INDOPREMIER

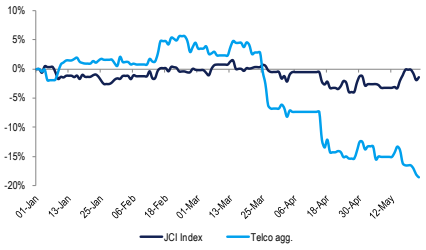
Telecommunications

OVERWEIGHT

Sector Update | Telecommunications | 14 June 2024

Sector Index Performance

	3M	6M	12M
Absolute	-27.3%	-23.1%	-23.8%
Relative to JCI	-17.9%	-17.0%	-24.1%



Summary Valuation Metrics

EV/EBITDA (x)	2024F	2025F	2026F
ISAT IJ	5.1	4.7	4.3
TLKM IJ	4.7	4.6	4.4
EXCL IJ	4.4	4.1	3.8

P/E (x)	2024F	2025F	2026F
ISAT IJ	17.5	15.6	13.7
TLKM IJ	12.4	11.9	11.3
EXCL IJ	16.3	13.9	11.8

Div. Yield	2024F	2025F	2026F
ISAT IJ	2.0%	2.3%	3.2%
TLKM IJ	6.0%	6.5%	6.7%
EXCL IJ	2.0%	3.4%	4.7%

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Being a late-mover for 5G is a boon for Indonesian telcos

- Share prices of 5G early movers underperformed the index given initial concerns on higher capex/opex and murky monetization path.
- On the other hand, share prices of late movers tend to be more resilient due to a more benign investment trend and better monetization.
- Indonesian telcos are likely to be better-positioned than most 5G early movers. Maintain OW stance, with Buy ratings on all names.

Share prices of 5G early movers underperformed the index

With spectrum auctions looming on the horizon, Indonesian telcos could potentially start to rollout commercial 5G services in FY25F. Considering the lack of immediate commercial usage models, coupled with the likely increase in capex/opex, it is unsurprising that we are seeing growing concerns on the de-rating potential for Indonesian telcos beyond FY24F, especially on the back of the recent price war narratives (which we believe is overblown; see our previous note). Indeed, based on our regional observation, 5G early movers' share prices, like Chinese and Korean telcos, underperformed vs. their respective domestic markets (-13/-15%, on average). However, we noticed that late movers, like India, showed a more resilient performance.

Late movers showed a more benign investment trend

Based on our regional observation, 5G capex for late movers are relatively more benign. For instance, capex/revenue in India remains relatively stable at c.22% (vs. 21% 4G average; Korea 20% vs. 14%). This, we believe, was largely due to a demand-based deployment (i.e. expanding coverage gradually based on demand), lower 5G equipment prices, as well as the use of non-standalone/NSA (for Bharti Airtel). Some regional telcos also appear to have higher urgency to be more involved in network sharing and/or M&A in the run-up to 5G rollout. The potential of a demand-based deployment, further consolidation (i.e. EXCL-FREN), and the possibility of network sharing should bode well for Indonesian telcos.

Enhanced mobile services and FWA to drive near-term monetization

Late movers also tend to see better initial 5G monetization, partly due to lower 5G handset cost (c.-90%), in our view. Case in point, India saw c.11-13% 5G mobile penetration (vs. China/Korea c.2-5%) within the first year of deployment. It also saw revenue accretion from the first year (+14% yoy in FY23) on higher data consumption from 5G users (i.e. uptrading) and industry-wide price repair. Data consumption rose by c.20% yoy in FY23 as 5G users in India consumed c.3.6x more data. ARPU also improved by +18% yoy. Indonesian telcos appear to be in a similar situation, being a 5G late mover, along with the consolidation and price repair; thus, we see room for 5G mobile monetization. FWA (fixed wireless access) could also prove to be another monetization avenue for Indonesian telcos. Revenue from enterprise/IoT, however, seems less-likely to be material in the near-term.

Maintain Overweight stance on the telco sector

We believe that being a late-mover for 5G is a boon for Indonesian telcos. Spectrum prices could potentially be manageable, while extending the 4G-5G life cycle could help to ease capex/opex burden. Near-term monetization also seems possible through mobile and FWA. Reiterate Overweight stance, with Buy ratings on all names and pecking order of ISAT>TLKM>EXCL. Risks: competition, weaker mass purchasing power, and unfavourable regulations.

Share prices of 5G early movers underperformed the index

Share prices of 5G early movers underperformed given concerns on higher capex/opex and murky monetization path

Based on our regional observation, 5G early movers' share prices underperformed vs. their respective domestic indexes. Indeed, early movers like Chinese and Korean telcos were among the weakest performers relative to their local markets within the year of 5G rollout (-13/-15% on average, vs. their respective domestic indexes). This, we believe, were largely due to investors' initial fears regarding the return profile of 5G investments, given the higher capex and hazy monetization path for 5G, which could affect earnings and dividend.

Fig. 1: Share prices of Chinese telcos vs. index in the first year of 5G rollout (2019 = 100)

Source: Bloomberg, Indo Premier

Fig. 2: Share prices of Korean telcos vs. index in the first year of 5G rollout (2019 = 100)

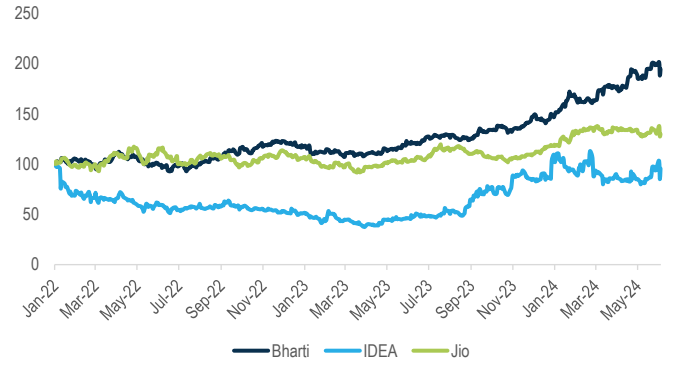
Source: Bloomberg, Indo Premier

Late movers' share prices remained relatively resilient

In contrast, share prices of late movers, like India and Thailand, remained relatively resilient despite the commencement of their 5G rollout. We believe that this is largely due to their more benign capex spending and clearer monetization path (relative to the early movers), given the adoption of demand-based approach. Indonesian telcos have yet to commercially rollout their 5G networks but given the upcoming spectrum auctions, we believe that 5G capex cycle is looming on the horizon.

However, considering the relatively successful 5G rollout of other late movers, and their resilient share prices, we are upbeat regarding the transition of Indonesian telcos into 5G.

Fig. 3: Share prices of Indian telcos vs. index in the first year of 5G rollout (2022 = 100)



Source: Bloomberg, Indo Premier

Fig. 4: Share prices of Thailand telcos vs. index in the first year of 5G rollout (2020 = 100)

Source: Bloomberg, Indo Premier

Late movers showed a more benign investment trend

5G is generally more costly than 4G due to the needs for new spectrum and network densification

In general, 5G network investments are likely to be more sizable relative to 4G given the needs for new spectrum and higher network density. First, telcos need to acquire new spectrums for 5G rollout, as low-band spectrum refarming is unlikely to be sufficient given that: 1) the amount of spectrum availability in the low-band is more-limited; and 2) older technologies like 2G/3G/4G still occupy most of these bands. Spectrum acquisition could prove to be costly, as Indonesian telcos have to pay upfront cost and annual spectrum fee (assuming unchanged auction mechanism); while concurrently filling up the additional network capacity could take a while.

Also, a "true" 5G commercial usage would require spectrum usage across low/mid/high bands (sub-1GHz/sub-7GHz/+24GHz). Higher spectrum band, however, have shorter signal propagation; which means that telcos need to rollout a greater number of sites (i.e. a denser network infrastructure). Generally, telcos would need to build about 2.5-3.5x more coverage/macro sites on 5G vs. 4G networks. For the high-band spectrum, the footprint is likely to be even smaller and would require small cells proliferation.

While 5G spectrum costs could potentially be mitigated through a more-rational spectrum pricing, we believe that higher costs that arise from the needs for network densification is inevitable, though can still be managed through demand-based network rollout and/or by extending the 4G life cycle and stretching out the 5G rollout period.

Fig. 5: Comparison of 4G LTE versus 5G

5G Advantages		
Category	**4G LTE**	**5G mmWave**
Speed	40 mbps	1000 mbps, 25 times faster
Latency	50 ms	10 ms, 5 times faster
5G Disadvantages		
Category	**4G LTE**	**5G mmWave**
Obstacle Penetration	15-30x upto 30 times more penetration	
Range	20 Miles 1/3 Mile 60 times less Distance	

Source: ResearchGate, Indo Premier

Fig. 6: Data Speeds for 3G, 4G and 5G

Network Type	Average Download Speeds	Peak Download Speeds	Theoretical Download Speeds
3G	8 Mbps	~20 Mbps	42 Mbps
4G	32.5 Mbps	90+ Mbps	300 Mbps
5G	130Mbps-240 Mbps	599 Mbps+	10-50 Gbps

Source: ResearchGate, Indo Premier

Fig. 7: Comparison of wireless protocols

Protocol	Frequency	Wavelength	Range
Wi-Fi (2.4G)	2401 MHz–2483 MHz	12 cm	150 m
Wi-Fi (5G)	5150 MHz–5875 MHz	5 cm	120 m
Bluetooth	2400 MHz–2485 MHz	12 cm	10 m–100 m
LoRA	868 MHz	35 cm	10 km+
3G	900/2100 MHz	33.3/14 cm	100 m to >5 km
4G (LTE)	800/1800 MHz	37.5/17 cm	100 m to >5 km
5G	700 MHz/3.6 GHz/26 GHz	43 cm/8 cm/1 mm	50 m to >5 km

Source: ResearchGate, Indo Premier

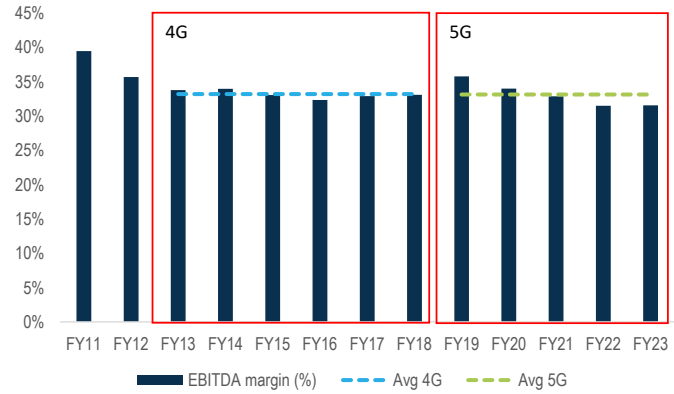
Early movers saw higher capex and opex

5G capex is generally about 20-30% higher than 4G, largely due to the needs for a denser network infrastructure. 5G utilizes higher frequency bands that have a shorter range compared to the bands used in 4G. Thus, in order to maintain a ubiquitous and stable coverage, telcos need to deploy a greater number of sites. Additionally, 5G necessitates upgrades to the core network to handle the increased traffic volume and faster speeds.

Based on our observation, capex rose materially for Korea (+13% yoy in FY19 vs. pre-5G levels average) on the back of the relatively more-aggressive rollout. Capex/revenue also increased from 14% average during 4G, to 16% in the first year of their 5G rollout and increased further to 18% in FY20.

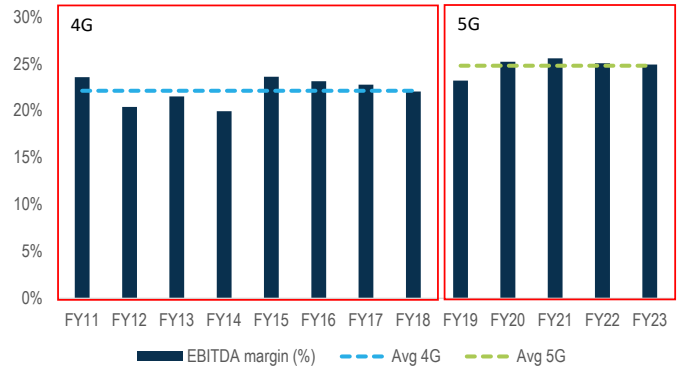
For China, however, the initial fear on capex jump did not materialize, as China Telecom and China Unicom entered into a MOCN network sharing agreement since FY19. China's approach to 5G network sharing is more extensive compared to Korea's sharing agreement (exclusively in remote areas), which allows for a more-optimized resource utilization and lower deployment costs. Besides capex, we also noted that O&M expenses/revenue picked up from 17% to 25% for China.

