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Global Markets Research

ANCHOR REPORT

China Smartphone chips: LTE changes the balance

Steep LTE learning curve could impact China smartphone chip dynamics

LTE is driving demand for China smartphone chips from 2014 onward, but it is unlikely to help chip vendors' blended ASP expansion. What's worse, the "LTE learning curve" could hurt the cost structure of latecomers in 4G chips. With the "LTE learning curve", we make a non-consensus downgrade on MediaTek to Reduce from Buy following our detailed demand, roadmap, pricing and cost analysis, since we think its margin expansion cycle will peak in 2Q14F and reverse to a downtrend until (at least) 1H15F. However, we upgrade Marvell to Buy, as the Street seems to under-appreciate its LTE traction in China LTE market and at Samsung.

Key analysis in this Anchor Report includes:

- Extending our volume forecast for China smartphone chips to 2016F with mix including LTE, overseas EM 3G and domestic 3G
- LTE smartphone BOM cost simulation: LTE phone BOM cost and price curve in 2014-15F could mirror 3G smartphones in 2011-12
- 3G and4G chipset roadmap analysis of global vendors until 1H15F
- Detailed chipset market share dynamics at China's top 8 brands
- Smartphone "consumption power" analysis with its impact to chip ASP

11 June 2014

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See Appendix A-1 for analyst certification, important disclosures and the status of non-US analysts.

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China Smartphone chips

EQUITY: TECHNOLOGY

LTE changes the balance

Steep LTE learning curve could impact China smartphone chip dynamics

Volume TAM: Still decent growth in 2014F, driven by LTE and exports

Following our anchor report last year, *China Smartphone chips: Just half way to the peak*, where we highlighted EMs as the key driver in demand for China-made smartphones, we now extend our smartphone demand forecasts to 2016F and include LTE in our model. We again stand apart from consensus, which sees a steep slowdown in China smartphone chip demand growth in 2014F, whereas we see growth at 40% y-y. We estimate half the incremental demand will be driven by LTE and the other half by EMs.

LTE phone BOM and price curve in 2014-15F will be similar to 3G smartphone price curve in 2011-12

In our opinion, the current high LTE phone retail price has little to do with chipset costs and more to do with the high margin requirements of handset brands and channels. With competition in LTE phones likely to heat up from 2H14F, LTE phone retail prices should come down shortly thereafter. We expect entry level LTE phone prices to fall to CNY800-1,000 (or USD130-150) in 2H14F and approach USD100 by 2H15F. The price curve should be similar to what happened 3G smartphone prices in 2011-12, on our estimates.

Roadmap, competition and market share: MTK stronger than before, but not enough to knock down QCOM in LTE; SPRD to keep falling in 2014F

Both octa core and LTE SOC chip competition should intensify from 4Q14F. In contrast to consensus, we expect the entry level LTE SOC market to be led by QCOM's MSM8916 until 1H15F, given that MTK's low-end LTE SOC MT6732 does not seem cost-competitive enough. In 3G, we think MTK will maintain its dominance in 2014F, while competitors become weaker.

Looking at chip vendors' 2013 market share at the top-8 China brands, we see SPRD lost momentum sharply in 2H13, which could worsen in 2014F. MTK increased its share substantially in 2H13 and should continue to do so in 1H14F, but may lose momentum from 2H14F to QCOM as LTE picks up.

Are consumers willing to pay more for 4G phones (vs 3G)? Maybe not

We believe the "consumption power" trend into 4G from 3G will affect chip vendors' blended ASP expansion outlooks. Based on retail price trends of phones in China, we think chip vendors (eg, MTK) will hardly improve their blended ASP even with the migration to 4G from 3G unless they can expand to global brands from China brands meaningfully.

Stock calls: MTK down to Reduce; swap to Novatek (Buy) for Asia semi investors; Up MVRL to Buy in US Semi

We make a non-consensus downgrade on MTK, given that the "LTE learning curve" will significantly hurt its cost competiveness in 4G chips, while price-sensitive China customers are unlikely to help MTK raise blended ASP even as LTE volume ramps up. We advise investors with Asia Semi mandates to swap into Novatek. Concurrent in this report, in US Semis, we upgrade MVRL to Buy. We think MVRL's traction in China's LTE market and at Samsung is under-appreciated. We keep our Buy on QCOM. It should be the major beneficiary of China LTE ramp this year.

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Anchor themes

We expect China LTE and EM 3G to drive smartphone chip demand up by another 40% y-y in 2014F. We also expect BOM costs and the price curve of LTE phones in 2014-15F to mirror that of 3G phones in 2011-12, with price elasticity driving volume expansion.

Nomura vs consensus

We downgrade MTK to Reduce from Buy (vs 90% of consensus at Buy) on our concern that the "LTE learning curve" will reverse MTK's margin cycle.

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Executive summary

Herewith we provide our one-year forward looking anchor report about China's smartphone chip market. Not only because China is becoming the biggest and fastest-growing smartphone market in the world, but also due to the chaotic nature of the market, which we believe makes our ground research worthwhile. The unpredictability over China's smartphone market is also conducive to making our long-term projections and consistent conclusions value-added, based on client feedback.

From time to time, we received rather severe push-backs to conclusions from our fundamental research. For example, recall two of our anchor reports noting the structural inflection points about China's smartphone market:

- 1) In February 2010, when the Street was overwhelmingly optimistic on the positive impact on Greater China chip vendors with demand migration to 3G from 2G, we argued that MTK would be facing a structural deterioration, rather than expansion, (China handset IC and supply chain: it's about speed rather than size); and
- 2) Almost two years later, against a bearish market consensus, we argued that the white box turnkey business model can be duplicated in smartphones from feature phones and concluded that MTK would return to "glory" in 2013 (Asia handset and handset chips: Reversal of fortune).

2014 is the first year in which China began migrating to 4G LTE. We sense that the Street is bullish on the positive impact of this trend for chip vendors such as MTK, given the consensus view that its smartphone ASP and gross margin can expand further, particularly when MTK seems better prepared for 4G than it was for 3G.

That said, although we are fully aware of MTK's strong ambition and earlier preparation for 4G this time (vs its passive approach and late investment in 3G back in 2009), our sector and company-specific research prompts us to believe that MTK still cannot avoid a transition period (which we estimate at about 9-12 months, starting from the middle of 2014), due to China handset makers' difficulty in growing blended ASP and MTK's "LTE learning curve". Thus, we downgrade MTK to Reduce in this anchor report.

The structure of this report

In the first section of this report, we revisit our assumptions on the total addressable market (TAM), (ie, handset chip demand by China local handset brands). A year ago, we flagged that the export market would begin boosting China smartphone volume growth momentum (which was initially driven by domestic market demand) from 2013. We extend our volume demand forecasts to 2016F and include LTE in our model. Against consensus, which expects a slowing in China smartphone chip demand, we still expect chip demand to grow by another 40% y-y in 2014F. On our estimates about half the incremental demand will be driven by LTE, with the other half driven by exports.

In the second section, we analyse bill of materials (**BOM**) **costs and the price structure of LTE smartphones**. In the past three years, we have consistently tracked the BOM costs and price structures of 3G smartphones and concluded that price elasticity will help volume expansion significantly. In the 4G LTE era, we expect the story to be repeated. Although most LTE phones from China local brands are selling at CNY1-3k now, we believe the retail price will come down shortly, since the current high price is constituted by high margin requirements by handset brands and channels (since LTE volume remains small while competition has not started yet). One important concept and conclusion from our analysis is that **the current high LTE phone retail price has little to do with chipset cost, but much more to do with the high margin requirement of handset brands and channels**. When competition among LTE phones heats up in 2H14F, LTE phone retail prices will come down very soon, in our view. **We expect the entry level LTE phone price to fall to CNY800-1,000 (USD130-150) in 2H14F and approach USD100 by 2H15F. The price curve should be similar to the 3G smartphone price curve in 2011-2012.**

In the third section, where we discuss competition, we extend the roadmap analysis into 2015F. Our focus is mainly on LTE chips. Some key conclusions are

- **1) Octa core chip competition will intensify from 4Q14F** after QCOM enters the market, challenging MTK's dominant position. Also, SPRD plans to get into this market in 2H15F;
- **2) LTE SOC chip competition will also rise sharply from 4Q14-1Q15**. MTK's three new LTE SOC chips will start mass production from then, challenging QCOM's leading position. Marvell's new chip PXA1986/1928 also plans to hit MP (mass production) at the same time. In 1Q15, more new LTE SOC chips will show up, including QCOM's flagship octa and hexa core chips, as well as new LTE SOC chips from Intel, SPRD and Leadcore;
- **3) In contrast to consensus, we expect the entry-level LTE SOC market to be led by QCOM's MSM8916 until 1H15F, as we think MTK's low-end LTE SOC chip MT6532 is not competitive enough in terms of cost;**
- **4) In contrast to consensus, we expect MTK to experience a bumpy transition to 4G from 3G due to its cost disadvantage from the "LTE learning curve**".
- **5) In the 3G smartphone market, MTK will maintain its dominant position in 2014**, as competitors don't have good products, while it has its new lower-cost dual core chip MT6571 as the buffer for any competition.

In the fourth section, we review the market share changes at China's top smartphone makers for chipset vendors in 2013 and offer our projections for 2014.

We have always believed that a good roadmap analysis could help us come out with a better sense of the market share shifts. A good example of this is an anchor report from last year (China smartphone chips: Just half way to the peak), in which we discussed the MT6572, MTK's cost-efficient 3G chip, since we expected it to be the most critical smartphone chip in China for 2013. It indeed was, and has helped MTK expand its market share (and gross margin) nicely into 2H13. In this section, we review chipset vendors' shares at China's top eight handset makers in 2013 vs 2012. **In 2014, we expect QCOM to regain market share due to its LTE strength. MTK should maintain good momentum in 1H14F on EM demand strength. However, it may start losing share to QCOM in 2H14F when LTE volume demand begins to take off. In our view, SPRD will continue to lose share on its slow progress in launching competitive new products.**

Last, we think it is worthwhile to have a deeper discussion on the consumption power trend of handset consumers in China (in this report, we use "the average retail price per unit of handset" as a proxy of "consumption power") since this will indirectly impact the possibility of chip vendors' product migration and the ASP expansion outlook. **We conclude that chip vendors, such as MTK, would be unlikely to improve their blended ASPs even with migration to LTE from 3G,** unless they can expand their customer base to international brands from China brands *meaningfully*.

Stock calls:

We downgrade MTK to Reduce from Buy given our view that its gross margin expansion cycle will peak in 2Q14F, followed by a gross margin downcycle for another 9-12 months (ie, GPM to peak at 49-50% in 2Q14F and fall to below 45% by 1H15F), due to the LTE learning curve. MTK has expanded its cost advantage against QCOM in 3G over the past two years but we believe such cost advantages will diminish or even reverse in LTE at least for the first year (ie, 2H14-1H15). Rising chipset costs in LTE (due to lack of LTE chip design experience), plus MTK's slow progress in making inroads into international brands' chipset portfolios (which would help ASP expansion), will reverse MTK's gross margin trend, we estimate.

For investors who intend to invest in the semi space with China smartphone exposure, we advise a swap into Novatek (Buy) from MediaTek. Novatek is one of the key display driver IC vendors in China's market and is running faster than peers in making resolution

upgrades, thanks for its strong design capabilities. We particularly like its successful product diversification into the (high ASP and high GPM) TV SOC business.

For investors with a global semiconductor mandate, we advise a switch into QCOM (Buy), which is the technology and market share leader in LTE globally. What's more, we have concurrently upgraded MVRL to Buy, along with this anchor report, on its decent progress in China's LTE chip market and potential upside at Samsung after BRCM exited baseband and AP business. MTK's yet-to-be-cost-optimized low-end LTE SOC chip will also give QCOM and MVRL some relief in terms of competition over the next year, in our view.

We remain Neutral on Intel as it still lacks an LTE SOC chip for now. Also, its recent announcement of cooperation with Rockchip — one of the major tablet AP chip vendors in China — implies it is having difficulties improving BOM costs on its own efforts (Quick Note - Taiwan Semi - Intel co-operating with Rockchip: impacts?).

Fig. 1: Stocks for action

Company	Ticker	Rating	TP	Price	Up/Down side (%)
MediaTek	2454 TT	Reduce ↓	TWD450 ↓	TWD509	-11.6
Novatek	3034 TT	Buy	TWD175	TWD150	16.7
Qualcomm	QCOM US	Buy	USD90 ↑	USD79.95	12.6
Marvell	MRVL US	Buy ↑	USD19 ↑	USD14.84	28.0
Intel	INTC US	Neutral	USD25	USD27.91	-10.4

Source: Bloomberg, Nomura research. Note: Share prices are as of 9 June 2014.

Fig. 2: Valuation comparison

			US$mn	(LCY$)	2014E	2015E	2014E	2015E	2014E	2015E	2014E	2015E	2014E	2015E
Foundry														
2303 TT	UMC	Neutral	6,122	14.5	0.8	0.7	19.1	19.6	0.8	0.8	4.4	4.1	2.7	2.5
2330 TT	TSMC	Buy	106,354	123.0	8.8	10.0	13.9	12.3	3.4	3.0	25.5	25.6	2.4	2.4
5347 TT	Vanguard	NR	2,525	45.6	3.3	3.8	13.7	12.0	2.7	2.4	21.0	21.7	4.0	4.0
Average							**15.6**	**14.6**	**2.3**	**2.1**	**17.0**	**17.2**	**3.1**	**3.0**
OSAT														
2311 TT	ASE	Buy	9,860	38.1	2.5	2.9	15.0	13.3	2.2	2.0	14.9	15.7	2.4	2.4
2325 TT	SPIL	Neutral	5,149	49.6	3.1	3.4	15.9	14.7	2.3	2.3	14.9	15.4	5.6	6.1
6147 TT	Chipbond	Buy	1,183	54.7	4.1	5.1	13.3	10.8	1.4	1.3	11.8	13.6	5.8	7.2
6239TT	Powertech	NR	1,422	54.0	3.6	3.6	14.8	14.8	1.3	1.3	8.8	9.5	3.8	3.8
STAT SP	STATS ChipPAC	NR	1,146	0.6	na	na	na	na	na	na	na	na	na	na
AMKR US	Amkor	NR	2,673	11.3	0.7	0.9	16.9	12.8	2.2	1.9	13.0	13.4	4.8	4.8
Average							**15.2**	**13.3**	**1.9**	**1.7**	**12.7**	**13.5**	**4.5**	**4.9**
Asia fabless														
2454 TT	Mediatek	Reduce	30,360	509.0	33.5	30.0	15.2	17.0	3.1	3.1	23.1	18.4	5.0	4.5
3034 TT	Novatek	Buy	3,038	150.0	10.0	11.9	15.0	12.6	3.3	3.0	18.6	24.7	5.0	5.9
6286 TT	Richtek	Neutral	842	170.0	10.9	12.5	15.6	13.6	3.4	3.2	18.8	24.2	4.2	4.8
8299 TT	Phison	Neutral	1,386	230.5	17.2	18.3	13.4	12.6	2.6	2.3	16.4	19.6	3.9	3.9
HIMX US	Himax	Neutral	1,134	6.7	0.5	0.7	14.0	9.9	2.3	2.1	16.8	22.4	5.2	7.4
Average							**14.6**	**13.1**	**3.0**	**2.8**	**18.7**	**21.9**	**4.7**	**5.3**
Global peers														
IDM														
ADI US	Anaglog Devices Inc.	Neutral	17,375	55.3	2.3	2.7	23.7	20.9	3.4	3.1	15.1	16.0		
INTC US	Intel	Neutral	138,936	27.9	1.9	1.9	15.0	14.7	2.3	2.1	15.0	15.0		
LLTC US	Linear	Neutral	11,128	47.0	1.9	2.2	25.0	21.2	8.9	7.6	43.5	43.8		
MXIM US	Maxim	Neutral	10,011	35.4	1.4	1.9	25.8	19.1	4.2	4.0	19.0	22.5		
TXN US	Texas Instruments	Neutral	51,679	47.9	2.3	2.6	20.7	18.3	4.9	4.9	23.7	26.0		
SNDK US	Sandisk	Neutral	22,207	98.2	5.1	5.6	19.2	17.5	2.9	2.8	17.2	17.3		
IDM Average							**21.6**	**18.6**	**4.4**	**4.1**	**22.3**	**23.4**		
Fabless														
AMD US	Advanced Micro Devices	Neutral	3,102	4.1	0.2	0.2	24.7	17.5	4.6	3.2	17.1	12.1		
AVGO US	Avago	Buy	17,935	71.8	1.0	3.1	74.9	22.8	5.0	4.2	25.1	31.1		
BRCM US	Broadcom	Buy	21,646	38.1	1.5	1.9	25.3	19.7	2.4	2.2	15.0	15.7		
MRVL US	Marvell	Buy	7,542	14.8	1.0	1.2	14.8	12.9	1.5	1.4	10.0	10.0		
NVDA US	Nvidia	Buy	10,629	19.1	0.9	1.0	21.0	19.3	2.5	2.3	12.6	13.0		
QCOM US	Qualcomm	Buy	134,945	80.0	5.0	5.7	16.0	14.0	3.5	3.2	19.0	20.0		
LSI US	LSI Logic	NR	6,298	11.1	0.3	0.3	41.3	34.8	3.8	3.4	29.6	25.0		
XLNX US	Xilinx	Neutral	12,366	46.1	2.4	2.6	19.0	17.5	4.2	3.7	23.2	22.2		
ALTR US	Altera	Reduce	10,547	33.7	1.5	1.8	22.5	19.1	3.3	3.0	13.9	16.1		
Fabless average							**29.6**	**19.8**	**3.4**	**2.9**	**19.0**	**18.6**		

Source: Bloomberg consensus estimates for not rated stocks, Nomura estimates. Note: Share prices are as of 9 June 2014.

Smartphone chip demand forecasts

Since 2012 (Anchor Report: Asia handset and handset chips: Fortune favours the bold) we started to systematically incorporate "white box" phones into our projections for chip demand forecasts to precisely address the TAM. This approach appears useful since the variations of our demand forecast since 2012 have been within 5%. We also extend our demand forecasts into 2016F in this report.

Our smartphone chip demand forecasts continue to be higher than consensus

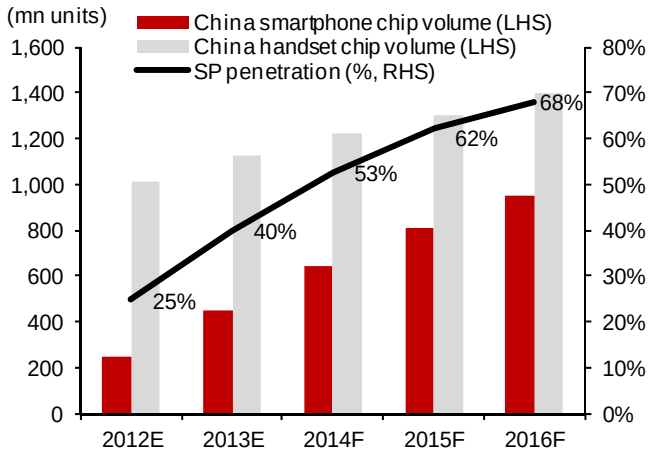
We estimate that smartphone chip demand in 2013 reached about 450mn units (unchanged vs our forecast of 450mn units made one year ago) with market share split among MTK, QCOM, SPRD and others, at 50-55%, 20-25%, 20-25% and 5%, respectively.

Compared with 2012, when we estimated chip demand at 250mn units, both MTK and SPRD gained share at the cost of QCOM in 2013. In 2012, we estimated the share at MTK, QCOM, SPRD and others at 45%, 35%, 15% and 5%, respectively.

We continue to expect decent volume growth in smartphone chip demand, as we assume replacement demand from feature phones to smartphones will continue. Of our estimated 1.1bn units of handset chip demand from China handset makers in 2013, only about 40% was smartphones (ie, 450mn units), up from 25% in 2012. We expect penetration rates to rise to 53%, 62% and 68% in 2014-16F, driving volume demand to reach 640mn, 810mn and 950mn units, respectively.

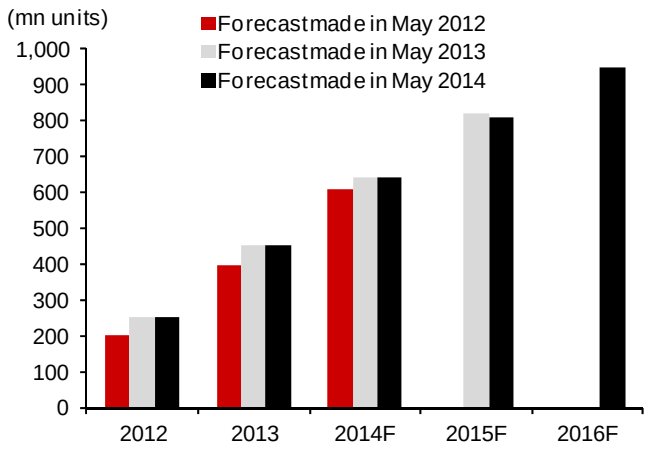
Note that we largely keep our 2014-15 smartphone volume forecasts, which we made one year ago, unchanged, despite rising noise about China smartphone demand of late. Also, we continue to be at the high-end of consensus chip demand forecasts (using 2014 as an example, MTK claimed 2014 market chip demand will be at 500-600mn units only, vs our estimate of 640mn units), since we believe handset makers' efforts in driving smartphone costs lower in order to replace feature phones will continue to work out. Our 40% y-y smartphone chip demand growth forecast for 2014F is still a decent number, in our view.

Fig. 3: China smartphone chip demand forecasts, 2012-16F



Source: Nomura estimates

Fig. 4: Smartphone penetration rates for all China handset makers, including white box makers, 2012-16F



Source: Nomura estimates

…driven by price elasticity at EMs

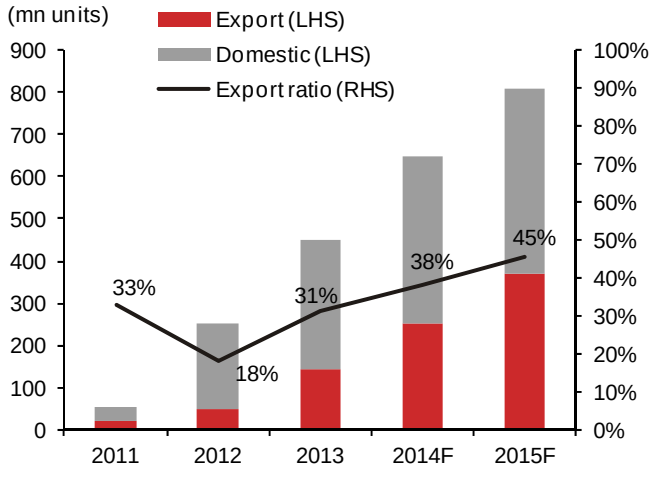
From last year, we began to highlight that the export market will sustain China smartphone volume growth momentum, which was initially driven by the feature phone replacement cycle in the China domestic market. In 2013, we estimated that 30-35% of

smartphone chips sold to China handset makers were shipped to overseas markets (EMs mainly), up sharply from 15-20% in 2012. Despite this, penetration rates of smartphones in EMs were still very low at ~20% (ie, only one out of five handsets sold by China handset makers to overseas markets was a smartphone, with the rest being feature phones), vs 75-80% in China, we estimate.

With price elasticity working out continuously, we expect smartphone penetration in the overseas segment to rise to 30% in 2014F, 40%-plus in 2015F and 50%-plus in 2016F.

