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Company Note

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Singapore Wireless

Fourth entrant risk in 2015 enabled by small cells

M1: Neutral (TP:
S\$3.77, -3%)
Bberg: M1 SP Reut: MONE.SI

SingTel: Buy (TP:
S\$4.58, +7%)
Bberg: ST SP Reut: STEL.SI

StarHub: Neutral (TP:
S\$4.30, -1%)
Bberg: STH SP Reut: STAR.SI

We see WiFi and small cells enabling a challenge to the three player market in Singapore. With high ROIC, there are risks to the existing tariff structures. M1 and StarHub are most exposed; SingTel is too diversified for new entrant threats to be a concern, in our view.

We see the time as ripe for a fourth entrant to emerge and challenge the existing oligopoly in Singaporean wireless:

- **Industry returns have been high**, and we believe these have substantially exceeded the cost of capital, driven by a combination of high ARPUs, EBITDA margins, and a small city-state network. With high returns, new entrant risk can only grow, and regulatory risk is elevated;
- **Growing political and regulatory pressure for a fourth entrant.** The creation of the NBN, and a competitive retail service provider segment, has lowered broadband pricing for consumers, encouraging regulators and politicians to consider “opening up” wireless networks. Second, although Singapore operators maintain high quality networks, the popular press portrays the operators as having significant problems, resulting in populist pressure to create alternative infrastructure;
- **The ingredients needed for a ‘new wireless’ business model are in place**, drawing on a range of different ingredients to offer a competitive wireless service *without* the cost structures of a traditional cellular operator. The key available ingredients are better WiFi; a fibre platform for WiFi/small cells (the NBN); and the availability of spectrum at both high and low frequencies. However, we have yet to hear if a wholesale MVNO agreement will be mandated by the IDA;
- **MyRepublic and Consistel have expressed an interest in becoming the fourth MNO.** MyRepublic is a credible player in broadband, has a clear vision of a mobile strategy, and has interesting financial support, including Xavier Niel. Consistel is a less well-known challenger, but has expertise in DAS, and appears to have more access to funding. Both are realistic potential challengers, in our view.

Our base case assumes a 30% reduction in mobile ARPUs for the MNOs, a slightly worse outcome than we have seen in the broadband market following the NBN launch. Although we think that there are offsetting measures that could be adopted to offset the inevitable ARPU pressures, it is the share prices of the smaller operators would be most vulnerable: M1 would see a 25% drop in the TP, and StarHub a 22% fall, the latter slightly inoculated by a greater exposure to HSD, fixed-telephony and TV. Singtel’s defensive qualities driven by a broad geographic exposure to international assets come to the fore, and would suffer only a small 6% reduction in our TP. **We remain buyers of SingTel and recommend investors consider switching into SingTel and out of the more exposed StarHub and M1, particularly after the latter have enjoyed strong, dividend led, runs.**

Singaporean wireless market : a fourth entrant?

Although a new entrant has thus far failed to mount a challenge in Singapore, we believe high returns, political interest in a fourth operator, and technology have created an interesting entry point

Although a fourth MNO opportunity has existed in Singapore since 1996, and has never been taken up, we believe that technology changes are enabling a real opportunity for a new entrant in Singapore to provide a fourth MNO service today. The key considerations for any challenger in Singapore are, in our view:

- **Industry returns in Singapore are exceptionally strong**, driven by a combination of high ARPUs, EBITDA margins, and a small city-state network, and suggest a new entrant could achieve attractive returns even if tariffs are lowered;
- There appears to be **some political/regulatory willingness to countenance a fourth operator**, we believe, supported by recent QoS concerns in the local press, and on social media;
- **Technology developments, the availability of spectrum and the NBN in Singapore have, in combination, created an environment that is conducive to a new challenger** entering the wireless market - this development is recent and has been a game-changer, in our view.