Fig. 8: China EBITDA margin over the years



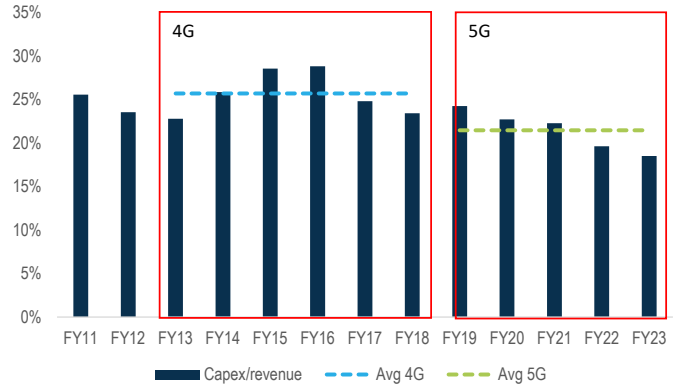
Source: Company, Indo Premier

Fig. 9: Korea EBITDA margin over the years



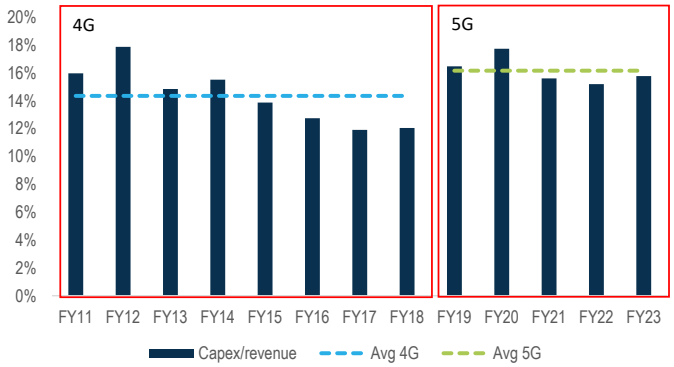
Source: Company, Indo Premier

Fig. 10: China capex/revenue over the years



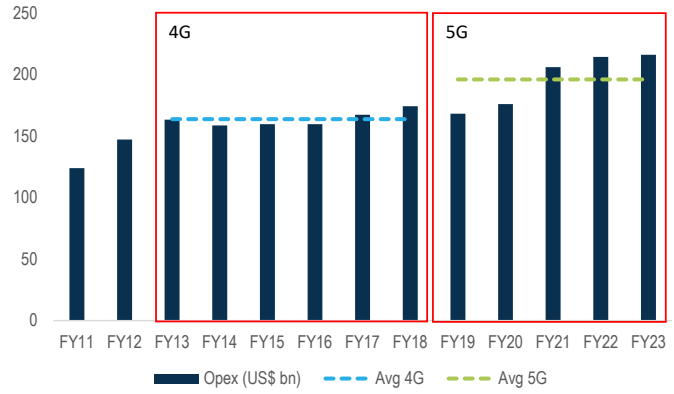
Source: Company, Indo Premier

Fig. 11: Korea capex/revenue over the years



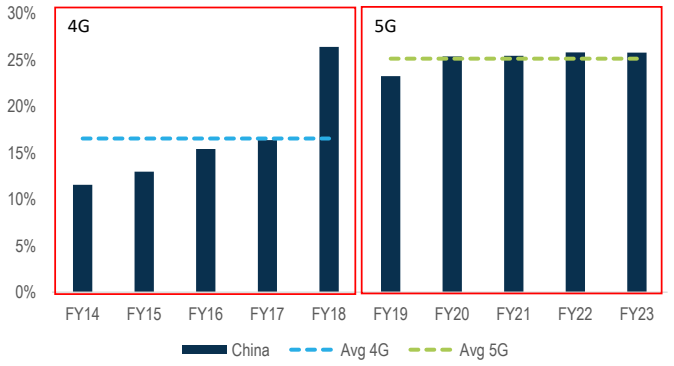
Source: Company, Indo Premier

Fig. 12: China nominal opex over the years



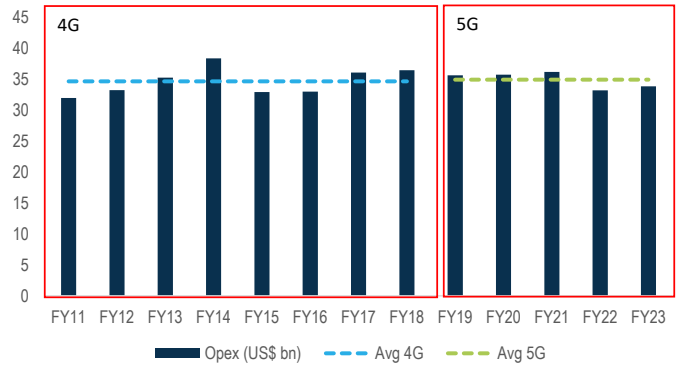
Source: Company, Indo Premier

Fig. 13: China O&M/revenue over the years



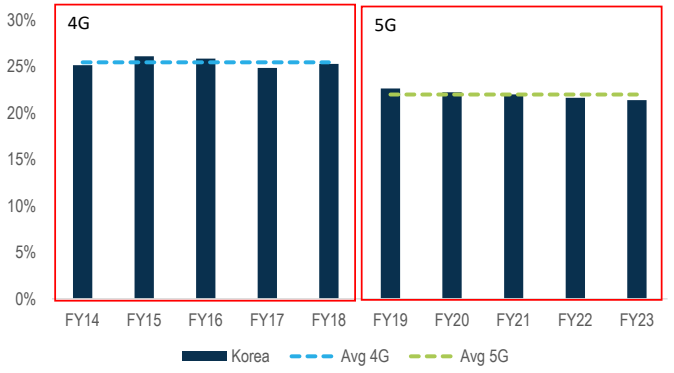
Source: Company, Indo Premier

Fig. 14: Korea nominal opex over the years



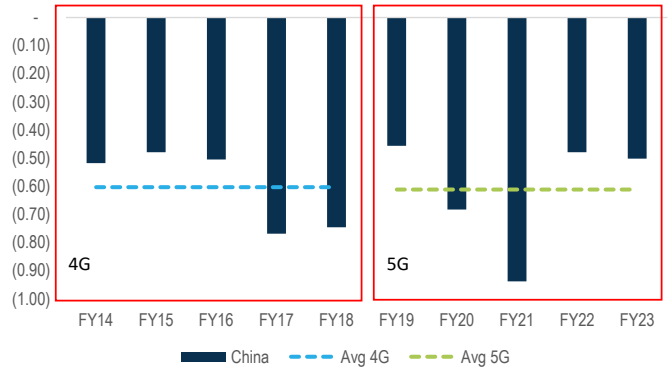
Source: Company, Indo Premier

Fig. 15: Korea O&M/revenue over the years



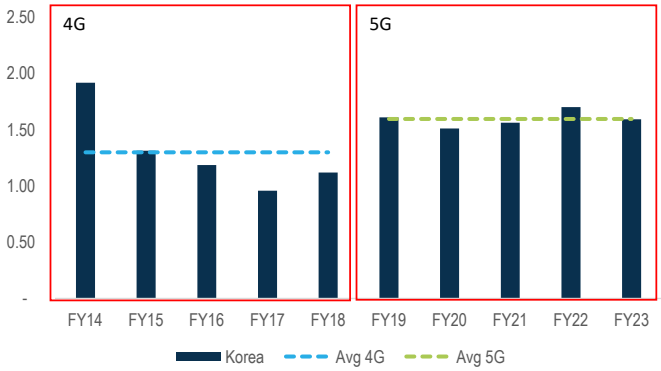
Source: Company, Indo Premier

Fig. 16: China Net debt/EBITDA



Source: Company, Indo Premier

Fig. 17: Korea Net debt/EBITDA

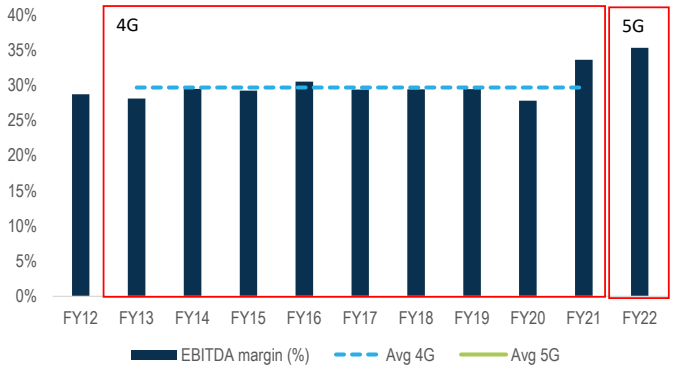


Source: Company, Indo Premier

5G costs for late movers seemed to be more tapered

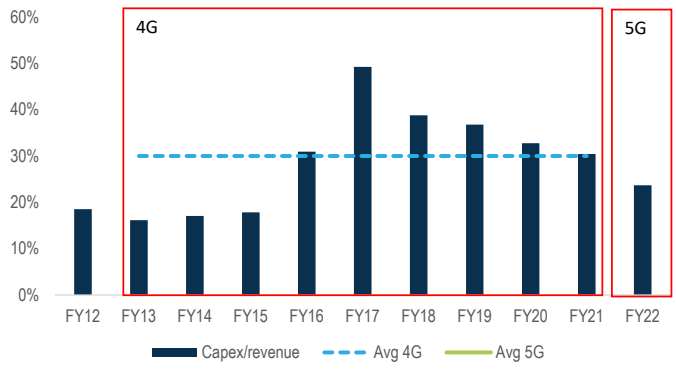
However, 5G capex and opex intensity for late movers are likely to be more manageable. Indeed, based on our observation, Indian telcos (5G rollout started in Oct22) are seeing a more-reasonable capex and opex during their 5G rollout. Capex/revenue declined from 30% to 24%, while O&M expenses/revenue remained manageable at 22% (vs. 21% pre-5G). This, we believe, was largely due to a demand-based deployment with rollout prioritization in areas with high potential subs base and revenue opportunities (i.e. expanding coverage gradually based on demand), as well as the use of non-standalone (for Bharti Airtel).

Fig. 18: India EBITDA margin over the years



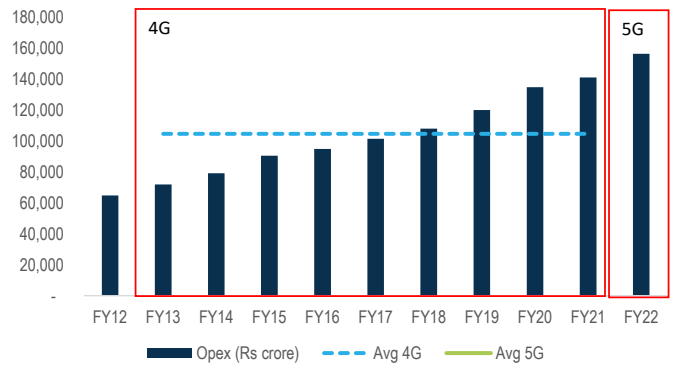
Source: Company, Indo Premier

Fig. 19: India capex/revenue over the years



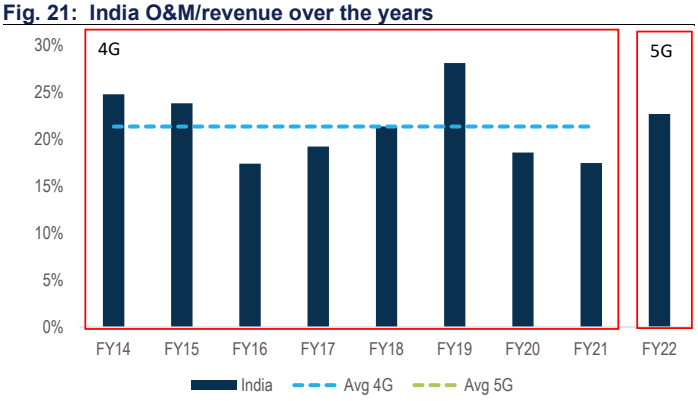
Source: Company, Indo Premier

Fig. 20: India nominal opex over the years



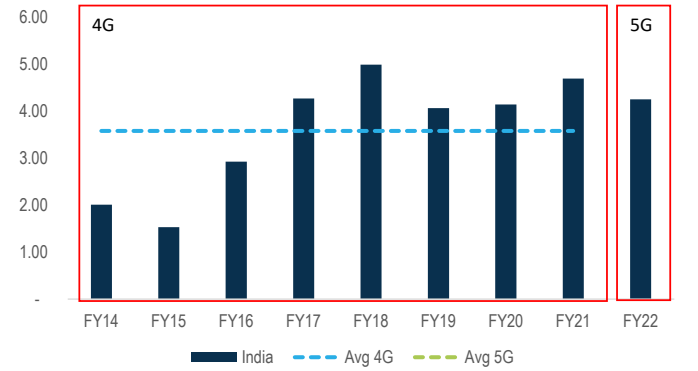
Source: Company, Indo Premier

Fig. 21: India O&M/revenue over the years



Source: Company, Indo Premier

Fig. 22: India Net debt/EBITDA



Source: Company, Indo Premier

5G spectrum costs are likely to be manageable

As aforementioned, spectrum acquisition could prove to be costly, as Indonesian telcos have to pay upfront cost and annual spectrum fee (assuming unchanged auction mechanism). Spectrum auctions are looming on the horizon, and we believe that the big-three telcos are likely to participate in the upcoming spectrum auctions for the 700MHz, 3.5GHz, and 26GHz bands, as we consider these to be prime bands for 5G rollout (i.e., ideal candidates for the low, mid, and high-band spectrums needed for 5G).

