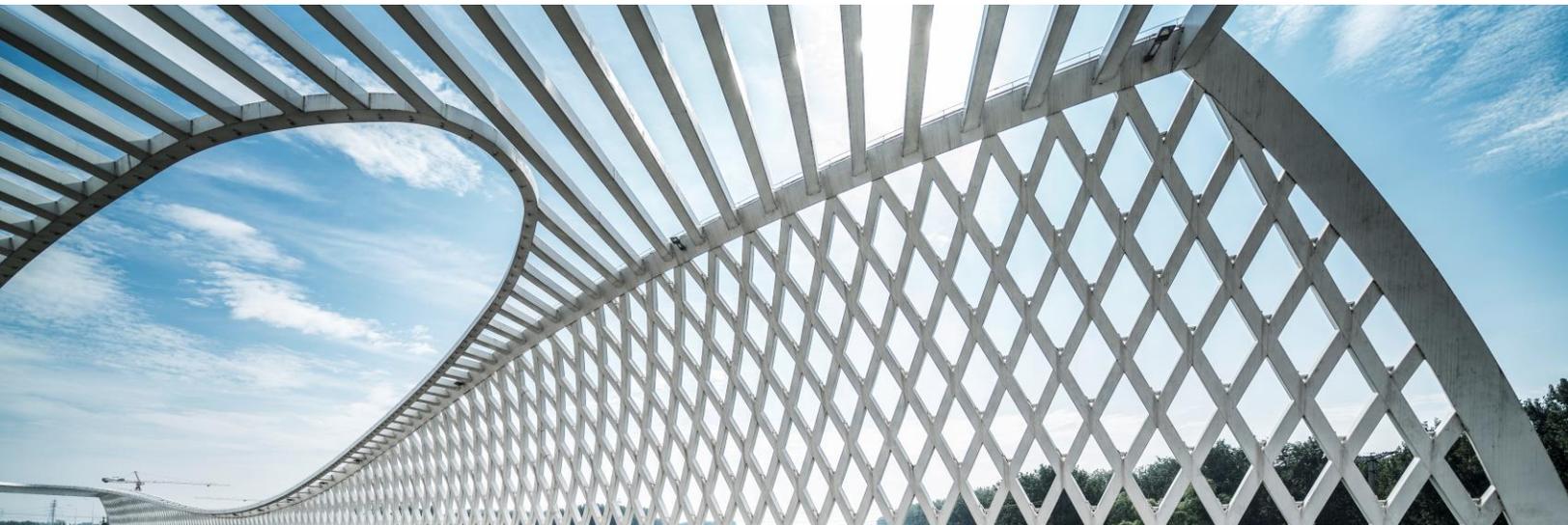


HSBC Global Asset Management

Credit Perspectives

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Making waves with 5G

*Companies have been quick to tout the rise and development of 5G technologies. But, is 5G really changing the tide in telecommunications? **Annika Rohweder**, Credit Analyst for Global Credit, examines the real impact of 5G on the telecommunications sector and user experience.*

5G is the fifth generation wireless technology, the successor to 4G. The main potential benefits of 5G are improved speed, reduced latency and higher capacity, which means that differences between wired and wireless communications will narrow. Offsetting these benefits is lower coverage as 5G is expected to rely primarily on mid- and high-frequency spectrum bands. High-frequency spectrum offers faster speeds in its coverage area, but has limited reach. This means that more network equipment will be required to cover the same area under 5G technology than under 4G, making large-scale build out more capital-intensive. A nationwide 5G build-out in the US would cost north of USD 10bn, excluding spectrum costs, which would likely be as high, if not higher. As a result, 5G will be limited to dense urban areas, at least initially and will likely be used together with 4G for the foreseeable future.

Possible applications of 5G include fixed wireless 5G as an alternative to home broadband, enhancements in mobile communications, and machine-to-machine communications (M2M) or internet of things (IoT):

- ◆ Fixed wireless applications will be used to replace wired home broadband by installing antennas outside the home, hence foregoing last mile wiring, an often costly pursuit. Home broadband trials by mobile phone carriers, led by Verizon, have already started.
- ◆ Mobile 5G is slated to launch later this year when first 5G enabled handsets become available. Where fixed wireless 5G requires extremely high frequency spectrum to achieve fast speeds, mobile 5G is expected to forgo some of the speed benefits by using mid-band spectrum that has wider reach, which is essential in mobile communications.
- ◆ IoT will bring connectivity beyond the smartphone and home broadband, enabling anything from factory automation and smart cities to remote surgeries and driverless cars. However, the more transformative IoT applications are likely several years away as they are highly vulnerable to network issues.