However, investors should consider that the history of challengers in the Singaporean market is littered with disappointment. In perhaps the most high profile withdrawal from the market, SingTel and Britain's Virgin Group ended their MVNO joint venture in Singapore eight months after its launch in 2001 citing weak market conditions - a reflection, it was noted by the company at the time, of the small and competitive state of the mobile market, as well as the prolonged economic downturn in the period. The MVNO had approximately 30,000 subscribers; SingTel took a one-time exceptional charge of about S\$45mn.

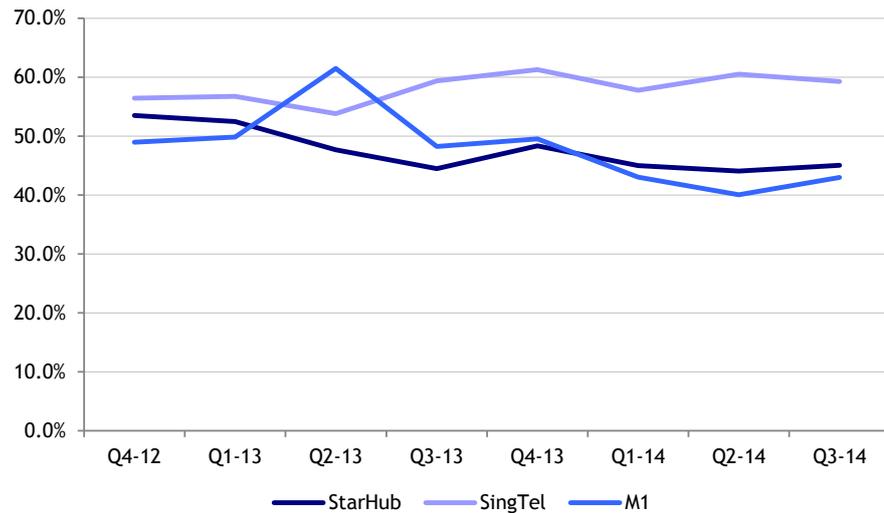
Whilst other MVNOs continue to operate in Singapore, we believe these to be comparatively small (three commercially operating at present, although 15 are registered) and largely concentrated in the pre-paid segment, focusing on ex-patriate workers (for example Smart Pinoy). We estimate the total MVNO subscribers in Singapore at approximately 100k-200k. We note that this small market for MVNOs is in marked contrast to Hong Kong where the total number of MVNO subscribers is approximately 1.7million, according to OFCA data. With a limited MVNO market, we believe that a fourth MNO could, given appropriate conditions, succeed in establishing itself.

High industry returns will attract competition

We note that the operators in Singapore have, historically, enjoyed wireless ROIC well above the WACC, we estimate. Industry returns in Singapore are exceptionally strong by global and regional standards, driven by a combination of high ARPUs (with high voice prices historically a factor), healthy EBITDA margins (despite a market with historically high levels of subsidy), and a small city-state network (limiting capex). These high returns suggest a new entrant could achieve attractive returns even if tariffs are lowered substantially, in our view. Although financial disclosure is not precise at any of the three operators, we believe that all the Singapore players have enjoyed returns far above the cost of capital and would be susceptible therefore to new entrant challenges.

Chart 1: Industry returns are at extremely high levels

(NSR Estimated ROIC)



Source: New Street Research estimates

Historically high returns suggest a new entrant could undercut the existing oligopoly tariffs

We believe that high industry returns can only increase the risk for existing operators. In essence, these challenges can come from, we believe, regulatory pressure; new entrants looking to capture the high returns; existing entrants progressively reducing tariffs; or, in extremis, all three factors in combination. With high returns, new entrant risk can only grow, and regulatory risks be elevated, in our view. The Singapore wireless market appears to offer, as a starting point, an opportunity for new entrants to compete for excess returns and start to drive these down.