Fig. 5: Smartphone chip shipments – export ratio

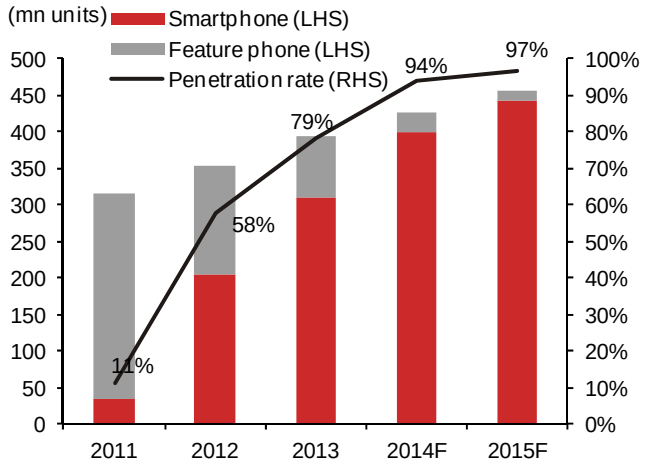
Export demand took off from 2013



Source: Nomura Research

Fig. 6: Smartphone chip penetration rates in China

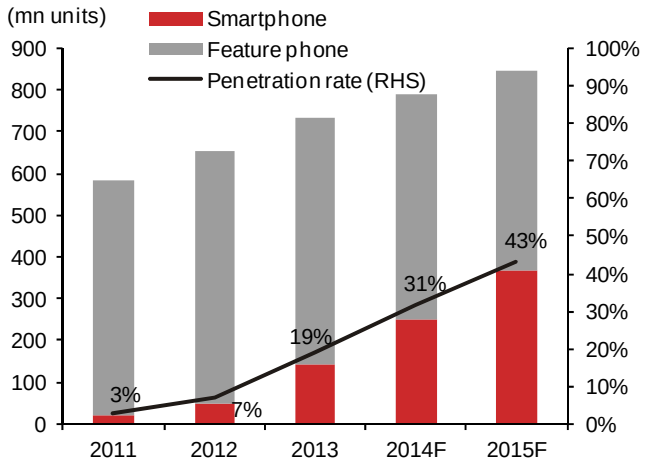
In 2014F, 9 out of 10 phones sold in China will be smartphones



Source: Nomura Research

Fig. 7: Smartphone chip penetration rate in overseas EMs (exported by China handset makers)

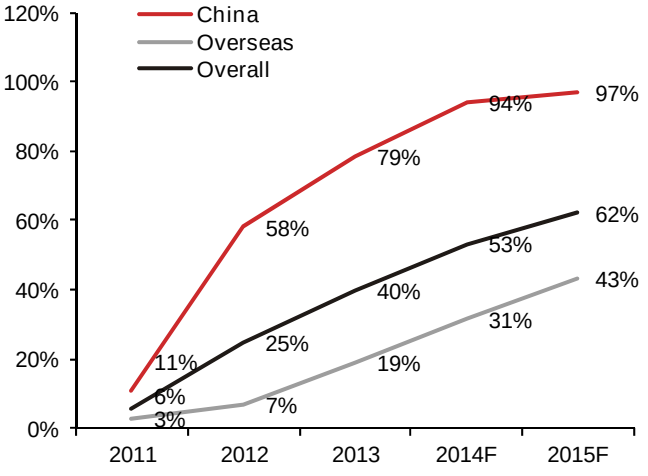
2013 is the first year that EM smartphone demand took off



Source: Nomura Research

Fig. 8: Smartphone chip penetration rate – China, overseas and overall

Overseas market is next growth driver for smartphone chip demand



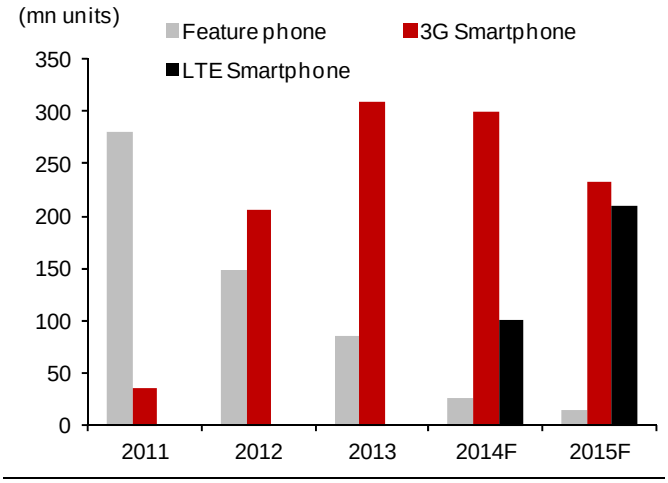
Source: Nomura Research

LTE to account for 16% and 25% of smartphone chip demand in 2014-15F, respectively, we estimate

Driven by the strong push from China Mobile, our tech team expects LTE device demand in China to reach 120mn units in 2014F, although 2014F will be the first year after the LTE licenses are granted. If this is the case, we estimate LTE chip TAM for Greater China chip vendors will be c.100mn units, considering 10-20% more chip demand and 70% LTE device share taken by China local brands. 100mn units of LTE chip demand implies that c.16% of chip demand will be for LTE in 2014F, by our estimates (vs TAM of 640mn units — including domestic demand and export demand).

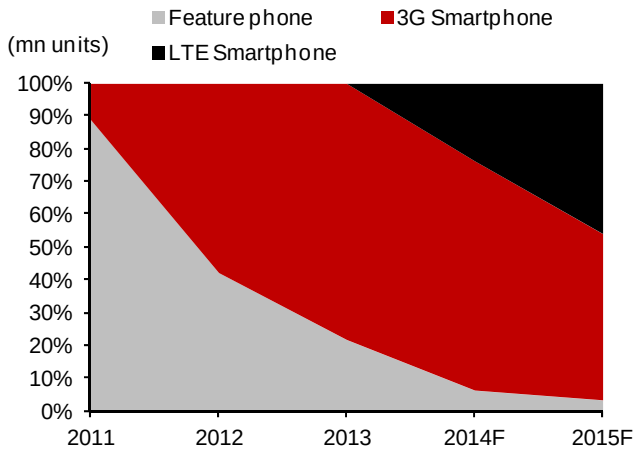
We think LTE chip volume TAM (ie, demand from China local handset makers) could reach 210mn units in 2015F, which means — just in two years' time — 25% of smartphone chip demand in 2015F will be from LTE phones. Price elasticity will also be a major force behind such a quick move, in our view (details in the next section).

Fig. 9: China smartphone chip demand by standard, 2011-15F



Source Nomura Research, Nomura estimates

Fig. 10: China smartphone chip demand mix, 2011-15F



Source: Nomura Research

LTE smartphone BOM and price structures

In the past three years, we consistently tracked BOM cost and price structures of 3G smartphones and concluded that price elasticity helped the market expansion significantly. In the 4G LTE era, we expect the same story. Although most LTE phones from China local brands are selling at CNY1-3k now, we believe retail prices will come down from 2H14F, since the current high prices are driven by high margin requirements by handset brands and distributors/channels (since LTE volumes remain small in 1H14, while competition as not yet started). When competition heats up from 2H14F, prices will come down quickly, in our view (please note that our price discussion below excludes the subsidy from operators).

LTE phones' current high prices have little to do with chipset cost and more to do with high margin requirements by handset brands and channels

Retail prices of LTE phones by China local brands are at CNY1-3k now. Some investors argue that this is due to high chipset costs (offered by limited vendors including QCOM and MVRL now) before MTK's solutions hit the market. However, we believe this is a big misunderstanding – **current high prices of LTE phones have little to do with chipset costs and more to do with high margin requirements by handset brands and channels, in our view.** LTE phones are selling at higher prices now since early movers intend to make more money using LTE as a high-end differentiated feature, when the competition remains low for the time being.

MTK's chipset costs won't necessarily be cheaper than the costs of QCOM and MVRL. That said, we expect MTK's turnkey business model will enable many low-tier brands to enter the LTE market in 2H14F and intensify the competition among handset brands from then. LTE phone prices should see a more meaningful dip towards 2H14F.

Below is a BOM cost breakdown of a typical entry level LTE smartphone in China. It has quad core A7 1-1.4GHz CPU, 8+8 eMCP, 4.5" FWVGA/qHD display, 5M+2M camera, etc. By our estimates, the total cost of such a phone was c.USD85-110 in 2Q14F. Given that handset makers currently require a decent 20-30% GPM on LTE phones (vs 10-20% requirement for 3G phones), the FOB (freight on board) price could be c.USD110-145. Distributors/channels are also requiring higher margins now – if we assume they request 40% GPM (vs 25-30% for 3G phones), retail prices could reach as high as USD190-240 (or CNY1,200-1,500).

Nevertheless, when competition starts intensifying, we expect GPM of handset brands and distributors/channels to fall to 15% and 25%, respectively. In such a scenario, retail prices of LTE phones should drop to USD135-175 (about CNY850-1,100) accordingly, even if component costs remain unchanged.

Fig. 11: BOM cost breakdown of "entry level" LTE smartphones in 2Q14F

BOM structure (USD)	2Q14	Note
BB+AP (+connectivity)	15-20	QCOM MSM8926
PA	7-8	
Connectivity - NFC	1-1.5	
Memory	12	eMCP 8GB NAND + 8Gb SDRAM
MEMS	3-4	ambient, proximity, compass, gyro, etc
PCB+passives	10-12	
PCBA e-BOM	**47-57**	
QCOM royalty	6-8	6% of FOB price
PCBA cost	**53-65**	
Display+TP	13-15	4.5"FWVGA/qHD
Camera	5-6	5M+2M
Battery	2-3	1800mAh
Charger	1	
Mechanical parts	5-6	
Accoustic	1	
Assembly	3-4	4% of BOM cost
Others	6-7	accessory, yield, tooling, warranty, transportation, insurance, etc
Total cost	**85-110**	

Source: Nomura estimates

Fig. 12: Retail price change on different margin requests by handset brands and distributors/channels

	Scenario 1		Scenario 2	
Profits by handset makers (USD)	25-35	25% margin	15-20	15% margin
FOB price (USD)	**110-145**		**100-130**	
Channel profits (USD)	80-90	40% margin	35-45	25% margin
Retail price (USD)	**190-240**		**135-175**	
Retail price (CNY)	**1200-1500**		**850-1100**	

Source: Nomura estimates

Entry level LTE phone retail prices to fall to CNY800-1,000 (USD130-150) in 2H14F and approach USD100 by 2H15F

From the above analysis, we understand that the currently high LTE phone price will be subject to quick erosion as long as volume ramps up and competition intensifies. A CNY1,000 LTE phone will be easily popular in the scenario 2 shown in the table above.

Moving to 4Q14F, we expect LTE phone prices to fall more than what scenario 2 in the table above indicates, since component costs will fall quickly as well when volume ramps up and lower-cost version components phase in. Chipsets are a good example; the current lowest-end LTE SOC chip from QCOM is the MSM8926, selling at USD15-20. However, in 2H14, the next gen low-cost LTE SOC MSM8916, as well as MTK's new low-end LTE SOC chip MT6732, will enter mass production with chipset prices at USD12-15, according to our estimates.

Considering both component cost declines and lower margin requirements by handset makers and distributors/channels, we expect retail prices of entry level LTE phones will fall to CNY800-1,000 (USD125-150) by 4Q14.

After a year, ie, 4Q15F, we expect entry level LTE phones to hit the mark at a retail price of USD100, considering the cost declines for key components (while maintaining margin requirements by handset makers and distributors/channels).

Fig. 13: BOM cost comparisons of entry level LTE smartphones, 2014-15F

BOM structure (USD, unless otherwise specified)	4Q14	4Q15	Note
BB+AP (+connectivity)	12-15	10	28nm quad core A53 chip
PA	6-7	5-6	
Connectivity - NFC	1-1.5	1-1.5	
Memory	11-12	8-10	eMCP 8GB NAND + 8Gb SDRAM
MEMS	3-4	2-3	ambient, proximity, compass, gyro, etc
PCB+passives	8-10	6-7	
PCBA e-BOM	**41-51**	**33-37**	
QCOM royalty	6	5	6% of FOB price
PCBA cost	**47-57**	**38-42**	
Display+TP	12-14	10-12	4.5"FWVGA/qHD
Camera	5-6	5	5M AF+2M
Battery	2	1-2	1800mAh
Charger	1	0.5-1	
Mechanical parts	4-5	3-4	
Accoustic	1	0.5-1	
Assembly	3	2-3	4% of BOM cost
Others	5-6	3-4	accessory, yield, tooling, warranty, transportation,
Total cost	**80-95**	**65-75**	insurance, etc
Protifs by handset makers	15	10-15	assuming 15% margin by handset makers
FOB price	**95-110**	**75-90**	
Channel profits	30-40	25-30	assuming 25% margin by distributors/channels
Retail price	**125-150**	**100-115**	
Retail price (CNY)	**790-950**	**630-720**	

Source: Nomura estimates

We notice that such a cost curve in 2014-15F for entry level LTE phones almost mirrors the cost change pattern of entry level 3G smartphones in 2011-12 (see figure below). MTK's entry into the 3G chip market enabled a steep cost decrease for 3G smartphones in 2012. The steep cost decrease in 3G resulted in a significant volume expansion in the 3G era. For example, on our estimates, smartphone chip shipments (for China's handset makers) expanded 4x to 250mn units, from 50mn units in 2011.

We now forecast LTE chip demand (from China's handset makers) will reach 100mn and 210mn units in 2014-15F, respectively – which seems reasonable considering that the bigger 2014 LTE volume (vs. 3G volume of 50mn units in 2011) was boosted by operators' aggressive subsidies.

Fig. 14: BOM cost comparisons of entry level 3G smartphones, 2011-13

BOM cost and retail price of "good enough" low-end smartphones, 2011-13

BOM structure (USD, unless otherwise specified)	Cost-mid 2011 (WCDMA)	Cost-mid 2012 (WCDMA)	Cost-mid 2013 (WCDMA)	Note
BB+AP	10-15	7-8	5-6	*Main chip costs fell a lot on competition
PA	1-2	1-2	1-2	
Connectivity (GPS+BT+FM+WiFi)	7-8	3-4	2	*assuming using 4-in-1 (Wifi, GPS, FM and BT)
Memory (4Gb NAND+ 4Gb DDR)	10-15	7-8	6	4Gb NAND+ 4Gb DDR for WVGA display
PCB+passive components	9-10	6-7	4-5	
PCBA e-BOM	**40-50**	**24-29**	**18-21**	
QCOM royalty fee	5-7	4-5	~2	*6-7% of FOB price; EDGE phone can save this cost
QCOM license fee	2.5	2.5	2.5	*QCOM requires USD500k license fee for every 200k shipments (until the accumulated license fee reaches USD5mn)
PCBA cost	**60-70**	**35-42**	**23-26**	
Display (4" in 2011-2013)	10-20	7-10	6-7	*4" WVGA display USD6.5 in 2013
Capacitive touch (4" in 2011-2013)	9-10	6-8	4	*4" touch module USD4 in 2013
2MP module	2-3	2	1	*2MP is the minimum requirement for open channel/white box low
Battery	1.5	1	<1	
Charger	1	1	<1	
Earphone	1	1	<1	
Data cable	0.3	0	0	
Mechanical parts (speaker, antenna, keypad, micphone, motor,	6	4-5	3-4	
Assembly	1-1.5	1	1-2	
Total cost	**85-95**	**60-65**	**41-46**	
Profits by handset makers	20	10	6-7	*System makers require ~15% GPM after 2012, vs ~20% in 2011 (when volume was still small)
FOB price	**105-115**	**70-75**	**47-53**	
Channel profits	30-50	25-30	14-16	*Asuming 30% margin required by channel
Retail price	**140-160**	**95-105**	**60-70**	*Retail price of "good enough" low end Smartphone fell by 30-40%yoy a year

Source: Nomura estimates

Roadmap and competition

A detailed analysis of the roadmap of chipset vendors remains one of our favourite approaches to anticipating the competition landscape and potential market share changes. We highlighted the most important chip (which we define as being able to shake up market share or even shake up market demand) each year as below:

In October 2011, we highlighted the MT6575 (ie, MTK's 1st 1GHz single core 3G SOC chip) since we believed it would surprise the market on enabling the "white-box" smartphone market (Asia handsets and handset chips: reversal of fortune). Last year, we discussed in detail in our anchor report about MTK's MT6572, as we identified it as the most critical chip in 2013, affecting chipset vendors' market share. (China smartphone chips – just half-way to the peak). This year, we believe the most important chip is QCOM's low-cost LTE SOC 8916, to be launched in 2H14.

Our roadmap analysis is extended into 2015F

4G LTE roadmap comparison

This year, clearly the spotlights are on LTE and 64bit, while Octa core could also become more popular as QCOM follows MTK's steps in incorporating Octa chips in their product pipelines (ie, QCOM's 8939 and 8994 in 1H15).

Our industry observations:

64bit will be a commodity spec very soon

The 64bit will not be a differentiating factor, given that QCOM is enabling such a feature from its low-end LTE segment (ie, 8916), which will affect consumers' impressions about 64bit. More importantly, in one year, 64bit could be a commodity spec across price segments after more chip vendors launch such products.

Octa core competition intensifying from later in 2014

We believe that Octa core competition will arise from late-2014F, but MTK will still enjoy a dominant position in the area through almost all of 2014F. MTK launched its 3G Octa core chip MT6592 from late-2013, which was very successful from the perspective that: 1) it is the only one Octa core chip supplier in China. Although Samsung launched its Octa chip before MTK, it is not selling well outside of Samsung; 2) handset customers use Octa core as a differentiation factor for premium products; and 3) MTK's Octa core carries a very decent gross margin.

Although QCOM earlier commented that Octa core is not a necessary spec for smartphones, it has no choice but to include Octa core chips in its pipeline to counter MTK. Its first Octa chip 8939 (8xA53) should enter mass production in 4Q14-1Q15F, while the second Octa chip 8994 (4xA57+AA53) should enter mass production from 1H15F.

Though SPRD plans to mass produce its Octa core LTE SOC "*Whale*" in 2Q15, we think a 2H15 timeframe would be more reasonable, considering its execution risk. Thus, we conclude that MTK will have limited competition for its Octa core chip before 4Q14F. The disadvantage for MTK is that it only has a 3G SOC Octa chip lined up for launch before 4Q14.

Hexa core product starts showing up in the market from 2Q14

We notice that MTK will launch the MT6591 in 2Q14, which is a six core 3G SOC chip, the first hexa core chip in the world. This looks to be a wise move since hexa core can generate a new segment for MTK (ie, between quad core and octa core) where competition is still limited (ie, there is no other hexa core in the world). MTK can use hexa core to help ease the pricing pressure on Octa core chips.

QCOM has also announced its hexa core LTE SOC chip Snapdragon 808 (MSM6992), but mass production would be one year later in 1H15.

ARM is commoditizing the smartphone AP market even more than before

In 2007, QCOM obtained an ARM architectural licence for designing its own CPU cores using the ARM instruction sets. It is called "*Krait*" in this generation. However, two years ago, QCOM began enabling ARM's standard core (ie, A5, A7, A53, etc) in its low-end

smartphone portfolio due to the fast progress of ARM cores. With the announcement of 8939/36, which QCOM claimed as S600 segment chips, we notice that standard ARM cores will also make inroads into QCOM's mid-to-high-end portfolio. For example, on April 7, 2014, QCOM announced the Snapdragon 810 (MSM8994), which is a next-generation flagship chip in 1H15. It will use standard ARM cores (octa chip 4xA57 + 4xA53). The fast progress of ARM cores is to some extent commoditising the smartphone AP market, offsetting QCOM's differentiation efforts, we believe.

QCOM remains the leader in LTE modem. Despite LTE specs catching up with competitors, qualification by global operators is difficult

QCOM remains the leader in modem technology, in our view. In 2013, it started producing Cat4 LTE modem 9x25. Its flagship high-end LTE SOC chip 8974 in 2013 also integrated the Cat4 LTE modem. Its Cat6/7 LTE modem 9x35 will also start shipping from 3Q14. We expect QCOM to integrate the Cat6/7 LTE modem into its flagship high-end SOC chip 8994 from 1H15.

Both BRCM and Marvel began offering Cat4 LTE SOC chips from 1H14. Marvell has PXA1920, while BRCM has EOS2, which it acquired from Renesas. Marvell plans to launch Cat6/7 LTE modem and Cat6/7 LTE SOC (PXA1986) chips by end-2014, but the market's feedback on Marvell's future products seems unconvincing now. Before BRCM announced it will sell its BB/AP business this month, BRCM planned to launch Cat6/7 LTE SOC by the middle of 2015 ("*Tahiti*").

MTK's Cat4 LTE modem MT6290 will start to ship from 2Q14, while its Cat4 LTE SOC chips MT6595, MT6752 and MT6732 will mainly hit the market from late 3Q14. We expect MTK's Cat6/7 LTE modem to be launched in 2H15F.

Many China chip vendors also have plans to launch LTE modem and LTE SOC, eg, SPRD (SharkL) and Leadcore (LC1860), but they are lagging further — they both target to sample their first LTE SOC chip (likely only three modes, TDDLTE + TDSCDMA + EDGE) in 2H14.

According to CW Chung, Nomura's technology/semiconductors analyst who covers Samsung (005930 KS), it is planning to launch LTE technology Cat 6 in 2Q14 and Cat 7 in 2Q15, following the launch of Cat 4 in end-2013; the gap between Samsung and its competitors appears to be quickly narrowing in the LTE technology roadmap. In addition, Samsung is likely to have its manufacturing line mass produce 14nm FinFet starting from end-2014, thereby securing a competitive edge over TSMC's 16nm processing. As TSMC is likely to introduce an upgraded version of 16nm+ with an enhanced performance level, we expect Samsung to meet competition through the addition of 14nm LPP (low power performance). Hence, it is noteworthy that 2015F could be the first year for Samsung's design and processing technologies to be on par or above that of its competitors. The impact of such changes in the competitive landscape on related BB and AP makers also deserves attention, we believe.

While it seems that competitors are catching up with LTE specs with QCOM, it is worth noting that operators' qualification is where the difficulty lies for late comers. As such, except for QCOM, we think all other chip vendors' LTE modem schedules need to be reviewed from time to time given that the qualification and field testing process take a long while at operators in the US and Europe.

LTE chip competition to intensify from 4Q14F

From the LTE chip roadmap table below, it is clear that LTE chip competition will intensify from 4Q14F. Before 4Q14F, the major chip vendors in China were QCOM and Marvell. In 4Q14-1Q15, many new LTE chips will enter mass production, including MTK's MT6595 (4xA12+4xA7), MT6752 (8xA53) and MT6732 (4xA53), QCOM's low-cost LTE chip 8916 (4xA53), Marvell's upgraded LTE chip PXA1928 (4xA53) and PXA1986 (4xA12). Intel's first LTE SOC chip SoFIA (based on x86 CPU) is also planned to be launched by the end of 2014. As well, SPRD and Leadcore plan to launch LTE SOC by end-2014, respectively — we believe these would be three modes, rather than five modes as other competitors are doing.

We notice that competition would not only take place in the low-end LTE segment, but also in the mid- to- high-end segment.