Although no clear timeline has been provided by the local regulators, based on our channel checks, we believe that auctions for the 700MHz and 26GHz spectrum bands are likely to materialize at 2H24-FY25F, which means the commercial 5G rollout may potentially kick off in FY25F. Meanwhile, the 3,500MHz band will likely be auctioned off at a later date, as the band is currently still being occupied by the satellites.

We estimate that the 700MHz spectrum band has total size of 90MHz (2x45MHz) that are available for auction, while the 26GHz spectrum band has 1,600MHz. Benchmarking the historical average spectrum cost in Indonesia, as well as regional markets, and assuming all spectrum will be split, we estimate that the upcoming spectrum auction for the 700MHz and 26GHz could see upfront cost/annual fees of about Rp2.2/1.1tr and Rp1.1/0.6tr, respectively.

The annual spectrum fees for the industry could potentially increase from c.8% of industry's revenue to c.10% post-auctions. Furthermore, assuming 70/30% debt/equity funding for the spectrum upfront cost, telcos' net debt/EBITDA (inc. leases) could potentially increase from 0.3-2.4x to 0.4-2.8x.

That said, we see upside risks to our spectrum costs estimates. First, network sharing for 5G could potentially be permitted. Second, based on our regional observation, we see evidence that 5G spectrum prices seem likely to be more reasonable relative to historical costs. Since regional 5G spectrum auctions started in FY19, we notice that: 1) regulators had largely been considerate in determining 5G spectrum prices (which we believe is an attempt to encourage 5G rollout); and 2) telcos, in most cases, did not show aggressive patterns when bidding for 5G spectrums. Indeed, average regional 5G spectrum cost is US$7mn/MHz vs. US$12mn/MHz for 4G. For more details, please see our previous note.

Fig. 23: Spectrum auctions' potential impact on telcos based on our estimates, all else equal

Additional annual opex (Rp bn)	Additional annual D&A (Rp bn)	Additional capex (Rp bn)	Additional debt (Rp bn)	Additional interest burden after tax shield (Rp bn)
1,662	332	3,325	2,327	112

Telco	Pro forma FY24F pre-auctions					Pro forma FY24F post-auctions				
	Revenue (Rp bn)	EBITDA (Rp bn)	Pre-tax profit (Rp bn)	Core profit after tax and minority (Rp bn)	Net debt/EBITDA inc. leases (x)	Revenue (Rp bn)	EBITDA (Rp bn)	Pre-tax profit (Rp bn)	Core profit after tax and minority (Rp bn)	Net debt/EBITDA inc. leases (x)
EXCL	34,187	17,060	2,518	2,001	2.4	34,187	15,398	412	316	2.8
Margin (%)		*49.9%*	*7.4%*	*5.9%*			*45.0%*	*1.2%*	*0.9%*	
ISAT	55,065	26,179	5,849	3,908	1.8	55,065	24,517	3,714	2,200	2.0
Margin (%)		*47.5%*	*10.6%*	*7.1%*			*44.5%*	*6.7%*	*4.0%*	
TLKM	156,198	82,868	44,727	26,957	0.3	156,198	81,206	42,593	25,249	0.4
Margin (%)		*53.1%*	*28.6%*	*17.3%*			*52.0%*	*27.3%*	*16.2%*	

Source: Indo Premier
Note: 1) We assume the big-three telcos win both spectrums; 2) we assume 70/30 debt/equity funding, with 6% cost of debt and 20% tax rate; and 3) all else equal

Fig. 24: Indonesian telcos' current spectrum holdings and market shares

Telco	Spectrum band (MHz)				Spectrum duplex format (MHz)			Spectrum share (%)	Revenue market share (%)	Subs market share (%)
	900	1800	2100	2300	FDD	TDD	Total			
EXCL	15	45	30		90	-	90	20%	17%	17%
FREN	22			40	22	40	62	14%	7%	10%
ISAT	25	60	50		135	-	135	30%	27%	29%
TLKM	30	45	40	50	115	50	165	37%	49%	44%

Source: Company, Indo Premier

Fig. 25: Indonesia's historical spectrum prices

Operator	Band Group (MHz)	Allotment (MHz)	Total size (MHz)	Year	License period (yr)	Expiry	Price (Rp mn)	Rp bn/MHz	Price (US$mn)	US$mn/MHz	USD/IDR
Telkomsel	1900, 2100	2x5	10	2006	10	2016	436,000	43.6	47.6	4.8	9,166
XL	1900, 2100	2x5	10	2006	10	2016	376,000	37.6	41.0	4.1	9,166
Indosat	1900, 2100	2x5	10	2006	10	2016	320,000	32.0	34.9	3.5	9,166
XL	2100	2x5	10	2010	10	2020	327,627	32.8	36.1	3.6	9,086
Telkomsel	1970	2x5	10	2013	10	2023	513,222	51.3	49.2	4.9	10,425
XL	1970	2x5	10	2013	10	2023	513,222	51.3	49.2	4.9	10,425
Smartfren	2300	1x30	30	2014	10	2024	463,000	15.4	39.0	1.3	11,868
Indosat	2100	2x5	10	2017	10	2027	423,000	42.3	31.6	3.2	13,384
Hutchison	2100	2x5	10	2017	10	2027	423,000	42.3	31.6	3.2	13,384
Telkomsel	2300	1x30	30	2017	10	2027	1,010,000	33.7	75.5	2.5	13,384
Telkomsel	2300	1x20	20	2021	10	2031	353,800	17.7	24.4	1.2	14,298
Smartfren	2300	1x10	10	2021	10	2031	176,500	17.7	13.2	1.3	14,298
Telkomsel	2100	2x5	10	2022	10	2032	605,056	60.5	41.7	4.2	15,724
Average								**36.8**		**3.3**	

Source: Kemenkominfo, Indo Premier

Extending the technology life cycle and network/de facto consolidation could help to ease investment burden

Considering the lack of immediate commercial usage models and the needs to increase network density, we noted that many regional telcos seem to be extending 4G and 5G rollout cycle, as it would help to align investments with revenues and allow for better risk-return profiles. Further, some telcos are getting more involved in network sharing and/or M&A in the run-up to 5G rollout.

In general, extending the 4G life cycle and stretching out the 5G rollout period could help to allow for a lower absolute capex amount and annual average capex for 5G. This is largely due to the potential decline of 5G equipment prices. Of note, 4G equipment prices fell by about 40% over three years, as the related technologies matured, and while it is difficult to pinpoint an exact percentage decline in 5G equipment prices due to variable pricing, some research firms reported a c.15-20% decline in prices since FY19.

An extended rollout period could also allow telcos to spread 5G investments over a longer period of time, which translates to lower average capex per annum. Additionally, telcos could also gradually swap-out some of the network equipment via natural regeneration. Note that 3G/4G equipment has life cycle of about five years. With more 3G/4G equipment approaching the end of their useful life, some can be gradually replaced by 5G equipment instead.

Indeed, many regional telcos, including Bharti Airtel, started their 5G deployments by incrementally upgrading existing 4G networks (ie, NSA or non-standalone), which means that some network components will be shared between 4G and 5G. Some regional telcos also utilized DSS (Dynamic Spectrum Sharing), which enables the parallel use of 4G and 5G in the same spectrum band. The use of NSA and DSS would effectively extend the life cycle of 4G networks and help to ease the transition to 5G.

Regional telcos also appear to have higher urgency to be more involved in network sharing and/or M&A in the run-up to 5G rollout. Both options, in our view, offer attractive cost saving benefits, given the economies of scale they introduce. We also believe that the timing seems ideal, as the upcoming 5G cycle provides a strong case for consolidation/network sharing. A technology reset offers a good window, as synergies do not stem only from cost optimization, but also from avoiding future capex redundancy.

Recall that Indonesia already saw the merger of Indosat Ooredoo and Hutchison Tri Indonesia in Jan22, and more recently, Axiata and Sinar Mas Group have signed a non-binding MoU to explore a potential merger of XL Axiata (EXCL; 66% owned by Axiata Group) and Smartfren Telecom (FREN; 70% owned by Sinar Mas Group) (see our previous note). While the merger of ISAT and the potential merger of EXCL-FREN already allow for sizable cost synergies, given that spectrum sharing is now permitted in Indonesia, we believe that it will still be considered by the telcos, in order to help ease the 5G investment burden even further.

MOCN with an asset-light JV/agreement-only is likely preferred

Passive agreements are not necessary in mobile markets with asset-light telcos and extensive independent towercos, like Indonesia, as efficiencies from passive network sharing are already being indirectly facilitated by the towercos. Furthermore, considering that spectrum sharing is now allowed by the government, we believe that MOCN (active network sharing with spectrum sharing) is likely to be the preferred scheme, potentially with asset-light JV or agreement-only configuration. It is worth noting, however, that based on our observation across regional network sharing schemes, the details of JVs/agreements tend to vary greatly, and are often highly context-specific.

According to research, opex/capex savings from MOCN adoption generally could reach about 20-40%, while based on our observation across regional cases, the cost saving benefits could be anywhere between 10-30%.

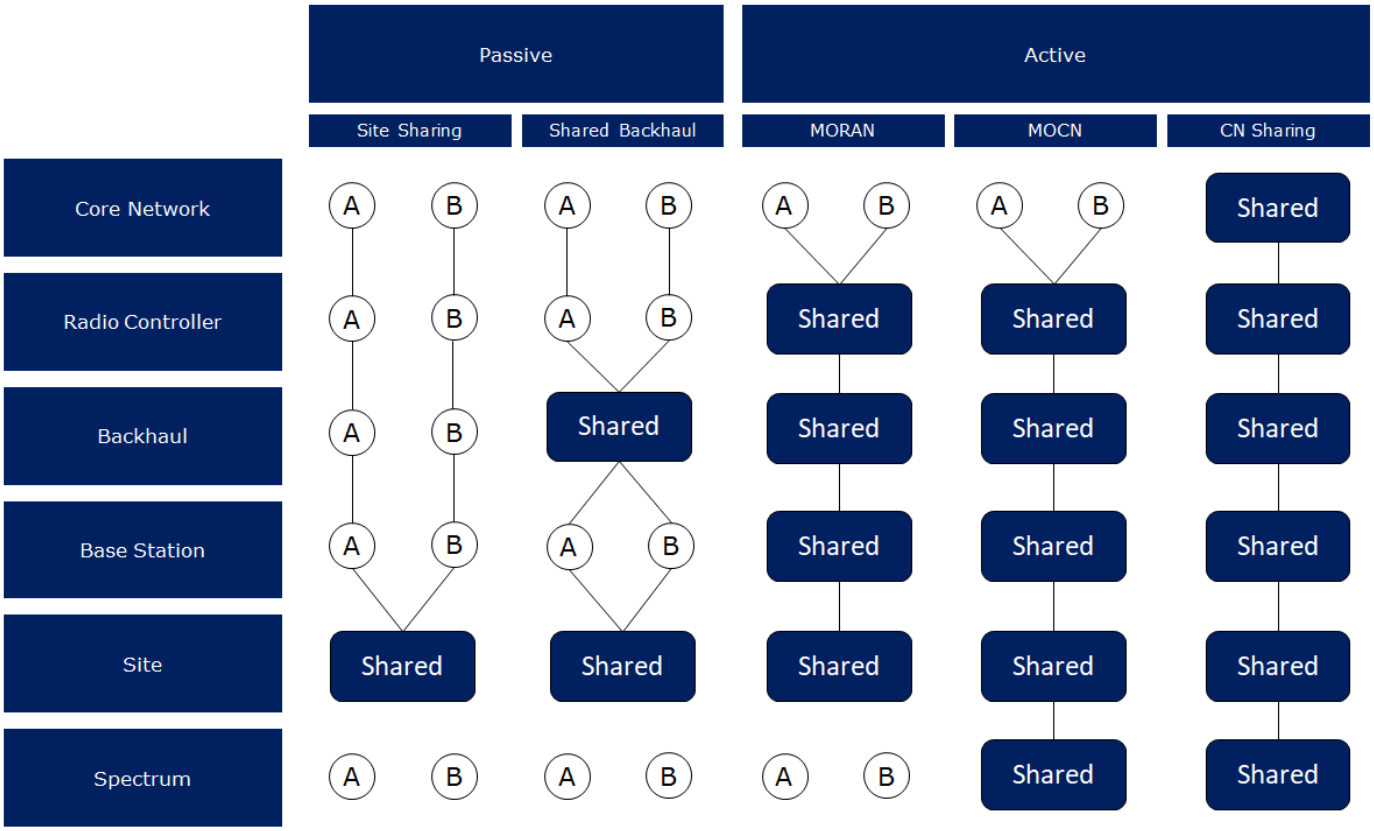
However, as previous regional cases suggest, the details of the agreement could eventually determine the exact amount of savings and whether the deal is fair or whether one party will benefit slightly more than the other. This, in our view, is because the benefits that can be realized are highly dependent on the sharing scheme and configurations used, the shared spectrum band, network coverage/capacity of the involved telcos pre-sharing, network valuation, specific agreements between the involved telcos, as well as other external factors like regulations, government mandates, and competition.