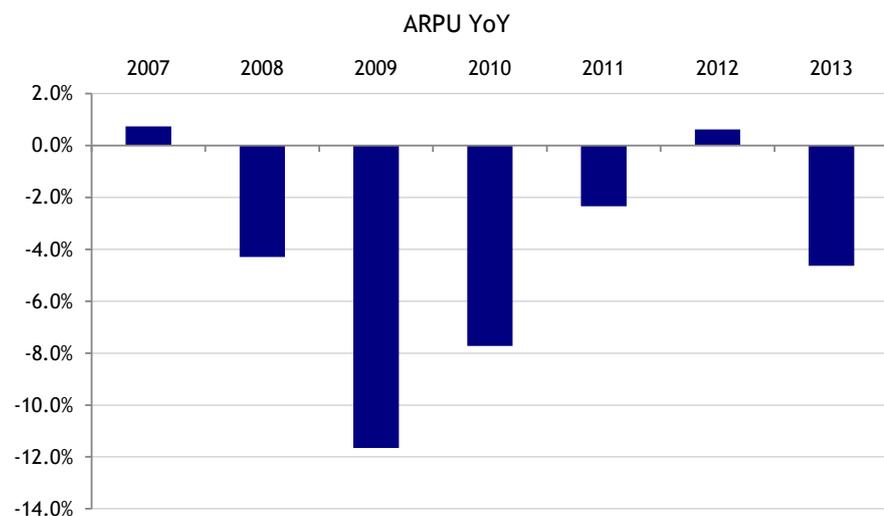
Is political and regulatory pressure growing?

We believe that there has been a growing interest from the regulator and other Singaporean stakeholders in promoting new wireless entrants. We would argue that this stance is being driven both by the success (from a consumer perspective - and presumably regulator perspective), in lowering broadband pricing as a result of the NBN, and in part by growing Quality of Service concerns in the core wireless network.

ARPU declines in broadband highlight the impact the NBN and RSPs have had for consumers pricing

Chart 2: Consumers have seen falling prices in broadband

(StarHub BB ARPU, YoY change)



Source: New Street Research estimates

- As can be seen in the chart above, the impact of the NBN has been to cause reported broadband ARPUs at StarHub to fall by 37% between

2008 and 2014, as new retail service providers have taken advantage of the NBN, lowered pricing and/or raised the service choices for consumers, and in the process have radically transformed the landscape for the Singaporean market. We would be surprised if this decline in tariffs, and the proliferation of providers (even if the market remains largely concentrated on two or three providers) wasn't evident to politicians and regulators alike, and seems to us the basis for considering a more aggressive approach in the wireless market as well;

There have been growing press and social media driven pressures criticising Singaporean wireless QoS

- **Quality of service issues have become more prevalent, exacerbated (the operators argue) by the growth of social media.** Although by the standards of most national networks the Singapore operators maintain very high quality networks, and the IDA QoS reports would suggest all operators are satisfying the standards being set by the regulator, the popular press continues to portray the networks as having significant problems. All three operators have recently suffered outages: M1 suffered a three-day network outage in early 2014, and was fined S\$1.5mn by the IDA; StarHub subscribers recently experienced a 10-hour outage in November, whilst the IDA imposed a financial penalty of S\$6mn on SingTel following a service outage that lasted nine days and affected almost 270,000 customers caused by a fire at a telephone exchange in October 2013. Furthermore, we believe that the MNOs are reluctant, for duplicative capex reasons, to be willing to sanction national roaming on each other's infrastructure, a source (we suspect) of some frustration at the IDA.

In combination, the success of the NBN, coupled with the growing concern in the media about QoS, has put additional pressure on the existing operators in our opinion.

Whilst it might be coincidental, we note that Singtel's recent rebranding was accompanied by greater customer service commitments (shorter waits when buying a new device or phone line; website based appointments or handset reservations; call-backs by Singtel hotline officers at preferred times; shorter windows for technician appointments). Whilst these commitments are a reflection of broader competitive pressure in the market, we believe that there is a nod by the operators to the growing QoS pressures evident in press and social media commentary.