Our observations by company:

QCOM (Buy, QCOM US): 8916 to dominate in low-end LTE segment until 1H15F

Qualcomm has the most competitive cost and feature-optimized LTE roadmap to support a broad-based LTE ramp in the sector. Unlike in the past few years, we think growth in LTE this year and beyond will likely come from mid- and low-end LTE devices. We expect the upcoming ramp in TD-LTE devices in China to be a significant driver of LTE device growth this year. To benefit from this ramp, Qualcomm added features to its LTE chipsets that are generally seen at the low-end of the device stack, eg, dual-sim dual-active (DS-DA) features for emerging markets. Qualcomm is adding support for these features throughout its chipset stack from high-end 800 series chipsets to the entry level 200 series. To accelerate the adoption of LTE, Qualcomm designed chipsets (8916, 8936 and 8939) to hit the price points of mass market smartphones (USD100-200) and to support the transition of TD-SCDMA devices (<USD150) at China Mobile into TD-LTE volume. Qualcomm also added the 64-bit support across the tiers in its LTE chipsets, which we think further boosts the competitiveness of its LTE chipsets across the stack.

QCOM would be clearly facing increasing competition into 2015F, in our view. Globally, it will face Intel, and captive vendors such as Samsung. In China, it will face Marvell, MTK, SPRD, Leadcore and captive vendors such as Huawei.

However, we have a strong conviction that QCOM could do well in China this time, thanks to its early deployment of low-end LTE chip 8916. The 8916 could be regarded as QCOM's first LTE chip designed for the China domestic market. In order to further shrink costs, It has taken out the feature of CA (carrier aggregation) from LTE modems (ie, the 8916 compared with the current generation low-cost LTE chip 8926) since this is not a required feature in China's LTE market. We estimate that such a feature change can help reduce 8916 die costs by at least 10%.

Current consensus is that QCOM will face great challenges in the low-end LTE segment — which is supposed to be MTK's stronghold — from MTK after MTK's launch of the MT6732 (4xA53) in 4Q13, but we think otherwise (details are below).

MTK (Reduce, 2454 TT): LTE learning curve will make its transition to LTE from 3G bumpy

MTK announced a series of LTE SOC chips at MWC 2014. By our estimates, the mass production timeframe will be mainly in 4Q13 (before this, MTK will use separate solutions — LTE modem + 3G AP — to compete in the LTE chip market). Given that QCOM has dominated the LTE chip market for 1~2 years, the Street in general expects MTK to win share significantly after the launch of LTE SOC chips, since handset makers all seem to require a reliable second source.

We believe all handset makers want a reliable second source, but we also have a non-consensus view that MTK's share gain (from QCOM) will be a challenging (ie, margin-dilutive) process (at least) before 1H15F. We believe the LTE learning curve will make MTK unable to optimize its LTE SOC chip design, leading to a worse die cost structure. In other words, MTK will face the dilemma of market share and margin in the LTE chip market (at least) in the first year, we believe.

In our opinion, MTK's solution is to sell more high-end LTE SOC chips, rather than only low-end ones. To achieve this, MTK needs to upgrade its customer portfolio. In the company section where we downgrade MTK to Reduce, we conclude that this is not an easy task.

SPRD (unlisted) and Leadcore (unlisted):

The two local TDSCDMA chip vendors are still not currently visible to end-devise customers in the LTE chip competition. Expanding difficulties in designing the LTE chip (vs the more mature 3G chip) and the chaotic process of being integrated by the government entity (eg, SPRD's CFO left the company after SPRD was acquired by Hsinhwa Unigroup) may explain why they are slowing in chip competition. At this point,

SPRD is planning to launch its LTE SOC chip "*Shark L*" (4xA7, likely three mode LTE) by end-2014, while Leadcore is planning to launch its LC1860 by end-2014 as well.

Marvell (MVRL US, Buy)

According to Romit Shah and Sanjay Chaurasia, analysts from our US Semi team, Marvell's early work on TD-SCDMA and TD-LTE in China positions the company as the only supplier of integrated 5-mode LTE chipsets after Qualcomm. We think the company's cost competitive mid-range and entry chipsets (1088 LTE Pro and 1088 LTE Ultra) platform bundled with its WiFi and power management chips (+5-8 in ASP) could be meaningful drivers for it this year.

While Marvell appears to benefit from a favourable competitive landscape this year, we think it will face intense competition from MediaTek and Spreadtrum next year in low-end LTE devices. We note that similar trends played out for the company's strong position in TD-SCDMA, where it saw the market become extremely cost-competitive in a short time.

Intel (INTC US, Neutral)

According to our US semi team, Intel is currently shipping its LTE thin modem to Samsung (Note 3 and Galaxy K Zoom) and expects to ship to a few other OEMs (Acer, ASUS and Lenovo). The biggest gap in Intel's roadmap today is an integrated LTE offering. The company expects to launch SoFIA LTE in late 2H this year, combining an Atom core (64-bit) with its LTE modem. While it is unclear what traction Intel could get with SoFIA, we think the BOM cost issue that Intel is facing with its tablet design wins should be less of an issue as we expect SoFIA to be a more integrated SoC than BayTrail chips. That said, the company is likely to obtain more meaningful traction with the launch of Broxton SoC in 1H15. We expect Broxton to integrate 14nm Goldmont cores with a LTE modem and the company might have a 1-2 quarter process advantage vs.16/14nm ARM SoCs that may ship in late 2015 to early 2016.

The company recently added TD-SCDMA support in its XMM 7260 thin modem, which started shipping this quarter. However, we expect Intel to get limited traction as a vast majority of TD-LTE devices are expected to be in entry and mid-range segments, which are expected to use an integrated platform. In addition, this is Intel's first generation device with TD-SCDMA support competing against more mature offerings with the TD-SCDMA support from Qualcomm and Marvell.

We believe Android optimization efforts on x86 remain a burden in the low-end and value segments for handset OEMs. Competitive data suggest that more than 50% of Android apps do not work or require binary translation to work on x86-based devices. This is due to the fact that many app developers still use some native components in their apps, making it incompatible with x86-based devices.

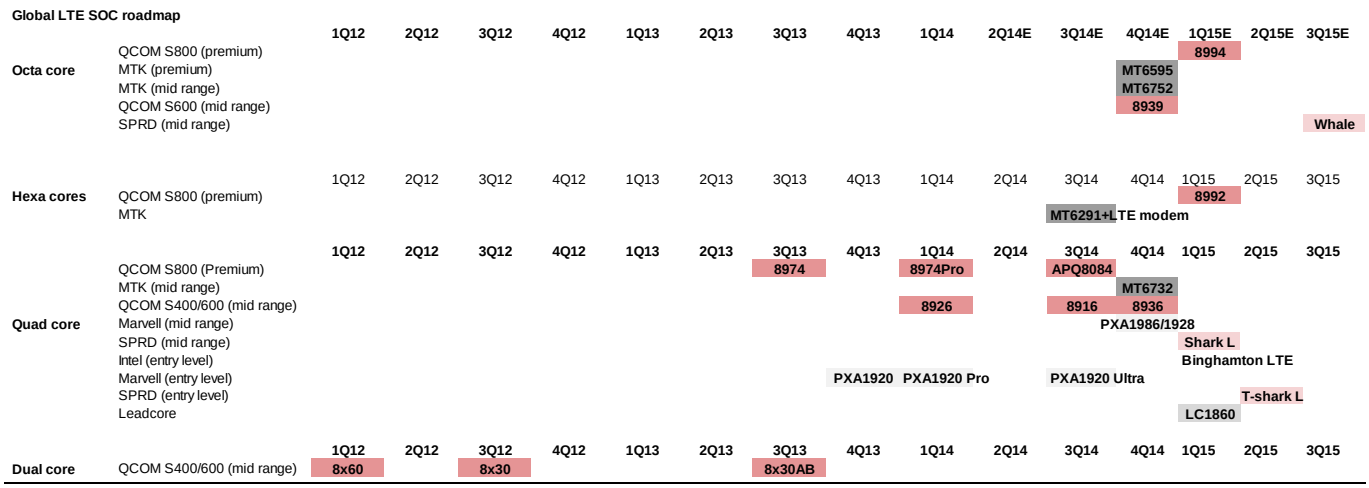
Samsung (005930 KR): putting efforts in increasing in-house AP/BB share:

While Samsung's AP market share within the smartphone market fell to 20% in 2013 from 27% in 2012, CW Chung expects its 2014F market share to fall below half of its 2013 market share, with Apple's foundry orders transitioning into TSMC from Samsung, starting from 2014F (Global foundries: Sharing is not easy). Samsung AP's market share within Samsung smartphones fell to 18% in 2013, vs 34% in 2012. As Qualcomm officially launched its standalone LTE modem chip in 2014F, the market environment seems to have become more favorable for Samsung's AP to increase its market share within Samsung. Although Samsung appears to have the competitive edge in AP technology, the use of integrated chipsets (comprising of AP and baseband together), which has become a general trend in the high-end smartphone market, will continue to be a hindrance to Samsung's effort in raising its AP market share, in our view.

As for baseband technology, we believe Samsung needs to: i) first manufacture baseband components by combining together its self-developed 4G technology with 3G technology (licensed out from Qualcomm) and ii) then integrate the baseband with its self-developed AP. Sales of Samsung's self-manufactured baseband (in accordance with the licensing contract with Qualcomm) is limited to only Samsung's IT & mobile division and is restricted for external non-Samsung customers (ie, Apple). As Samsung launched its first integrated chipset (AP and BB combined) in 4Q13, it has been testing out the product quality for some minority smartphone models thus far in 2014 and is continuing

its R&D process with the aim of adding its integrated chipset into Samsung's flagship models in 2015F.

Fig. 15: Global LTE SoC chip roadmap



Source: Company data, Nomura estimates

3G roadmap comparisons

With China's fast move to LTE, 3G is becoming less of a focus by chip vendors. We expect MTK to maintain its dominance in this market in 2014F.

SPRD: its efforts in trying to accelerate the decline of 3G smartphone costs seem unsuccessful

From late 2013, SPRD extended its low-end smartphone chip 6820 (EDGE only; single core A5) and 7710 (WCDMA; single core A7) to 6821 and 7711, respectively. The change is only at partnering with a smaller density of memory (from 4+2 to 2+1) for both chips, trying to further save the BOM cost of low-end 3G smartphones to replace PDA-type feature phones. However, market feedback has been negative, since users do not regard the smartphones as "good enough" handsets.

On the other hand, SPRD's ambition in upgrading its product porfolio has also been slow from 2H13. It finally launched its first quad core 3G chip "*Shark*" (4xA7+4xGPU) in 2H13 and "*T-Shark*" (4xA7+2xGPU) in 1Q14 (which was already one year later than MTK's first quad core 3G chip MT6589 (mass production from 1Q13)), but market feedback is discouraging. SPRD's future roadmap has a high degree of uncertainty, in our view, since the integration process with its government-owned VC seems ongoing.

MTK: MT6571 would be the buffer for competition

Last year, we defined the MT6572 (2xA7; EDGE/TD/WCDMA three modes) as the most critical chip in the China smartphone market, which should help MTK expand market share in every segment (WCDMA, TDSCDMA and overseas markets). The MT6572 was indeed very successful (details in the market share section) and was so successful that its successor, the lower-cost MT6571 (2xA7; EDGE/TD two modes only) — which was supposedly to come out in 4Q13 to defend competition — hit the market two quarters later than initially scheduled (since competitors didn't have good competing chips to take share back from MT6572).

With the MT6571 in the pipeline as a buffer for further competition in the low-end 3G segment, we expect MTK to maintain its leading position in the 3G smartphone chip market in 2014F.

QCOM:

QCOM's new 3G smartphone chips are MSM8x10 (dual core A7) and MSM8x12 (quad core A), which entered mass production from late 1Q14, two quarters behind MTK's competing chip MT6582 (quad core A7). In our roadmap analysis in our anchor report last year, we stated that QCOM was too slow in refreshing its 3G chip portfolio – which, in our view, could be attributable to its shifting resources to 4G LTE. Thus, we do not

expect much threat from QCOM in challenging MTK's dominant position in the 3G market.

Fig. 16: Roadmap of China smartphone chip vendors, including 3G and 4G - WCDMA

China WCDMA/HSPA+/LTE chip roadmap		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	
	QCOM S800 (premium)													8994		
Octa core	MTK (premium)								MT6592		MT6592m		MT6595			
	MTK (mid range)												MT6752			
	QCOM S600 (mid range)												8939			
	SPRD (mid range)															Whale
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	
	QCOM S800 (premium)													8992		
Hexa cores	MTK										MT6591					
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	
	QCOM S800 (Premium)			APQ8064				8974		8974Pro		APQ8084				
	MTK (mid range)					MT6589			MT6582				MT6732			
Quad core	QCOM S400/600 (mid range)								8x26	8926		8916	8936			
	Marvell (mid range)												1986/7928			
	SRRD (mid range)								Shark					SharkL		
	MTK (entry level)					MT6589m		MT6582m								
	QCOM S200 (entry level)					8225Q				8x12						
	Marvell (entry level)								1088LTE	1088LTE Pro		1088LTE Ultra				
	SPRD (entry level)									T-Shark					T-shark L	
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	
	QCOM S400/600 (mid range)	8x60		8x30				8x30AB								
	MTK (entry level)			MT6577				MT6572								
Dual core	QCOM S200 (entry level)				8225					8x10						
	MTK (low cost)							MT6572m								
	SPRD															
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	
Single core	MTK	MT6575														
(ultra low cost)	QCOM	7227A														
	SPRD							7710		7711						

Note: Numbers in red are LTE chips

Source: Company data, Nomura estimates

Fig. 17: Roadmap of China smartphone chip vendors, including 3G and 4G - TDSCDMA

China TDSCDMA/LTE chip roadmap		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15
	QCOM S800 (premium)													8994		
Octa core	MTK (premium)								MT6592		MT6592m		MT6595			
	MTK (mid range)												MT6752			
	QCOM S600 (mid range)												8939			
	SPRD (mid range)															Whale
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	2Q15
	QCOM S800 (premium)													8992		
Hexa cores	MTK										MT6591					
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	3Q15
	QCOM S800 (Premium)							8974		8974Pro		APQ8084				
	MTK (mid range)					MT6589			MT6582				MT6732			
Quad core	QCOM S400/600 (mid range)								8x26	8926		8916	8936			
	Marvell (mid range)												1986/7928			
	SPRD (mid range)								Shark					SharkL		
	MTK (entry level)					MT6589m		MT6582m								
	QCOM S200 (entry level)									8x12						
	Marvell (entry level)								PXA1920	PXA1920 Pro		PXA1920 Ultra				
	SPRD (entry level)									T-Shark					T-shark L	
	Leadcore							LC1813						LC1860		
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	3Q15
	QCOM S400/600 (mid range)	8x60		8x30				8x30AB								
	MTK (entry level)			MT6517+AS				MT6572								
Dual core	QCOM S200 (entry level)									8x10						
	MTK (low cost)							MT6572m			MT6571?					
	Leadcore				LC1810											
	SPRD						8825		8825C							
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14	1Q15	2Q15	3Q15
Single core	MTK	MT6515+A														
(ultra low cost)	SPRD			8810												

Note: Numbers in red are LTE chips

Source: Company data, Nomura estimates

Market share projections

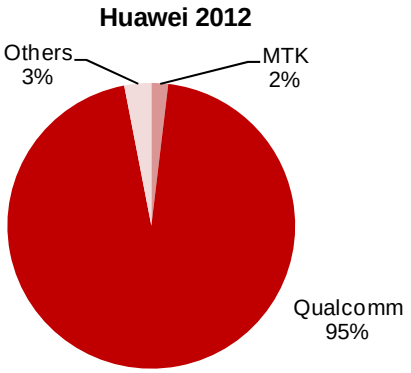
2013 review: MT6572 has helped MTK with decent share gain in 3G smartphone market

At end-2011, we had forecast that MTK would return to “glory” in 2013. In May 2013, we further solidified our view since we expected the MT6572 to broaden MTK's market share from 2H13. SPRD has also gained market share significantly in 2013, but most of its gain was concentrated in 1H13 (and its share was taken by MTK in 2H13). Following our market surveys, below we review the smartphone chip adoption status China’s domestic top eight handset brands in 2013 vs. 2012 (ie, we only discuss WCDMA and TDSCDMA standards, since the CDMA2000 chip market has been consistently dominated by QCOM).

Huawei

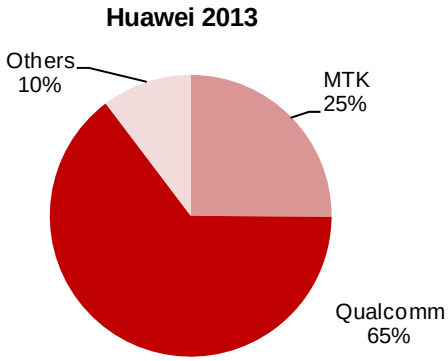
- At Huawei’s TDSCDMA smartphones, Marvell used to have c.50% share in 2012, followed by MTK at c.25%. However, in 2013, Marvell’s share almost fell to zero, while SPRD and MTK had about 50% and 40%, respectively.
- At WCDMA smartphones, QCOM remained the major chip supplier but its dominance fell meaningfully in 2013 to below-70% (from more than 90% in 2012) with the rest taken mainly by MTK.
- We note that Hisilicon’s (Huawei’s chip design company) share at Huawei gradually rose in 2013 to 5-10% levels, from almost nil earlier.

Fig. 18: Huawei WCDMA AP share, 2012



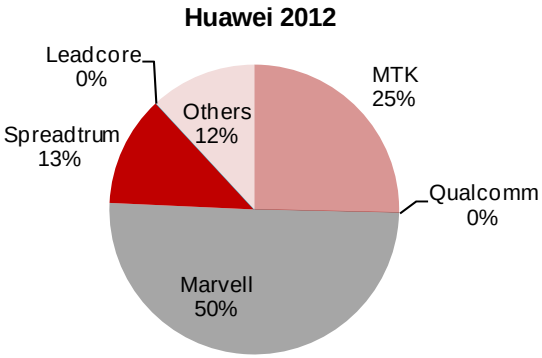
Source: Nomura Research

Fig. 19: Huawei WCDMA AP share, 2013



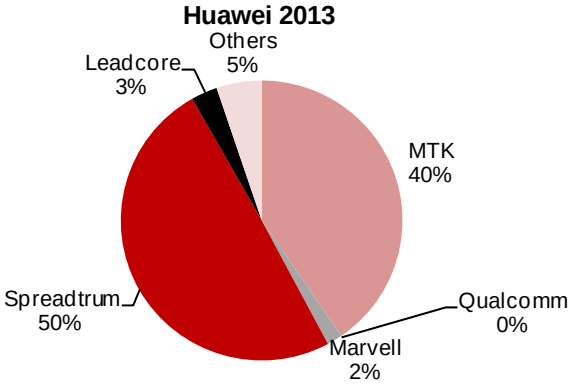
Source: Nomura Research

Fig. 20: Huawei TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 21: Huawei TDSCDMA AP shares, 2013

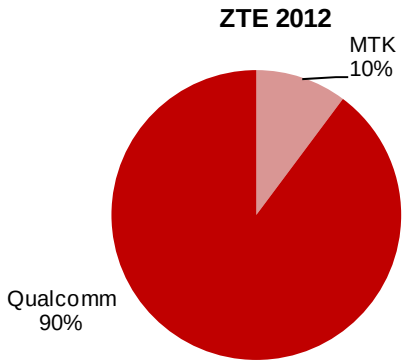


Source: Nomura Research

ZTE

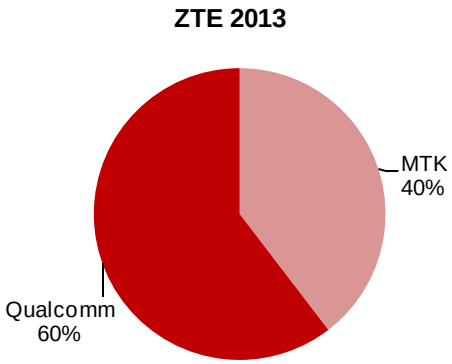
- ZTE used Marvell's chips mainly (almost 80%) for its TDSCDMA smartphones in 2012. However, MTK gained share strongly in 2013 (55% share), followed by SPRD's 30% share.
- At WCDMA, MTK has gained shares significantly at the cost of QCOM. MTK's share has improved to 40% in 2013, vs. around 10% in 2012.

Fig. 22: ZTE WCDMA AP shares, 2012



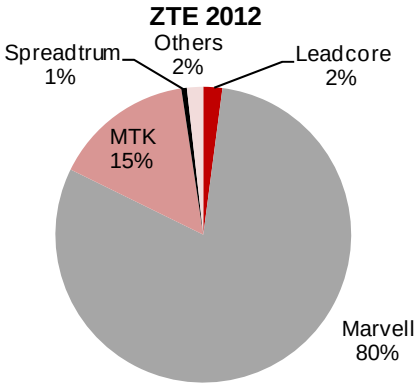
Source: Nomura Research

Fig. 23: ZTE WCDMA AP shares, 2013



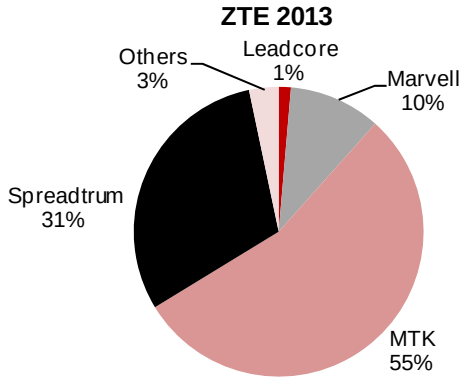
Source: Nomura Research

Fig. 24: ZTE TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 25: ZTE TDSCDMA AP shares, 2013

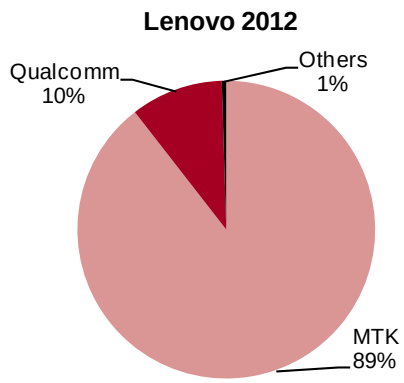


Source: Nomura Research

Lenovo

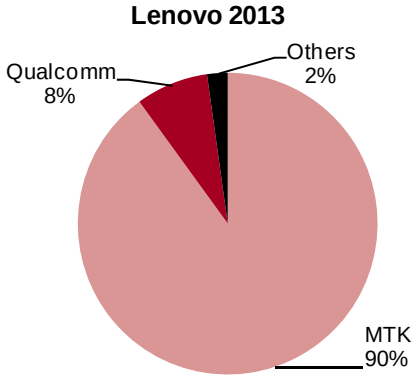
- Lenovo's TDSCDMA smartphones mainly use chips from SPRD and MTK. In 2013, we saw the share of both chip vendors expand further (to about 55% and 40%, respectively).
- Compared with the other "big four" handset brands in China, Lenovo is well known in supporting MTK. This can be seen from its 90% WCDMA chipsets sourcing from MTK in both 2012 and 2013.
- Intel is targeting Lenovo as one of its major footprints in the smartphone market. That said, by 2013, Intel's portion remained insignificant. It is worth watching if Intel will show bigger progress from 2014F, after its aggressive subsidy plan for the mobile device division.