Fig. 26: Cost savings from MOCN

Sources	Capex	Opex
BEREC	33-45%	30-33%
ITU	30-40%	
McKinsey	40%	
PWC	30-40%	35-40%
Ericsson	20%	23%
Booz & Co	30-40%	
Coleago	20-25%	20-25%
Analysys Mason	35-40%	
NEC Lab	25-40%	20-30%
AT Kearney	30-40%	
Omnitele		34%

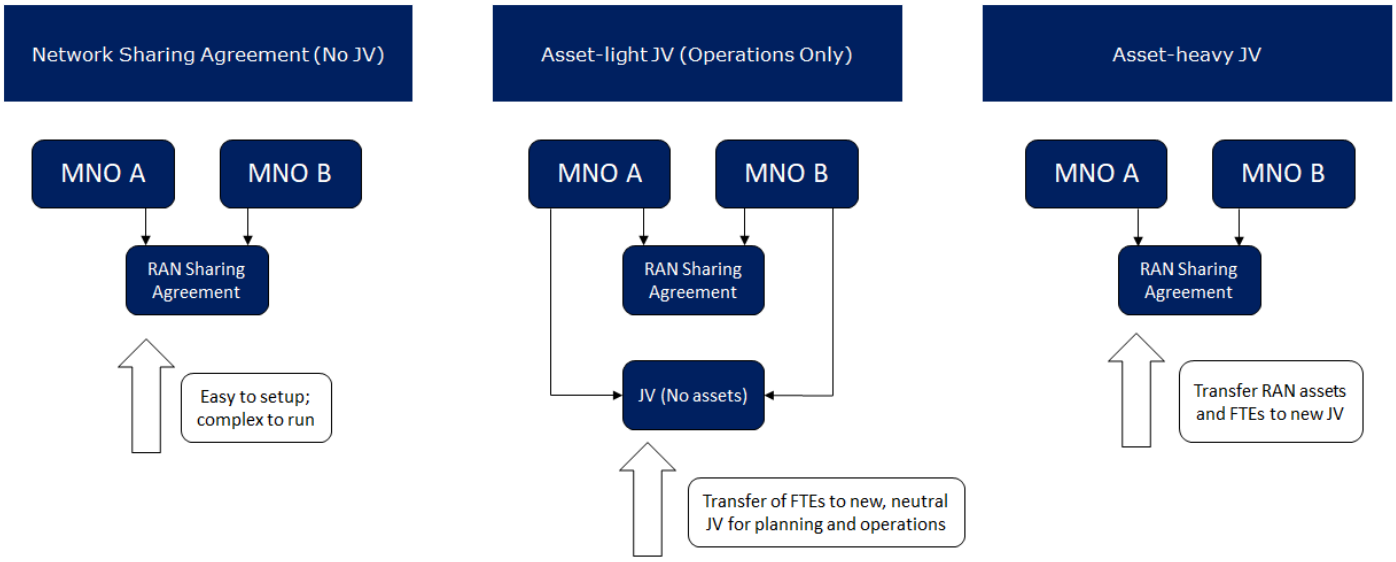
Source: Various sources, Indo Premier

Fig. 27: Types of infrastructure sharing



Source: GSMA, Indo Premier

Fig. 28: Types of infrastructure sharing governance model



Source: GSMA, Indo Premier

Fig. 29: Cost savings from infrastructure sharing

Country	Companies involved		Year	Sharing scheme	Notes
Sweden	Telenor	Hutchison	2001	MOCN	NA
Sweden	Telenor	Tele2	2001	MOCN	NA
Sweden	TeliaSonera	Tele2	2002	MOCN	NA
Germany	T Mobile	O2	2003	MORAN	NA
Australia	Optus	Vodafone	2004	MORAN	Reduce capex by 23% over 3 years and opex by AUD10mn (USD7.3mn) annually
Spain	Vodafone	Orange	2006	MORAN	NA
UK	T-Mobile	Hutchison	2007	MORAN	Cost savings of EUR2bn (USD2.7bn) over 10 years
Canada	Bell Mobility	Telus	2008	MORAN	NA
Sweden	Tele2	Telenor	2009	MOCN	Save 10% of EBITDA
Czech Republ	O2	T-Mobile CR	2011	MORAN	Cut 24% in network costs
Poland	T-Mobile	Orange Polska	2011	MORAN	Annual savings of PLN200mn (USD71.5mn)
Denmark	TeliaSonera	Telenor	2012	MOCN	Capex savings of 20% and opex savings of 10%
UK	Vodafone	O2	2012	MORAN	NA
Greece	Vodafone	Wind Hellas	2013	MORAN	NA
Iceland	Vodafone	Nova	2013	MOCN	25% cut in investment cost
France	SFR	Bouygues	2014	MORAN	Annuall joint cost savings of EUR300mn (USD405mn)
Finland	TeliaSonera	DNA	2014	MOCN	NA
Russia	Vimplecom	MTS	2014	MORAN	Reduce the costs of construction and joint network usage by 10-15%
UK	EE	Three	2014	MORAN	NA
Russia	Vimplecom	MTS	2015	MOCN	NA
Hungary	Magyar Telekom	Telenor	2015	MOCN	NA
Tanzania	Airtel, Tigo and Vodacom		2016	MORAN	NA
Singapore	M1	Starhub	2017	MORAN	Optimise infrastructure and spectrum costs
Korea	SK Telecom, KT, LG Uplus and SK Broadband		2018	MORAN	Save an estimated KRW1tn (USD938mn) over the next ten years
Romania	Vodafone	Orange	2019	MORAN	Cumulative opex and capex savings to Vodafone of at least EUR600mn (USD685.2mn) over the next ten years.
Italy	TIM	Vodafone	2019	MORAN	NA
Myanmar Lithuania	Bite	Tele2	2019	MOCN	NA
Belgium	Orange	Proximus	2020	MORAN	Cumulative opex and capex savings of EUR300mn (USD342.6mn) over 10 years
China	China Telecom	China Unicom	2020	MOCN	Save CNY80bn (USD11.6bn) in capex and CNY8bn (USD1.2bn) in opex.
Singapore	M1	Starhub	2021	MOCN	The combined savings in capex could be as high as 20-30% and opex savings of 25-30%
UK	EE, Vodafone, O2 and		2021	MORAN	NA
Indonesia	Indosat Ooredoo	Hutchinson Three	2022	MOCN	Cost savings of Rp400bn per annumb from partial return of spectrum band
Malaysia	Celecom	Digi	2022	MOCN	CelecomDigi to achieve a cost savings of RM5.5bn over the course of 3-5 years in network related expenses
Taiwan	Taiwan Mobile	Taiwan Star Telecom	2023	MOCN	NA
Taiwan	Far EasTone Telecom	Asia Pacific Telecom	2023	MOCN	NA
Thailand	True	DTAC	2023	MOCN	Merger to create cost savings and additional revenue from gross synergies of THB12.9bn, while there will be a one-off cost savings by integrating both companies worth THB11.9bn
Spain	Orange	Masmovil	2024	MORAN	NA

Source: Company, Indo Premier

Fig. 30: Regional spectrum sharing cases

Year	Country	Companies	Scheme	Details
2004	Australia	H3GA and Telstra	Asset-heavy JV (3GIS)	- 50-50 jv to jointly deploy 3G services
2009	Sweden	Telenor & Tele2	Asset-heavy JV (Net4Mobility)	-50-50 joint venture between Telenor and Tele2 - Initial rationale for the JV is to build, own and operate a joint 4G network, which is extended to 5G - Certain spectrum bands from Telenor and Tele2 is pooled into the JV. In addition, PTS has awarded a band in the 5G NR auction
2011	Poland	T-mobile and Orange	Asset-light JV (NetWorkS!)	- 50-50 joint venture between Orange and T-Mobile, in which initial shared sites amount to c.13k sites - The JV manages their tower portfolio however, the assets remain on the balance sheet of their parent companies. - Infrastructure sharing to cover 3G, extended to 4G networks, continued to 5G. Spectrum is also shared between the two - Estimated to reduce expenditure for the telcos by around 29% in the first three years, by lowering the capital needed for network development and decreasing operational costs. - Orange expects the agreement to make yearly savings of around PLN200 million (USD71.5 million) from 2015 onwards.
2012	Denmark	Telenor & Telia	Asset-heavy JV (TTN)	- 50-50 joint venture between Telenor & Telia, sharing of more than c.4.3k sites - To establish a common infrastructure involving sharing in the 2G, 3G and 4G networks. - The partnership is continued for 5G RAN as 3G will be phased out - In the new roll-out, the modernisation will focus initially on Denmark's four largest cities before expanding to cover most Danish customers during 2022.
2012	UK	Vodafone & O2	Asset-heavy JV (Cornerstone)	- 50-50 joint venture between Vodafone and O2, followed by a project named Beacon to share active equipment - Initial goal was to phase out legacy 2G and 3G systems to make way for 2G/3G/4G RANs. The partnership is continued to 5G as both operators share sites across UK - According to Ovum, the deal could lead to savings of over GBP100mn (USD129mn) annually. - Coming into 5G, each party has agreed to greater 5G autonomy for 2,700 sites in larger cities
2014	Finland	Telenor (DNA) & Telia	Asset-heavy JV (Finnish Shared Network)	- 49-51 joint venture owned by DNA and Telia in order to build and deploy a shared 4G LTE, continued to 5G - Joint build out of the network. The operational area of the shared network which today covers 50 percent of the area and 13.5% of the population will be expanded to cover 62.5% of the area and 28.5% of the population '- The two operators have also combined the frequencies granted to them in the Finnish Shared Network's operating area to enable higher speeds and better service standards. - (For 5G: Telia 25.9-26.7 GHz and DNA 26.7-27.5 GHz)
2019	Belgium	Proximus & Orange	Asset-heavy JV (Mwingz)	- 50-50 owned joint venture between Proximus and Orange - The rationale behind forming of the JV was to plan, build and operate the common network. - The partnership covers 2G, 3G and 4G networks while planning out a comprehensive 5G roll-out - Cumulative opex and capex savings of EUR300mn (USD342.6mn) over ten years.
2019	Latvia & Lithuania	Bite & Tele2	Asset-heavy JV (Centuria)	- 50-50 joint venture between Bite and Tele2 where both operators' network will be merged into a single joint shared network in each country. - Both operators have agreed to share active and passive network infrastructure for 2G, 3G, and 4G systems while planning to roll-out 5G - The overall network is scheduled to be phased in from 2021 onwards, with the works to be completed by 31 December 2023.
2019	Malaysia	Celcom & Maxis	Trial Phase	- Followed by signing of MoU to explore Malaysia's first active 5G infrastructure sharing - Will pursue more trials using a 5G standalone network
2020	China	China Unicom & China Telecom	Contract Agreement	- China Unicom will build 60% of 5G BTS in certain cities while China Telecom will build 40%. Ratios will be reversed for different cities - In the 5 Northern cities—Beijing, Tianjin, Zhengzhou, Qingdao and Shijiazhuang—China Unicom will be constructing 60% of the network. In the 10 Southern cities—Shanghai, Chongqing, Guangzhou, Shenzhen, Hangzhou, Nanjing, Suzhou, Changsha, Wuhan and Chengdu—China Telecom would be constructing 60%. - Will also share 5G resources including spectrum (3.5 GHz for 5G and 2.1 GHz for 4G networks) - Network roaming where competing operators agree to host one another's customers on their network in certain areas -The decision to jointly deploy 5G infrastructure across the country has helped save CNY80bn (USD11.6bn) in capex and CNY8bn (USD1.2bn) in opex.
2020	Singapore	M1 & Starhub	Asset-heavy JV (Antina)	- 50-50 joint venture between M1 & Starhub - Secured licenses to build nationwide 5G SA network in Singapore - Full joint network build-out on 5G while keeping separate corporate entities. - 5G network capacities from this 5G network will be equally shared between the two operators - Network sharing could reduce site requirements by 30-40%. For network sharing that encompasses new coverage, additional capacity and network modernisation, the combined savings in capex could be as high as 20-30%. - Opex savings of 25-30%
2021	Korea	SK Telecom, KT Corp & LG Uplus	Contract agreement	- Network sharing in remote coastal and farm areas - Active network sharing, involves the radio access network (RAN) while manitainin separate core networks, sharing the base station and antennas but keep network operation and services distinct - Commercial phase will be in FY24F