Pricing: Why Singapore is an Opportunity

We believe that the wireless tariff levels in Singapore create an interesting environment for new entrants. We have previously argued that:

Pricing in wireless in Singapore should encourage potential new entrants...

- There has been a historically high dependence on voice minutes to generate revenues in Singapore, including capturing voice overage, and whilst this development has made the industry very profitable, it has in recent years become a risk given the growth in OTT voice apps, and growing data substitution. Voice prices remain high in Singapore, certainly versus Hong Kong, and borne out by the higher proportion of voice versus data revenues in the market. We note the far lower number of voice minutes within the average Singaporean bundle: this figure suggests to us that there is still a tendency to pursue voice overage in the market;

...with voice pricing traditionally expensive by global standards...

- Data has historically been anomalously cheap in absolute terms (until August 2012, most Singaporean bundles included 12GB/month of data), although shifts in the bundled pricing model have made these anomalies less evident in the past two years, and rising data volumes - amongst the highest in Asia - have also boosted total revenues. Singapore data pricing is, we estimate, now more expensive than Hong Kong;

...whilst data pricing has risen substantially after new bundles

- Voice is expensive relative to data in Singapore, certainly versus Hong Kong. As there is a migration from voice to data, we would expect to see

a greater impact on the top-line at the Hong Kong operators, rather than the Singaporean names.

These trends are discernible in the table and charts below, which we have extrapolated from the most popular bundled offerings available in each market:

Table 1: Singapore still monetising via voice overage

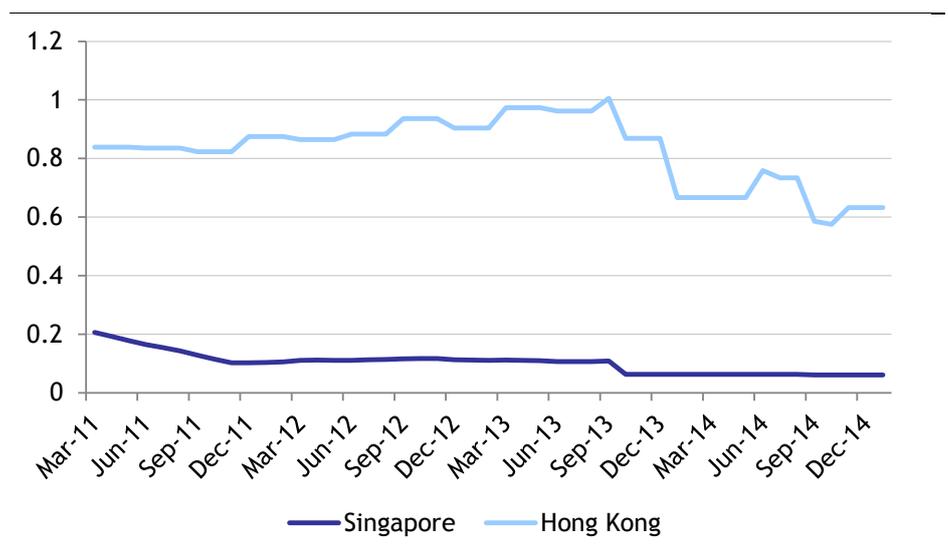
High Tariff	Ave. Hong Kong	Ave. Singapore
Cost/month (US\$)	58.44	76.55
Voice (mins/month)	4,500	733
SMS/month	5,020	1,667
Data (MB/month)	7,750	6,333
Voice overage (US\$/minute)	0.06	0.12
SMS overage (US\$/SMS)	0.05	0.04
Data overage (US\$/GB)	21.93	8.01

Medium Tariff	Ave. Hong Kong	Ave. Singapore
Cost/month (US\$)	38.40	46.61
Voice (mins/month)	3,667	317
SMS/month	5,010	1,133
Data (MB/month)	4,000	3,667
Voice overage (US\$/minute)	0.05	0.12
SMS overage (US\$/SMS)	0.03	0.04
Data overage (US\$/GB)	24.94	8.01

