A recently published market report on container handling equipment (CHE) is optimistic on the topic of future industry growth. The general market driver for CHE is container throughput, which is projected to increase by an average annual growth rate of 6.1% until 2021, resulting in the equipment market increasing from US$5.7B in 2013 to US$7.8B in 2020. Nonetheless, the market has its own dynamics and major manufacturers have prepared for changes in the industry. The key lesson learned from the 2008 financial crisis is that container terminal operators will promptly and drastically reduce investment in equipment, if needed. Container throughput declined by 8% from 2008 to 2009, resulting in the overall equipment market decreasing by 25% the same year and not starting to recover until 2011. The major threat for equipment manufacturers is therefore, decreasing container throughput, which will affect investment spending of container terminal operators for the same year and result in cautious investment behaviour for the next 1-2 years. As a result of terminal operators’ investment behaviour, the market for container terminal equipment has ranged between US$4.7B and US$6.8B for the year between 2005 and 2013 (Fig. 1). The overall market growth for equipment in that period was 5.0% per year in terms of US$, compared to 6.9% average annual growth for container throughput in terms of TEU.

**Fig 1: Market development, 2005-2013. (Source: Daniel Schaefer)**

**Chinese factor**

Another lesson learned from the past is that the overall market for equipment will only grow significantly if demand from China returns to its previous high levels. For example, STS crane sales to China decreased from nearly 1000 units annually pre-crisis (2005-08) to 33 units per year since then. Chinese ports simply stopped ordering in 2009, as if acting collaboratively. Although increasing demand from Chinese ports will have a positive effect on the general market development, non-domestic manufacturers will most probably not profit from this. China is a captive market for pricing and/or other reasons the share of non-domestic manufacturers has been close to zero for STS cranes and has been only 10% for RTGs since 2015. Container throughput growth did not meet expectations in 2012 and 2013, as it increased only by 3-4% each year, resulting in relatively low capacity utilisation for container terminals. It was perhaps the availability of cheap money - i.e. low interest rates - that stimulated major terminal operators to maintain capital expenditure at a decent level. Capex for both years accounted for 21% of revenues, which is only slightly below the average figure since 2005 (revenue weighted average for APMT PSA, DP World, Cosco Pacific, HHLA and Eurokai).

Therefore, the year 2013 can be regarded as a typical year concerning equipment sales. In fact, the overall market size of US$5.7B matches nicely with the average annual revenue achieved since 2015 (Fig. 2). It is only by chance that for some types of equipment past and current revenues are nearly equal. Sales for quay and yard equipment vary strongly on an annual basis, because the business is project-based, determined by new container terminals being commissioned in a specific year.

**Different drivers**

The nature of business for mobile equipment is different, if not the opposite. Most units sold replace the same type of equipment at the end of their annual or decappable lifetime. Therefore, unit sales usually increase continually on a year-to-year basis, due to a growing fleet of operational units.

In container throughput, it is the precondition for a healthy equipment market and its main driver. As far as for now, the equipment market forecast is based on 6.1% annual throughput growth until 2020, resulting in global container throughput at ports increasing from 655M TEU in 2013 to 985M TEU in 2020.

**Triple-E effects**

The market volume for STS cranes is expected to follow the general throughput development, with the result that more than 2000 units should be delivered between 2014 and 2020. The most interesting fact is that STS crane stock - delivered and on order as of the July 2013 WorldCargo News survey - up to the end of 2014 accounts for only 300 units to serve the Triple-E type vessels, supposing the order backlog is the minimum required to serve these vessels (23-wide deck stow).

300 units account for only 5% of the operating STS fleet. On the other hand, Triple-E type vessels will consist of 11% of the FCC fleet order book by year end 2015 (in terms of dot capacity (Source: Alphaliner, April 2014). Obviously, we will see orders for STS cranes of 6000 unit outreach dominating the order book in the next few years, likely equating to 40-50% of the total unit deliveries up to 2020.

**Shifting sands**

While STS cranes are practically irreplaceable for conventional container terminals, RTGs are not. A shift in the type of yard equipment employed is under way, driven by the trend towards terminal automation. Apparently, the automated stacking crane (ASC) is the basic unit for terminal automation and the order situation has already turned in its favour.

By year end 2013 around 850 ASCs were in operation and a minimum of 3600 ASCs are planned for new container terminals for commissioning before the end of 2015. Supposing the automated type of yard equipment will continue to be absorbed by the industry with the same pace as in the past, 1500 ASCs will be delivered between 2014 and 2020. The number equates to nearly 25% of all yard cranes expected to be delivered in that period.

The penetration of ASCs also has a considerable impact on the type of horizontal equipment employed. Based on the current order book, three equipment [of equal significance] will dominate the Western world: RTGs, yard tractors and AGVs. In recent years, several virtual yard automation projects have been undertaken, resulting in a surge of new container terminals being commissioned.

**RTG automation**

However, the ASC resembles the RTG, as its sole purpose is the yard handling/stacking of containers, the design is mainly limited to standardised units (1-over-5 RTG units stacked upon two floors). However the machine is largely inflexible and can be used only for a specific type of container handling. Major manufacturers have already introduced this kind of machine and it is expected that it will be preferred to the rail-mounted design for new terminals, and all the more concerning the refurbishment of existing RTG units. The article was written by Daniel Schaefer who is a market analyst, recently publishing a market report on future container throughput, spawning terminal projects and the equipment market. For further information, please refer to www.ctf2020.info.

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