Report

Roland Berger

USA

Building the future

HOW CONSTRUCTION EQUIPMENT
IS FACING UP TO TURBULENT TIMES

Roland Berger

MANAGEMENT SUMMARY

After a sharp dip around 2015/6, the construction equipment industry resumed the forceful growth it had seen since the 2008/9 financial crisis before tailing off ahead of the coronavirus outbreak.

As global GDP growth slowed, environmental regulations tightened and international trade tensions worsened, Covid-19 suddenly plunged the market into turmoil and uncertainty. Poised to shrink by upward of 25%, the industry must now think again. The North American market accounts for 17% of the world's total construction equipment production and is a useful point of departure from which to understand what is going on worldwide – and where the industry is heading.

A handful of key OEMs have carved up the bulk of the North American market between them, mostly supplying used equipment to smaller contractors and new products to both larger contractors and rental companies. Unlike previous crises, the ongoing pandemic points strongly to the need for more resilient supply chains going forward. As weaker firms become insolvent, some consolidation is also likely as they are snapped up by the bigger players.

Having doubled to over USD 25 billion in ten years, the equipment rental market too will shrink by around 14%. However, it continues to look promising as a way forward as end customers increasingly prefer to rent rather than buy.

Four main rental firms currently share 30% of the market, and their revenue growth to date has been accompanied by rising profitability. Flexing their negotiating muscle, these players are increasingly putting price pressure on OEMs while also seeking to expand into aftersales and other areas of service and maintenance.

Caterpillar has led the OEMs' fightback by launching its own rental operations and is now being copied by other manufacturers. Yet OEMs are inherently more distant from end customers, do not have a delivery infrastructure to compete with that of the rental players and also tend to offer less choice.

As digitalization – accelerated by the pandemic – continues to drive transparency and dynamic pricing in this as in other industries, OEMs face tough choices about how they want to move forward. Among the issues they must address are costs (as ever), portfolio decisions, how to ready themselves for emerging ecosystems and what part – if any – to play in the rental market.

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1/ Ups and downs – Business as usual for the construction equipment industry?

The construction equipment industry has experienced solid growth over the past decade, including two waves of expansion. The first came as the world recovered from the Great Recession of 2008/9 (buoyed mainly by rising demand in China). The second wave came in the years leading up to the current Covid-19-driven crisis. And while the sector is no stranger to volatility, the combination of both demand and supply-side shocks is seriously testing the mettle of industry players.

In 2019, the production of nearly 1.2 million earth-moving applications – primarily skid steer loaders, wheel loaders and excavators – generated an estimated USD 110 billion in global sales.[1] Excavators gained market share at the expense of wheel loaders, in part due to shifting customer preferences in emerging markets. Skid steer loaders are dominated by North American demand and have been able to defend their overall market share. The worldwide surge in construction equipment sales over the past decade has been fueled by growth in global GDP, world trade, urbanization and infrastructure investments, particularly in China. Urbanization and other trends have caused growth rates in emerging economies to outpace those in developed markets by a significant margin. India is a good example: Here, OEM production has increased more than fourfold to over 30,000 units since the Great Recession. Today, the subcontinent commands a by no means insignificant 4% of global production – equivalent to about a third of North American or European production – and the long-term outlook for growth is bright.

CHINA'S INFLUENCE

With a market share of 36% in 2019, China remains the world's largest equipment producer. Government investment and management programs are responsible for much of the industry's market growth. In the wake of the global financial crisis, Chinese investment and incentives prompted massive market expansion by a factor of 1.6. During this period, China accounted for more than half of all construction equipment produced globally. In 2015 and 2016, the country's production then fell by a whopping 50% to about 20% of global production, making it roughly comparable to the US and Europe. This collapse was triggered by the end of massive government spending, an anti-corruption drive by China, generally tighter credit availability, and the Chinese government's announced intent to move from a labor-based economy to a knowledge society. Beginning in 2017, factors such as the "One Belt, One Road" initiative then ushered in a return to growth. Given its size, the Chinese market has thus been a critical driver of global volatility in construction equipment production. → A

North America's share of production has decreased from 22% to 17%, while that of Europe has fallen from 18% to 15%. Though the relevance of these markets has dwindled, their overall stability and margins nevertheless make the markets inherently attractive.