Fig. 26: Lenovo WCDMA AP shares, 2012



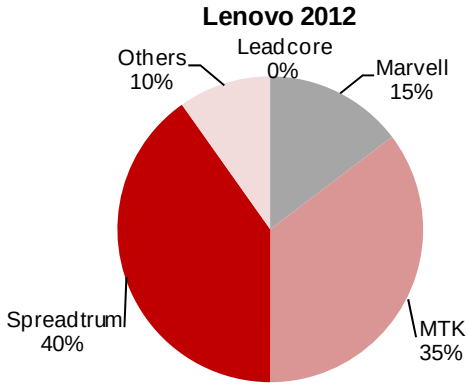
Source: Nomura Research

Fig. 27: Lenovo WCDMA AP shares, 2013



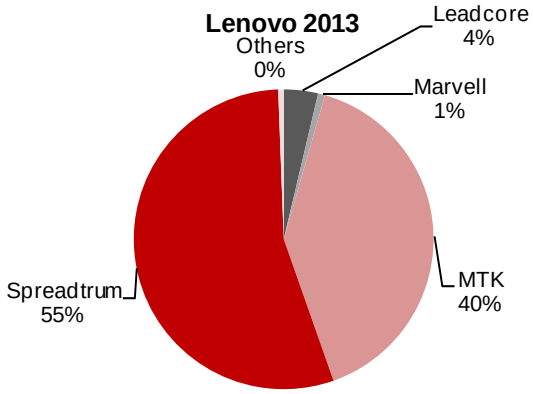
Source: Nomura Research

Fig. 28: Lenovo TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 29: Lenovo TDSCDMA AP shares, 2013

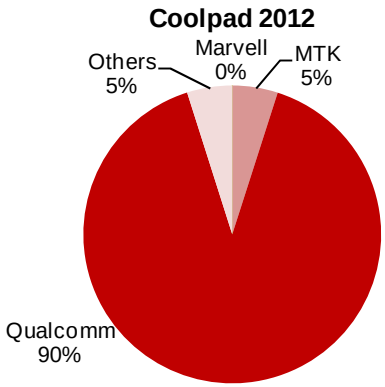


Source: Nomura Research

Coolpad

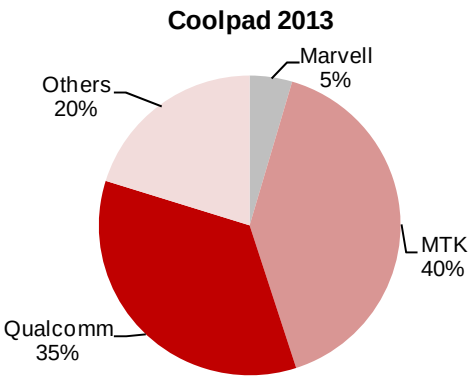
- At Coolpad's TDSCDMA smartphones, Marvell was the major chip supplier in 2012 with c.70% share, followed by Leadcore at 15%. In 2013, SPRD saw a big jump, grabbing 40% share, followed by Leadcore and Marvell at c.25% each. Coolpad is one of the major brand customers for Leadcore, according to our survey.
- At Coolpad's WCDMA shipments, QCOM was dominant with more than 90% share in 2012. However, Coolpad saw meaningful diversification in 2013 with MTK grabbing the biggest share at almost 40% and QCOM falling to nearly the 35% level.

Fig. 30: Coolpad WCDMA AP shares, 2012



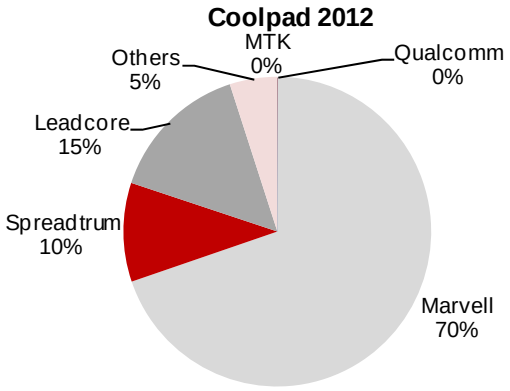
Source: Nomura Research

Fig. 31: Coolpad WCDMA AP shares, 2013



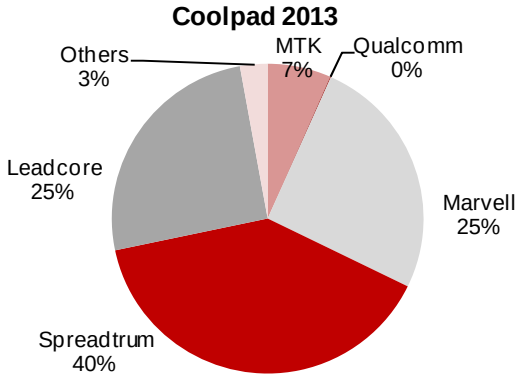
Source: Nomura Research

Fig. 32: Coolpad TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 33: Coolpad TDSCDMA AP shares, 2013

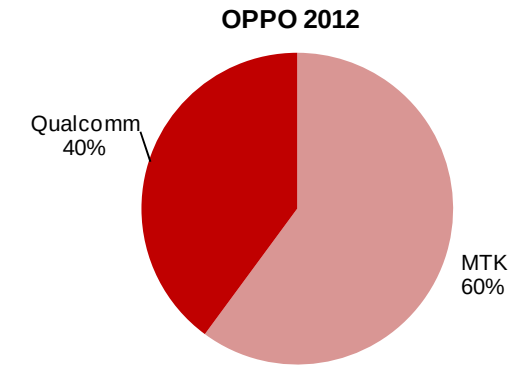


Source: Nomura Research

OPPO

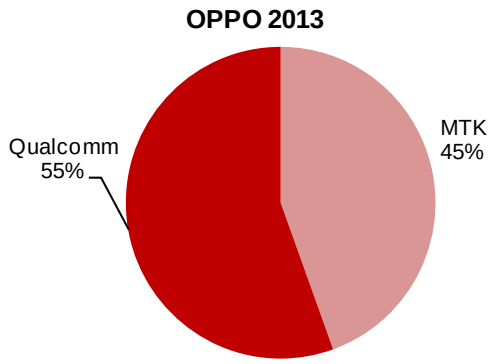
- Almost all OPPO TDSCDMA smartphones have adopted MTK's chips. However, at WCDMA smartphones, it increased its share from QCOM (from about 40% in 2012 to 55% in 2013) at the cost of MTK (from about 60% in 2012 to 45% in 2013) due to OPPO's pursuit of high-end premium segment brand positioning.

Fig. 34: OPPO WCDMA AP shares, 2012



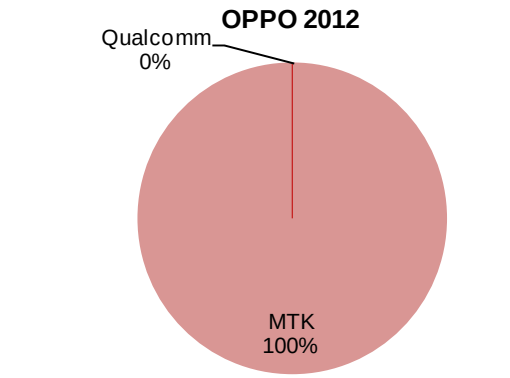
Source: Nomura Research

Fig. 35: OPPO WCDMA AP shares, 2013



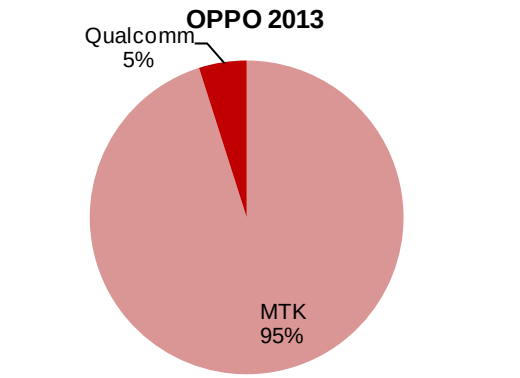
Source: Nomura Research

Fig. 36: OPPO TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 37: OPPO TDSCDMA AP shares, 2013

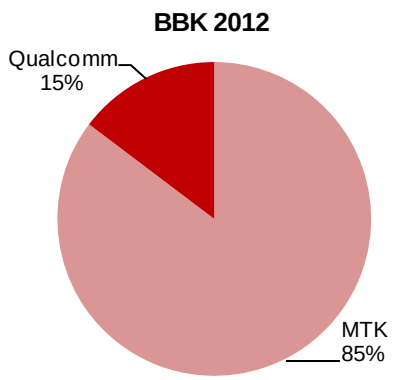


Source: Nomura Research

BBK

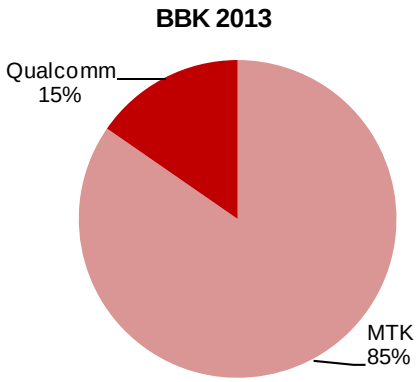
- BBK is a strong supporter of MTK. MTK was the sole supplier for BBK's TDSCDMA smartphones and the dominant supplier for its WCDMA smartphones in 2012 and 2013.

Fig. 38: BBK WCDMA AP shares, 2012



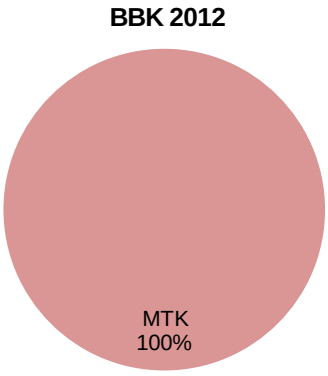
Source: Nomura Research

Fig. 39: BBK WCDMA AP shares, 2013



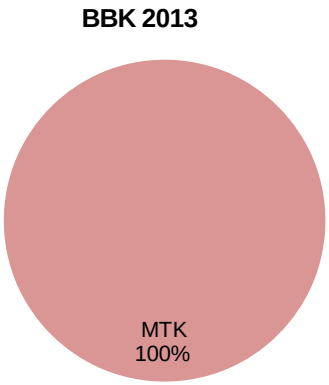
Source: Nomura Research

Fig. 40: BBK TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 41: BBK TDSCDMA AP shares, 2013

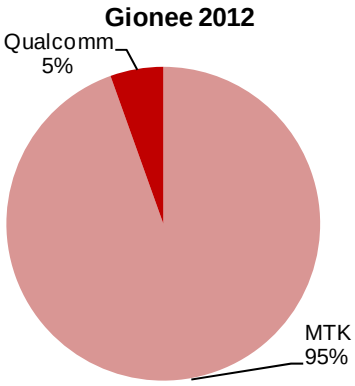


Source: Nomura Research

Gionee

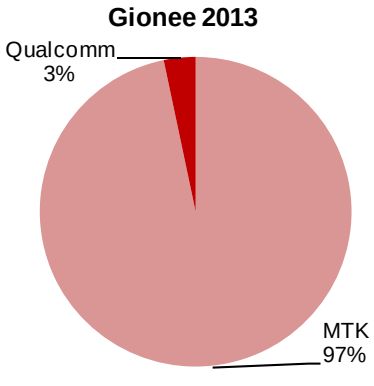
- Gionee also supports MTK strongly. MTK was Gionee's dominant WCDMA chip supplier in both 2012 and 2013, as shown below. In the TDSCDMA segment, MTK also largely replaced Marvell's dominant position in 2012 (when Marvell got about 55% share), grabbing almost 85% share in 2013.

Fig. 42: Gionee WCDMA AP share, 2012



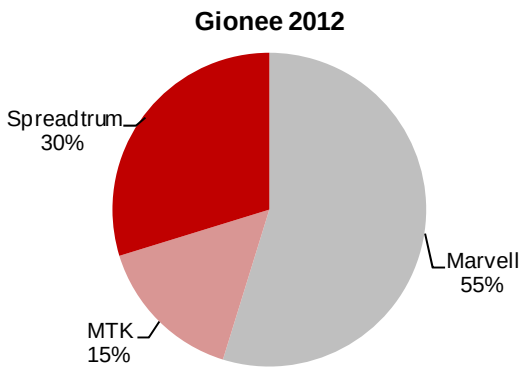
Source: Nomura Research

Fig. 43: Gionee WCDMA AP share, 2013



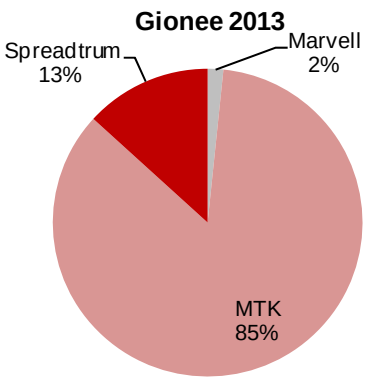
Source: Nomura Research

Fig. 44: Gionee TDSCDMA AP share, 2012



Source: Nomura Research

Fig. 45: Gionee TDSCDMA AP share, 2013

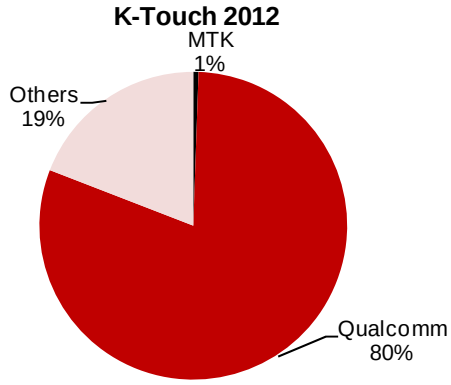


Source: Nomura Research

K-touch

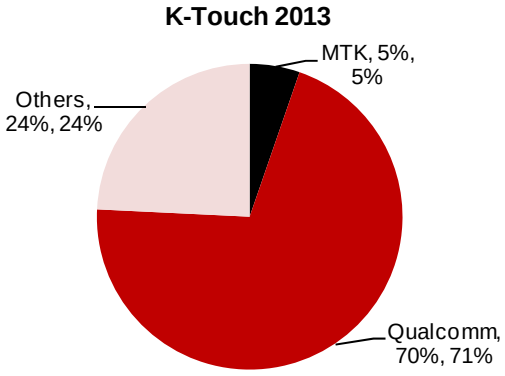
- K-touch was mainly using SPRD's chips for its TDSCDMA smartphones in both 2012 and 2013, due to K-touch's pursuit of low-cost solutions.
- QCOM continued to be the major WCDMA smartphone chip supplier at K-touch with 70-80% share in both 2012 and 2013.
- Though nVidia's share fell to 10% in 2013 from c.20% in 2012 at K-touch, we note that K-touch remains one of the very few local brands using nVidia chips in China.

Fig. 46: K-touch WCDMA AP shares, 2012



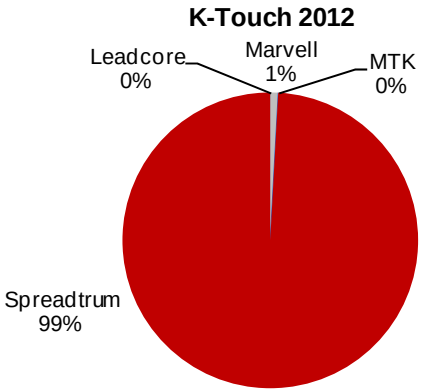
Source: Nomura Research

Fig. 47: K-touch WCDMA AP shares, 2013



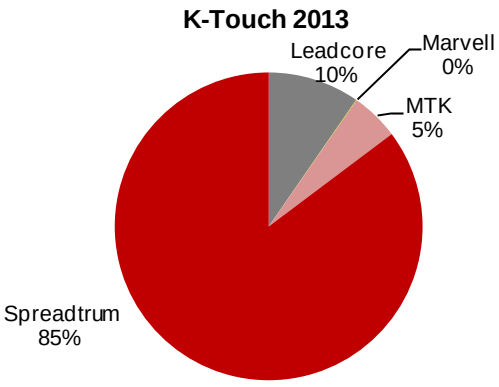
Source: Nomura Research

Fig. 48: K-touch TDSCDMA AP shares, 2012



Source: Nomura Research

Fig. 49: K-touch TDSCDMA AP shares, 2013

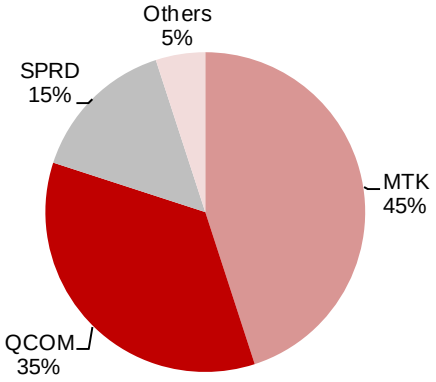


Source: Nomura Research

Overall market share

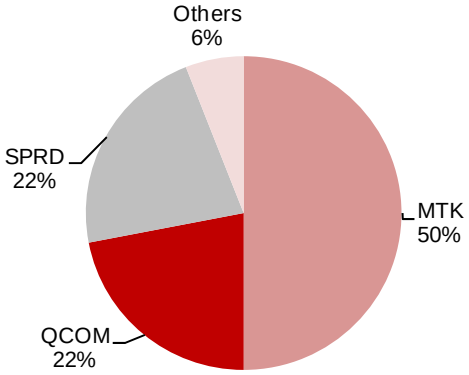
- China's top local brands are only a portion of the entire China smartphone market considering hundreds of small brands in China. That said, we think the overall trend in 2013 vs 2012 was consistent with what's currently going on at those top brands – MTK and SPRD gained shares from QCOM.
- On our estimates, MTK improved its share in China by 5ppts to 51% in 2013 from 46% in 2012. SPRD gained nearly 10ppts share to 23% in 2013 from only 14% in 2012. QCOM saw a severe drop – from 35% in 2012 to 20% in 2013.
- Though SPRD's gain looks bigger than MTK's in 2013, we note that SPRD's gain was all concentrated in 1H13. It started to lose share to MTK significantly in 2H13.

Fig. 50: Smartphone chip vendors' share in China, 2012



Source: Nomura Research

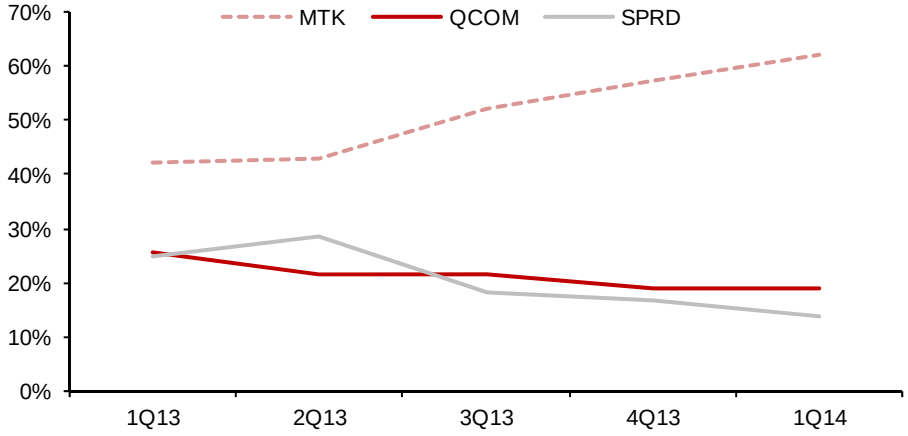
Fig. 51: Smartphone chip vendors' share in China, 2013



Source: Nomura Research

Fig. 52: Smartphone chip vendors share in China, 1Q13-1Q14

MediaTek's share gain accelerated from 3Q13 with the launch of MT6572



Source: Nomura Research

MTK to continue to gain share in 1H14F before QCOM and MVRL take share in 2H14F; SPRD to continue to fall in 2014F

In 2014F, QCOM's share gain is almost guaranteed thanks to the CMCC's strong push of LTE, and QCOM's dominance in the LTE chip market. Our market surveys indicate that its low-end LTE SOC chip 8926 could be regarded as its most successful chip in China, in terms of project numbers. After these projects start shipping in volume from 3Q14, QCOM's share could rise significantly. Such momentum should be able to continue into 2H14F after the 8916 starts picking up. We expect QCOM to improve its share to mid-20% in 2014F from the low-20s in 2013.

Marvell is also benefiting from the rising LTE demand with its cost-effective PXA1920. . We project its market share will improve to 3% in 2014F from almost nil in 2013.

According to our US team, MVRL got a defendable mid- to low-range LTE position with better cost optimization. Also, it got a wider breadth of portfolio vs. narrow offerings in the last generation with TDSCDMA.

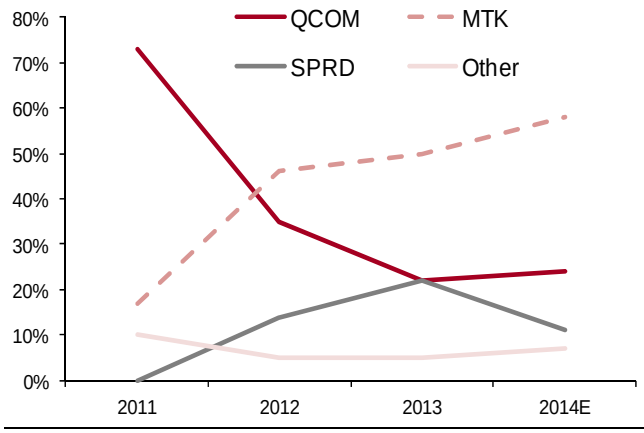
Compared with the vigorous momentum in 1H13, SPRD's momentum started to deteriorate sharply into 2H13, echoing our consistent concerns about its execution (Spreadtrum: Execution key in next stage of competition). Currently, it looks as if its lagging gap with MTK has widened further in both 3G and 4G LTE markets. In the 3G market, its attempt to accelerate the fall of low-end smartphone BOM by saving memory costs does not work well. However, we believe MTK's MT6571 — the successor for the MT6572 — will defend SPRD well. In the 4G market, customers are watching if SPRD can roll out its LTE solutions in 2014F. We expect SPRD's smartphone chip share to fall to 10-15% in 2014F from 20-25% in 2013.

We expect MTK's smartphone chip market share to grow further in 2014F (to 55-60%, from 50% in 2013. But most gains would be in 1H14F, before QCOM gains share from 2H14 with its LTE strength). Though we flag the LTE learning curve as MTK's biggest risk in 2014F (which should lead to MTK's dilemma of volume share versus gross margin from 2H14F), we don't think market share would be a problem for MTK, since we suppose MTK will put volume share at higher priority than gross margin in LTE.

Also, 3G smartphones should continue to offer MTK volume upside thanks to the expanding overseas market demand. Of our estimated incremental smartphone chip demand of 190m units in 2014F, 100mn would be LTE but another 90mn would be 3G demand from EMs (right-hand side chart below). Though MTK may only be able to grab about 20% share in the LTE market, it should have no problem in grabbing 60%-above share in the EM-driven 3G market, we believe.

Fig. 53: Smartphone chip market share 2011-14

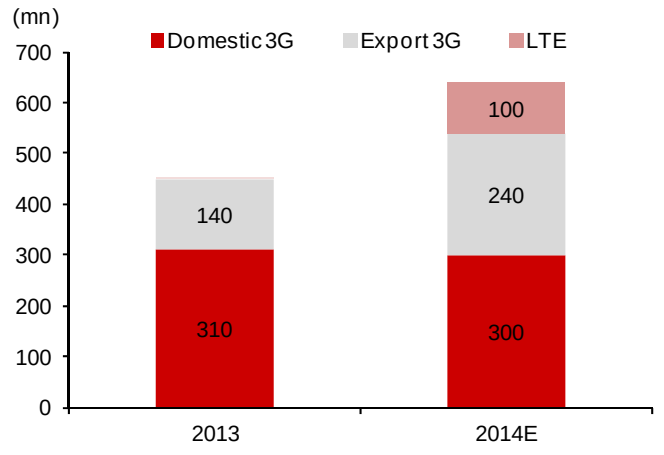
QCOM bounces back In 2014 on its LTE strength



Source: Nomura Research, Nomura estimates

Fig. 54: Smartphone chip volume demand breakdown, 2014 vs. 13

LTE and exports are driving 2014 chip demand



Source: Nomura Research, Nomura estimates

Consumption power: are consumers willing to pay more for LTE phones?