Source: Company, Indo Premier

Fig. 31: Caveats of 5G network sharing in other countries

Country	Details
China	No prior regulation on network sharing. First network sharing between China Unicom and China Telecom
France	- The four appointed operators who received the 5G spectrum in the auction have **roaming and infrastructure sharing obligations** - The operators must provide at least one full-MVNO offer, and allow MVNOs to benefit from active infrastructure sharing agreements with other operators, if they exist. - The operators must implement **at the very least** passive infrastructure sharing agreements, or active sharing infrastructure agreements if passive sharing is not sufficient to ensure adequate coverage of these areas. - Obliged to share these agreements with ARCEP.
India	- Mandated site and mast sharing (Delhi and Mumbai) - Spectrum sharing will be permitted after one year from the date the spectrum is assigned and in accordance with DoT guidelines. - Spectrum sharing is allowed only for access service providers holding CMTS, UASL or UL with authorisation of Access Service in a service area, **where both licensees hold spectrum in the same band.** - Spectrum sharing is permitted between two TSPs using spectrum in the same band, but **not permitted when both licensees hold spectrum in different bands**. Leasing of spectrum is not permitted. - For the purpose of charging spectrum usage charges (SUC), it will be **assumed that the licensees are sharing their entire spectrum holding** in that specific band across the entire service area. - **A non-refundable processing fee**, as prescribed from time to time, is payable individually by each licensee for each service area at the time of intimation of sharing to the DoT's Wireless Planning and Coordination Wing.
Italy	Details
Korea	- The government has introduced various support measures, including tax credits for 5G investments and **encouraging network sharing in suburban rural areas**, to facilitate the fast rollout of the 5G network with nationwide network deployment by 2022. - MSIT launched the Rural 5G Roaming Task Force Team to review network sharing options in rural and sparsely populated areas.
Singapore	- Spectrum sharing for the purpose of operating a station and/or network may be allowed with the **prior written approval of IMDA** and subject to such conditions as IMDA may impose and the obtaining of the applicable station (spectrum) licence or network (spectrum) licence.
Spain	- Under the General Telecommunications Law (Draft GTL 2020), MAETD is granted the power to impose operators the **obligation to share the use of active and passive infrastructure** (only when justified and when the possibility has been expressly allowed in the spectrum use authorisation).
Switzerland	- Spectrum sharing between mobile telecom providers is specifically regulated in Art. 11 TCA (interconnection right to use another TSP's network at reasonable prices). This article is, however, **only invoked if the parties cannot find a private agreement at reasonable terms within three months.**
United States	- The FCC generally requires wireless carriers to **provide roaming service** to competing facilities-based carriers that operate compatible services

Source: Company, Indo Premier

Enhanced mobile services and FWA to drive near-term 5G monetization

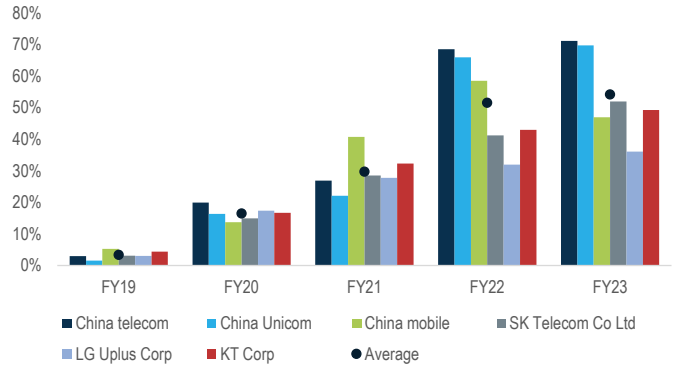
Late movers, like Indonesia, could potentially have better 5G revenue visibility

While some early movers seemed to struggle to monetize their 5G investments in the early days of deployment (Chinese/Korean telcos' revenue declined by -4/-1% yoy in FY19), they are turning the corners in recent years (Chinese/Korean telcos' revenue increased by +1% yoy in FY23).

Meanwhile, late movers tend to see better 5G monetization in the early days, as 5G handset cost has declined from over US$1k to as low as US$100. Case in point, India saw c.11-13% 5G mobile penetration (5G subs/total subs) within the first year of 5G deployment, higher than early movers like China (c.2-5%) and Korea (c.3-4%). As a result, India already saw revenue accretion from year-1 (+14% yoy in FY23), given the higher data consumption from 5G users (i.e. uptrading) and industry-wide price repair. Data consumption up by c.24% yoy in FY23, as 5G users in India consumed c.3.6x more data. ARPU improvement was also visible (+18% yoy).

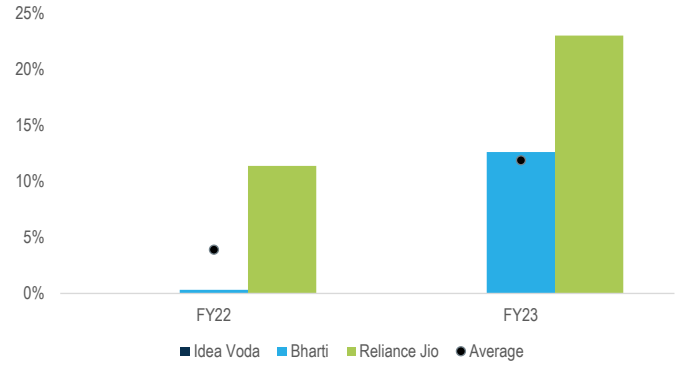
Indonesian telcos appear to be somewhat in a similar situation, being a 5G late mover, and with the consolidation and price repair that are currently ongoing; and thus, we see room for 5G mobile monetization. FWA (fixed wireless access) could also prove to be another monetization avenue for Indonesian telcos. Revenue from enterprise/IoT, however, seems less-likely to be material in the near-term.

Fig. 32: 5G penetration in China and Korea



Source: Company, Indo Premier

Fig. 33: 5G penetration in India

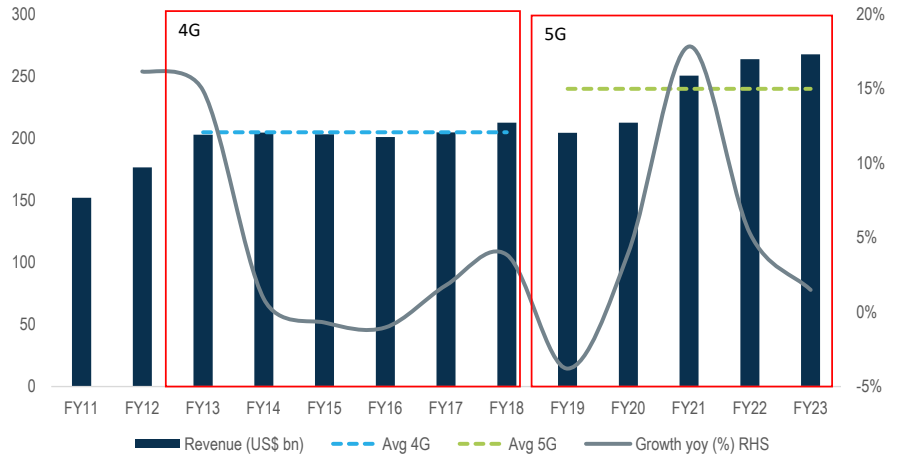


Source: Company, Indo Premier

5G monetization: mobile, FWA, and enterprise/IoT

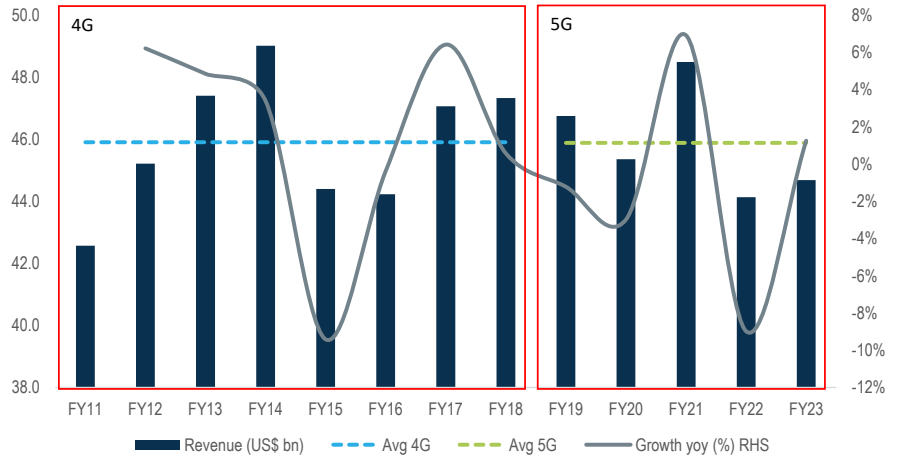
Generally, there are three key use cases for 5G: 1) mobile data (i.e. enhanced mobile data experience); 2) fixed wireless access (FWA); and 3) enterprise/Internet-of-Things (IoT). Like most telcos, the natural transition for Indonesian telcos is also likely to be mobile data services, especially considering that 5G handset prices have dropped significantly. Indeed, the first generation of 5G handsets cost over US$1k, but now has declined to as low as US$100. We also believe that FWA rollout could support 5G monetization in the country by utilizing the additional network capacity that is likely to be gained from the mid-band spectrum (i.e. 3,500MHz). On the other hand, we see a more-limited revenue visibility from enterprise/IoT in the near-term.

