		*1.7%*	*9.0%*	*-5.2%*	*-27.4%*	*4.2%*	*17.4%*	*12.6%*	*3.7%*		
COGS	455,106	468,923	513,518	477,098	349,749	364,395	427,776	481,860	499,798	1.6%	0.9%
Gross profit	**237,861**	**235,631**	**254,552**	**250,761**	**178,572**	**186,050**	**218,411**	**246,025**	**255,184**	**1.8%**	**0.4%**
margin, %	*34.3%*	*33.4%*	*33.1%*	*34.5%*	*33.8%*	*33.8%*	*33.8%*	*33.8%*	*33.8%*		
OPEX	183,030	184,568	204,140	187,885	149,685	147,493	168,625	190,071	197,184	0.9%	1.0%
in % of net sales	*26.4%*	*26.2%*	*26.6%*	*25.8%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*		
	26%	26%	27%	26%	28%	27%	26%	26%	26%		
Total costs	**638,136**	**653,491**	**717,658**	**664,983**	**499,434**	**511,887**	**596,401**	**671,931**	**696,982**	***1.4%***	***0.9%***
growth, %		*2.4%*	*9.8%*	*-7.3%*	*-24.9%*	*2.5%*	*16.5%*	*12.7%*	*3.7%*		
EBIT	**54,831**	**51,063**	**50,412**	**62,876**	**28,887**	**38,558**	**49,786**	**55,954**	**58,000**	***4.7%***	***-1.6%***
margin, %	*7.9%*	*7.2%*	*6.6%*	*8.6%*	*5.5%*	*7.0%*	*7.7%*	*7.7%*	*7.7%*		
PP&E	80,069	84,487	90,671	92,041							
Lease assets	0	0	0	16,461							
Intangibles	2,932	12,607	12,108	13,949							
Total PP&E+Leased assets+Intangibles	**83,001**	**97,094**	**102,779**	**122,451**	**121,737**	**128,087**	**134,769**	**141,799**	**149,197**	**13.8%**	**4.0%**
Depreciation & Amortization	15,553	15,470	16,580	17,509	21,405	22,522	23,697	24,933	26,234	4.0%	8.4%
in % of Total PP&E+Leased assets+Intangibles		*18.6%*	*17.1%*	*17.0%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*		
EBITDA	**70,384**	**66,533**	**66,992**	**80,385**	**50,293**	**61,080**	**73,483**	**80,887**	**84,234**	***4.5%***	***0.9%***
Tax	20,512	17,886	12,326	15,076	8,088	10,796	13,940	15,667	16,240	-9.8%	1.5%
Capex	11,751	21,575	19,693	17,551	20,695	29,204	30,727	32,330	34,017	14%	14%
in % of Total PP&E+Leased assets+Intangibles		*26.0%*	*20.3%*	*17.1%*	*17.0%*	*22.8%*	*22.8%*	*22.8%*	*22.8%*		
Increase/Decrease in NWC		10,190	-7,615	40,639	-30,442	270	1,098	524	-848		
Unlevered Free Cash Flow		**16,882**	**42,588**	**7,119**	**51,951**	**20,810**	**27,718**	**32,366**	**34,825**		
WACC	8.1%				8.1%	8.1%	8.1%	8.1%	8.1%		
Discount Period					1.0	2.0	3.0	4.0	5.0		
Discount Factor					0.93	0.86	0.79	0.73	0.68		
Present value of free cash flow					**48,071**	**17,817**	**21,959**	**23,727**	**23,623**		

DCF-valuation	
Enterprise value ("EV")	**532,031**
Less: Total debt	21,632
Plus: Cash and Cash Equi.	91,798
Net debt (negative number equals net cash position)	-70,166
Equity value ("market cap")	602,197
Outstanding shares	36,883
Price per share	**16.33**

Implied multiple	2020A	2021E	2022E	2023E	2024E
Sales	0.7x	1.0x	1.0x	0.8x	0.7x
EBIT	8.5x	18.4x	13.8x	10.7x	9.5x
EBITDA	6.6x	10.6x	8.7x	7.2x	6.6x

Base case DCF Detailed Assumptions / Forecasts

- For the workplace segment, we expect sales growth to be the same as the base industry forecast of -16%, 2%, 7%, 6% and 3% for FY 2021-2025. The sales in the workplace in FY2025 recovers to the level before Covid-19. Covid-19 started to impact business from the fourth quarter in FY2020, and during the fourth quarter, the sales from the workplace decreased 22%. Businesses are unaware of when the coronavirus will be contained so they might need to keep financial viability and defer some furniture purchasing to later. Kimball has a strong financial position in cash and cash equivalent as well as an additional available credit, giving them the resources to get through the current economic downturn and to make acquisitions where necessary so that they can resume their growth once the crisis abates.