*We note that investors tend to be too bullish on the ASP outlook of chip vendors when technology spec upgrades happen (eg, from 3G to LTE this time), if they don't seriously take the **consumption power** and **competition** into consideration. In our view, the ASP outlook of the chipset market is positively correlated with consumers' consumption power (and, of course, the severity of competition) — if consumers are willing to pay more for phones, the TAM (= value x volume) for chipset vendors can expand easier. If they are not, investors need to be aware of this, since the "wishful" expectation of blended chipset ASP expansion could be at risk.*

Blended ASP: What happened in the past three years?

To answer investors' question of whether handset blended ASP in China expanded or deteriorated in the past three years along with strong smartphone volume expansion and spec upgrade, we conduct the analysis below.

Based on our survey for the China domestic handset market (which does not include the online sales channel and EM volumes), handset blended ASP was nearly flat in the past three years (from CNY1.1k in 1Q11 to CNY1.2k in 4Q13), while smartphone blended ASP was falling quickly from CNY2.2k in 1Q11 to CNY1.4k in 4Q13 (left-hand side chart below) — which advises that smartphone volume upside was to a large extent driven by price elasticity, rather than consumers' increasing payment per unit of smartphones. However, the rising portion of smartphones was still helping in sustaining blended ASP for overall handsets.

The trend becomes more clear (and surprisingly conclusive) if we split China domestic brands from international brands. The handset blended ASP of China domestic brands has been nearly flat (at the CNY850 level). However, international brands' blended ASP has expanded significantly from CNY1.3k in 1Q11 to CNY2.3k in 4Q13.

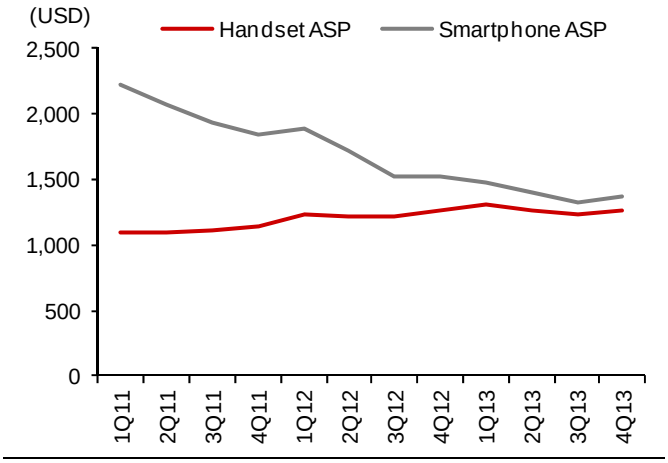
The smartphone blended ASP of China domestic brands has fallen meaningfully from CNY1.5k in 1Q11 to CNY0.9k in 4Q13 (right-hand side chart below), while the smartphone blended ASP of international brands has expanded moderately from CNY2.4k in 1Q11 to CNY2.6k in 4Q13. The result was a negative message for chipset vendors which only have exposure to China local brands.

The results also show that, despite some local brands' successful expansion in the mid-range CNY2-3k segment (ie, share of China local brands in this segment has risen to 50% in 4Q13, up significantly from 18% in 1Q11, thanks to OPPO, BBK, Huawei, etc), the volume expansion of China local brands was more driven by the low-price segment.

We do not take online sales into our consideration. Though online sales are emerging as a new trend after Xiaomi made a big push, we think smartphones using online channels can be selling at a much lower price than using traditional channels, since traditional channels require 20-50% margin. We do not include such sales in our statistics since it would bias the trend (i.e. making the ASP downtrend steeper). However, if we take EMs into consideration, the ASP downtrend could also possibly become steeper, since EM consumption power should be weaker than that in China.

Fig. 55: China handset ASP vs. smartphone ASP of all (local and international) brands, 1Q11-4Q13

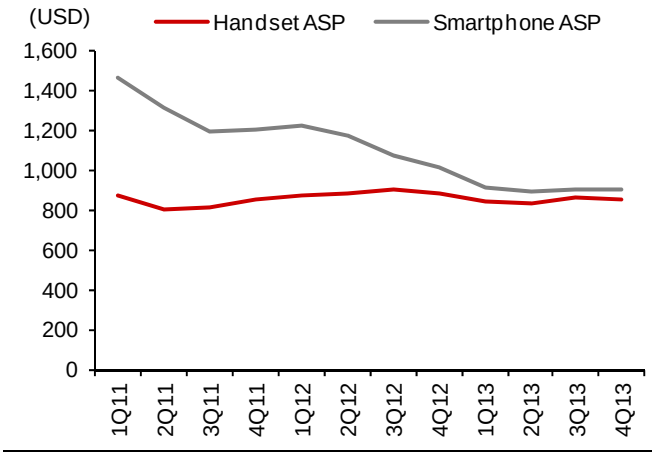
Smartphone ASP of all brands has fallen significantly



Source: Nomura estimates

Fig. 56: China handset ASP vs. smartphone ASP of local brands, 1Q11-4Q13

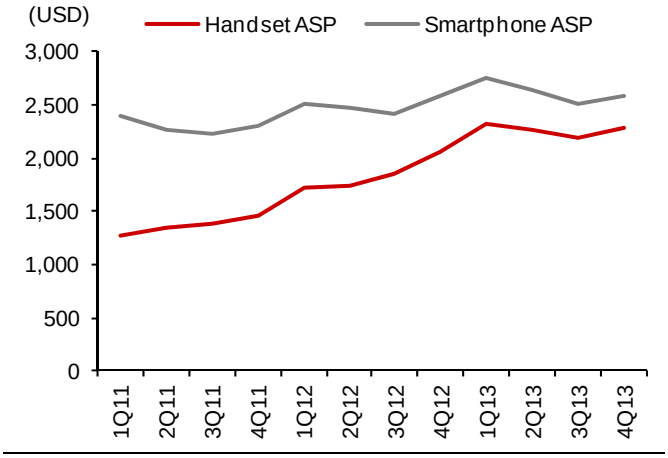
Smartphone ASP of local brands has fallen significantly



Source: Nomura estimates

Fig. 57: China handset ASP vs. smartphone ASP of international brands, 1Q11-4Q13

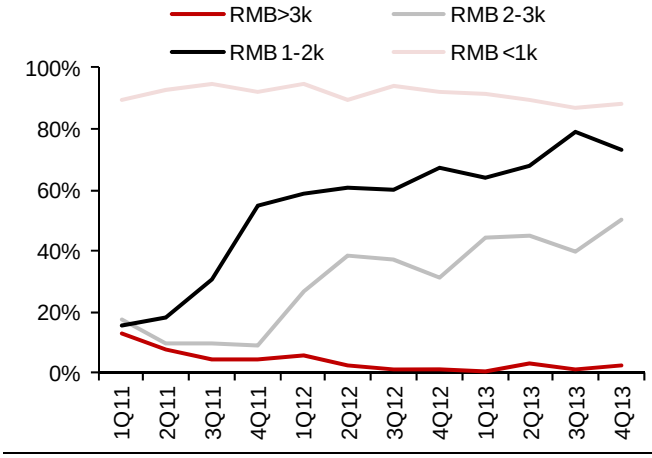
Smartphone ASP of international brands has matured



Source: Nomura estimates

Fig. 58: Local brands' share in China by price segment, 1Q11-4Q13

CNY3-4k remains a ceiling for most China brands



Source: Nomura estimates

History could be the guide: LTE unlikely to boost smartphone blended ASP in 2014-15F

In the past three years, we have seen fast spec upgrades for many components, eg, display upgrading to 5-6" FHD display (from 3.5-4" WVGA display), camera upgrading to 13MP (from 2-3MP), DRAM upgrading to 1-2GB (from 512MB), CPU upgrading to octa core 2GHz (from single core 1GHz), etc, but the blended ASP of smartphones from China local brands didn't improve. (Instead, it deteriorated, since the entry level smartphone volumes have been growing even faster.) Thus, we do not expect inclusion of LTE features will help expand the blended ASP of China local smartphones.

Smartphone chip blended ASP is difficult to expand unless there is an upgrade in the customer portfolio

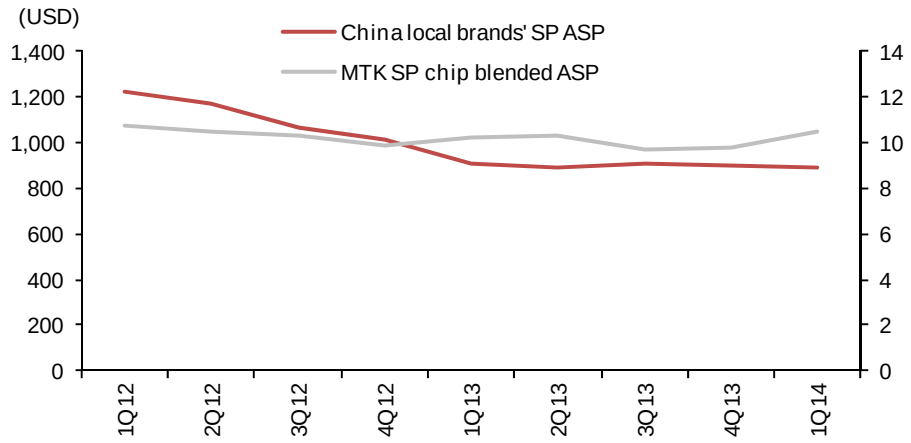
Following our analysis above, we believe that for chipset vendors with dominant market exposure, such as MTK, the most powerful way to lift chipset blended ASP will rely on the progress in international brands, since they are able to sell high-priced products (vs. China local brands). Though MTK has had some (slow) progress at MOTO, LG and Sony, the strong fight-back from QCOM at those accounts is still tough, not to mention that the difficulties in breaking into Apple and Samsung remain a structural issue.

After comparing MTK's smartphone chipset ASP with the smartphone retail price blended ASP of local brands (not including international brands since they are mostly not MTK's customers), the findings are more interesting.

Over the past three years, MTK's smartphone chip ASP has been stable at USD10 +/- 5% every quarter, by our estimate (the chart below). The fast spec upgrade from single core in 2011 to octa core in 4Q13 didn't help expand the blended ASP (but indeed helped keep the ASP stable) — which was due to: 1) chip competition; and 2) falling blended retail price of smartphones of its customers, in our view.

Given that LTE chip competition would be challenging (from the current approach of QCOM), while we don't think that MTK's current customer portfolio is strong enough, the upside for the blended ASP of MTK's smartphone chips in the foreseeable future is limited, in our view.

Fig. 59: MediaTek SP chip blended ASP vs. China local brands' SP ASP, 1Q12-1Q14



Source: Nomura estimates

NOMURA

MediaTek 2454.TW 2454 TT

EQUITY: FABLESS

Reversal of cycle; cut to contrarian Reduce

GPM expansion cycle to reverse shortly; transition could take 9-12 months from mid-2014F

Action: Second rating change in 4 years; cut to Reduce with TWD450 TP

MTK has consistently been our high-conviction recommendation in the sector throughout 2H12-1H14. That said, despite the market's current optimism, we cut our rating to Reduce from Buy with a new TP of TWD450, on 15x 2015F EPS of TWD30 (vs our earlier TP of TWD510 on 17.5x avg. FY14F/15F EPS), given our view that MTK's GPM expansion cycle should reverse from mid-2014F. Valuations should also de-rate during the period. Our new target P/E of 15x is the mid-cycle valuation over the past 10 years (10-20x). We are 10% above consensus on 2014 EPS estimates (on our above-consensus smartphone volume projection of 400mn units vs. guidance of "more than 300mn"), but our FY15F OP/EPS forecasts are 14%/10% below consensus on meaningful GPM downside risks. With this in mind, we do not rule out near-term upside risk, but do advise to sell into strength.

Catalyst: GPM expansion cycle to peak in 2Q14F, followed by structural GPM downturn for 9-12 months, due to "LTE learning curve"

Despite earlier preparations for LTE (vs its late pace in 3G), MTK is still likely to encounter the LTE learning curve in (at least) the first year (2H14-1H15F), which means MTK's LTE SOC chip costs will not be optimised (including its entry level LTE SOC chip in 4Q14, not to mention two-chip solutions), due to its lack of LTE chip design experience. Together with QCOM's earlier deployment and aggressive pricing for low-end LTE chips (eg, MSM8916 in 2H14, with another even cheaper chip in 1H15F), we see a downtrend for MTK's GPM in 2H14-1H15F (ie, GPM to peak at 49-50% in 2Q14F and fall to below-45% by 1H15F), after expansion in the prior nine quarters.

There are upside risks to our negative call, but probability looks low

Upside risks include: 1) if LTE volume grows much slower than expectation; 2) if LTE chip competition slows; and 2) if MTK can sell more high-end 3G/4G octa core chips than mass-market quad core LTE chips.

Year-end 31 Dec	FY13		FY14F		FY15F		FY16F
Currency (TWD)	Actual	Old	New	Old	New	Old	New
Revenue (mn)	136,056	197,207	219,755	220,895	235,990		254,303
Reported net profit (mn)	27,515	43,451	51,748	47,813	46,928		48,231
Normalised net profit (mn)	27,515	43,451	51,748	47,813	46,928		48,231
FD normalised EPS	20.39	27.71	33.47	30.49	30.02		30.86
FD norm. EPS growth (%)	62.3	35.9	64.2	10.0	-10.3		2.8
FD normalised P/E (x)	25.0	N/A	15.2	N/A	17.0	N/A	16.5
EV/EBITDA (x)	28.2	N/A	13.7	N/A	15.4	N/A	14.8
Price/book (x)	3.5	N/A	3.1	N/A	3.1	N/A	3.0
Dividend yield (%)	2.9	N/A	5.0	N/A	4.5	N/A	4.5
ROE (%)	14.8	19.8	23.1	19.1	18.4		18.4
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash		net cash

Source: Company data, Nomura estimates

Key company data: See page 2 for company data and detailed price/index chart

Global Markets Research

11 June 2014

Rating Down from Buy	**Reduce**
Target price Reduced from 510.0	TWD 450.0
Closing price 9 June 2014	TWD 509.0
Potential downside	-11.6%

Anchor themes

We still expect decent volume growth for China smartphone chip demand in 2014-15F, driven by LTE and exports. That said, LTE could be a game-changer for chip vendors, as latecomers need to get past the "LTE learning curve".

Nomura vs consensus

We expect the GPM expansion cycle to peak at 49-50% in 2Q14F and start falling to below 45% in 1H15F. Our 2015F OP/EPS are 14%/10%, respectively, lower than consensus.

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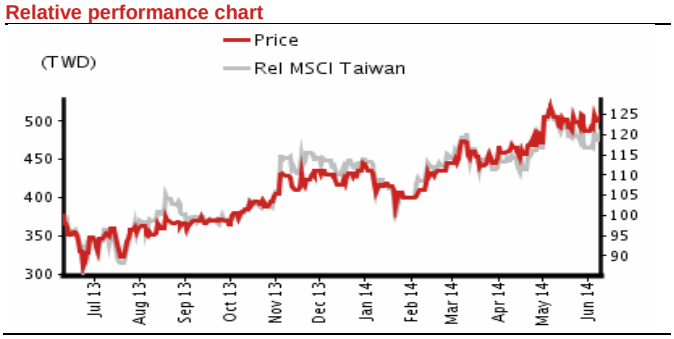
Key data on MediaTek

Relative performance chart



Source: Thomson Reuters, Nomura research

Notes:

Performance

(%)	1M	3M	12M		
Absolute (TWD)	0.6	7.6	37.6	M cap (USDmn)	30,418.9
Absolute (USD)	1.0	8.5	36.4	Free float (%)	68.8
Rel to MSCI Taiwan	-2.3	1.4	24.7	52-week (TWD)	530/302

Income statement (TWDmn)

Year-end 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
Revenue	99,263	136,056	219,755	235,990	254,303
Cost of goods sold	-58,201	-76,250	-115,157	-132,753	-143,589
Gross profit	41,062	59,806	104,597	103,237	110,715
SG&A	-6,174	-8,108	-16,416	-18,672	-21,959
Employee share expense	-22,384	-26,454	-35,670	-38,259	-41,193
Operating profit	12,505	25,244	52,511	46,306	47,563
EBITDA	16,202	26,971	55,917	49,797	51,142
Depreciation	-1,217	-1,182	-1,307	-1,360	-1,415
Amortisation	-2,479	-545	-2,099	-2,131	-2,164
EBIT	12,505	25,244	52,511	46,306	47,563
Net interest expense	1,621	1,609	2,467	2,584	2,628
Associates & JCEs	1,858	1,724	-33	-121	-140
Other income	636	970	512	647	707
Earnings before tax	16,620	29,547	55,456	49,416	50,758
Income tax	-971	-2,062	-3,742	-2,535	-2,577
Net profit after tax	15,648	27,485	51,714	46,881	48,181
Minority interests	39	30	34	46	50
Other items	0	0	0	0	0
Preferred dividends	0	0	0	0	0
Normalised NPAT	15,688	27,515	51,748	46,928	48,231
Extraordinary items	0	0	0	0	0
Reported NPAT	15,688	27,515	51,748	46,928	48,231
Dividends	-12,144	-20,246	-39,077	-35,951	-35,951
Transfer to reserves	3,543	7,269	12,671	10,977	12,280
Valuations and ratios					
Reported P/E (x)	40.5	25.0	15.2	17.0	16.5
Normalised P/E (x)	40.5	25.0	15.2	17.0	16.5
FD normalised P/E (x)	40.5	25.0	15.2	17.0	16.5
Dividend yield (%)	1.8	2.9	5.0	4.5	4.5
Price/cashflow (x)	55.7	17.4	26.1	34.4	32.1
Price/book (x)	3.9	3.5	3.1	3.1	3.0
EV/EBITDA (x)	46.3	28.2	13.7	15.4	14.8
EV/EBIT (x)	58.2	30.0	14.6	16.5	15.9
Gross margin (%)	41.4	44.0	47.6	43.7	43.5
EBITDA margin (%)	16.3	19.8	25.4	21.1	20.1
EBIT margin (%)	12.6	18.6	23.9	19.6	18.7
Net margin (%)	15.8	20.2	23.5	19.9	19.0
Effective tax rate (%)	5.8	7.0	6.7	5.1	5.1
Dividend payout (%)	77.4	73.6	75.5	76.6	74.5
ROE (%)	8.5	14.8	23.1	18.4	18.4
ROA (pretax %)	15.4	21.6	38.2	30.3	30.7
Growth (%)					
Revenue	14.3	37.1	61.5	7.4	7.8
EBITDA	7.5	66.5	107.3	-10.9	2.7
Normalised EPS	3.7	62.3	64.2	-10.3	2.8
Normalised FDEPS	3.7	62.3	64.2	-10.3	2.8

Source: Company data, Nomura estimates

Cashflow statement (TWDmn)

Year-end 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
EBITDA	16,202	26,971	55,917	49,797	51,142
Change in working capital	-9,568	13,613	-13,471	-2,771	1,201
Other operating cashflow	4,770	-1,011	-12,340	-23,915	-27,526
Cashflow from operations	11,403	39,573	30,105	23,111	24,817
Capital expenditure	-2,266	-1,585	-2,002	-2,331	-2,717
Free cashflow	9,137	37,988	28,103	20,779	22,100
Reduction in investments	-169	93	-283	-285	-287
Net acquisitions	0	0	0	0	0
Dec in other LT assets	-1,182	-468	0	0	0
Inc in other LT liabilities		0	0	0	0
Adjustments	-560	-254	0	0	0
CF after investing acts	7,226	37,358	27,820	20,494	21,814
Cash dividends	-10,328	-12,074	-23,886	-42,497	-46,856
Equity issue	0	0	0	0	0
Debt issue	0	0	0	0	0
Convertible debt issue	2	95	0	0	0
Others	3,147	21,752	30,731	23,220	36,583
CF from financial acts	-7,180	9,772	6,845	-19,276	-10,273
Net cashflow	46	47,131	34,664	1,218	11,541
Beginning cash	85,821	85,867	132,998	167,662	168,881
Ending cash	85,867	132,998	167,662	168,881	180,422
Ending net debt	-76,873	-103,859	-147,288	-148,506	-159,362

Balance sheet (TWDmn)

As at 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
Cash & equivalents	85,867	132,998	167,662	168,881	179,737
Marketable securities	4,409	6,221	5,590	5,590	5,590
Accounts receivable	6,585	7,628	17,420	20,054	18,884
Inventories	13,867	9,347	21,319	25,142	23,619
Other current assets	7,343	5,547	6,297	5,901	5,807
Total current assets	118,071	161,741	218,289	225,568	233,637
LT investments	65,120	68,040	67,141	67,409	67,477
Fixed assets	10,708	11,312	15,994	18,711	19,460
Goodwill	0	0	0	0	0
Other intangible assets	15,842	15,509	13,142	10,704	10,169
Other LT assets	502	2,035	2,085	2,257	2,302
Total assets	210,243	258,637	316,651	324,649	333,044
Short-term debt	8,880	29,052	19,760	19,760	19,760
Accounts payable	9,047	10,944	17,904	21,923	20,563
Other current liabilities	14,946	21,389	23,472	22,743	22,517
Total current liabilities	32,873	61,385	61,136	64,426	62,840
Long-term debt	114	87	614	614	614
Convertible debt	0	0	0	0	0
Other LT liabilities	1,482	1,812	2,198	2,287	2,310
Total liabilities	34,469	63,283	63,948	67,327	65,764
Minority interest	34	38	46	46	46
Preferred stock	0	0	0	0	0
Common stock	13,494	13,495	15,693	15,693	15,693
Retained earnings	162,246	181,821	236,964	241,584	251,542
Proposed dividends	0	0	0	0	0
Other equity and reserves	0	0	0	0	0
Total shareholders' equity	175,740	195,315	252,657	257,277	267,234
Total equity & liabilities	210,243	258,637	316,651	324,649	333,044
Liquidity (x)					
Current ratio	3.59	2.63	3.57	3.50	3.72
Interest cover	na	na	na	na	na
Leverage					
Net debt/EBITDA (x)	net cash	net cash	net cash	net cash	net cash
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash
Per share					
Reported EPS (TWD)	12.57	20.39	33.47	30.02	30.86
Norm EPS (TWD)	12.57	20.39	33.47	30.02	30.86
FD norm EPS (TWD)	12.57	20.39	33.47	30.02	30.86
BVPS (TWD)	130.24	144.71	163.44	164.60	170.97
DPS (TWD)	9.00	15.00	25.28	23.00	23.00
Activity (days)					
Days receivable	25.8	19.1	20.8	29.0	28.0
Days inventory	73.1	55.6	48.6	63.9	62.1
Days payable	56.8	47.8	45.7	54.8	54.1
Cash cycle	42.1	26.8	23.7	38.1	36.0

Source: Company data, Nomura estimates

LTE learning curve cannot be avoided; cut to Reduce on GPM downside risks

We cut MTK's rating to Reduce from Buy with a new TP of TWD450, based on 15x our FY15F EPS of TWD30, from TWD510, which was based on 17.5x our 2014F-15F average EPS of TWD29.1. We have been bullish on MTK for the past two years, mainly due to some structural reasons: 1) the successful duplication of its business model to smartphones from feature phones (Asia handset and handset chips: Reversal of fortune); 2) the fast product portfolio expansion (from single core to dual, quad and octa core); and 3) the margin upside surprise in 2H13-1H14 on MTK's widening cost advantage vs QCOM (A deeper dive in die cost supports our Buy).