Fig. 34: China revenue, growth yoy, and average of 5G vs. pre-5G over the years



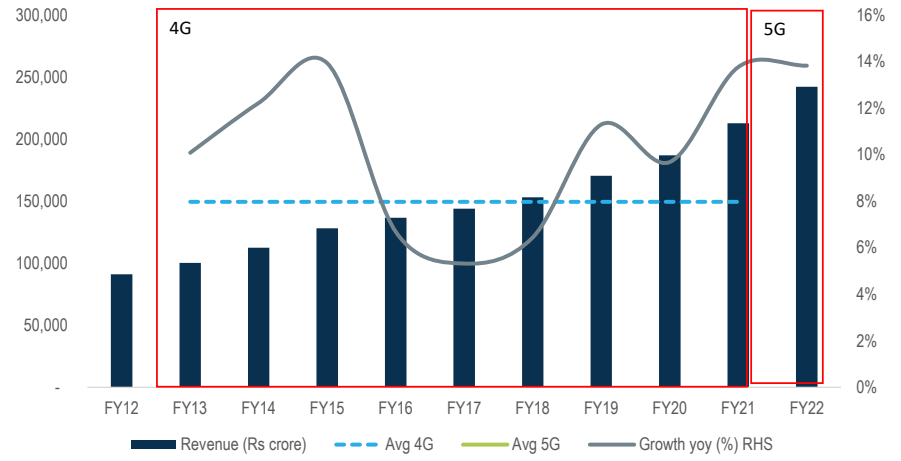
Source: Company, Indo Premier

Fig. 35: Korea revenue, growth yoy, and average of 5G vs. pre-5G over the years



Source: Company, Indo Premier

Fig. 36: India revenue, growth yoy, and average of 5G vs. pre-5G over the years



Source: Company, Indo Premier

Fig. 37: 5G monetization strategies

Country	Company	5G Roll-out	Mobile Strategy	Mobile Package Pricing and Details	Enterprise Strategy	Enterprise Package Pricing and Details	Fixed Wireless Access (FWA) Strategy	FWA Package Pricing and Details
Korea	SK Telecom	2019	Focused on gaming, UHD video streaming, and VR/AR services for consumers.	Starting at $40/month for unlimited 5G data, premium content packages.	Launched 5G-based smart factory solutions and cloud services.	Customized solutions priced based on scale and industry needs.	Promoted 5G-based home broadband and smart home solutions.	Home broadband starting at $60/month for high-speed connectivity.
Korea	LG Uplus	2019	Emphasized high-quality streaming and gaming services.	Starting at $40/month with bundled streaming services.	Developed 5G solutions for smart factories and healthcare.	Tailored solutions with pricing based on enterprise requirements.	Offered 5G-based home internet services with higher speeds.	Home internet plans starting at $55/month.
Korea	KT Corp	2019	Launched exclusive 5G content such as UHD videos, AR, and VR.	Starting at $58/month with exclusive content.	Provided 5G infrastructure for smart factories, autonomous vehicles, and AI.	Industry-specific solutions priced on demand.	Focused on providing high-speed internet for rural and suburban areas.	FWA services starting at $50/month.
China	China Mobile	2019	Leveraged extensive content partnerships to offer 5G entertainment packages.	Starting at $15/month with varied data caps and entertainment bundles.	Implemented 5G solutions for smart cities, agriculture, and industrial IoT.	Customized solutions based on project requirements.	Expanded 5G-based broadband services in underserved regions.	Plans starting at $25/month.
China	China Telecom	2019	Bundled 5G services with high-value content and gaming.	Starting at $15/month with gaming and streaming bundles.	Deployed 5G networks for enterprise digital transformation, including cloud and AI services.	Solutions priced based on enterprise size and needs.	Developed 5G FWA for high-speed internet in urban and rural areas.	Starting at $25/month.
China	China Unicom	2019	Offered affordable 5G plans to encourage mass adoption.	Starting at $13/month with varied data options.	Focused on 5G applications in logistics, healthcare, and smart cities.	Industry-specific solutions with custom pricing.	Rolled out 5G home internet solutions for faster and more reliable connectivity.	Plans starting at $23/month.
India	Vodafone Idea	2021	Combined 5G services with entertainment and gaming offerings.	Starting at $10/month with entertainment bundles.	Partnered with enterprises to provide 5G IoT solutions and cloud services.	Customized pricing based on enterprise needs.	Launched 5G-based home internet services to improve connectivity.	Plans starting at $15/month.
India	Bharti Airtel	2021	Focused on high-speed mobile broadband and exclusive 5G content.	Starting at $8/month with exclusive content packages.	Collaborated with enterprises for 5G IoT and smart manufacturing solutions.	Pricing based on scale and industry requirements.	Rolled out 5G FWA to enhance broadband coverage in rural areas.	Plans starting at $16/month.
India	Reliance Jio	2021	Introduced affordable 5G plans and exclusive content partnerships.	Starting at $10/month with bundled services.	Offered 5G-enabled digital solutions for industries like retail, healthcare, and agriculture.	Custom solutions priced per project.	Launched 5G broadband services to improve home internet connectivity.	Starting at $12/month.
USA	Verizon	2019	Focused on providing ultra-fast mobile broadband through mmWave 5G.	Starting at $70/month for unlimited data.	Developed 5G solutions for smart cities, healthcare, and manufacturing.	Enterprise plans starting at $500/month.	Deployed 5G Home Internet services for urban and suburban areas.	Home internet plans starting at $50/month.
USA	AT&T	2020	Emphasized nationwide low-band 5G for broad coverage.	Starting at $60/month for unlimited data.	Offered 5G solutions for IoT, smart factories, and public safety.	Customized pricing based on solution.	Launched 5G-based fixed wireless services for rural areas.	Plans starting at $50/month.
USA	T-Mobile US	2019	Promoted extensive mid-band and low-band 5G coverage for consumers.	Starting at $60/month for unlimited data.	Partnered with enterprises to provide 5G solutions for logistics and retail.	Custom pricing based on enterprise needs.	Expanded 5G Home Internet services, especially in underserved areas.	Home internet plans starting at $50/month.
Germany	Deutsche Telekom	2020	Focused on comprehensive 5G coverage and innovative mobile services.	Starting at $45/month with various data caps.	Deployed 5G solutions for manufacturing, logistics, and healthcare.	Custom pricing per enterprise project.	Promoted 5G FWA for improved home internet connectivity.	Plans starting at $50/month.
France	Orange	2020	Launched 5G with a focus on mobile broadband and exclusive content.	Starting at $35/month with entertainment bundles.	Offered 5G solutions for smart cities, agriculture, and healthcare.	Custom solutions priced per requirement.	Developed 5G-based broadband services for rural areas.	Plans starting at $40/month.
Japan	NTT Docomo	2020	Promoted high-speed 5G mobile services with exclusive content partnerships.	Starting at $60/month with premium content.	Implemented 5G solutions for enterprise digital transformation and smart cities.	Customized pricing based on enterprise needs.	Offered 5G-based fixed wireless services to enhance home broadband.	Plans starting at $50/month.
Singapore	Singtel	2020	Offered enhanced mobile broadband services and exclusive content.	Starting at $36/month.	Developed 5G solutions for smart cities, healthcare, and logistics.	Custom pricing for enterprise solutions.	Launched 5G home broadband services.	Starting at $44/month.
Singapore	StarHub	2020	Focused on mobile gaming and high-definition streaming.	Starting at $33/month.	Provided 5G solutions for enterprise automation and IoT.	Custom pricing based on industry needs.	Rolled out 5G home internet services.	Starting at $40/month.
Thailand	AIS	2020	Emphasized high-speed mobile broadband and exclusive content partnerships.	Starting at $35/month.	Implemented 5G solutions for smart manufacturing and healthcare.	Customized enterprise solutions.	Launched 5G broadband services for rural and urban areas.	Plans starting at $45/month.
Thailand	True Corporation	2020	Promoted 5G services with entertainment and gaming bundles.	Starting at $33/month.	Offered 5G solutions for agriculture, logistics, and smart cities.	Custom pricing based on enterprise needs.	Developed 5G-based home internet solutions.	Starting at $40/month.
Malaysia	Maxis	2021	Focused on providing seamless 5G connectivity for mobile users.	Starting at $22/month.	Developed 5G solutions for enterprises including smart factories and healthcare.	Custom enterprise solutions.	Rolled out 5G FWA services to enhance broadband coverage.	Plans starting at $26/month.
Malaysia	Celcom	2021	Offered competitive 5G plans with exclusive content.	Starting at $18/month.	Partnered with businesses to provide 5G-enabled solutions for various industries.	Custom pricing for enterprise solutions.	Launched 5G broadband services targeting underserved areas.	Starting at $22/month.

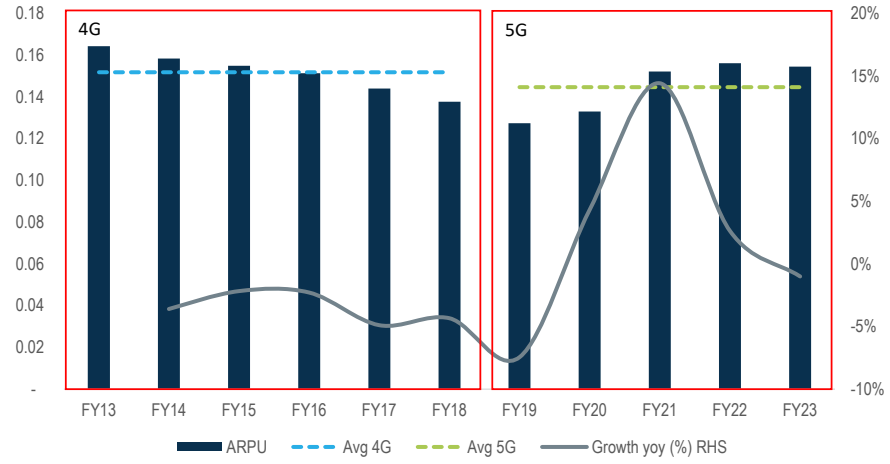
Source: Company, Indo Premier

Enhanced mobile data experience

While 5G services could help to improve mobile data experience, it is arguably non-essential, as 4G services are actually sufficient for mobile usage. However, high-value subscribers in regional markets seem to be willing to pay premium prices, in order to have better mobile data experience. Indeed, according to a survey conducted by GSMA globally/in Asia, 57/51% of respondents are willing to pay c.10-20% higher for 5G services. As such, many regional telcos are benefitting from ARPU uplift.

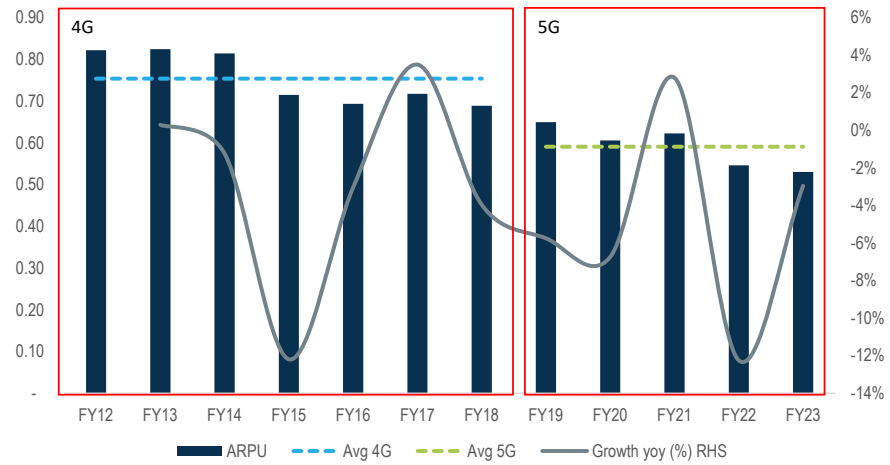
Based on our regional observation, 5G subscribers generally command c.10-30% higher ARPU vs. non-5G subscribers, partly due to the higher headline prices of 5G packages (c.12-67% higher than 4G, based on our observation). Generally, 5G users also consume 1.7-3.6x more data than 4G users, on average, which means uptrading is more likely. Case in point, data traffic improved by c.20% yoy in FY23, as 5G users in India consumed c.3.6x more data. ARPU improvement was also visible (+18% yoy).

Fig. 38: China ARPU, growth yoy, and average of 5G vs. pre-5G over the years



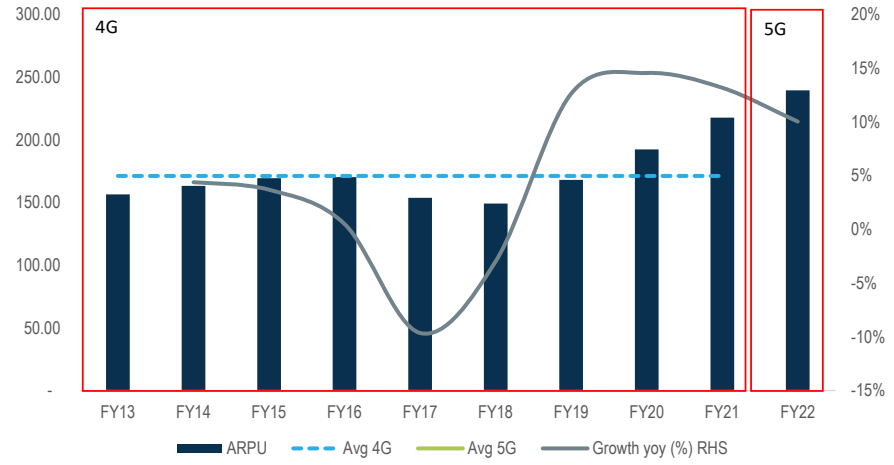
Source: Company, Indo Premier

Fig. 39: Korea ARPU, growth yoy, and average of 5G vs. pre-5G over the years



Source: Company, Indo Premier

Fig. 40: India ARPU, growth yoy, and average of 5G vs. pre-5G over the years



Source: Company, Indo Premier

Fig. 41: 4G vs. 5G package prices

Company	Type	4G Package Price (Local ccy/month)	5G Package Price (Local ccy/month)	5G premium
China				
China Mobile	Basic	15	20	33%
	Mid	20	25	25%
	Premium	30	35	17%
China Telecom	Basic	15	20	33%
	Mid	20	25	25%
	Premium	30	35	17%
China Unicom	Basic	13	17	31%
	Mid	16	25	56%
	Premium	25	35	40%
Korea				
SK Telecom	Basic	50,000	55,000	10%
	Mid	70,000	95,000	36%
	Premium	90,000	125,000	39%
LG Uplus	Basic	45,000	55,000	22%
	Mid	65,000	75,000	15%
	Premium	85,000	95,000	12%
KT Corp	Basic	60,000	80,000	33%
	Mid	80,000	100,000	25%
	Premium	100,000	130,000	30%
India				
Vodafone Idea	Basic	10	12	20%
	Mid	12	15	25%
	Premium	20	25	25%
Bharti Airtel	Basic	10	12	20%
	Mid	15	17	13%
	Premium	20	25	25%
Reliance Jio	Basic	8	10	25%
	Mid	10	12	20%
	Premium	12	20	67%

Source: Company, Indo Premier

Telcos can also utilize new technology through 5G, like network slicing, which allows telcos to introduce sophisticated “speed tiering.” This, in our view, could represent a fundamental shift away from the current mobile industry’s standard of GB-based data package. Further, 5G allows telcos to offer flexible plans that allow customers to make impulse purchases to upgrade network performance.

For instance, if a subscriber needs stronger connectivity to stream a video, play an online game, or make a video call, they have an option to pay additional fees to receive a temporary performance boost. This “pay-per-use” 5G will be especially valuable to subscribers when networks are congested, and concurrently allowing telcos to monetize the temporarily scarce resource of network capacity.

According to a survey conducted by McKinsey, 74% of mobile users have a positive or neutral feeling about telcos offering different speeds to mobile users with different needs. Some companies are already seeing the benefits of this strategy. Indeed, by creating differentiated tariff structures, Hong Kong telcos, saw a c.20-30% increase in ARPU among the high-value subs.

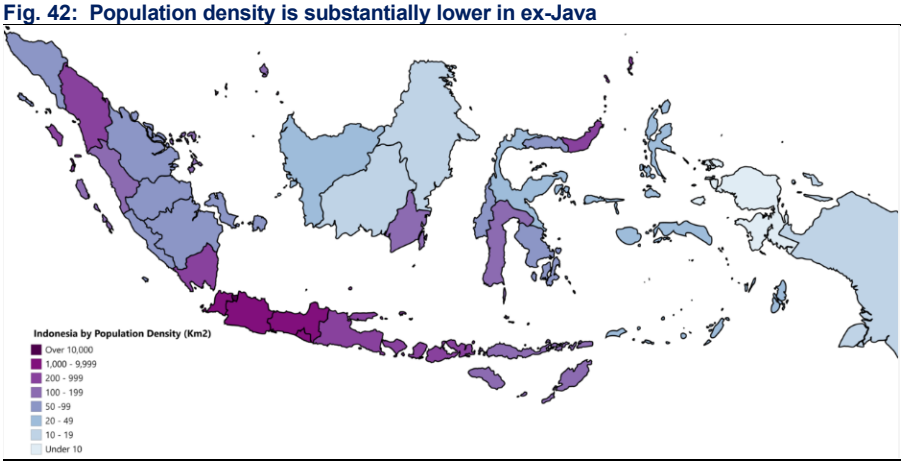
FWA is imperative to allow for near-term 5G monetization and unlock the next leg of home internet services growth

We believe that FWA (fixed wireless access): 1) is an economically more-viable FTTH (fiber-to-the-home) alternative in sparsely populated and/or less affluent areas; and 2) could support 5G monetization by utilizing the additional network capacity gained from the mid-band spectrum (i.e. 3,500MHz).