Source: New Street Research estimates

Chart 3: Hong Kong still charges much more than Singapore for data relative to voice

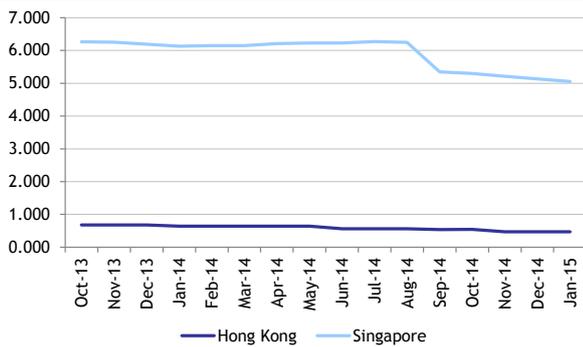
Price/mb against price/min, ratio



Source: New Street Research estimates

Chart 4: Voice remains far more expensive relative to Hong Kong...

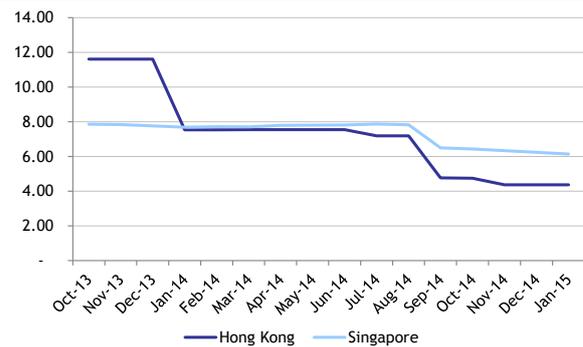
US\$/minute of use



Source: New Street Research estimates

Chart 5: ...but data pricing now exceeds Hong Kong

US\$/Gb



Source: New Street Research estimates

As can be seen, there is evidence that, at least in the context of other developed Asian markets, the pricing of voice and data looks anomalous we believe. Voice pricing in Singapore, being so high, could be vulnerable to a competitive offering from a challenger, and we believe that the operators have enjoyed exceptional profitability over many years.

Data pricing, particularly following re-pricing of data, is not so low as to be immune to a competitive threat from a new entrant: we note that the Tele2 management in Europe recently estimated that its marginal cost of providing an incremental 1GB of data was only €0.05/minute, suggesting that our estimate of US\$6.15/minute for 1GB as an average price in Singapore (derived from the bundled pricing on offer today) offers plenty of room for discounting to emerge - particularly in the small, city-state of Singapore, where network infrastructure unit costs would be comparatively low versus larger markets such as Korea or Japan.

Conditions are right for a fourth entrant

We maintain that there a variety of technological developments, spectrum opportunities and infrastructure developments that have increased the likelihood of a forth wireless entrant in Singapore. Below we highlight some key elements, published by NSR in more detail in “WiFi and small cells in EM wireless” (12th September 2014).and “WiFi and small cells update” (13th November 2014).

The ingredients needed for ‘new wireless’ are in place. The new wireless business model can draw on a range of different ingredients to achieve the goal of offering a competitive wireless service *without* the cost structures of a traditional cellular operator. The key available ingredients are:

- **‘Better WiFi’.** WiFi is generally a central element in ‘new wireless’ business models, so operators need to take full advantage of the improvements in WiFi that are already available, and those that are in the pipeline. Examples include automatic authentication, integration with cellular services and increased capacity, notably from 5 GHz WiFi. Singaporean challengers, however, with limited existing broadband subscribers (even MyRepublic has only approximately 30,000 broadband subscribers) would be unlikely to utilise their own WiFi extensively at this stage, we believe, without a dependence on public WiFi, although we note that the “wireless@SG” project, running since 2006, provides an IDA sponsored nationwide initiative that can be supportive of other WiFi options for challengers;