However, we believe 4G LTE is an entirely new battle for MTK from the current 3G. MTK couldn't make the transition smoothly in the past two product transition periods (from optical storage to handsets in 2004-05 and from its 2G feature phones to its 3G smartphones in 2010-11). Though MTK has prepared longer for 4G LTE this time, we believe it still needs to go through tough times as it works its way up the LTE learning curve.

Structural GPM risk leads to second rating change in 4 years

We initiated on MTK with a Reduce rating in February 2010. Despite significant pushbacks from investors, we argued that MTK was facing a transition, rather than expansion, with migration to 3G from 2G (*China handset IC and supply chain: it's about speed rather than size*). Two years later, against market consensus, we upgraded MTK to Buy, arguing that it would return to better times in 2013 since it would be able to duplicate its white box business model in smartphones from feature phones with product portfolio expansions (*Asia handset and handset chips: Reversal of fortune*). MTK has been our top recommendation in the semi sector throughout all of 2013, despite frequent market noises from investors regarding weak China handset demand.

That being said, despite the market's current optimism and MTK's growing business scale, we cut our rating to Reduce from Buy with a new TP of TWD450, on 15x FY15F EPS of TWD30 (vs earlier TP of TWD510 on 17.5x average FY14-15F EPS estimate of TWD29.1), given our view that MTK will undergo a structural GPM decline in the 4G era. Valuation should also de-rate in the period, we think. Note that we expect MTK's FY15F earnings to decline 10% y-y from FY14F, on lower GPM assumptions. We are 14%/10% below consensus for our FY15F OP/EPS estimates.

Nomura vs. consensus: We do not expect blended ASP to expand and DO expect LTE to hurt GPM; we are significantly below consensus for 2H14-1H15 GPM

The reversal of the GPM cycle would be the biggest downside risk for MTK, which we believe will start becoming apparent from 4Q14 – when low-end LTE chips start shipping in volume. The pressure should be even bigger in 1H15 when low-end LTE chip volumes ramp up further and when competition from other LTE chip vendors intensifies. Thus, we expect GPM to fall to 45.8% in 4Q14, 44.3% in 1Q15, and 43.6% in 2Q15, after peaking at 49-50% in 2Q14, vs market consensus of 48.0%, 48.0%, 47.5% and 47.5% over 3Q14-2Q15.

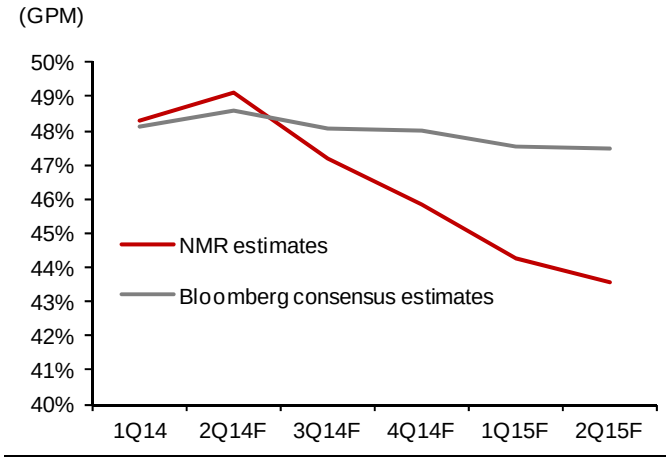
Nomura vs. consensus: We are more bullish than consensus on 2Q-3Q14 EPS but more bearish than consensus on EPS from 4Q13 onward

In the near term, we continue to expect upside risks for MTK's earnings given that demand is still largely driven by 3G, where MTK has dominant market share. Thus, our 2Q14 and 3Q14 sales forecasts are 10% and 11% higher than consensus, respectively.

However, when LTE starts ramping up with volume, we think MTK will start seeing margin and earnings pressure.

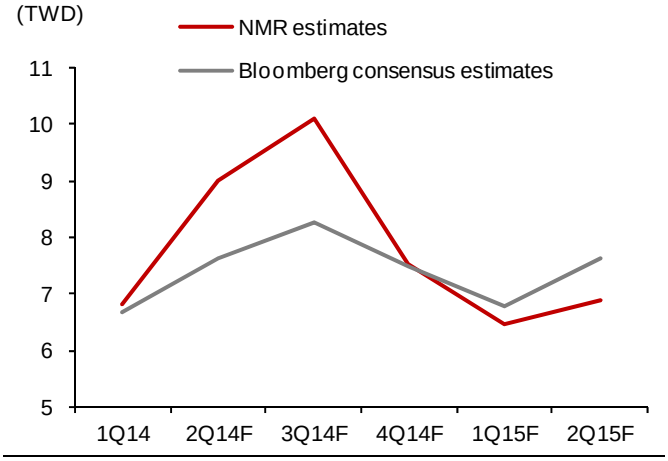
Our 3Q14-2Q15 EPS estimates are TWD10.1, TWD7.5, TWD6.4 and TWD6.9, which are +22%, +1%, -5% and -10% vs consensus estimates, respectively.

Fig. 60: Nomura vs consensus: GPM estimates
We are much more bearish than consensus on GPM trend over next one year



Source: Bloomberg, Nomura estimates

Fig. 61: Nomura vs consensus EPS estimates
We are more bullish than consensus on 1Q-3Q13 EPS estimates on volume upside, but more bearish after 4Q13 on GPM downside



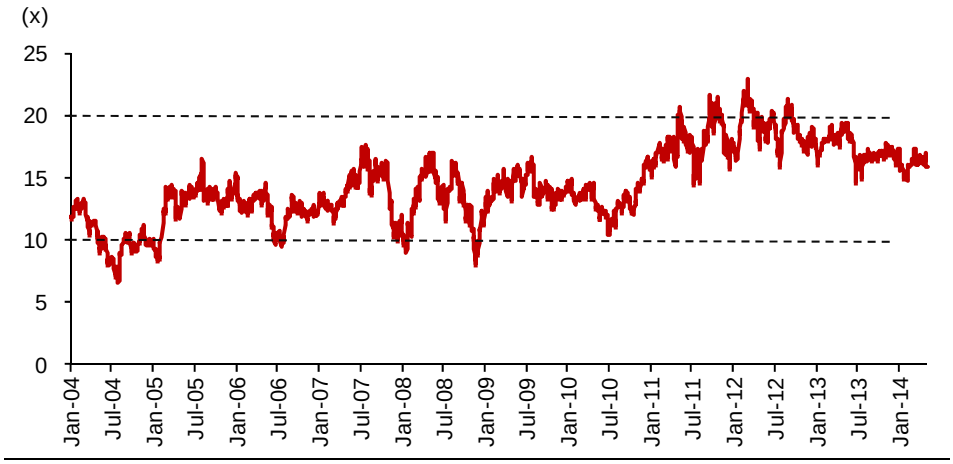
Source: Bloomberg, Nomura estimates

Valuation: de-rating may accelerate in the next 9-12 months

Despite the potential near-term sales and earnings upside, we do not expect the share price to react as much, since the valuation of MTK over the next one year could de-rate further.

We continue to use “consensus PER” (share price divided by “consensus earnings”) to gauge how investors evaluate MTK from time to time, to avoid being biased by MTK’s large earnings volatility. In the past ten years, MTK’s consensus PER has been in the range of 10-20x. We expect its valuation to approach 15x — its mid-cycle valuation — when the market starts realising the margin and earnings downside risks. That said, we don’t expect its valuation to approach the 10x trough-cycle valuation it saw as it underwent the transition from 2G to 3G, given that MTK is a stronger company now than back then, we think.

Fig. 62: Consensus PER, FY04-14F



Source: Bloomberg, Nomura estimates

The faster LTE phone prices fall, the worse the impact on MTK over next year

The pace of fall in LTE smartphone prices will impact the outcome of the 1st round of the LTE chip battle (2H14-1H15), in our view. By comparing QCOM and MTK's roadmaps for the next 3-4 quarters, we can conclude that the quicker LTE phone prices fall, the worse the impact on MTK will be, since we think QCOM is better prepared than MTK in the low-price LTE segment in 2H14.

Comparing the LTE roadmap between QCOM and MTK

What does QCOM LTE roadmap imply?

QCOM is much more proactive in responding to the (upcoming) LTE chip competition than it was in 3G, in our view. The most obvious example is the early planning of 8916, which is a low-cost LTE SOC chip which we expect to enter mass production in late 3Q14 or by 4Q14. This chip is critical in multiple ways:

1) It will mark the first time that QCOM will enter a mass market segment earlier than MTK (ie, MTK in 4Q14 will have the MT6732 to compete against the MSM8916 – one to three months later than QCOM);
2) This is also QCOM's 1st 64bit chip, which is giving QCOM an upper hand against MTK, in our view, given that we believe QCOM is trying to move customers' focus away from 32bit – where MTK has a cost advantage against QCOM – even in the low-end segment;
3) This is QCOM's first LTE chip which has taken out the CA feature (Carrier Aggregation — which is not necessary in China now), in order to shrink die sizes and save costs further.

What does MTK's LTE roadmap imply?

We believe MTK's LTE strategy is meaningfully different from QCOM's. QCOM, in response to the upcoming LTE competition, is proactively moving to the lowest LTE price segment (with the S400 chip 8916); MTK, on the other hand, is entering the LTE market in a higher-end LTE segment initially (with S800/S600 and S600/400 level equivalent chips MT6595 and MT6752).

In 2H14, MTK plans to use the MT6732 to counter QCOM's 8916 (timing wise, the MT6732 will be one to three months behind the 8916 though). However, we think the MT6732's cost structure will be higher than that for the 8916 due to the "LTE learning curve". Thus we can conclude that the quicker LTE phone prices fall, the worse it will be for MTK, since QCOM is more ready than MTK in the low-price LTE segment in 2H14.

Fig. 63: Roadmap of China smartphone chip vendors, including 3G and 4G - WCDMA

China WCDMA/HSPA+/LTE chip roadmap

		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Octa core	QCOM S800 (premium)													8994		
	MTK (premium)								MT6592		MT6592m		MT6595			
	MTK (mid range)												MT6752			
	QCOM S600 (mid range)												8939			
	SPRD (mid range)															Whale
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Hexa cores	QCOM S800 (premium)													8992		
	MTK										MT6591					
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Quad core	QCOM S800 (Premium)			APQ8064				8974		8974Pro		APQ8084				
	MTK (mid range)					MT6589			MT6582				MT6732			
	QCOM S400/600 (mid range)								8x26	8926		8916	8936			
	Marvell (mid range)												1986/7928			
	SRRD (mid range)								Shark					SharkL		
	MTK (entry level)					MT6589m		MT6582m								
	QCOM S200 (entry level)					8225Q				8x12						
	Marvell (entry level)								1088LTE	1088LTE Pro		1088LTE Ultra				
	SPRD (entry level)									T-Shark					T-shark L	
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
	QCOM S400/600 (mid range)	8x60		8x30				8x30AB								
	MTK (entry level)			MT6577				MT6572								
Dual core	QCOM S200 (entry level)				8225					8x10						
	MTK (low cost)							MT6572m								
	SPRD															
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Single core (ultra low cost)	MTK	MT6575														
	QCOM	7227A														
	SPRD							7710		7711						

Note: Numbers in red are LTE chips
Source: Company data, Nomura estimates

Fig. 64: Roadmap of China smartphone chip vendors, including 3G and 4G - TDSCDMA

China TDSCDMA/LTE chip roadmap

		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Octa core	QCOM S800 (premium)													8994		
	MTK (premium)								MT6592		MT6592m		MT6595			
	MTK (mid range)												MT6752			
	QCOM S600 (mid range)												8939			
	SPRD (mid range)															Whale
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Hexa cores	QCOM S800 (premium)													8992		
	MTK										MT6591					
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Quad core	QCOM S800 (Premium)							8974		8974Pro		APQ8084				
	MTK (mid range)					MT6589			MT6582				MT6732			
	QCOM S400/600 (mid range)								8x26	8926		8916	8936			
	Marvell (mid range)												1986/7928			
	SPRD (mid range)								Shark					SharkL		
	MTK (entry level)					MT6589m		MT6582m								
	QCOM S200 (entry level)									8x12						
	Marvell (entry level)								PXA1920	PXA1920 Pro		PXA1920 Ultra				
	SPRD (entry level)									T-Shark					T-shark L	
	Leadcore							LC1813						LC1860		
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
	QCOM S400/600 (mid range)	8x60		8x30				8x30AB								
	MTK (entry level)			MT6517+AS				MT6572								
Dual core	QCOM S200 (entry level)									8x10						
	MTK (low cost)							MT6572m			MT6571?					
	Leadcore				LC1810											
	SPRD						8825		8825C							
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Single core (ultra low cost)	MTK	MT6515+AS														
	SPRD			8810												

Note: Numbers in red are LTE chips
Source: Company data, Nomura estimates

Fig. 65: Global LTE SoC chip roadmap

Global LTE SOC roadmap

		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Octa core	QCOM S800 (premium)													8994		
	MTK (premium)												MT6595			
	MTK (mid range)												MT6752			
	QCOM S600 (mid range)												8939			
	SPRD (mid range)															Whale
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Hexa cores	QCOM S800 (premium)													8992		
	MTK											MT6291+LTE modem				
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Quad core	QCOM S800 (Premium)							8974		8974Pro		APQ8084				
	MTK (mid range)												MT6732			
	QCOM S400/600 (mid range)									8926		8916	8936			
	Marvell (mid range)												PXA1986/1928			
	SPRD (mid range)													Shark L		
	Intel (entry level)													Binghamton LTE		
	Marvell (entry level)								PXA1920	PXA1920 Pro		PXA1920 Ultra				
	SPRD (entry level)														T-shark L	
	Leadcore													LC1860		
		1Q12	2Q12	3Q12	4Q12	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14E	3Q14E	4Q14E	1Q15E	2Q15E	3Q15E
Dual core	QCOM S400/600 (mid range)	8x60		8x30				8x30AB								

Source: Company data, Nomura estimates

What is the LTE learning curve? How could it impact costs and margins?

MTK has expanded its cost advantage against QCOM in 3G chip competition over the past two years, by our observations. However, we are afraid this cost advantage will disappear or even reverse in the first year after MTK enters 4G, due to its un-optimized LTE chip design, given its limited experience – which we call the "LTE learning curve"

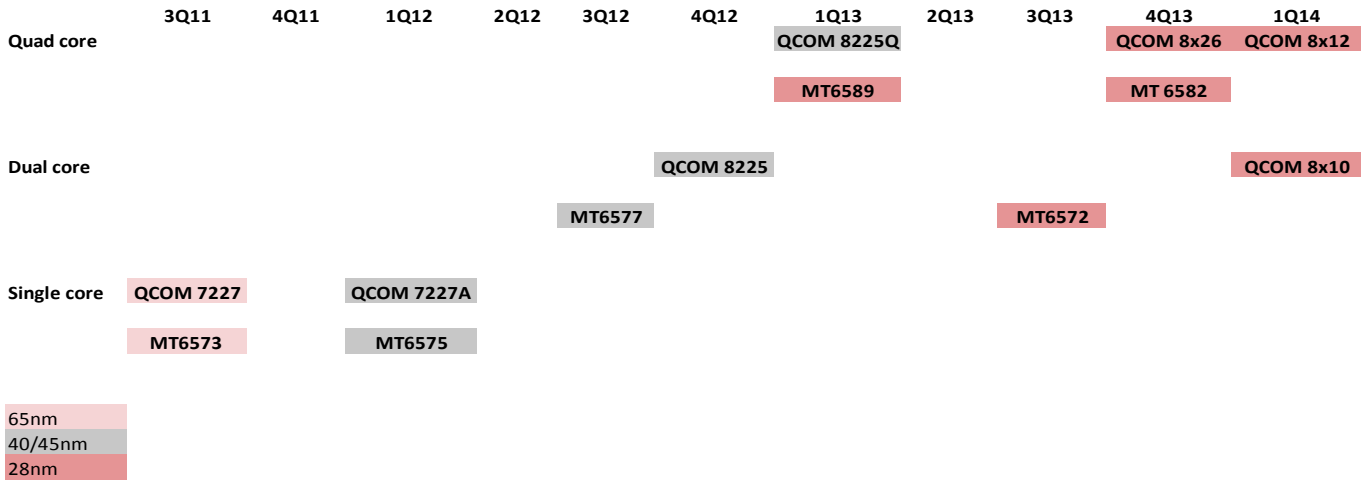
MTK has expanded its 3G cost advantage against QCOM meaningfully in the past two years…

2011 was the first year when MTK launched its 3G smartphone chips (MT6573, 65nm). We started turning positive on MediaTek around then, with the company's launch of the MT6575, its first 40nm chip with a CPU speed of 1GHz, as we believed that 1GHz can reach the minimum requirement of a "good enough" smartphone, leading to significant expansion of "white box/local" smartphone volume demand (for more details, see Anchor Report: Reversal of Fortune, 18 Oct 2011). MTK accelerated its product roll-out by launching the MT6577 (first dual core chip, 40nm), the MT6589 (first quad core chip, 28nm), the MT6572 (the lower-cost dual core chip, 28nm), and the MT6582 (the lower-cost quad core chip, 28nm) etc.

Despite QCOM's steep price cuts in recent years (for instance, the prices of some low-end chips were cut by 40-50% in a year), MTK's share at China smartphone makers still jumped to +50% in 2013, from 45% in 2012 and 15-20% in 2011. Meanwhile, its GPM started improving sequentially, to 43.2% in 2Q13 from the bottom of 40.8% in 2Q12, despite QCOM's steep price cuts. In addition to its successful duplication of its turnkey business model from feature phones to smartphones, its die cost optimization against QCOM is another hidden reason behind such impressive GPM improvement under tough competition, in our view.

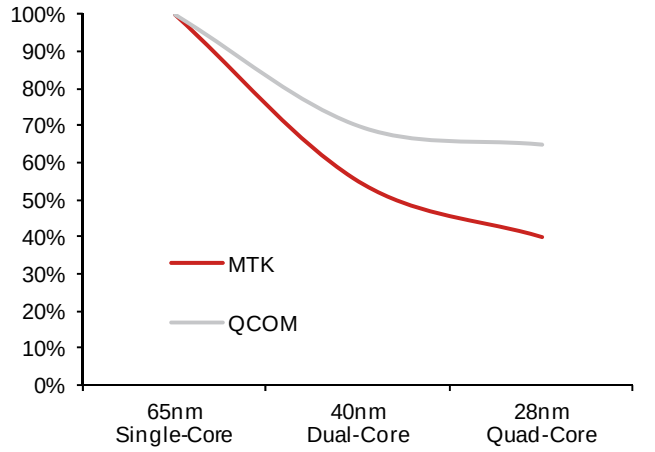
For example, when MTK launched its first 3G smartphone chip, the MT6573, in 3Q11, its die size was as big as QCOM's competing chip the MT7227 (on our estimates, there was only a 10% difference in their die sizes); our calculation shows that, moving to 40/45nm, MTK's chip die size decreased by around 45%, vs QCOM's decrease of only around 30%. The diverging trend accelerated into 28nm — we estimate MTK's 28nm quad core chip die size is around 60% smaller than its 65nm single-core chip, but QCOM's low-end quad core chip die size using 28nm is only 30-40% smaller than its 65nm single-core chip.

Fig. 66: 3G WCDMA smartphone chips roadmap – MediaTek vs. QCOM, 3Q11-1Q14



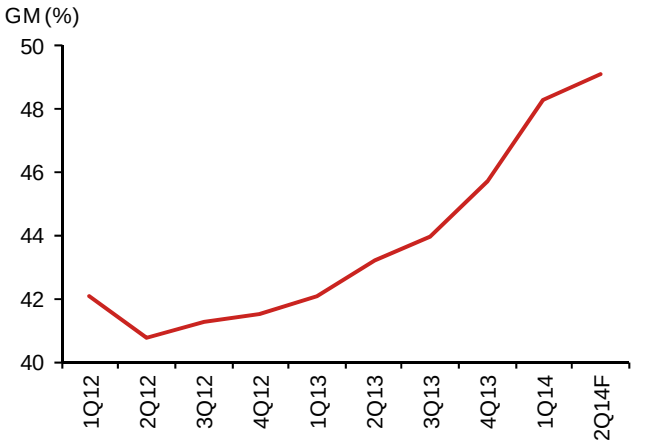
Source: Company data

Fig. 67: Die size comparison between QCOM and MediaTek in 3G era



Source: Company data, Nomura estimates

Fig. 68: MediaTek GPM trend from 1Q12-2Q14F



Source: Company data, Nomura estimates

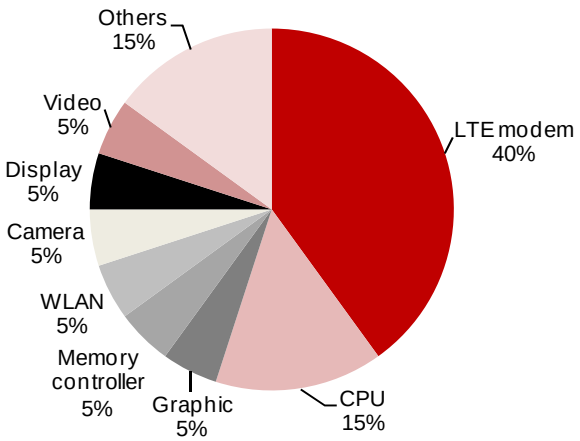
"LTE learning curve" could reverse MTK's margin cycle

The cost advantage (against QCOM) could diminish when MTK migrates to LTE from 3G, at least for the initial year (ie, 2H14-1H15), in our view, due mainly to MTK's learning curve for LTE chips. Due to the rising complexity of LTE vs 3G, we notice that the modem accounts for a higher amount of LTE SOC chip costs. For example, by our estimates, within a low-end LTE SOC chip, the LTE modem accounts for almost 40% of die costs, followed by 15% for the CPU and GPU. The remaining 40% is shared by the features of memory controller, WLAN, camera, display, video, etc.

We note that, due to the LTE learning curve, MTK's first-generation LTE SOC design couldn't be optimized, and its modem die size could be 50-100% bigger than QCOM's (note: 50-100% is a wide range since we don't have an apples-to-apples comparison here. For example, QCOM's LTE modem includes CDMA-EVDO and most of them can support CA functions; while MTK hasn't integrated CDMA-EVDO and can't support CA). Assuming that MTK's LTE modem is 60% bigger than QCOM's similar-spec modem, MTK's LTE SOC die would be 24% higher than QCOM's. In this case, MTK needs to make non-modem die sizes 40% smaller than QCOM's similar spec chips, in order to get the entire LTE SOC chip die cost on par with QCOM's similar spec chips.

Fig. 69: Die cost breakdown of a low-end LTE SOC chip

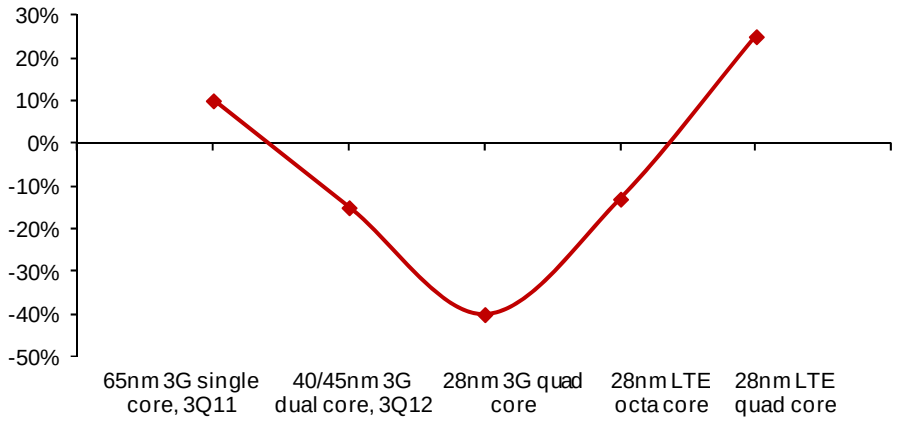
Modem accounts for 40% of die cost of a low-end LTE SOC chip



Source: Nomura estimates

The cost disadvantage would be a fundamental problem that MTK can't bypass in the first year of ramping LTE SOC chips (not to mention those discrete LTE chip solutions that will be launched before 4Q13 when MTK's LTE SOC chips enter mass production). By our estimates, MTK's die cost advantage against QCOM would be at only 10% in octa core LTE SOCs (vs the peak of about 20-30% in the 3G quad core era). What's worse, we believe MTK will be at a severe disadvantage if we compare its quad core LTE SOC (which we suppose would be the mainstream LTE SOC spec) with QCOM's.