Indeed, considering the combination of additional capacity (given the new spectrums) and the lack of immediate commercial usage models means that telcos are likely to see excess network capacity in the early days of 5G rollout. As such, we see a strong case for Indonesian telcos to leverage FWA in order to take advantage of the excess network capacity and support monetization during this infant stage of 5G, with relatively minimal incremental costs. Of note, FWA leverages existing mobile network infrastructure, utilizing spare capacity and un-deployed spectrum.

Its deployments reuse existing infrastructure, like main sites and towers that are already built, with most upgrades performed without the need for site visits (unless new hardware is required). Moreover, investment scaling could be done in-line with subscriber growth and capacity investments for FWA could also be shared with other mobile network services, as well as MBB (mobile broadband), MiFi (mobile WIFI), and IoT (internet of things), which should help to further mitigate over-investment risk. For more details on FWA, please see our previous note.

Fig. 42: Population density is substantially lower in ex-Java



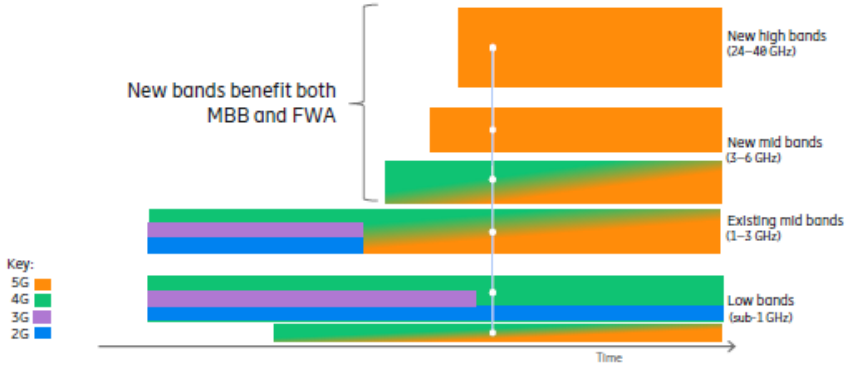
Source: Macrotrends, Indo Premier

Fig. 43: FWA is likely to offer a more-attractive return profile compared to FTTH in sparsely populated and/or less affluent areas

	FTTH	Low ARPU FTTH	FWA
Revenue (Rp mn/year)	3.2	1.8	1.1
ARPU (Rp '000/month)	*268*	*150*	*90*
EBITDA (Rp mn/year)	1.6	0.9	0.5
EBITDA margin (%)	*50.0%*	*50.0%*	*50.0%*
Capex (Rp mn/household)	6	6	2
Unlevered ROI (% p.a.)	26.8%	15.0%	36.0%
Payback period (years)	3.7	6.7	2.8

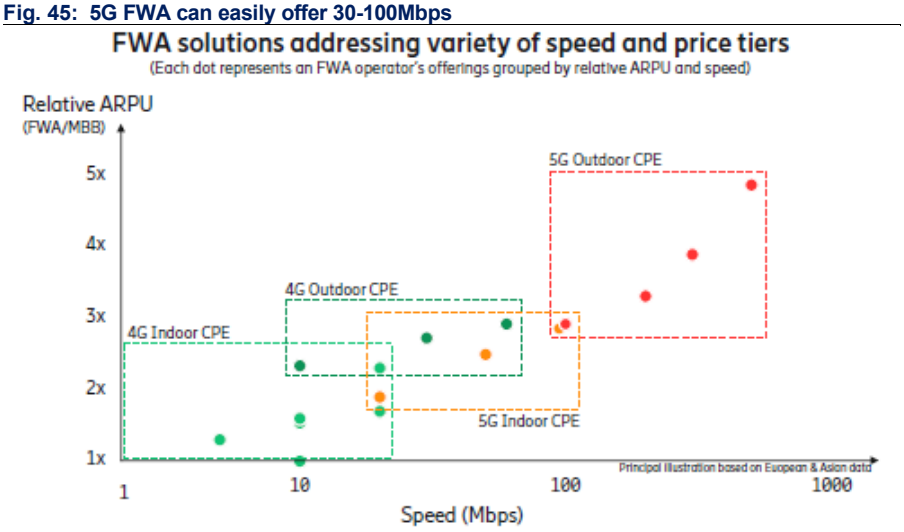
Source: Company, McKinsey, Analysys Mason, Verizon, Huawei, Indo Premier
Note: 1) TLKM does not disclose the EBITDA margin of its FTTH business, so we use IndiHome's overall EBITDA margin (pre-integration) of 50%. Note that regional fibercos, on average, have c.40% EBITDA margin, while according to McKinsey, EBITDA margin for FTTH is c.40-50%.
2) Due to the lack of reliable data, we conservatively assume a similar EBITDA margin for FWA at 50%. According to various sources, however, FWA margin is likely to be higher than FTTH.
3) Capex of FTTH and FWA vary depending on population density, take-up rate, as well as equipment and spectrum costs, among others. Our capex assumptions are on the low-end for rollout in rural areas.

Fig. 44: Additional capacity from new mid band spectrums can be deployed for FWA



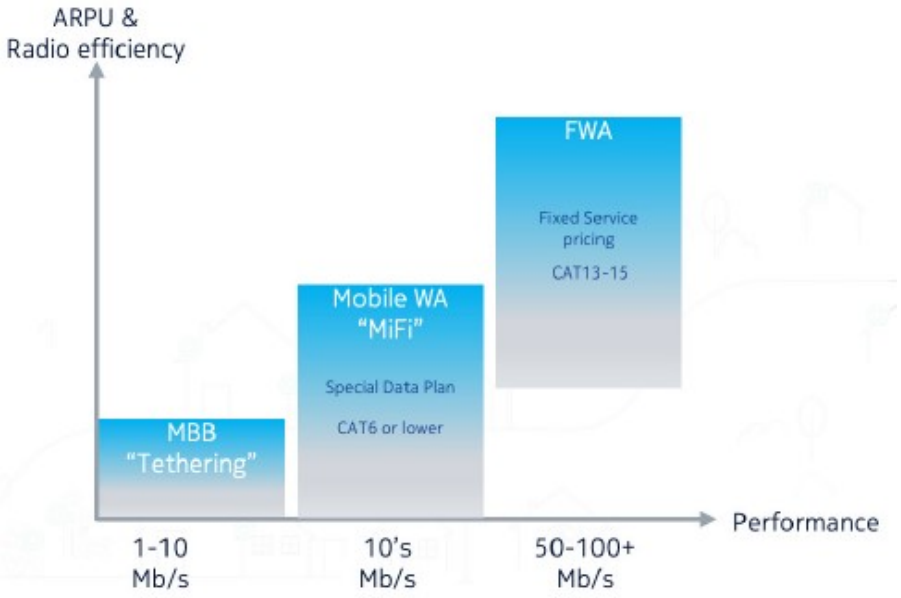
Source: Ericsson, Indo Premier

Fig. 45: 5G FWA can easily offer 30-100Mbps



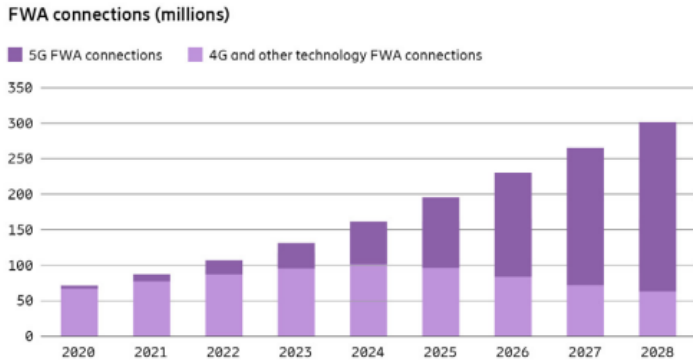
Source: Ericsson, Indo Premier

Fig. 46: FWA can be offered at higher ARPU, relative to MBB and MiFi



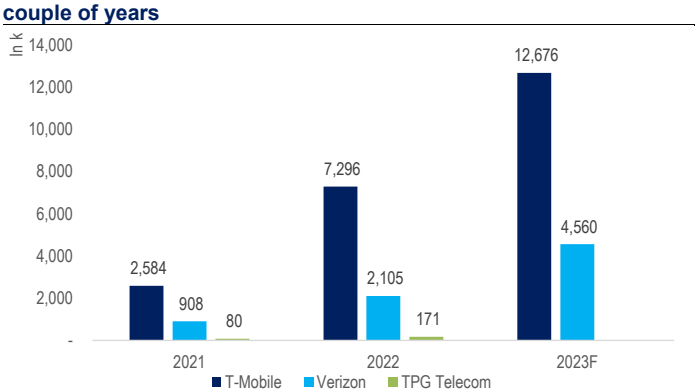
Source: Nokia, Indo Premier

Fig. 47: Global FWA connections to reach >300mn by FY28F



Source: Ericsson, Indo Premier

Fig. 48: FWA subs in the US and Australia grew by c.2-3x in the first couple of years



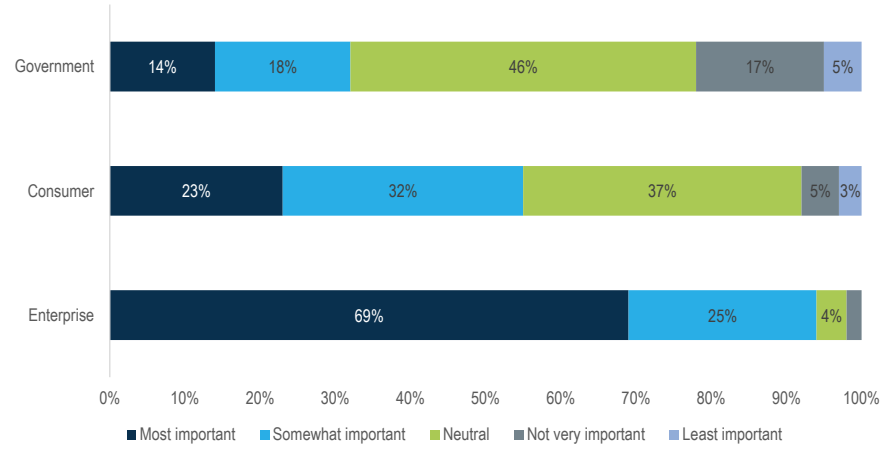
Source: Company, Indo Premier

Enterprise/IOT monetization opportunity is likely to remain relatively limited in the near/mid-term, but could be sizable in the long-run

The enterprise sector currently makes up for c.12% of revenue for TLKM (other telcos do not disclose enterprise revenue). While we believe that 5G enterprise revenue seems likely to remain limited in the near/mid-term for most Indonesian telcos, the proliferation of IoT ecosystem and the Indonesian government's ambition of industrialization (as exemplified by its focus on de-regulations to support down-streaming/manufacturing) could help to drive enterprise revenue in the long-run.

Revenue upside from enterprise could be substantial, but the actual pace of adoption and revenue generation can vary across industries, with some sectors like manufacturing and transportation likely seeing faster uptake compared to others. Note that according to a survey conducted by GSMA, c.69% of the surveyed regional telcos believed that enterprise revenue would be key in driving 5G revenue.

Fig. 49: Incremental revenue from potential 5G segments



Source: GSMA, Indo Premier

Maintain OW on the telco sector

Reaffirm Overweight stance on the telco sector

Indonesian telcos combined currently only have c.800 5G BTS nationwide, most of which are likely located in Jakarta's CBD, in our view. With spectrum auctions looming on the horizon, Indonesian telcos could potentially start to rollout commercial 5G services in FY25F. Considering the lack of immediate commercial usage models, coupled with the likely increase in capex/opex, it is unsurprising that we are seeing rising concerns on the potential of a de-rating for Indonesian telcos beyond FY24F, especially on the back of the recent price war narratives (which we believe is likely overblown; see our previous note).

We, however, believe that Indonesian telcos are likely to be better-positioned than most 5G early movers. Spectrum prices could potentially be manageable, while extending the 4G-5G life cycle could help to ease capex/opex burden. Near-term monetization also seems possible through mobile and FWA.