Fixed wireless 5G	Mobile 5G
◆ Relies on high-band spectrum	◆ Relies on mid-band spectrum
◆ Offers faster speeds and more capacity than mobile 5G but lower than cable and fiber	◆ Offers faster speeds than 4G but lower than fixed wireless 5G
◆ Has more limited coverage than mobile 5G	◆ Has wider coverage than fixed wireless 5G but more limited than 4G
◆ Requires significant amounts of network equipment and fiber	◆ Requires a robust network infrastructure, but not to the same extent as fixed wireless 5G
◆ Is more expensive	◆ Is less expensive

Source: HSBC Global Asset Management, Barclays, as of March 31, 2019.

Fixed wireless 5G is often mentioned as a potential threat for cable and wireline telecommunications providers, especially as cord cutting is making them increasingly reliant on the broadband business. In our view, the near-term credit impact is unlikely to be material, as 5G home broadband is not expected to be a large-scale product in the next 2-3 years. Furthermore, while 5G network characteristics are better than those of previous wireless generations, capacity and speed remain weaker than those of cable networks. For example VZ is targeting a reach of 30mm homes with its 5G fixed wireless product in 5-8 years, which is below the nearly 130mm total US households and the 50mm+ homes reached by each Comcast and Charter.

Over the next 1-2 years, wireless carriers may see some 5G-related cash flow pressure from elevated capex and spend on spectrum licenses required to support 5G traffic. However, incremental capex is likely to be minimal on top of network upgrades that would have occurred regardless. In our view, carriers that are unable to make the required near-term investments are most vulnerable in the longer-term. Companies at risk include mainly AT&T, which is capital-constrained after raising debt for its acquisition of Time Warner Inc., and Sprint, which is starting from a worse network position than its peers and has relatively a short liquidity runway if its acquisition by T-Mobile does not gain regulatory approval. Over time, added pressure may come from new entrants to the wireless space, including large tech companies. Potential benefits to wireless carriers include tiering plans, where a 5G connection is offered at a premium and an incremental revenue stream from home broadband.

Other segments that are benefitting from the development of 5G include infrastructure providers, such as cellular tower operators Crown Castle, American Tower and SBA Communications and fiber providers. 5G will require more underlying infrastructure due to a denser network. This supports our constructive fundamental credit view on the tower operators.

Additionally, Chinese, Korean, and European telecommunications equipment vendors Huawei, Ericsson, Nokia, Samsung, and ZTE are likely to experience improving operating performance over the next 12-24 months while 5G network construction progresses as they hold most of the 5G patents. Chinese firms Huawei and ZTE have been barred from selling equipment to the US government, Australia, and New Zealand, to the benefit of Nokia and Ericsson. Despite mounting concerns that Beijing could use Huawei and ZTE's equipment to breach secure networks and spy, several large European countries rely on Huawei equipment and it would be highly uneconomical and less likely for them to replace Huawei.

In addition, mobile handset manufacturers, such as Apple, Samsung and some Chinese vendors, are likely to experience slightly improving sales in 2020 as 5G network development advances, though not as significant as in past network transitions given the maturation of the handset market. Finally, Qualcomm's operating outlook remains uncertain, pending potential outcomes on ongoing litigation on its 5G licensing rates with the FTC and Apple.

In summary, in the near-to-medium term we expect 5G to have only limited credit implications and small benefits to end users, mainly due to technical and equipment constraints. Longer-term (~10 years), 5G-driven IoT applications have the potential to drive bigger shifts across industries, leading to changes in business models and competition, and have more meaningful credit implications.

The beneficiaries of the rise in 5G extend beyond telecommunication service companies. Infrastructure providers, equipment vendors and handset manufacturers are also benefitting from the rollout.

About the Author

Annika Rohweder is a Credit Analyst in the Fixed Income team and has been working in the industry since 2012. Prior to joining the Fixed Income team in 2013, Annika worked in the Portfolio Analytics and Client Strategy teams as part of the HSBC Global Graduate Program. She holds an MSc in Financial Economics from the University of Oxford and a BSc in Economics and Business Administration from the Aalto University School of Economics. She is a CFA charterholder.

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