Fig. 70: Cost difference between MediaTek and QCOM, from 3G to 4G era

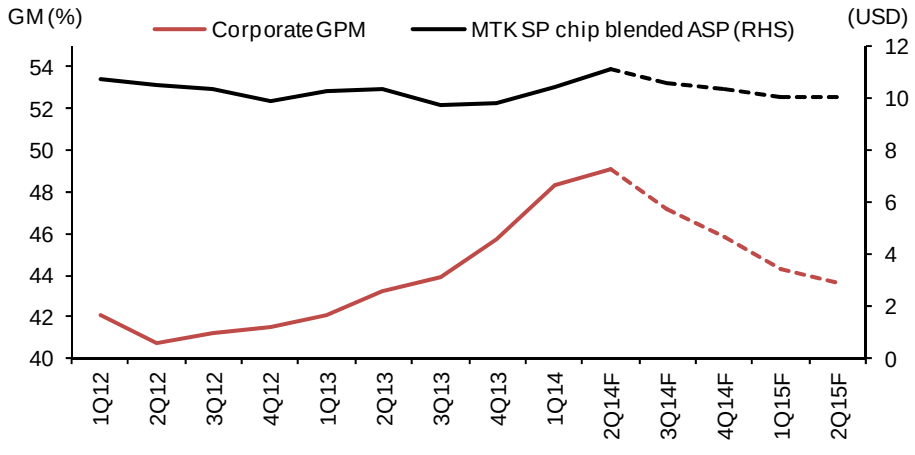


Source: Nomura estimates.

Note: Negative (positive) territory indicates that MediaTek (QCOM) has cost advantage. The bigger the number, the bigger the advantage (disadvantage)

The impact from this would be a reversal of the margin cycle from 2H14, even if we assume the smartphone (3G and 4G) chip blended ASP can remain flattish at current levels. MTK started expanding GPM from near 40% in 2Q12 until the likely peak of near 50% in 2Q14, despite the blended ASP being quite stable at US$10 +/-5% over the past 10 quarters, by our estimates – thanks to chip cost optimization. That said, even if we assume ASP will stay flattish at US$10+-5%, we expect corporate GPM to trend down into 1H15.

Fig. 71: MediaTek's smartphone chip ASP vs. corporate GPM, 3Q12-2Q15F



Source: Company data, Nomura estimates

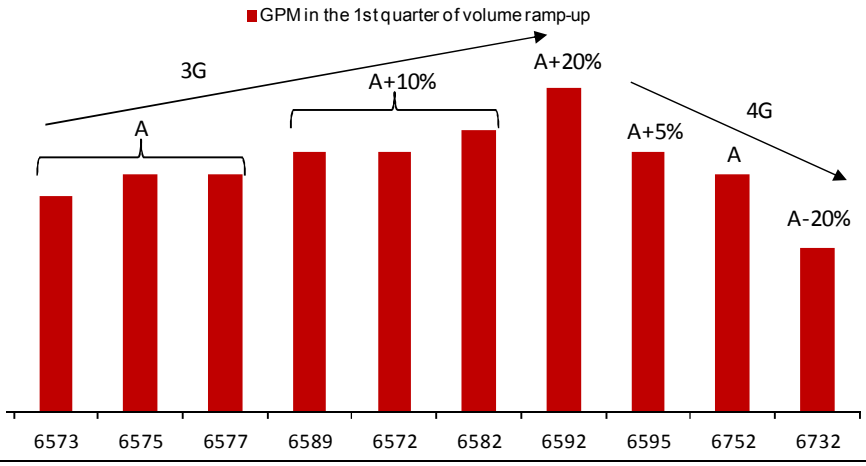
MTK's LTE SOC chips would be margin dilutive, rather than accretive

Our argument for the reversal of the gross margin trend can be elaborated from another perspective. We compare the gross margin of MTK's major smartphone SOC chips from 2011 by our proprietary estimates (to eliminate the impact of different product life cycles in order to have a fair comparison for each chip, we compare gross margin of those chips in their first quarters of volume ramp-up).

MTK's smartphone chip gross margin has seen meaningful improvement since the launch of the MT6589 (which entered volume ramp-up from 1Q13). Before then, if we assume gross margin of smartphone chips the MT6573 (first quarter volume ramp-up from 4Q11), the MT6575 (first quarter volume ramp-up from 2Q12) and the MT6577 (first quarter volume ramp-up from 3Q12) were all at about the range of "A" level, the new chips launched in 2013, including the MT6589, the MT6572 (first quarter volume ramp-up from 3Q13) and the MT6582 (first quarter volume ramp-up from 4Q13) were carrying gross margins of "A+10%". The gross margin of smartphone chips reached a record level of about "A+20%" with the launch of the MT6592 3G octa core, on our estimates.

However, we believe the MT6592 will mark the gross margin peak for the 3G smartphone chip cycle. With the LTE learning curve kicking in, we expect the gross margin for high-end smartphone SOC chips will start falling. For example, we expect high-end LTE SOC chips, including two 4G Octa chips the MT6595 and MT6752, to carry "A+5%" and "A" GPMs respectively (vs 3G octa chip MT6592's "A+20%"). What's worse, the 4G quad core chip MT6732 may carry a "A-20%" gross margin, by our estimates, given that the chip design is not optimized and QCOM is pricing aggressively in the low-end LTE market with the Snapdragon 410 (or 8916).

Fig. 72: MediaTek's new chip GPM during first quarter of volume production
The three LTE SOCs in 2H14 would be margin dilutive, which will reverse MTK's GPM cycle



Source: Nomura estimates

Any upside risk to our view of margin reversal? (yes, if MTK can boost its ASP meaningfully…)

Our bold argument on the reversal of the margin cycle from 2H14 could be at risk if MTK can expand its smartphone chip blended ASP meaningfully with the product portfolio extending to LTE. We notice that blended ASP expansion is a general assumption by many investors, given that LTE chips are selling at higher prices vs 3G chips (USD15-40 vs. USD5-30). However, such a straightforward assumption is a risk, in our view, given that it doesn't consider "chip vendors' competition" and "customers' consumption power". We expect MTK's smartphone blended ASP to stay flat at US$10+-5% over the next year. In this case, we estimate GPM will start reversing from 2H14.

Can MTK boost smartphone blended ASP when LTE volume picks up? We don't think so

Competition wise, clearly QCOM is not willing to give up on the China LTE chip market (from the perspective that it is cutting prices of the low-end LTE chip MSM8926 aggressively in 1H14 and will roll out the next-generation low-end LTE chip MSM8916 even earlier than MTK's MT6732). Thus, MTK can only count on selling more high-end chips if it intends to boost blended ASP.

We believe the two questions below can help us gauge if MTK is able to sell more high-end chips: 1) whether MTK can expand its customer base to global top-tier brands meaningfully; and 2) whether China handset brands are able to sell their phones at higher price segments.

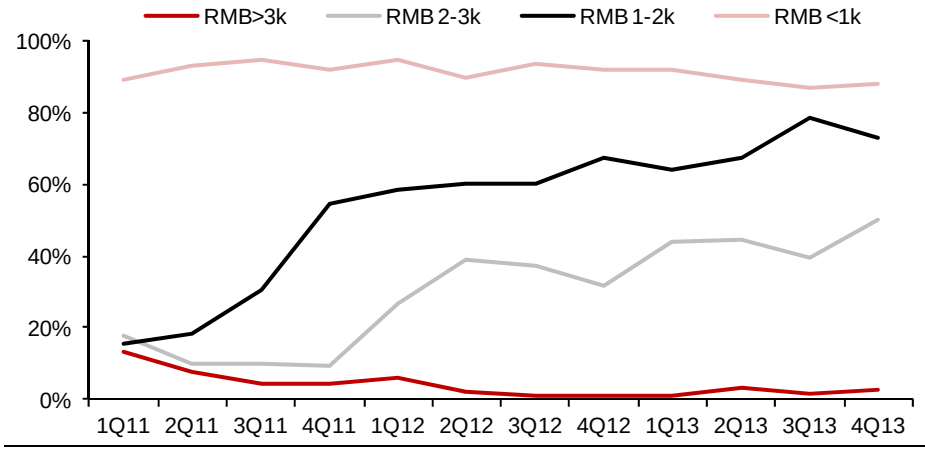
MTK is definitely trying to migrate its product portfolio to higher-end segments. The ambition can be seen from its order of launches of LTE SOC chips – starting from the MT6595 (high end), followed by the MT6752 (mid range) and the MT6732 (low end). The problem is that market demand will likely concentrate at the low-end LTE segment (such as the segment of QCOM's 8916, or Marvell's PXA1920, where LTE SOC chip prices should be US$10-15 in 2H14) and where MTK LTE SOC chip the MT6732 will only carry below-corporate average gross margin ("A-20%", by our estimates).

To overcome this issue, MTK needs to sell more high-end chips to either global top-tier brands or China brands' high-end models. We believe either way will take some time to positively affect MTK's shipment mix in a meaningful manner.

MTK has started its new brand marketing campaign globally from MWC (MediaTek on MWC) but it takes time to break into operators in the US and Western Europe, given that QCOM is also defending aggressively.

How about high-end models from China brands? There appears to be some good signs, but the overall trend still looks not encouraging. The good sign is that some China brands are moving up their brand value consistently. Though China brands still struggle to sell their smartphones at retail prices above RMB3k, they have been successful in moving away from RMB1k. For example, by our survey, China brands now account for 50% of volume share at the RMB2-3k retail price segment, up from 30% level a year ago and 10% two years ago. These are offering upside potential (for ASP and GPM) for MTK.

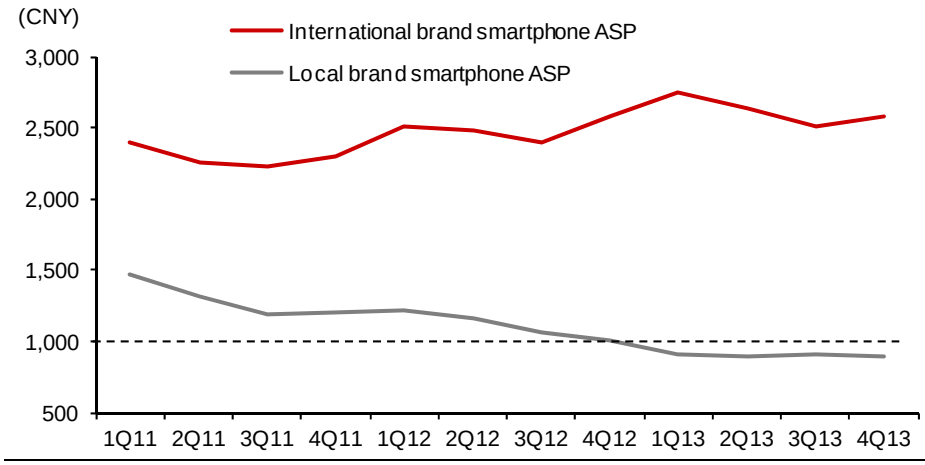
Fig. 73: China brands' share by price segment, 1Q11-4Q13



Source: Nomura estimates

That said, the overall trend still looks negative. As we addressed in the sector portion of this report, the blended ASP of smartphones for China brands keeps has kept falling in the past three years, despite some brands moving up the price range successfully (which means much more brands are driving volumes by cutting pricing).

Fig. 74: Smartphone ASP of local brands and international brands in China, 1Q11-4Q13



Source: Nomura estimates

Thus, we conclude that MTK — which is already a proxy to China smartphone chip demand with 50%-plus market share — needs to expand its customer base to international brands meaningfully in order to boost its smartphone chip blended ASP.

Earnings estimate revisions

We revise up our FY14 earnings forecasts by 20% to factor in our view of smartphone volume upside potential (i.e., we model 400mn unit shipment of smartphones in 2014 vs. company's guidance of "more than 300mn units), but we keep 2015 EPS estimate unchanged since we expect margin pressure to emerge from 2H14F when low-end quad core LTE SOC volume ramps up. We expect MTK's 2015 EPS to fall 10% y-y.

Fig. 75: MediaTek: Earnings forecast revisions

	2014F			2015F			2016F		
(TWDmn)	Previous	Revised	Change (%)	Previous	Revised	Change (%)	Previous	Revised	Change (%)
Sales	197,207	219,755	11.4	220,895	235,990	6.8	-	254,303	
Gross profit	93,142	104,597	12.3	100,304	103,237	2.9	-	110,715	
Operating income	43,341	52,511	21.2	47,220	46,306	(1.9)	-	47,563	
Net profit	43,451	51,748	19.1	47,813	46,928	(1.9)	-	48,231	
EPS (NT$)	27.7	33.4	20.7	30.5	30.0	-1.6	-	30.9	
Gross-profit margin (%)	47.2	47.6	0.4	45.4	43.7	(1.7)		43.5	
Operating-profit margin (%	22.0	23.9	1.9	21.4	19.6	(1.8)		18.7	
Net-profit margin (%)	22.0	23.5	1.5	21.6	19.9	(1.8)		19.0	

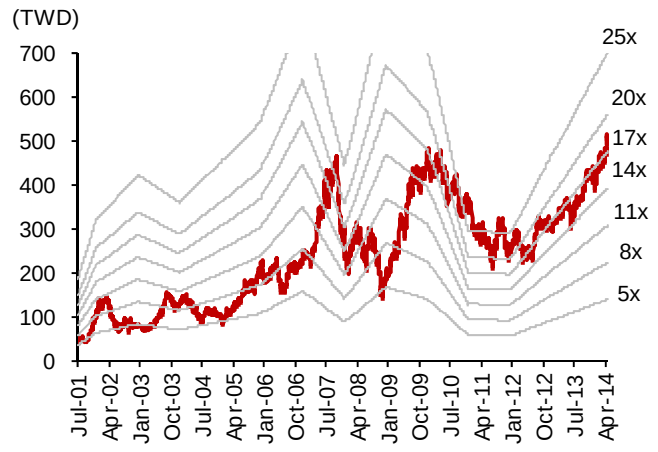
Source: Company data; Nomura estimates

Valuation methodology and risks

Our TP of TWD450 is based on 15x our FY15F EPS estimate of TWD30 vs our previous TP of TWD510 based on 17.5x FY14-15F average EPS of TWD29.1. As MTK enters a technology transition period, we believe it will see a structural GPM decline in the 4G era initially. We expect a negative earnings CAGR over FY14-15F vs a 64% CAGR over FY12-14F. Thus, we lower our target P/E from 17.5x to 15x to factor in a potential valuation de-rating while our FY15F earnings growth is downgraded from 10% to -10% y-y (our FY15F OP/EPS estimates are 14%/10% below consensus). Our valuation methodology is unchanged.

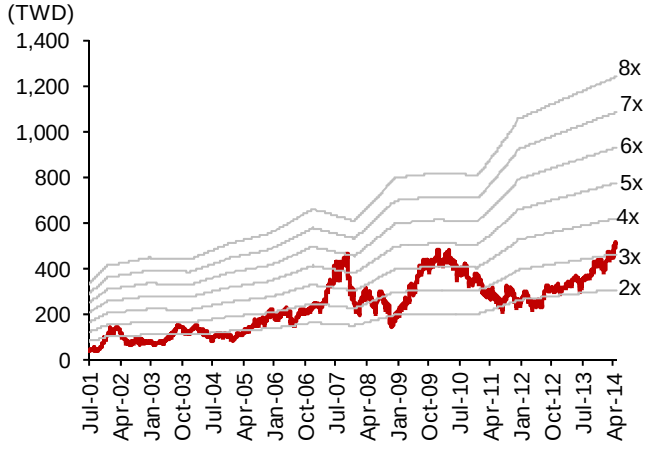
Key risks include price competition from Qualcomm and Spreadtrum, 28nm yield rates and consumers' choices between high-spec and low-spec smartphones.

Fig. 76: MediaTek: P/E



Source: Bloomberg, Nomura research

Fig. 77: MediaTek: P/B



Source: Bloomberg, Nomura research

Fig. 78: MediaTek: P&L

GAAP (TWD mn)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Net sales	46,005	57,100	62,473	54,176	52,164	57,371	64,405	62,050	136,056	219,755	235,990	254,303
COGS	23,779	29,058	32,978	29,342	29,065	32,364	36,314	35,009	76,250	115,157	132,753	143,589
Gross profit	**22,226**	**28,042**	**29,495**	**24,834**	**23,099**	**25,006**	**28,091**	**27,041**	**59,806**	**104,597**	**103,237**	**110,715**
SG&A	2,497	4,512	5,053	4,353	3,874	4,537	5,214	5,047	8,108	16,416	18,672	21,959
R&D expenses	8,915	8,853	9,089	8,813	9,285	9,480	9,744	9,750	26,454	35,670	38,259	41,193
Op income	**10,813**	**14,676**	**15,353**	**11,668**	**9,939**	**10,989**	**13,133**	**12,244**	**25,244**	**52,511**	**46,306**	**47,563**
Net non-op income	788	786	1,125	717	729	913	1,240	738	4,597	3,416	3,620	3,724
Pretax income	11,501	15,340	16,355	12,260	10,543	11,776	14,245	12,852	29,547	55,456	49,416	50,758
Tax expenses	1,362	1,292	587	502	472	1,031	536	495	2,062	3,742	2,535	2,577
Minority Interest	0	(11)	(13)	(10)	(10)	(11)	(13)	(12)	(30)	(34)	(46)	(50)
Net income	**10,139**	**14,060**	**15,781**	**11,768**	**10,081**	**10,756**	**13,722**	**12,370**	**27,515**	**51,748**	**46,928**	**48,231**
EPS (TWD)	**6.82**	**8.99**	**10.10**	**7.53**	**6.45**	**6.88**	**8.78**	**7.91**	**20.39**	**33.44**	**30.02**	**30.86**

Profitability (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Gross margin	48.3	49.1	47.2	45.8	44.3	43.6	43.6	43.6	44.0	47.6	43.7	43.5
Op margin	23.5	25.7	24.6	21.5	19.1	19.2	20.4	19.7	18.6	23.9	19.6	18.7
PBT margin	25.0	26.9	26.2	22.6	20.2	20.5	22.1	20.7	21.7	25.2	20.9	20.0
Net margin	22.0	24.6	25.3	21.7	19.3	18.7	21.3	19.9	20.2	23.5	19.9	19.0

q-q (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Sales	16	24	9	(13)	(4)	10	12	(4)				
Gross profit	22	26	5	(16)	(7)	8	12	(4)				
Op income	29	36	5	(24)	(15)	11	20	(7)				
Net income	18	39	12	(25)	(14)	7	28	(10)				

y-y (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Sales	92	72	60	36	13	0	3	15	37	62	7	8
Gross profit	120	95	72	37	4	(11)	(5)	9	46	75	(1)	7
Op profit	250	149	95	39	(8)	(25)	(14)	5	102	108	(12)	3
Net profit	171	109	87	36	(1)	(23)	(13)	5	75	88	(9)	3

Source: Company data, Nomura estimates

NOMURA

Novatek Microelectronics

3034.TW 3034 TT

EQUITY: FABLESS

Re-rating on growing earnings outlook

Product diversification to high-margin TV SOC business to drive 20% EPS CAGR in FY14-15F

Action/Valuation: Reiterate Buy with Street-high TP of TWD175

Although we have been bullish on Novatek from the beginning of the year due to its mobile display driver IC (DDI) inventory rebuild cycle and new growth engine TV SOC business, it seems to still be able to surprise us by delivering upside surprises. Echoing our view that its 2Q outlook could be another strong beat to consensus ("Breaking out", 6 May, 2014), Novatek guided for 2Q sales to grow 16-21% q-q with 27.5-29% GPM. Given the structurally improving long-term outlook (see Novatek Microelectronics (3034 TT, Buy) - A re-rating story on TV SOC strength) and strong beat on 2QF outlook, we reiterate our Buy rating and street-high TP of TWD175 on 16x FY14-15F EPS of TWD10.9.

Catalysts: China LTE driving mobile DDI resolution upgrade; Plus TV SOC, 20% earnings CAGR in FY14-15F is visible

- From the start of this year, we continued to highlight that mobile DDI was likely to see inventory rebuild post CNY, after three quarters of correction (Novatek Microelectronics (3034 TT, Neutral) - Approaching cycle bottom. Upgrade to Neutral and Novatek Microelectronics (3034 TT, Buy) - An upgrade amid declining Street confidence). Our recent survey suggests that rebuild momentum is accelerating into 2Q. As well, migration to LTE is pushing resolution upgrade (eg, QCOM's low-end LTE SOC MSM8926 and MS8916 recommends HD720 resolution, vs. the mainstream of WVGA in the 3G era).
- More important, TV SOC – which we define as a structural re-rating driver into 2015F – is also likely to see significant growth in 2QF, as we found recent design-in activity for 4k2k TVs is accelerating globally.

Year-end 31 Dec	FY13		FY14F		FY15F		FY16F
Currency (TWD)	Actual	Old	New	Old	New	Old	New
Revenue (mn)	41,450	49,198	49,197	55,505	55,505		63,686
Reported net profit (mn)	4,745	6,099	6,087	7,221	7,225		8,357
Normalised net profit (mn)	4,745	6,099	6,087	7,221	7,225		8,357
FD normalised EPS	7.81	10.02	10.02	11.87	11.87		13.73
FD norm. EPS growth (%)	6.3	28.3	28.3	18.4	18.5		15.7
FD normalised P/E (x)	19.2	N/A	15.0	N/A	12.6	N/A	10.9
EV/EBITDA (x)	13.5	N/A	10.8	N/A	8.8	N/A	7.5
Price/book (x)	3.7	N/A	3.3	N/A	3.0	N/A	2.6
Dividend yield (%)	3.9	N/A	5.0	N/A	5.9	N/A	6.9
ROE (%)	16.2	20.9	18.6	24.7	24.7		25.5
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash		net cash

Source: Company data, Nomura estimates

Key company data: See page 2 for company data and detailed price/index chart

Global Markets Research

11 June 2014

Rating Remains	**Buy**
Target price Remains	TWD 175.0
Closing price 9 June 2014	TWD 150.0
Potential upside	+16.7%

Anchor themes

We expect IC design companies that can continue to grow market share, deliver stronger-than-peer sales growth, and sustain gross margins to outperform their peers.

Nomura vs consensus

Our FY14F and FY15F EPS are 4% and 8% above consensus, respectively.