We believe that telcos who have more balance sheet capacity are likely to be better-positioned for 5G rollout in the long-run, as telcos may need to re-leverage on higher spectrum and network cost. Among our coverage, TLKM is the least levered with net debt/EBITDA of 0.5x in 1Q24, followed by ISAT and EXCL at 1.9/2.8x, respectively. Further network and de facto consolidation are potential key positive catalysts for telcos in the long run.

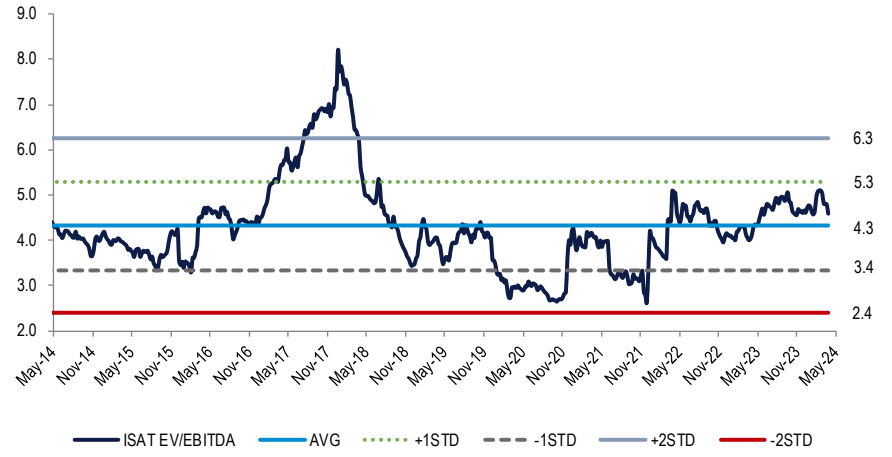
We reaffirm our Overweight stance, with Buy ratings on all names and pecking order of ISAT>TLKM>EXCL. Downside risks are competition, weaker mass purchasing power, and unfavourable regulations.

Fig. 50: Telco comparables

	P/E			EV/EBITDA			Div' Yield		
	24F	25F	26F	24F	25F	26F	24F	25F	26F
Indonesia Average	**14.8**	**13.5**	**12.2**	**4.6**	**4.4**	**4.2**	**5.2**	**5.5**	**5.9**
Telkom Indonesia Persero Tbk	11.5	11.1	10.4	4.4	4.3	4.2	6.5	7.0	7.2
XL Axiata Tbk	24.6	19.2	15.9	4.8	4.4	4.1	1.8	2.0	2.9
Indosat Tbk	22.9	20.0	17.0	5.3	4.8	4.4	2.0	1.7	2.5
Asia Average	**28.1**	**20.2**	**17.1**	**8.2**	**7.4**	**6.9**	**2.3**	**2.6**	**3.0**
China United Netw ork Communica	16.0	14.4	13.0	3.7	3.6	3.4	4.2	5.0	5.8
Shanghai AtHub Co Ltd	50.7	41.6	37.1	9.6	8.9	8.3	0.3	0.4	0.6
HKBN Ltd	44.3	10.8	8.4	6.1	5.8	5.7	11.7	13.2	15.0
China Telecom Corp Ltd	15.6	14.4	13.3	3.5	3.4	3.2	0.7	0.8	0.9
Vodafone Idea Ltd	n.a	n.a	n.a	16.5	13.6	11.6	0.0	0.0	0.0
Bharti Airtel Ltd	39.7	27.6	22.4	11.4	9.9	8.8	0.7	1.0	1.4
Tata Communications Ltd	33.4	22.8	19.4	11.9	10.0	8.9	1.0	1.2	1.7
SK Telecom Co Ltd	9.8	9.5	8.9	3.8	3.8	3.7	6.9	6.9	7.1
LG Uplus Corp	6.9	6.5	6.1	2.8	2.8	2.8	6.7	6.9	7.0
KT Corp	7.6	7.0	6.7	3.2	3.2	3.2	5.5	5.8	6.0
Axiata Group Bhd	39.0	28.3	22.4	6.3	6.0	5.7	3.4	3.4	3.8
Maxis Bhd	22.0	20.8	19.6	9.4	9.2	9.1	4.4	4.6	4.8
PLDT Inc	8.6	8.0	7.5	5.7	5.4	5.2	6.9	7.3	7.8
Singapore Telecommunications Ltd	15.0	13.2	11.9	12.0	11.4	11.3	5.7	6.3	7.0
StarHub Ltd	13.4	12.1	11.1	6.9	6.5	6.3	5.7	6.2	6.1
Omani Qatari Telecommunication	n.a	n.a	n.a	n.a	n.a	n.a	5.0	5.0	6.0
Telekom Malaysia Bhd	15.7	16.0	15.4	5.9	5.7	5.7	3.4	3.5	3.7
Advanced Info Service PCL	19.4	17.5	16.2	7.8	7.5	7.2	4.5	5.0	5.5
True Corp PCL	127.1	35.9	23.5	7.7	7.3	7.0	0.4	0.9	2.2
Jasmine International PCL	747.1	567.3	443.9	42.7	39.9	37.3	n.a	n.a	n.a
Globe Telecom Inc	14.0	13.2	11.0	7.4	7.1	6.7	5.0	5.5	5.9
Europe Average	**12.5**	**29.4**	**2.1**	**6.0**	**5.7**	**5.6**	**5.4**	**5.6**	**5.9**
Orange SA	9.7	8.8	7.9	5.5	5.4	5.4	7.1	7.3	7.6
Deutsche Telekom AG	12.3	28.1	0.7	6.2	5.9	5.7	3.9	4.4	4.8
Telefonica Deutschland Holding	22.6	136.4	(2.5)	4.0	4.4	4.7	3.6	4.5	6.2
Vodafone Group PLC	10.8	28.3	4.3	5.8	5.8	5.6	6.7	6.1	6.1
Telenor ASA	13.2	23.0	4.0	7.3	7.1	7.0	7.7	7.7	7.8
Telia Co AB	17.9	28.6	(2.0)	6.5	6.3	6.2	7.4	7.5	7.6
Telefonica SA	13.2	34.8	1.0	5.0	4.9	4.9	7.2	7.3	7.0
North America Average	**12.3**	**16.7**	**6.0**	**7.8**	**7.5**	**7.3**	**4.6**	**4.8**	**4.9**
T-Mobile US Inc	18.5	16.1	14.6	9.5	9.0	8.5	1.6	1.8	2.0
Verizon Communications Inc	8.7	17.3	1.0	7.0	6.9	6.7	6.8	6.9	7.0
AT&T Inc	7.7	17.0	(0.5)	6.4	6.3	6.2	6.4	6.5	6.5
Global Average	**45.0**	**39.8**	**24.7**	**7.9**	**7.5**	**7.1**	**4.6**	**4.8**	**5.3**

Source: Company, Bloomberg, Indo Premier

Fig. 51: ISAT EV/EBITDA band



Source: Company, Indo Premier

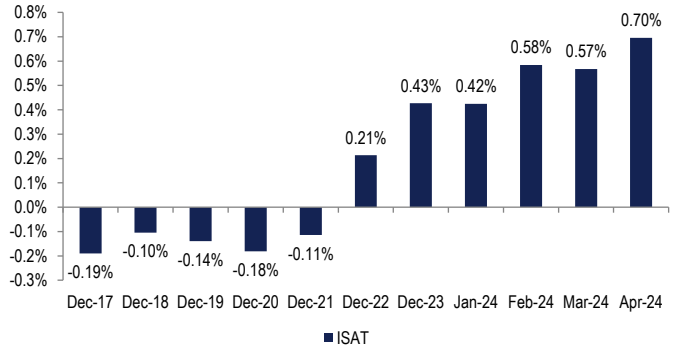
Fig. 52: TLKM EV/EBITDA band

Source: Company, Indo Premier

Fig. 53: EXCL EV/EBITDA band

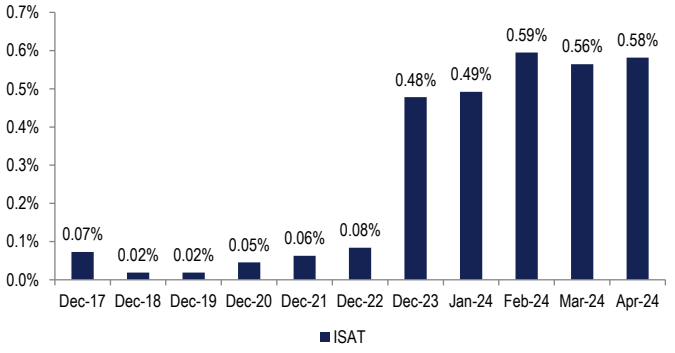
Source: Company, Indo Premier

Fig. 54: ISAT local funds positioning vs JCI



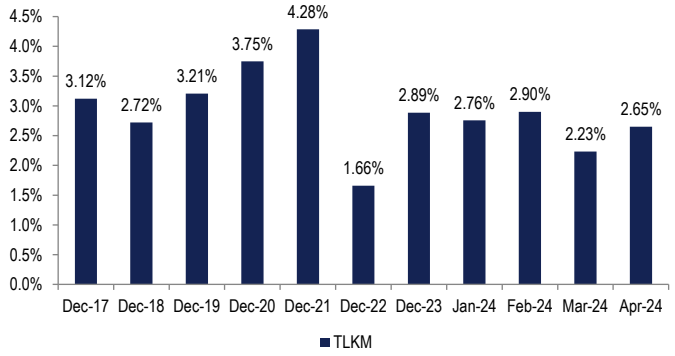
Sources: KSEI, IndoPremier

Fig. 55: ISAT foreign funds positioning vs MSCI



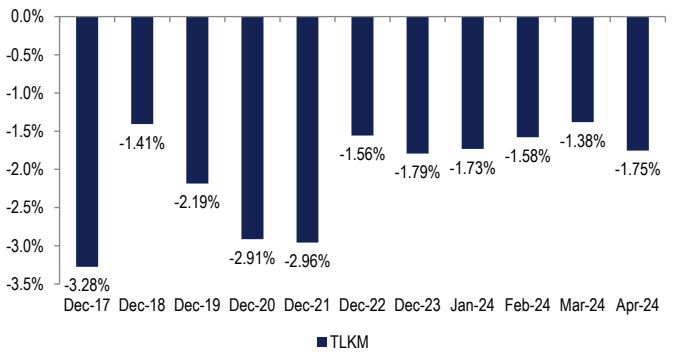
Sources: KSEI, IndoPremier

Fig. 56: TLKM local funds positioning vs JCI



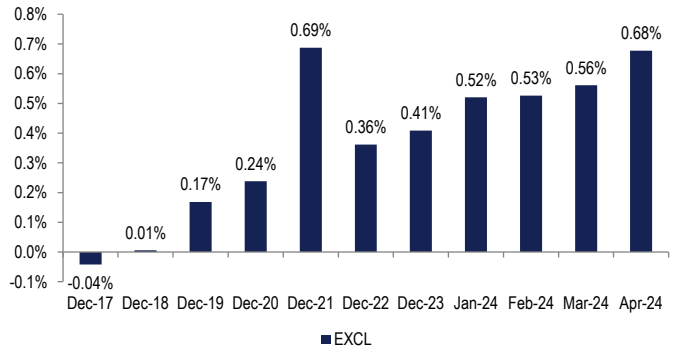
Sources: KSEI, IndoPremier

Fig. 57: TLKM foreign funds positioning vs MSCI



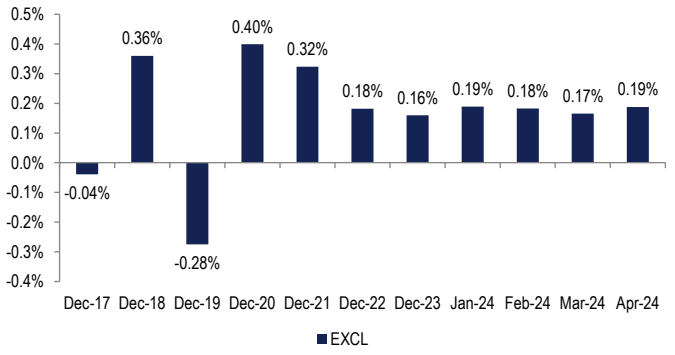
Sources: KSEI, IndoPremier

Fig. 58: EXCL local funds positioning vs JCI



Sources: KSEI, IndoPremier

Fig. 59: EXCL foreign funds positioning vs MSCI



Sources: KSEI, IndoPremier

SECTOR RATINGS

OVERWEIGHT	:	An Overweight rating means stocks in the sector have, on a market cap-weighted basis, a positive absolute recommendation
NEUTRAL	:	A Neutral rating means stocks in the sector have, on a market cap-weighted basis, a neutral absolute recommendation
UNDERWEIGHT	:	An Underweight rating means stocks in the sector have, on a market cap-weighted basis, a negative absolute recommendation

COMPANY RATINGS

BUY	:	Expected total return of 10% or more within a 12-month period
HOLD	:	Expected total return between -10% and 10% within a 12-month period
SELL	:	Expected total return of -10% or worse within a 12-month period

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