Transformational WiFi improvements are in progress

Wireline networks are a good platform for 'new wireless'

Licensed spectrum is optional for some, essential for others

MVNOs turn wide area coverage into a variable cost

Different economics to traditional cellular networking

- **A good platform for WiFi and/or small cells.** A wireless network that relies heavily on WiFi and small cells needs a dense backhaul network, which is easiest to deliver if the operator has a wireline network in the areas to be served, although we would argue that in Singapore the NBN represents an alternative, rather than traditional, platform. Yes YTL, in Malaysia, illustrates that it is not *essential* for a 'new wireless' player to have a traditional wireline platform. We believe that the IDA will might make up to 15,000 above ground boxes available for new entrants, and these will be directly linked to the NBN. There are likely to be some technical issues to overcome before the NBN can be used efficiently for small cell backhaul links, but with a supportive regulatory environment these should be addressable and affordable;
- **Cellular spectrum.** If an operator wants to deploy small cells as part of their 'new wireless' plans, or have some traditional macrocell coverage, then they will need licenced cellular spectrum. This can be in traditional cellular bands, but many new wireless operators are prepared to use new bands, such as 2.3GHz and 2.6GHz, and unusual bands such as the 1800MHz low power guard band. We believe that the Singaporean spectrum auctions represent an opportunity for new entrants to potentially access spectrum. Some 'new wireless' players are prepared to do without cellular spectrum and just rely on WiFi services in unlicensed bands, although we believe the Singaporean challengers would require small cell deployment. We understand that the IDA is likely to make spectrum at 2.3GHz and 2.5GHz bands available. In addition we believe that there is 900MHz spectrum likely to be made available, as this spectrum is due to be renewed in 2017. It is likely that the IDA will reserve, as it has done in the past, spectrum for a fourth entrant, although it has not seen any takers for this spectrum in previous auctions;
- **An MVNO arrangement.** Most new wireless operators do not and will not provide nationwide coverage with their WiFi and cellular services, so need to have an MVNO or roaming deal in place with an established wireless operator to expand their coverage. In Singapore it is possible to negotiate an MVNO on commercial terms (as we have noted earlier), but in some cases the established operators may all refuse to deal with a potentially disruptive new entrant. We believe, however, that the IDA might well look to establish a more formalised wholesale MVNO structure, and could even link MNO acceptance of such terms to the right to bid, or re-bid, in the upcoming spectrum auctions. However, it is reasonable to note that the IDA may well choose to impose a nationwide rollout requirement on any new MNO. These obligations are likely to include tunnel coverage as well as outdoor coverage. Even in a city state that is relatively easy to cover, an obligation to build out network with a regulatory deadline could be a material deterrent to a potential new entrant.

New wireless economics - capture traffic on WiFi and small cells

The key difference between traditional wireless and 'new wireless' economics is the avoidance of the high fixed costs of a national macrocell wireless network. A new wireless player can use the ingredients introduced in the previous section to achieve lower costs

- **Maximum use of WiFi** in homes, offices and public spaces to keep costs low;
- **Urban small cells** ideally using cheap spectrum and cheap backhaul;
- **Use of an MVNO** to carry traffic that is not captured by WiFi or small cells on a *variable* cost basis;

New wireless *can* potentially have radically lower unit costs than traditional cellular networking

The actual cost base achieved by individual new wireless operators will vary significantly according to their strategies and circumstances. In Europe we have estimated that new wireless operators *could* achieve as much as a 72% cost saving compared to a traditional wireless operator on a like-for-like basis. The majority of this cost advantage comes from the exploitation of an existing wireline network for backhauling WiFi and small cell traffic at very low marginal cost. A new wireless player without its own wireline network (e.g. Yes YTL in Malaysia) would see a much smaller cost advantage, but still enough to justify a market entry investment.