1) Off-Highway Research, IHS, PSR, Roland Berger, https://offhighwayresearch.com/News/Global-equipment-sales-hit-record-high/208.article

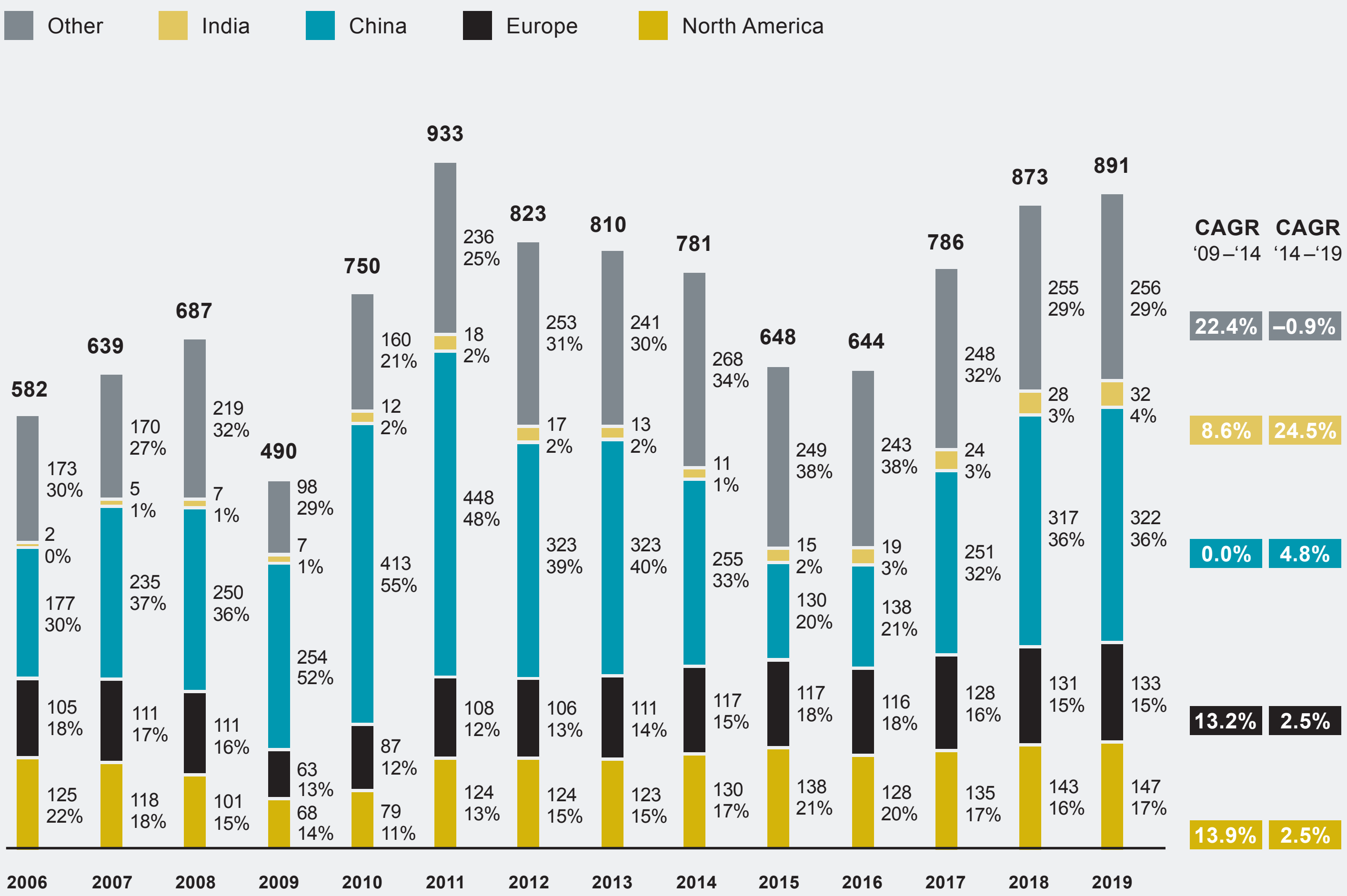
2/ Clouds on the horizon – Pre-Covid-19 challenges to the construction equipment industry

Despite overall positive development in the past decade, dark clouds were already appearing on the industry's horizon in 2020 even before the onset of Covid-19. Industry volumes were expected to be flat at best, and financial challenges to industry players were clearly visible.