- For the health segment, we expect sales growth to be the same as the base industry forecast of -35%, 30%, 20%, 9% and 3% for FY 2021-2025. There is a short-term reduction in demand in clinics and recovery centres due to Covid-19. The hospital resources are shifted to cope with Covid-19 patients, thus decreasing the purchase of furniture. However, patients will still need to go to the hospital post-Covid-19. We expect the pandemic to have a short-term impact on the health sector and make a V-shaped recovery.

- For the hospitality segment, we expect sales growth to be the same as the base industry forecast of -50%, -7%, 60%, 35% and 7% for FY 2021-2025. Since it is not easy to travel far because of the lockdown in many places and restrictions to enter another country, the hospitality industry suffers significantly. They too will reduce unnecessary purchasing to remain financially stable.

- We assume the impact from the increase in cost of sales to be short-term, so the profit margin remains the average of the previous four years' profit margin of 33.8%. The furniture business relies heavily on lumber. Although the company has certified wood suppliers, it cannot guarantee the future lumber sourcing. The increase of lumber price and the tariff imposed on raw materials by the US will likely increase the cost of sales, reducing profit margin, but the company can find ways to hedge against the lumber price.

- Kimball announced a transformation restructuring plan to align their business units to a new market-centric orientation, which is expected to yield cost savings. There will be a $14 million restructuring cost (excl. non-cash effect) according to the company. We allocate $11 million to be incurred in FY2021 and $3 million to FY2022. We assume the restructuring plan will save additional $1 million per year in FY 2023-2025.

- The probability of Biden winning is 91% according to the model of Economist (subject to change). If Biden is elected, he is likely to increase the corporate tax rate to 28% according to his proposal, increasing the tax burden to the company and leading to 8.1% WACC.

- Our model predicts the intrinsic value under the base case to be $16.33. Kimball's current share price is $11.30, which represents a 30.8% discount to intrinsic value.

Relative Evaluation

	Valuation				
Company Name	EV/Sales x	EV/EBITDA x	EV/EBIT x	P/E x	P/B x
Kimball International	**0.4x**	**4.3x**	**5.6x**	**10.0x**	**1.7x**
Steelcase Inc.	0.4x	4.8x	7.0x	9.8x	1.4x
Herman Miller. Inc	0.8x	6.2x	8.4x	10.7x	2.5x
Knoll, Inc.	0.9x	13.0x	24.4x	21.6x	1.5x
HNI Corporation	0.7x	6.8x	8.1x	18.2x	2.7x
Average	**0.7x**	**7.7x**	**12.0x**	**15.1x**	**2.0x**
Median	**0.7x**	**6.5x**	**8.2x**	**14.4x**	**2.0x**

Kimball's P/E of 10x is substantially lower than the comparable average of 15.1x. EV/EBITDA of 4.3x is lower than comparable average of 7.7x. Kimball has little debt, with long-term debt to equity ratio of 0.04%, while the industry average is 95.9% and all competitors of Kimball have higher leverage than Kimball. Lower debt level indicates low financial risk for shareholders, while there currently lacks significant growth opportunity in this industry, Kimball's higher ROCE and asset turnover can produce higher growth if it can find reinvestment opportunities in the future. Both factors are expected to translate into higher P/E ratio, indicating that Kimball is further undervalued relative to competitors. Applying the average P/E 15.1x and EV/EBITDA 7.7x of industry peers to Kimball's trailing EPS $1.11 and EBITDA $72.65M, the share price of Kimball is $16.72 and $17.08, respectively. Taking the average price calculated from P/E and EV/EBITDA, the target price of Kimball under relative valuation is $16.9.

Risks

Covid-19
It is very much likely that Covid-19 will make a long-term impact on Kimball International, as many firms have started considering allowing employees the options to work from home. With prominent firms such as Google allowing their employees to have the choice to work from home permanently, this may be a huge obstacle for Kimball. Lower demand for furnishing equates to lower sales for this industry. Therefore, with such an uncertain future for the office furnishing sector, it poses a huge risk factor for Kimball. Unless Kimball begins diversifying their business models by allocating some resources into new sectors or dedicating a larger portion of attention to the healthcare sector, it is difficult to see their business prospering. Despite that, the assumption made for this report is that Kimball will be able to rebound to the pre-Covid performance by 2025.