Again in the case of Singapore, a wholesale NBN has the potential to lower costs for a new entrant in a meaningful way. We have recently estimated that in Malaysia, for example, Telekom Malaysia could build out a rival wireless infrastructure for as little as US\$500mn; we would see a Singapore network roll-out costing US\$200mn-US\$300mn at most. According to press reports in Singapore, Consistel have suggested a figure of up to US\$800mn to roll-out a network in the island-state, a figure that appears to us unreasonably high, but might be designed to catch the eyes of regulators and politicians, we suspect.

Potential Challengers

We note that, thus far, two names have been mooted as potential fourth entrants into the Singaporean wireless market: MyRepublic and Consistel. We examine both of these in outline below.

Two potential challengers, MyRepublic and Consistel have expressed an interest in a fourth MNO licence

MyRepublic has already made a name as an interloper in the Singaporean broadband market. It has taken advantage of the NBN, originally by acting as a retail service provider, but has also launched an OpCo and will transfer subscribers to the OpCo and away from Nucleus Connect. At present the company has indicated it has about 30,000 subscribers; with the IDA suggesting about 1.3mn broadband subscribers in residential, this figure would suggest market share of around 2.3% for MyRepublic. As measured by fibre subscribers, the IDA statistics would suggest a market share of a little over 4%, we estimate. We believe consumer ARPUs are, we understand, about S\$50/month, probably higher than M1 and StarHub, we estimate, and highlighting the approach of “speed over price” favoured by MyRepublic in their approach to marketing. However, in a market where triple and quad-play offers are common, and with M1 delivering a broadband offering for a couple of years alongside the wireless product, we believe that there is merit in MyRepublic considering a mobile strategy to compete on a more level playing field.

MyRepublic is a credible player in broadband, has a clear vision of a mobile strategy, and has interesting financial support, including Xavier Niel

MyRepublic management have delivered a very consistent message to investors with respect to a mobile offering. They believe there is an opportunity to deliver a low cost mobile product in the market utilising a combination of small cells/WiFi/MVNO delivery; they believe they can, using these technologies, be profitable off a low level of market share - perhaps low single-digit market share, not least given the opportunity to tap into a market that is growing through the proliferation of M2M and other devices. However, the company has also made it clear that without higher and lower frequency spectrum (and the assumption that it is reserved), a regulated, wholesale MVNO agreement, as well as access to infrastructure (such as the AG cabinets), mobile is an interesting, but-not-must-have opportunity.

Funding will be MyRepublic’s biggest challenge. We understand that a recent round of funding has raised a little under S\$50mn, although this sum relates to Asia-Pac NBN opportunities (Singapore and New Zealand) rather than the mobile development in Singapore we believe. Sinar Mas and Xavier Niel are reported to have participated; the latter would certainly add credibility to a low-cost mobile launch, we believe, based on the Iliad experience in France, (where WiFi, femtocells and a roaming deal have been the key elements of Iliad’s highly successful and disruptive wireless entry strategy). An IPO is planned in the medium-term, we believe.

Consistel is a less well-known challenger, but has expertise in DAS, and appears to have deeper pockets than MyRepublic

Consistel (a Singapore-based in-building wireless software solutions provider and system integrator for distributed antenna systems) also signalled over 2014 that it was interested in developing a mobile business in Singapore, submitting a letter to the Infocomm Development Authority indicating the firm's interest in the business. Consistel has promised cheaper phone bills with its OMG! brand of mobile services, with a 12-month roll-out forecast across Singapore. The company has claimed that it can roll out an island-wide network for 30%-40% less than conventional networks, albeit we feel that claims that it will cost up to S\$1bn seem well wide of the mark and extremely high. The Consistel CEO has indicated that the company has secured more than S\$150mn from previous funding rounds. In this context, Consistel appears to be better positioned than MyRepublic, albeit details of the funding for future projects remain sketchy.

With no established consumer brand in Singapore, Consistel faces greater challenges perhaps than MyRepublic. We could envisage a combination of the two entities being a more potent challenger, combining the consumer branding and positioning of MyRepublic with the technology expertise in wireless of Consistel.