Global GDP growth was projected to slow down and hamper rapid growth in the world's construction market. China, for example, was expected to see GDP growth rates decline each year through 2024. Growth forecasts in the US and the EU were likewise significantly down.

A / Global construction equipment market production – All equipment end markets

Global construction equipment production by region, 2006-2019 [units k; %]



Source: PSR; IHS; Roland Berger

The US-China trade conflict fostered significant uncertainty in global markets and forced market players to take costly countermeasures. On the Chinese side, SANY announced plans to sidestep US tariffs by boosting production in the US. Other Chinese OEMs (such as Yuchai) focused more on alternative regions (like Europe). For their part, Western players had to contend with supply chain disruptions and escalating input costs.

At the same time, environmental regulations – especially those concerning emissions and noise – forced OEMs to redirect large chunks of their R&D investments into areas such as electrification and hydrogen. In some cases, profitable customer use cases nevertheless remain unclear, and this only adds to the uncertainty surrounding OEM product portfolio development decisions. Given well-documented climate change concerns, emission regulations are likely to grow ever tighter, pushing toward zero emissions and quieter construction equipment that is amenable to urban environments.[2]

Just as electrification has squeezed OEMs' finances, investments in telematics and autonomy too have strained their research and development budgets. Both aspects promise improved uptime, better site productivity, increased safety and reduced operating costs (e.g. via preventive maintenance). On the other hand, they necessitate heavy investments at a time when cash flows are seriously under pressure.

The resultant investment needs will force industry participants to consider new business models that involve adjusting their make-or-buy decisions, working more closely with suppliers or considering cooperation with competitors, for example.[3]

3/ Covid-19 and its impact on construction equipment – The North American example

The Covid-19 pandemic threw a spanner into the works of construction equipment at a time when the industry was already under increasing stress. To understand the implications of the pandemic for construction equipment in general, we have zoomed in on the North American market in particular.

The North American market is the second largest in the world. Its most important end market for earth moving applications is general construction, followed by mining (especially for large wheel loaders) and agriculture (including landscaping, which is important for skid steers). The main drivers of growth in the North American market are residential and commercial construction projects, infrastructure programs, mining investments and overall demand for agricultural products.

This heavily consolidated market is dominated by large OEMs such as John Deere, Caterpillar, Komatsu and Doosan. Caterpillar and John Deere are the

2) For instance, London has set a zero emissions target for all construction equipment by the year 2040.
3) A recent example of cooperation between competitors in a related industry is the joint venture between Volvo and Daimler Trucks in the area of fuel cell technology.

market leaders for excavators and wheel loaders, followed by Komatsu. The remainder of the market is fragmented across European and imported Asian brands, each of which controls less than ten percent of the market. In skid steers, Doosan is the undisputed market leader thanks to its Bobcat brand. CNHI occupies second place in this segment.

The North American equipment market serves three main customer groups: small contractors, large contractors and rental companies.

Small contractors are often less sophisticated companies with limited ability to plan ahead. They have fewer financial resources and tend to rent or buy used equipment. Upfront price and financing options are crucial purchasing parameters for them, as are good relationships with dealers.

Large contractors are typically sophisticated, well-financed companies whose strong backlog visibility enables efficient planning. These customers buy new equipment, renting only to manage peak demand. Large contractors value established brands, after-sales support and a superior TCO when purchasing equipment.

Rental companies are a key segment that represents a significant share of the market. Ten or so large rental players operate from hundreds of locations, while some 4,000 smaller players serve mostly local markets, adding up to a highly fragmented status quo. Rental companies typically carry multi-brand offerings to fit various preferences. Larger firms service their own vehicles. Additionally, some OEMs produce equipment specifically geared toward the rental market. Key metrics that determine what type of equipment rental firms purchase include: cost, expected time utilization rates, charge-on amounts and capital expenditure on equipment.