Cost of Sales
A major factor to consider is the cost of sales, which in Kimball's case, the cost of purchasing raw materials such as wood, aluminium and steel. For example, from the diagram, we have seen the price of lumber almost tripled since the previous low. However, data shows that the cost of sales for Kimball has remained at around 65% between 2018 to 2020. There are several scenarios to consider. If the wood was purchased before the rise in lumber price, the rise in lumber price might not have been priced into their current cost of sales. On the other hand, the insignificant change in the cost of sales also suggests that Kimball may be able to import wood from other countries experiencing less price hikes. Otherwise, if Kimball did not hedge against lumber price, it might hurt their profit margin soon. With that said, this is a short-term impact on the firm which will not likely hurt their long-term valuation. The lumber price spike is mainly caused by a temporary shock in the supply chain brought by Covid-19, and/or investors seeking alternatives to park cash due to increased risk in the equities market.

Source: Trading Economics

Another factor to consider is the tariff war between US and China. It might pose a material impact on their income if the trade war sustains. *This has been discussed in the industry section.*

Other Risks
Besides, this industry relies heavily on its working capital. Ineffective management of working capital may adversely affect their cash flow from operations. However, Kimball understood this potential shortcoming and is diligent in its action to improve the measures of working capital. Looking at historical data, Kimball's changes in net working capital (NWC) have been consistent, with an exception to the year 2020. Nonetheless, we forecast NWC to fall in 2021.

Moreover, Kimball is in an industry with high inventory risk of incurring losses due to asset impairment. Other than damaged inventory, it is very much possible that certain assets could turn obsolete due to the change in nature of the business environment and shifts in consumer preferences. *As discussed before*, Kimball's current assets have, on average, depreciated over 2/3 of their useful life. This poses a possible increase in capital expenditure in the next few years just to maintain its competitive position. Therefore, Kimball must constantly monitor the market trends, identify, and tackle the issue before it arises.

In short, this is a fairly competitive industry, a close-to a perfectly competitive market. As mentioned above, there are potential major risks that could impact Kimball's valuation in future. To name a few, their recent restructuring plan, global business/consumer confidence remaining low, losses due to asset impairment, etc. Therefore, unless Kimball can maintain and leverage its existing competitive advantage, these risks might overshadow the benefits of holding their shares.

Disclaimer

Appendix

Advantages and disadvantages of remote working:

Advantages	Disadvantages
cost savings for companies	inconvenient for necessary active/frequent communications (despite using Zoom)
reduction in commute time (can be used for other tasks/free time)	harder for managers to monitor progress and mentor employees
access to wider talent pool	more difficult for staff bonding and maintaining mental health
increased connectivity for global companies	decline in productivity when juggling both family and work
environmental friendliness from less commute and office buildings	a blurred line between family and work time

Industry Key Success Factors:

- Secured collaboration with top designers and produce high-quality work
- Target customisation and design: offering products and design services tailored to the demands of clients to avoid price-based competition, and focus on this higher growth segment
- Able to source materials flexibly, especially under increasing costs and given the large proportion of the cost of sales
- Adopt e-commerce (e-Business) to bypass dealership and increase margins
- Proximity to key markets to reduce transportation cost

Price of Aluminium and Forecast

Source: Trading Economics

Since 1Q 2020, aluminium decreased 13.75 USD/Tonne or 0.76%. Aluminium is forecasted to trade at 1727.38 USD/Tonne by the end of this quarter, according to Trading Economics global macro models and analysts' expectations. Looking forward, it is estimated to trade at 1621.35 in 12 months' time.

Price of Steel and Forecast

Source: Trading Economics

Since the beginning of 2020, steel decreased 135 Yuan/MT or 3.61%. Steel is expected to trade at 3372.91 Yuan/MT by the end of this quarter, according to Trading Economics global macro models and analysts' expectations. Looking forward, we estimate it to trade at 2757.91 in 12 months' time