The potential impact on share prices

Our base case assumes a 30% decline in ARPUs from 2016

We assume that if a fourth entrant were to emerge, it would start operations in 2016. **We use, as a base case, a 30% fall in ARPUs over a three year period, levelling off thereafter.** This decline would look more rapid than the broadband price declines we reported on earlier, as a result of the launch of the NBN, and is certainly a comparatively conservative outcome.

However, we illustrate below the impact of the entry of Iliad into the French market in the three years since launch on underlying ARPU at Orange: it would appear that ARPU declines of 30% are certainly possible:

Table 2: A 30% ARPU decline in three years is not impossible - it happened in France

	2010	2011	2012	2013	2014
Orange ARPU ex-Iliad ex-MTR (consumer spend)	27.1	28.3	25.9	23.0	21.1
% change	1.2%	4.2%	-8.2%	-11.5%	-8.3%

Source: Mirabaud New Street Research estimates

We do not assume any other changes in our model. In practice, we suspect, it would be reasonable to assume that the Singaporean mobile operators might see a variety of other outcomes, including:

- Higher mobile usage as mobile prices fall, possibly limiting the extent of ARPU decline;
- Lower capex - we would potentially see reductions to the levels of mobile capital expenditure by the three existing MNOs, if there were to be a fourth entrant, boosting OpFCF;
- A more aggressive approach to opex control, a traditional response of telecom operators.

However, there might be additional costs that we do not capture in our approach: for example, a more aggressive approach to SACs/SRCs, as the new entrants will not, we imagine, seek to subsidise handsets aggressively, and could be vulnerable to a reversal of the recent reduction in subsidies in the Singapore market. However, such a move might, in the near term, squeeze operator margins. We might also see a more aggressive approach in areas such as retail distribution, advertising and branding, particularly if the new entrants are more financially constrained.

In this analysis, not surprisingly perhaps, we would see negative outcomes for both M1 and StarHub, but much more modest impact at SingTel:

The impact of tariff cuts is most evident at the operators with greater Singapore and mobile exposure: M1 and to a lesser extent StarHub

- **M1**, with a very heavy exposure to Singaporean mobile revenues, and only a limited presence in the broadband market, would see our TP fall by 25% to S\$2.88. We note that the company continues to promote broadband subscriber growth, a sensible strategy, we feel, to de-risk the current business mix;
- **StarHub**, with a broader base of businesses in Singapore including TV, broadband and basic telephony, but with a very high proportion of value in the domestic mobile business, would still see a reduction in our target price of 21% to S\$3.49/share;
- **Singtel**, with a very much more diversified revenue base, appears far less impacted in our analysis, and far more defensive: a stronger fixed business, including Enterprise in Singapore, and substantial international assets including Optus, Bharti, Telkomsel, AIS and Globe, would see comparatively limited downside from a price-war in Singapore mobile, we believe. We estimate that our fair value would fall by 6% to S\$4.30.

We note, however, that the risk is not simply confined to our DCF-based valuation. Dividend yield support has been an important component of the share price performance in the Singapore operators. Again StarHub and M1 would be more vulnerable as, by 2018, we would see reported EPS at these two operators 40% and 46% lower respectively than our current estimates, in part reflecting leverage, with negative dividend implications.

Of course, these outcomes would assume a 100% probability of a new entrant emerging. As is clear, there will need to be several regulatory hurdles to be overcome to ensure; and financial support for a new entrant strategy will need to be secured. At this stage, it is we believe extremely unwise to ascribe a high probability to a potential fourth entrant emerging; at most, we suspect this is no greater than a 50% probability.

However, what is evident to us at this early stage is that the downside risk, should there be a fourth entrant, lies with the smaller operators: and investors seeking to minimise downside risk might consider switching out of M1 and StarHub, particularly in the light of strong share price performances in the past two years.

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