Before the pandemic broke out, the market as a whole was already expected to decline. When Covid-19 hit, overall industry dynamics then took a turn for the worse, with compact equipment expected to shrink by 20-25% and heavy equipment by 30-35%. This market correction is in line with the 30% contraction the construction industry saw during the Great Recession of 2008/9.

RESPONDING TO THE PANDEMIC

At the beginning of the crisis, liquidity was king and the largest industry players raised billions in new debt. Cash management options were implemented by optimizing working capital and reducing operating expenses. Companies suspended dividends to retain cash. There has also been evidence of postponed investments, with caps imposed on capital spending through the end of 2020.

A second critical near-term opportunity that can be taken is to increase service, aftermarket and digital solution revenue streams. While core equipment sales may ebb in tandem with construction activity, there are still opportunities to increase participation in the aftermarket or grow recurrent service revenue by leveraging telematics.

Other business segments – such as used equipment sales – likewise merit attention. The pandemic put used equipment sales on hold. Prices initially dropped by around 6%, but recovered somewhat and are expected to remain similar to 2019 levels. In their earnings reports, all rental companies quote strong demand for used equipment. This differs from previous demand-side-only shocks, in which the attempts of stressed-out construction companies to offload used equipment bloated supply and put pressure on the prices of both used and – as a knock-on effect – new equipment. By contrast, the current crisis has also seen supply-side shocks limit the availability of new equipment and bolster used equipment prices. Demand for used equipment has thus remained robust, allowing construction companies to contain risks and better manage cash flows.

As the pandemic spread around the globe, supply chain disruptions highlighted the vulnerability of some companies. Although previous similar disruptions (such as the Fukushima disaster) did not lead to any significant realignment of the supply chain, this time may be different. The current pandemic is unlikely to be the last that will affect the global business environment. Moreover, it comes at a time when a global trade war and geopolitical conflict between the US and China is continuing to gather steam. It is therefore certainly prudent to explore options for greater supply chain resilience by making the supply chain more transparent down to tier-3 and tier-4 suppliers, ramping up safety stock and creating onshore or nearshore supply options.

In addition, the financial stress triggered by the current crisis will lead to the bankruptcy of numerous weaker firms, similar to what we saw during the financial crisis of 2008. Conversely, firms that entered the Covid-19 crisis with healthy balance sheets will have an opportunity to acquire weakened companies in a bid to increase their market reach, add competencies and/or access critical intellectual property.

Lastly, we will see an increased shift toward the rental of construction equipment. Rental business has already grown consistently and enlarged its share of construction equipment revenue throughout the current crisis. Several factors have prompted customers to shift their preference from owning equipment to renting it:

- Reducing capital expenditure to bolster balance sheets, mitigate business risks and scale back capital commitments[4]
- Supplementing owned equipment to extend fleet capacity and compete for more orders – alongside the convenience of on-site delivery
- Greater flexibility thanks to a broader selection of equipment
- Assurance that rental equipment has the latest safety and technology features[5]
- Guarantee of ongoing compliance with environmental standards[6,7]
- Eliminating the need for an equipment storage footprint and maintenance service/support as operational capacity increases
- Enhanced convenience and data transparency thanks to digitalization and telematics, e.g. pickup, delivery, fleet availability, maintenance data, billing, pricing transparency (due to seasonality and availability)

These opportunities and the challenges to construction OEMs that go with them are discussed in the section below.

4) https://www.equipmentworld.com/recession-weary-heavy-equipment-buyers-flock-to-rental-rpos-to-lower-risk/
5) For example, United Rentals, the largest equipment rental company, reports that its earthmoving equipment is less than three-and-a-half years old on average.
6) Ibid.
7) Manfredi & Associates (https://www.forconstructionpros.com/equipment/fleet-maintenance/other-components/article/11269525/tier-4-drives-evolution-in-construction-market).