DCF Optimistic case

(in thousands)		Actual					Forecast period			CAGR	CAGR
	2017A	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	2017-2020	2020-2025
Workplace	441,000	449,300	462,700	435,400	422,338	447,678	470,062	488,865	503,531		
		1.9%	3.0%	-5.9%	-3%	6%	5%	4%	3%		
Health	98,200	88,600	110,400	108,900	82,764	100,144	116,168	128,946	135,393		
		-9.8%	24.6%	-1.4%	-24%	21%	16%	11%	5%		
Hospitality	153,800	166,700	195,000	183,600	111,996	107,516	156,974	205,635	224,143		
		8.4%	17.0%	-5.8%	-39%	-4%	46%	31%	9%		
Net sales	**692,967**	**704,554**	**768,070**	**727,859**	**617,098**	**655,339**	**743,203**	**823,446**	**863,066**	**1.7%**	**3.5%**
growth, %		*1.7%*	*9.0%*	*-5.2%*	*-15.2%*	*6.2%*	*13.4%*	*10.8%*	*4.8%*		
COGS	455,106	468,923	513,518	477,098	404,199	429,247	486,798	539,357	565,309	1.6%	3.5%
Gross profit	**237,861**	**235,631**	**254,552**	**250,761**	**212,899**	**226,092**	**256,405**	**284,089**	**297,758**	**1.8%**	**3.5%**
margin, %	*34.3%*	*33.4%*	*33.1%*	*34.5%*	*34.5%*	*34.5%*	*34.5%*	*34.5%*	*34.5%*		
OPEX	183,030	184,568	204,140	187,885	172,989	175,027	193,092	214,156	224,556	0.9%	3.6%
in % of net sales	*26.4%*	*26.2%*	*26.6%*	*25.8%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*		
EBIT	**54,831**	**51,063**	**50,412**	**62,876**	**39,910**	**51,064**	**63,313**	**69,933**	**73,202**	**4.7%**	**3.1%**
margin, %	*7.9%*	*7.2%*	*6.6%*	*8.6%*	*6.5%*	*7.8%*	*8.5%*	*8.5%*	*8.5%*		
PP&E	80,069	84,487	90,671	92,041							
Lease assets	0	0	0	16,461							
Intangibles	2,932	12,607	12,108	13,949							
Total PP&E+Leased assets+Intangibles	**83,001**	**97,094**	**102,779**	**122,451**	**121,737**	**128,087**	**134,769**	**141,799**	**149,197**	**13.8%**	**4.0%**
Depreciation & Amortization	15,553	15,470	16,580	17,509	21,405	22,522	23,697	24,933	26,234	4.0%	8.4%
in % of Total PP&E+Leased assets+Intangibles		*18.6%*	*17.1%*	*17.0%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*		
EBITDA	**70,384**	**66,533**	**66,992**	**80,385**	**61,315**	**73,586**	**87,010**	**94,866**	**99,435**	**4.5%**	**4.3%**
Tax	20,512	17,886	12,326	15,076	8,381	10,724	13,296	14,686	15,372	-9.8%	0.4%
Capex	11,751	21,575	19,693	17,551	20,695	29,204	30,727	32,330	34,017	14%	14%
in % of Total PP&E+Leased assets+Intangibles		*26.0%*	*20.3%*	*17.1%*	*17.0%*	*22.8%*	*22.8%*	*22.8%*	*22.8%*		
Increase/Decrease in NWC		10,190	-7,615	40,639	-30,402	327	1,242	562	-944		
Unlevered Free Cash Flow		**16,882**	**42,588**	**7,119**	**62,640**	**33,332**	**41,745**	**47,288**	**50,991**		
WACC	8.1%				8.1%	8.1%	8.1%	8.1%	8.1%		
Discount Period					1.0	2.0	3.0	4.0	5.0		
Discount Factor					0.93	0.86	0.79	0.73	0.68		
Present value of free cash flow					**57,954**	**28,531**	**33,058**	**34,646**	**34,563**		

DCF-valuation	
Enterprise value ("EV")	**767,904**
Less: Total debt	21,632
Plus: Cash and Cash Equi.	91,798
Net debt (negative number equals net cash position)	-70,166
Equity value ("market cap")	838,070
Outstanding shares	36,883
Price per share	**22.72**

Implied multiple	**2020A**	**2021E**	**2022E**	**2023E**	**2024E**
Sales	1.1x	1.2x	1.2x	1.0x	0.9x
EBIT	12.2x	19.2x	15.0x	12.1x	11.0x
EBITDA	9.6x	12.5x	10.4x	8.8x	8.1x

DCF Optimistic Assumptions / Forecasts

- For the workplace segment, we tentatively add 1% to the optimistic sales growth of the industry forecast to account for Kimball's short-term competitive advantages, which results in -3%, 6%, 5%, 4% and 3% growth for FY 2021-2025. There are over 10 Covid-19 vaccine candidates in the Phase III clinical trials. Judging from the current vaccine development progress, the best case is that the coronavirus vaccine can be manufactured early in 2021. The economy will likely rebound strongly after that. Employees will be able to get back to the office and business will resume furniture purchasing.