4/ The rental market – Opportunities and challenges

The North American rental equipment market has doubled in size over the past ten years. Rental companies have been insulated from many of the shocks impacting OEMs, as the drivers of equipment rental are very different from those of new equipment sales. The current overall equipment rental market is worth USD 25.5 billion (see Table 1), up from USD 10.7 billion in 2010 – equivalent to a CAGR of 10%. This dramatic growth can be attributed to how the market has evolved. Initially, the rental market focused on providing equipment that customers use only intermittently. Over time, however, rental firms expanded their offerings and now offer a much broader range of equipment for both short and long-term applications. By offering a greater assortment of machinery at competitive prices, rental companies have, over the years, changed customers' perceptions about the cost/benefit ratio associated with renting as opposed to buying. Rental penetration rates nevertheless vary by type of equipment and size. For example, while earthmoving rental equipment revenues totaled USD 10.4 billion in 2019 and thus represented the largest share of the market at around 41%, the corresponding penetration rate was only 31% – considerably lower than the 87% figure for material handling equipment (e.g. cranes). Similarly, within the earthmoving equipment category itself, smaller and more compact equipment is rented much more frequently than larger and more expensive machinery. → B

B / 2019 US equipment rental market[1]

	ESTIMATED REVENUE (USD BN)	MARKET PENETRATION RATE	% OF RENTAL EQUIPMENT MARKET
Earthmoving equipment	10.4	31%	41%
Material handling	9.7	87%	38%
Other machinery (e.g. gensets, water pumps)	0.9	49%	3%
Other equipment (e.g. tools)	4.5	N/A	18%
Total equipment rentals	25.5	N/A	100%

Source: Yengst Associates; American Rental Association; US Census
1) This analysis excludes party/movie equipment and other rentals that also total around USD 25 billion

The rental market can be broken down into three categories. The largest comprises traditional equipment rental companies such as United Rentals and Sunbelt. This category is dominated by four large publicly traded companies: United Rentals, Sunbelt (Ashtead), Herc and H&E. These giants in turn are flanked by thousands of niche players across the country who primarily serve smaller contractors and municipalities. Since switching costs are typically minimal, market players compete primarily on price and service. Challenges to profitability include fierce competition, a lack of brand equity, a lack of loyalty and customers' ever-present buy-or-rent choice.

The second category consists of OEMs and their dealer networks. Here, rental is mainly used as a sales channel for OEM equipment, the aim being to leverage existing customer relationships and capture margins by bypassing rental companies. Caterpillar, for example, has become one of the largest rental players and is aggressively expanding its dealer rental program. Other companies too are starting to emulate its strategy. As eager as they are to enter the rental market, OEMs nevertheless find themselves at a competitive disadvantage. They often lack convenient access to the client, do not have nearby service bays and are unable to offer transportation to easily move equipment.

Lastly, numerous new players such as Dozr, Big Rentz and others are also moving into the rental space. Their strategy is to position themselves as brokers between contractors and renters by establishing Uber-like business models.

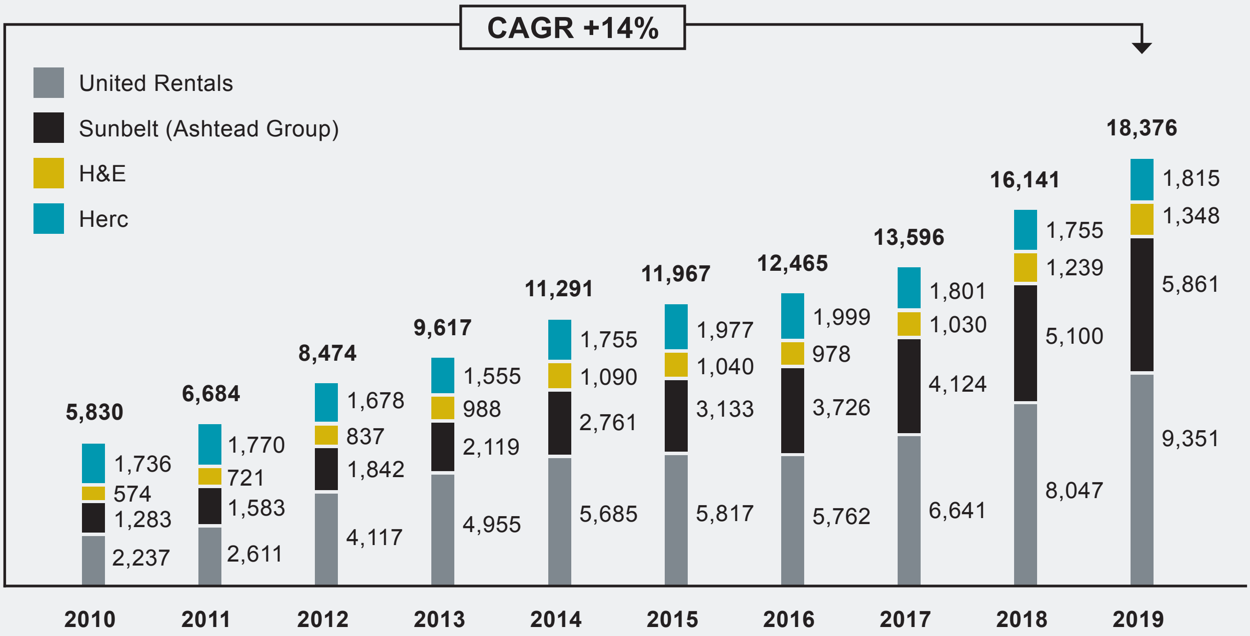
United Rentals is the largest rental company. Its revenue of USD 9.4 billion is about twice that of the nearest competitor, giving the company a dominant market share of about 13% driven by organic growth combined with an aggressive M&A strategy. The company has around 1,200 offices and has developed superior logistics and customer-facing technology, such as customer fleet management. This enviable position, together with one of the largest private truck fleets, gives United Rentals a significant competitive advantage over other players.

With around 700 offices and a 7% market share, Sunbelt is the second-largest firm. It is owned by the British firm Ashtead and also has a footprint in Canada and the UK. Like United Rentals, Sunbelt has grown both organically and through acquisitions. While construction remains its core market, the company has also forcefully expanded into specialty businesses such as climate control, power and HVAC, pump solutions, ground protection and flooring solutions.

Herc, the third-largest rental company, was formerly a division of Hertz and went public in 2016. Boasting a market share of around 3% and 270 offices, it is over 50 years old and has a longer tenure in the industry than its two larger competitors. Unlike United Rentals, Herc has grown organically but avoided M&As. Prior to Covid-19, it had begun to install staff and equipment on the corporate campuses of its industrial customers. Herc is a byword for rigorous cost containment and disciplined pricing. Founded in 1961, H&E focuses on heavy construction and industrial equipment. The firm has a significant presence in the Gulf Coast and Intermountain regions.

C / All four major equipment rental players have increased revenue from their rental activities over the past decade

Revenue generated by the four largest rental players, 2010-2019 [USD m]



Source: CapIQ; company annual reports; Roland Berger

Since the Great Recession of 2008/9, the largest rental companies have enjoyed considerable growth and now dominate the market with a joint market share of around 30%. This gain can be attributed to the following factors: → C

- Major acquisitions. For example, United Rentals has tripled the size of its fleet by completing acquisitions worth roughly USD 8 billion over the past decade.
- Penetration, pricing and utilization rates have all improved. The following figure highlights some of the price increases realized by rental companies. → D
- Many rental companies are expanding into specialty product niches that generate higher dollar utilization levels than traditional offerings. In some cases, these products can generate more revenue than their purchase price in a single year (>100% utilization).
- Growth in the overall construction market has augmented the need for construction equipment.
- Construction companies today better understand the cash flow benefits of renting as opposed to buying.