- For the health segment, similarly, we tentatively add 1% to the optimistic sales growth of the industry forecast, which results in -24%, 21%, 16%, 11% and 5% growth for FY 2021-2025. We expect the patients of Covid-19 will decrease and the hospital operations resume to normal early in 2021, thus increasing the demand in the health industry.

- For the hospitality segment, similarly, we tentatively add 1% to the optimistic sales growth of the industry forecast, which results in -39%, -4%, 46%, 31% and 9% growth for FY 2021-2025. We expect the vaccine is likely to be manufactured early in 2021 and the government will ease the restriction on free travelling. People are likely to plan to travel and business trips, so the hospitality industry will recover strongly.

- We assume the growth profit margin to be 34.5% from FY 2021-2025. The impact of Covid-19 is short-term. The commodity price will be lower compared to the current price once the workers can get back to work after Covid-19, and that the cost savings from Phase 1 of the transformation plan will be fully retained going forward, which reduces the company's cost of sales.

- We allocate $11 million of restructuring cost to FY2021 and $3 million to FY2022. We expect Phase 2 of the transformation restructuring plan being successfully implemented with additional forecasted cost-saving of $2 million per year from FY 2023-2025.

- We expect Trump to win in our optimistic case, which means lower tax continues, although the probability of Trump winning the presidential election is slim, 9% according to the Economist forecast (subject to change). If Trump gets elected as president, the current corporate tax rate will likely remain the same (21%), resulting in 8.1% WACC.

- Our model predicts the intrinsic value under the optimistic case to be $22.72. Kimball's current share price is $11.30, which represents a 50.3% discount to intrinsic value.

DCF Pessimistic case

(in thousands)	Actual				Forecast period					CAGR	CAGR
	2017A	2018A	2019A	2020A	2021E	2022E	2023E	2024E	2025E	2017-2020	2020-2025
Workplace	441,000	449,300	462,700	435,400	326,550	320,019	348,821	373,238	382,569		
		1.9%	3.0%	-5.9%	-25%	-2%	9%	7%	3%		
Health	98,200	88,600	110,400	108,900	59,895	89,843	107,811	116,436	119,347		
		-9.8%	24.6%	-1.4%	-45%	50%	20%	8%	3%		
Hospitality	153,800	166,700	195,000	183,600	73,440	66,096	112,363	168,545	182,028		
		8.4%	17.0%	-5.8%	-60%	-10%	70%	50%	8%		
Net sales	**692,967**	**704,554**	**768,070**	**727,859**	**459,885**	**475,958**	**568,995**	**658,219**	**683,944**	**1.7%**	**-1.2%**
growth, %		*1.7%*	*9.0%*	*-5.2%*	*-36.8%*	*3.5%*	*19.5%*	*15.7%*	*3.9%*		
COGS	455,106	468,923	513,518	477,098	308,123	318,892	381,227	441,007	458,243	1.6%	-0.8%
Gross profit	**237,861**	**235,631**	**254,552**	**250,761**	**151,762**	**157,066**	**187,768**	**217,212**	**225,702**	**1.8%**	**-2.1%**
margin, %	*34.3%*	*33.4%*	*33.1%*	*34.5%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*	*33.0%*		
OPEX	183,030	184,568	204,140	187,885	131,721	127,940	149,362	172,783	179,536	0.9%	-0.9%
in % of net sales	*26.4%*	*26.2%*	*26.6%*	*25.8%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*	*26.3%*		
EBIT	**54,831**	**51,063**	**50,412**	**62,876**	**20,042**	**29,126**	**38,406**	**44,429**	**46,165**	**4.7%**	**-6.0%**
margin, %	*7.9%*	*7.2%*	*6.6%*	*8.6%*	*4.4%*	*6.1%*	*6.7%*	*6.7%*	*6.7%*		
PP&E	80,069	84,487	90,671	92,041							
Lease assets	0	0	0	16,461							
Intangibles	2,932	12,607	12,108	13,949							
Total PP&E+Leased assets+Intangibles	83,001	97,094	102,779	122,451	121,737	128,087	134,769	141,799	149,197	13.8%	4.0%
Depreciation & Amortization	15,553	15,470	16,580	17,509	21,405	22,522	23,697	24,933	26,234	4.0%	8.4%
in % of Total PP&E+Leased assets+Intangibles		*18.6%*	*17.1%*	*17.0%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*	*17.6%*		
EBITDA	**70,384**	**66,533**	**66,992**	**80,385**	**41,447**	**51,648**	**62,103**	**69,362**	**72,399**	**4.5%**	**-2.1%**
Tax	20,512	17,886	12,326	15,076	5,612	8,155	10,754	12,440	12,926	-9.8%	-3.0%
Capex	11,751	21,575	19,693	17,551	20,695	29,204	30,727	32,330	34,017	14%	14%
in % of Total PP&E+Leased assets+Intangibles		*26.0%*	*20.3%*	*17.1%*	*17.0%*	*22.8%*	*22.8%*	*22.8%*	*22.8%*		
Increase/Decrease in NWC		10,190	-7,615	40,639	-30,473	232	975	512	-765		
Unlevered Free Cash Flow		**16,882**	**42,588**	**7,119**	**45,613**	**14,057**	**19,647**	**24,080**	**26,221**		
WACC	8.1%				8.1%	8.1%	8.1%	8.1%	8.1%		
Discount Period					1.0	2.0	3.0	4.0	5.0		
Discount Factor					0.93	0.86	0.79	0.73	0.68		
Present value of free cash flow					**42,207**	**12,036**	**15,566**	**17,652**	**17,786**		