D / Monthly rental rate development across several key products

EARTHMOVING PRICING ANALYSIS				
	2013	2016	2019	
EARTHMOVING	Month Rate	Month Rate	Month Rate	CAGR
Backhoe Loader	2,000 USD	2,800 USD	3,400 USD	9%
Crawler Dozers	2,800 USD	3,250 USD	4,200 USD	7%
Wheeled Excavators	3,500 USD	3,600 USD	6,100 USD	10%
Mini-Excavators	1,600 USD	2,400 USD	2,400 USD	7%
Motor Graders	5,200 USD	6,300 USD	6,200 USD	3%
Skid Steer Loaders	1,500 USD	1,900 USD	2,200 USD	7%
Comp Track Loaders	1,7500 USD	2,300 USD	2,400 USD	5%

Source: Yengst Associates

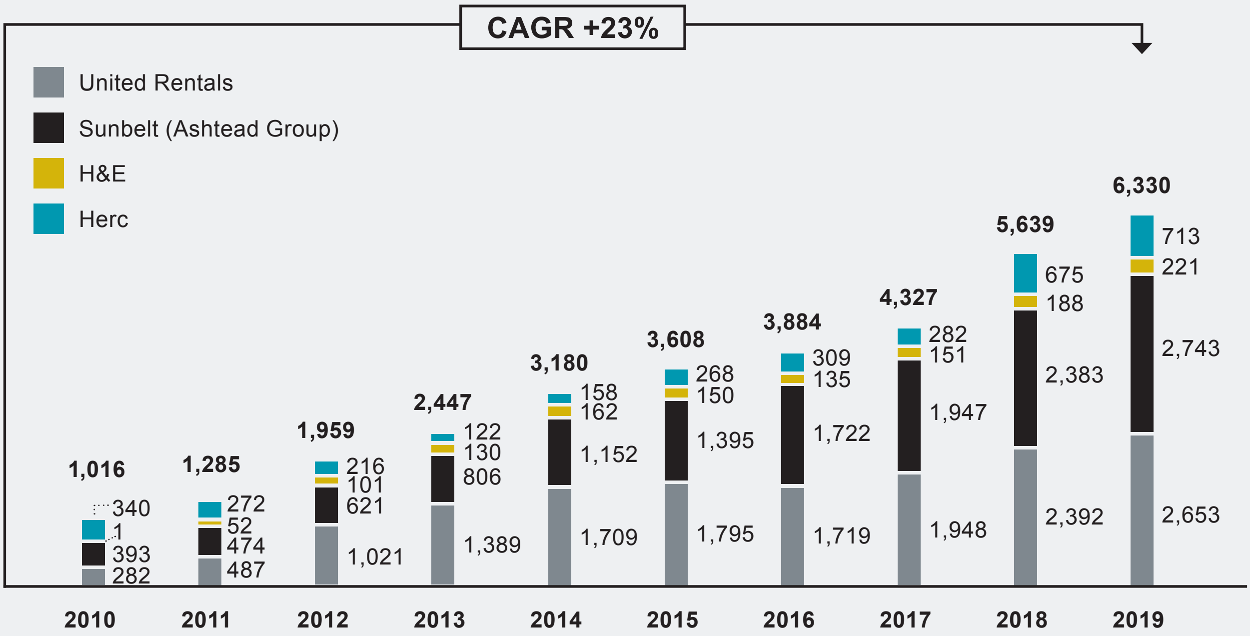
While expanding their revenues, rental companies have also become much more profitable. They have improved their operational efficiency and begun to emphasize higher-margin specialty businesses. In a market with few protective barriers, controlling prices and expenses is critical to remain competitive. → E

Over the past few years, rental companies have pursued a diversification strategy that has increased revenues and profitabilty as well as making them more resilient during economic crises. Most now serve a variety of industries, which gives them something of a cushion during economic downturns like the one caused by Covid-19. Overall, the US rental market is expected to contract by around 14% – roughly half of the figure projected for the construction equipment industry as a whole. While large rental companies will be able to survive the current crisis relatively unscathed, anecdotal evidence suggests that smaller players will suffer and may even have to shut down.

Covid-19 has accelerated nascent trends in the industry that were already challenging players before the pandemic. For example, digitalization has become even more prominent as rental companies seek ways to effectively communicate with a new generation of customers that expect full transparency and dynamic pricing. As more and more transactions move online, the threat from online aggregators also becomes more pronounced – and with it the challenge of avoiding the commoditization trap. The present crisis has sharpened an ongoing focus on end-to-end process standardization, centralization and automation in the industry. New approaches – such as self-service pickup of compact machines and tools –

E / Impressive EBITDA growth for the leading four rental players over the past decade

EBITDA development, four largest rental players, 2010-2019



Source: CapIQ; company annual reports; Roland Berger

are likely to become the new normal. Some companies have also found that they can maintain high activity levels with substantially fewer locations, a discovery that will drive footprint optimization in the aftermath of the crisis.