DCF-valuation	
Enterprise value ("EV")	404,034
Less: Total debt	21,632
Plus: Cash and Cash Equi.	91,798
Net debt (negative number equals net cash position)	-70,166
Equity value ("market cap")	474,200
Outstanding shares	36,883
Price per share	12.86

Implied multiple	2020A	2021E	2022E	2023E	2024E
Sales	0.6x	0.9x	0.8x	0.7x	0.6x
EBIT	6.4x	20.2x	13.9x	10.5x	9.1x
EBITDA	5.0x	9.7x	7.8x	6.5x	5.8x

DCF Pessimistic Assumptions / Forecasts

- For the workplace segment, we expect sales growth to be the same as the pessimistic industry forecast of -25%, -2%, 9%, 7% and 3% for FY 2021-2025. We assume that the spreading of Covid-19 continues worldwide until the coronavirus disappears or most of the population are vaccinated, which could last a long time and many employees still need to work from home. If remote working becomes a widespread trend for the long-term, the future furniture purchasing in the workplace will decrease significantly. We expect the economic recovery to be a deep L-shaped curve. The demand for furniture in the workplace will reduce a lot and will not recover to the level before Covid-19.
- For the health segment, we expect sales growth to be the same as the pessimistic industry forecast of -45%, 50%, 20%, 8% and 3% for FY 2021-2025. We expect the demand in clinics and operations will be disrupted significantly by Covid-19 in FY2021, as people reduce visits to the hospitals, with a rebound starting from FY2022. The furniture purchasing of the health industry will be less corresponding to the demand.

- For the hospitality segment, we expect sales growth to be the same as the pessimistic industry forecast of -60%, -10%, 70%, 50% and 8% for FY 2021-2025. We expect an economic recession to last because of the Covid-19. People expect the disposable income to be less, so there could be less travelling planned because people need to save for the future. Hospitality businesses will likely downsize and reduce purchasing to stay financially healthy. The demand will reduce significantly for the next two years until the economy starts to recover in FY2023 and will not be able to recover to the level before Covid-19 in FY2025.
- We assume the gross profit margin to be 33% for FY 2021-2025 as we predict the commodity price will rise in the future and the company will not be able to hedge against the raw material prices, which will squeeze the profit margin. The furniture industry is labour-intensive, and it is vulnerable to work stoppage. The inconvenience caused Covid-19 will disrupt the work process and decrease work efficiency.
- We allocate $11 million restricting cost to FY2021 and $3 million to FY2022. We expect the restructuring plan of the company may not be as successful as expected and hence no additional cost-savings from FY2023 onwards.
- We expect that Joe Biden will win the presidential election and he will raise the tax rate to 28%, resulting in 8.1% WACC. The tax burden for the company will increase.
- Our model predicts the intrinsic value under pessimistic case to be $12.86. Kimball's current share price is $11.30, which represents a 12.1% discount to intrinsic value.

Disclaimer