IMPLICATIONS FOR OEMS

The likely continuation of the trend toward renting into the mid-term future has important implications for OEMs and their suppliers. Chief among manufacturers' concerns is sustained price pressure, driven by the fact that rental companies tend to be brand-agnostic, are interested in value-for-money solutions and are less loyal as channel partners. Thus, as ever-larger rental companies negotiate directly with OEMs to procure equipment at the best price, their increasing scale advantage is a trend that manufacturers will have to contend with. OEMs must therefore constantly refine their strategy to deal with this major challenge.

OEMs should also keep an eye on rental companies' consistent policy of buying and selling used equipment. The sale of more used machines could potentially reduce demand for new equipment and put downward pressure on new equipment prices. This poses a risk to OEMs, as rental companies could become more significant partners to users – not only as equipment providers, but also thanks to fleet maintenance activities and customer care.

As the larger rental companies continue to grow, their after-sales service and support capabilities may likewise expand. Recent earnings calls suggest that rental firms are actively courting more service and maintenance business. And while they will never have the experience and equipment to perform the most expensive and difficult repairs, there are still many repairs they can handle in-house. Given the ability to run an updated fleet of equipment, harness predictive maintenance and collect and analyze data, rental companies can carve out competitive advantages by reducing downtime and optimizing maintenance schedules. The largest among them can also leverage stronger negotiation positions and squeeze prices. Both of these developments have the potential to negatively impact the revenues and margins of OEMs and dealers alike.

While growth in the rental market has so far benefited OEMs and accounts for approximately a third of all construction equipment sales, equipment manufacturers have recently started to double down on the segment. Caterpillar has taken the lead: In 2017, the company announced a new strategy centered around rental and used equipment sales. It then purchased the likes of Yard Club, a peer-to-peer construction equipment marketplace. While Caterpillar does not report rental sales separately (as they are associated with dealers), it is estimated that the company would in effect be the third-largest rental company, with rental revenue of around USD 3.5 billion. → **F**

F / Caterpillar rental sales (dealer rentals)

[USD m]	2015	2016	2017	2018	2019
Cat NA equipment rental revenue	**2,500**	**2,400**	**2,800**	**3,300**	**3,500**

Source: Yengst Associates

Given Caterpillar's success, other OEMs have have started to explore similar options. Both Deere and Komatsu have helped dealers establish rental programs, while Doosan has supported some Bobcat dealers. That said, OEMs face a number of competitive disadvantages as they seek to compete with rental firms:

- OEMs lack strong customer relationships and close proximity to construction companies – unlike United Rentals, many of whose more than 1,200 offices are located near key customers.
- Rental firms have strong transportation systems to move equipment in response to customer needs. Whereas United Rentals' truck fleet is one of the largest in the US, OEMs are not equipped to offer similar services.
- OEMs are unable to offer as wide a choice or as large a quantity of equipment. Many rental companies offer not only multiple brands of various equipment, but also specialty and smaller tools to meet all their contractors' needs.
- Rental companies operate very efficiently to contain costs and make renting an attractive option. This efficiency too is difficult to replicate and compete with.

5/ Conclusion and recommendations

As the initial Covid-19 surge ebbs, companies in the construction equipment industry have to ask themselves some fundamental questions: How do we further systematically reduce our costs to lower our break-even point in light of the ongoing economic volatility? What are the implications of Covid-19 and similar crises on portfolio decisions across operations, research and development, for example? What fundamental forces are reshaping the power balance in the industry and how can we position ourselves astutely in emerging ecosystems? And how do we tackle long-term trends – such as rental – that have been accelerated by the pandemic?

While the industry has successfully weathered bouts of volatility in the past, the extent of changes in the current crisis is such that these questions must be answered thoroughly and dispassionately. And rigorous action must follow the strategic decisions made: Merely upholding the status quo will not drive the changes that are needed to navigate through the turbulent waters of the decade ahead.

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