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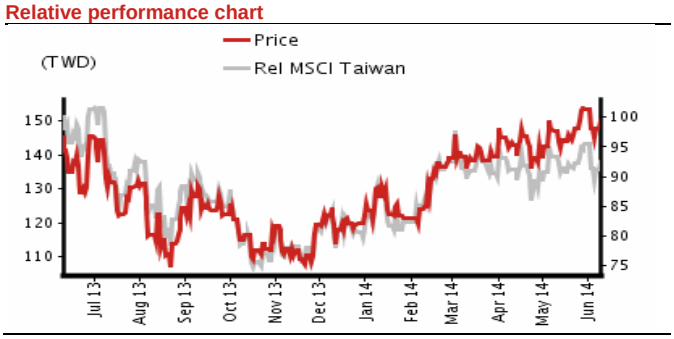
Key data on Novatek Microelectronics

Relative performance chart



Source: Thomson Reuters, Nomura research

Notes:

Performance

(%)	1M	3M	12M		
Absolute (TWD)	2.0	7.5	4.5	M cap (USDmn)	3,043.8
Absolute (USD)	2.5	8.4	3.6	Free float (%)	87.0
Rel to MSCI Taiwan	-0.9	1.3	-8.4	52-week (TWD)	155/105.5

Income statement (TWDmn)

Year-end 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
Revenue	37,029	41,450	49,197	55,505	63,686
Cost of goods sold	-26,642	-29,957	-35,244	-39,484	-45,214
Gross profit	10,387	11,493	13,953	16,021	18,472
SG&A	-1,177	-1,262	-1,388	-1,537	-1,763
Employee share expense	-4,258	-4,799	-5,700	-6,133	-7,037
Operating profit	4,952	5,431	6,865	8,352	9,672
EBITDA	5,370	5,870	7,299	8,800	10,135
Depreciation	-221	-262	-275	-286	-298
Amortisation	-197	-176	-158	-161	-165
EBIT	4,952	5,431	6,865	8,352	9,672
Net interest expense	101	88	106	149	160
Associates & JCEs	-12	18	0	0	0
Other income	80	146	55	0	0
Earnings before tax	5,121	5,683	7,026	8,501	9,832
Income tax	-684	-938	-939	-1,275	-1,475
Net profit after tax	4,437	4,745	6,087	7,225	8,357
Minority interests	0	0	0	0	0
Other items	0	0	0	0	0
Preferred dividends	0	0	0	0	0
Normalised NPAT	4,437	4,745	6,087	7,225	8,357
Extraordinary items	0	0	0	0	0
Reported NPAT	4,437	4,745	6,087	7,225	8,357
Dividends	-3,336	-3,574	-4,587	-5,421	-6,255
Transfer to reserves	1,101	1,171	1,500	1,805	2,103
Valuations and ratios					
Reported P/E (x)	20.4	19.2	15.0	12.6	10.9
Normalised P/E (x)	20.4	19.2	15.0	12.6	10.9
FD normalised P/E (x)	20.4	19.2	15.0	12.6	10.9
Dividend yield (%)	3.7	3.9	5.0	5.9	6.9
Price/cashflow (x)	18.0	14.8	69.9	17.4	6.3
Price/book (x)	3.8	3.7	3.3	3.0	2.6
EV/EBITDA (x)	15.0	13.5	10.8	8.8	7.5
EV/EBIT (x)	16.3	14.6	11.5	9.3	7.9
Gross margin (%)	28.1	27.7	28.4	28.9	29.0
EBITDA margin (%)	14.5	14.2	14.8	15.9	15.9
EBIT margin (%)	13.4	13.1	14.0	15.0	15.2
Net margin (%)	12.0	11.4	12.4	13.0	13.1
Effective tax rate (%)	13.4	16.5	13.4	15.0	15.0
Dividend payout (%)	75.2	75.3	75.4	75.0	74.8
ROE (%)	18.2	16.2	18.6	24.7	25.5
ROA (pretax %)	23.8	25.9	29.5	30.7	31.9
Growth (%)					
Revenue	5.6	11.9	18.7	12.8	14.7
EBITDA	22.9	9.3	24.3	20.6	15.2
Normalised EPS	19.5	6.3	28.3	18.5	15.7
Normalised FDEPS	19.5	6.3	28.3	18.5	15.7

Source: Company data, Nomura estimates

Cashflow statement (TWDmn)

Year-end 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
EBITDA	5,370	5,870	7,299	8,800	10,135
Change in working capital	63	-172	-2,865	-1,833	-2,393
Other operating cashflow	-399	447	-3,131	-1,726	6,693
Cashflow from operations	5,034	6,145	1,303	5,241	14,435
Capital expenditure	-188	-219	-38	-30	-31
Free cashflow	4,846	5,926	1,265	5,211	14,404
Reduction in investments	1	22	-45	-61	-64
Net acquisitions	0	0	0	0	0
Dec in other LT assets		0	0	0	0
Inc in other LT liabilities		0	0	0	0
Adjustments	-197	-160	-18	0	0
CF after investing acts	4,650	5,788	1,202	5,149	14,340
Cash dividends	-2,774	-3,397	-3,574	-4,587	-5,421
Equity issue	0	0	0	0	0
Debt issue	-509	-999	324	0	0
Convertible debt issue	0	0	0	0	0
Others	386	-1,223	2,521	776	-7,742
CF from financial acts	-2,896	-5,619	-728	-3,811	-13,163
Net cashflow	1,753	169	474	1,338	1,178
Beginning cash	16,369	18,123	18,292	18,766	20,104
Ending cash	18,122	18,292	18,766	20,104	21,281
Ending net debt	-10,776	-11,944	-12,192	-13,661	-14,966

Balance sheet (TWDmn)

As at 31 Dec	FY12	FY13	FY14F	FY15F	FY16F
Cash & equivalents	18,123	18,292	18,766	20,104	21,281
Marketable securities	0	0	0	0	0
Accounts receivable	10,965	10,778	14,044	15,864	18,299
Inventories	3,862	4,362	6,303	7,193	8,291
Other current assets	695	296	334	334	334
Total current assets	33,645	33,727	39,447	43,494	48,205
LT investments	1,480	1,427	1,514	1,576	1,639
Fixed assets	1,544	1,522	1,492	1,523	1,553
Goodwill	0	0	0	0	0
Other intangible assets	2,775	2,063	1,922	1,772	1,635
Other LT assets	66	257	270	273	276
Total assets	39,510	38,996	44,645	48,638	53,309
Short-term debt	7,347	6,348	6,573	6,443	6,315
Accounts payable	5,330	4,991	6,924	7,848	9,035
Other current liabilities	2,716	2,796	3,245	3,196	3,148
Total current liabilities	15,393	14,135	16,742	17,487	18,499
Long-term debt	0	0	0	0	0
Convertible debt	0	0	0	0	0
Other LT liabilities	102	242	246	246	246
Total liabilities	15,494	14,378	16,987	17,733	18,744
Minority interest	0	0	0	0	0
Preferred stock	0	0	0	0	0
Common stock	6,059	6,085	6,085	6,085	6,085
Retained earnings	17,957	18,534	21,573	24,820	28,479
Proposed dividends	0	0	0	0	0
Other equity and reserves	0	0	0	0	0
Total shareholders' equity	24,016	24,619	27,658	30,905	34,564
Total equity & liabilities	39,510	38,996	44,645	48,638	53,309
Liquidity (x)					
Current ratio	2.19	2.39	2.36	2.49	2.61
Interest cover	na	na	na	na	na
Leverage					
Net debt/EBITDA (x)	net cash	net cash	net cash	net cash	net cash
Net debt/equity (%)	net cash	net cash	net cash	net cash	net cash
Per share					
Reported EPS (TWD)	7.35	7.81	10.02	11.87	13.73
Norm EPS (TWD)	7.35	7.81	10.02	11.87	13.73
FD norm EPS (TWD)	7.35	7.81	10.02	11.87	13.73
BVPS (TWD)	39.64	40.46	45.45	50.79	56.80
DPS (TWD)	5.51	5.87	7.54	8.91	10.28
Activity (days)					
Days receivable	106.2	95.7	92.1	98.3	98.2
Days inventory	45.9	50.1	55.2	62.4	62.7
Days payable	64.1	62.9	61.7	68.3	68.3
Cash cycle	88.1	83.0	85.6	92.4	92.5

Source: Company data, Nomura estimates

Earnings revisions

We factor in 1Q14 numbers and continue to expect the TV SOC business ramp-up to accelerate from 2Q14F, thus we revise our FY14F/15F earnings by -0.1%/0.1%. Our adjusted FY14F/15F EPS are 2%/ 1% above consensus, thus reflecting potential margin improvement in FY14F/15F.

Fig. 79: Novatek: Revisions to our earnings forecasts

	2014F			2015F			2016F		
(TWDmn)	Previous	Revised	Change (%)	Previous	Revised	Change (%)	Previous	Revised	Change (%)
Sales	49,198	49,197	(0.0)	55,505	55,505	0.0	-	63,686	
Gross profit	13,950	13,953	0.0	16,021	16,021	0.0	-	18,472	
Operating income	6,918	6,865	(0.8)	8,352	8,352	0.0	-	9,672	
Net profit	6,099	6,087	(0.2)	7,221	7,225	0.1	-	8,357	
EPS (TWD)	10.02	10.02	(0.1)	11.87	11.87	0.1	-	13.73	
Gross-profit margin (%)	28.4	28.4		28.9	28.9		-	29.0	
Operating-profit margin (%)	14.1	14.0		15.0	15.0		-	15.2	
Net-profit margin (%)	12.4	12.4		13.0	13.0		-	13.1	

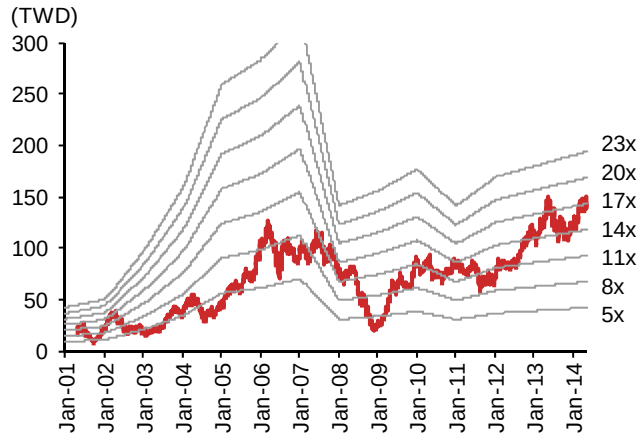
Source: Company data, Nomura estimates

Valuation: a re-rating seems possible

Our TP of TWD175 is based on 16x our FY14-15F average EPS of TWD10.9. Our target P/E of 16x is slightly above the valuation range of 11-15x P/E of the past two years, as we think Novatek is worth a higher valuation vs its historical range following its successful diversification into the high-margin non-driver SOC business.

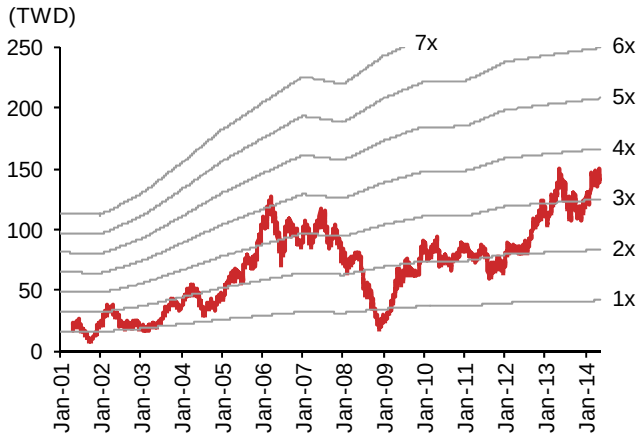
Downside risks include: worse-than-expected end-demand for smartphones and 4K2K TVs. Upside risks include: 1) better-than-expected panel demand and 2) further share gains in the large DDI market.

Fig. 80: Novatek: P/E



Source: Company data, Nomura estimates

Fig. 81: Novatek: P/B



Source: Company data, Nomura estimates

Fig. 82: Novatek: P&L

GAAP (TWDmn)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Net sales	10,593	12,260	13,347	12,997	12,414	13,509	14,895	14,687	41,450	49,197	55,505	63,686
COGS	7,622	8,805	9,542	9,275	8,842	9,602	10,584	10,455	29,957	35,244	39,484	45,214
Gross profit	**2,971**	**3,456**	**3,805**	**3,722**	**3,572**	**3,907**	**4,311**	**4,231**	**11,493**	**13,953**	**16,021**	**18,472**
SG&A	321	356	360	351	360	378	402	397	1,262	1,388	1,537	1,763
R&D expenses	1,260	1,410	1,535	1,495	1,378	1,486	1,638	1,630	4,799	5,700	6,133	7,037
Op income	**1,389**	**1,690**	**1,910**	**1,876**	**1,834**	**2,043**	**2,270**	**2,204**	**5,431**	**6,865**	**8,352**	**9,672**
Net non-op income	55	38	37	31	35	39	41	34	252	161	149	160
Pretax income	1,444	1,728	1,947	1,907	1,870	2,082	2,311	2,238	5,683	7,026	8,501	9,832
Tax expenses	177	242	253	267	280	312	347	336	938	939	1,275	1,475
Net income	**1,267**	**1,486**	**1,694**	**1,640**	**1,589**	**1,769**	**1,965**	**1,902**	**4,745**	**6,087**	**7,225**	**8,357**
EPS (NT$)	**2.09**	**2.45**	**2.79**	**2.70**	**2.61**	**2.91**	**3.23**	**3.13**	**7.81**	**10.02**	**11.87**	**13.73**

Profitability (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Gross margin	28.0	28.2	28.5	28.6	28.8	28.9	28.9	28.8	27.7	28.4	28.9	29.0
Op margin	13.1	13.8	14.3	14.4	14.8	15.1	15.2	15.0	13.1	14.0	15.0	15.2
PBT margin	13.6	14.1	14.6	14.7	15.1	15.4	15.5	15.2	13.7	14.3	15.3	15.4
Net margin	12.0	12.1	12.7	12.6	12.8	13.1	13.2	13.0	11.4	12.4	13.0	13.1

QoQ (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Sales	-0	16	9	-3	-4	9	10	-1				
Gross profit	2	16	10	-2	-4	9	10	-2				
Op income	4	22	13	-2	-2	11	11	-3				
Net income	6	17	14	-3	-3	11	11	-3				

YoY (%)	1Q14	2Q14F	3Q14F	4Q14F	1Q15F	2Q15F	3Q15F	4Q15F	FY13	FY14F	FY15F	FY16F
Sales	13	12	26	22	17	10	12	13	12	19	13	15
Gross profit	14	14	29	28	20	13	13	14	11	21	15	15
Op profit	16	13	37	40	32	21	19	17	10	26	22	16
Net profit	19	19	37	38	25	19	16	16	7	28	19	16

Source: Company data, Nomura estimates

NOMURA

Qualcomm, Inc. QCOM.O QCOM US

EQUITY: AMERICAS SEMICONDUCTORS

Competitive Position in China Strengthening

Increasing Target Price to $90

Qualcomm is likely the key beneficiary from TD-LTE ramp in 2H

Most chipset vendors saw a decline in Q1 shipments in China. MediaTek's shipments started to slow down in Q4 and the decline continued through Q1 (down 6%). Qualcomm also saw a 12% overall sequential decline in shipments in Q1, as carriers cleared 3G device inventory in preparation for TD-LTE device launches. Despite this softness, the company expects a meaningful ramp of TD-LTE devices in China in 2H and recently increased its outlook for the QCT business for the remainder of fiscal 2014. We expect the TD-LTE ramp in China to start in June/July this year.

Nomura's downgrade of MediaTek increases our confidence in Qualcomm's China ramp

Nomura Tech analyst Aaron Jeng is downgrading MediaTek on concerns that its LTE chipsets are not cost competitive to Qualcomm's mass market solution (8916). Aaron estimates that Qualcomm's mass market LTE SoC has a meaningfully smaller (20-30%) die size than MediaTek's equivalent solution. This bolsters our confidence that Qualcomm has the most competitive cost and feature-optimized roadmap to support a broad-based LTE ramp in China. This is important, as we expect most of the LTE growth this year to come from mid-range and low-end devices. In addition, Qualcomm has added features such as dual-sim dual-active (DS-DA) throughout its stack that are generally seen at the low-end of devices in emerging markets.

In addition, 5-mode chipsets in China remove royalty concerns

We think the eventual decision favoring 5-mode (TD-LTE, FD-LTE, TD-SCDMA, WCDMA, and GSM) phones should boost the outlook for Qualcomm's chipsets and royalties. We estimate that a 3-mode device could have lowered Qualcomm's royalties by roughly 100bp in China. In addition, a clear cost and technology leadership in 5-mode chipsets positions the company to take a majority share in the forecasted 100-120m TD-LTE devices this year. We think that our Qualcomm's MSM chipset estimate of 880mn for CY14 could be conservative if the full extent of TD-LTE ramp is realized this year.

Maintain Buy; target price increased to $90

Qualcomm shares have underperformed the SOX this year (up 8% vs. SOX up 16%). Our target price of $90 (up from $85) is based on 16x CY15 EPS (including ESO) of $5.73 or 12x excluding net cash.

FY end: Sep	CY13	CY14EE		CY15EE	
Currency USD	Actual	Old	New	Old	New
Sales (in $mn)	25,469	-	27,912	-	31,355
Nomura EPS (incl. ESO)	$3.99	-	$5.00	-	$5.73
Consensus EPS			$4.95		$5.53
Difference			$0.05		$0.20
P/E			16.0x		14.0x

Source: Company data, FactSet, Nomura estimates

Key company data: *See page 2 for company data, and detailed price/index chart.*

Global Markets Research

11 June 2014

Rating Remains	**Buy**
Target price Increased from 85.00	USD 90.00
Closing price 9 June 2014	USD 79.95
Potential upside	+12.6%

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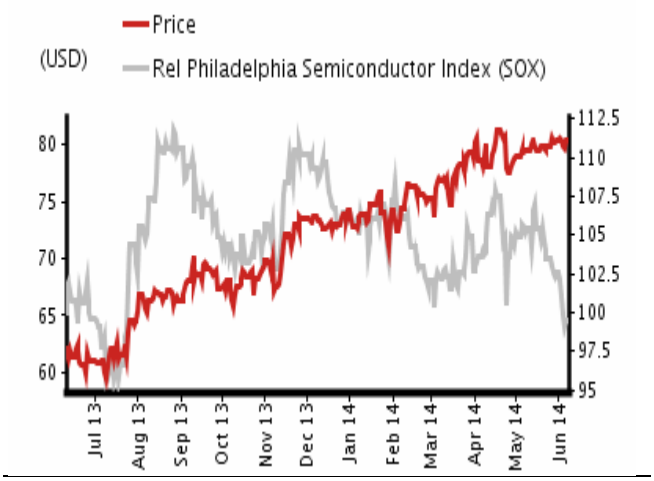
Key data on Qualcomm, Inc.

Rating

Stock	Buy
Sector	Neutral

Relative performance chart



Source: Thomson Reuters, Nomura research

Performance

(%)	1M	3M	12M
Absolute	0.6	4.1	28.7
Relative to Philadelphia Semiconductor Index (SOX)	-6.8	-3.6	-2.4

Market data

Current stock price (USD)	79.95
Market cap (USD - mn)	134,945.5
52-week low (USD)	59.02
52-week high (USD)	81.66
Shares outstanding (mn)	1,687.87

Source: Thomson Reuters, Nomura research

Income Statement	FY2013A	FY2014E	FY2015E
Revenue	24,865	26,750	30,824
Gross profit	15,381	16,078	18,537
Gross margin	61.9%	60.1%	60.1%
Operating expenses	6,725	7,276	7,495
Operating income	8,656	8,803	11,043
Other inc/(exp)	877	977	880
Pretax income	9,533	9,780	11,923
Income tax	1,698	1,429	1,908
Net income (Pro-Forma)	7,910	8,925	10,383
EPS (Pro-forma, ex ESO)	$4.51	$5.20	$6.12
EPS (Pro-forma, incl ESO)	**$4.00**	**$4.72**	**$5.64**
Diluted shares	1,754	1,716	1,696

Balance Sheet	FY2013A	FY2014E	FY2015E
Cash & equivalents	14,966	18,218	22,883
Accounts receivable	2,142	2,528	2,778
Inventories	1,302	1,372	1,508
Other current assets	1,145	1,016	1,016
Total current assets	19,555	23,135	28,186
PP&E	2,995	2,654	2,984
Other non-current assets	22,966	24,294	24,294
Total non-current assets	25,961	26,948	27,278
Total assets	**45,516**	**50,082**	**55,464**
Total current liabilities	5,213	6,205	6,390
LT debt	0	0	0
Total non-current liabilities	4,216	3,578	3,291
Total liabilities	9,429	9,783	9,681
Shareholders' equity	36,087	40,300	45,783
Total liabilties & equity	**45,516**	**50,082**	**55,464**

Cash Flow	FY2013A	FY2014E	FY2015E
Cash from operations	8,790	9,262	10,961
Cash from investing	(1,538)	(3,117)	(1,486)
Cash from financing	(4,898)	(4,359)	(4,810)
Depreciation	1,017	1,139	1,156
Capital expenditures	1,008	1,456	1,486

Valuation Ratios	FY2013A	FY2014E	FY2015E
Return on equity	19%	19%	20%
Debt to capital	0%	0%	0%
Debt to assets	0%	0%	0%
Book value per share	$20.57	$23.49	$26.99
Cash per share	$16.76	$19.61	$22.58

Source: Company data, Nomura estimates

NOMURA

Marvell Technology Group Ltd.

MRVL.O MRVL US

EQUITY: AMERICAS SEMICONDUCTORS

Upgrading to Buy; Target Price $19

Underappreciated traction in TD-LTE and share gains at Samsung

- We are upgrading Marvell to Buy from Neutral. We believe the company is ahead of MediaTek in its LTE learning curve. In addition, we believe Marvell is gaining share at Samsung and should disproportionately benefit from Broadcom's recent exit from cellular baseband.
- While most investors view Marvell's LTE traction as short-lived and expect it to be a repeat of the TDSCDMA story once MediaTek launches its LTE solutions in 2H, we think Marvell's LTE position against MediaTek is stronger than it was with TDSCDMA.
- Marvell has a much broader and more cost-optimized LTE SoC portfolio for mass market and midrange SKUs in the China TD-LTE market, in our view. This is backed by Nomura Tech analyst Aaron Jeng's concurrent downgrade of MediaTek. He believes that MediaTek is facing an LTE learning curve and that it may take the company 3-4 quarters to become cost competitive in die-size in its mass market offerings versus Qualcomm (20-30% better) and Marvell (10-20%).
- Marvel is also better positioned in FDD-LTE versus MediaTek. We note that Marvell's LTE solutions are already certified at AT&T (both voice and data) and Verizon (data only). While this may not impact MediaTek's TD-LTE design wins for the China domestic market, we think this issue favors Marvell at Chinese OEMs that are looking to export their LTE handsets to Europe and North America.
- Marvell's improving position at Samsung further supports our upgrade. We believe Marvell stands to gain share at Samsung following Broadcom's baseband exit ($300mn-plus in annual revenues). Furthermore, we believe that Marvell is aligning its SoC roadmap to Samsung's requirements and that over time its relationship with Samsung could become stickier.
- Based on these drivers we forecast CY14 mobile and wireless revenue to grow 64% yoy and 14% yoy in CY15. Our F2Q revenue and EPS estimates remain unchanged at $960mn/$0.23 (incl. ESO). We are increasing our CY14 revenue and EPS estimates from $3.9bn/$0.96 to $4.0bn/$1.00, and CY15 from $4.0bn/$1.04 to $4.3bn/$1.25 (incl. ESO).
- Marvell currently trades at a 25% discount to our coverage universe on CY15 earnings. Our new price target of $19 is based on a multiple of 15x, a 10% discount to our coverage universe based on, CY15 EPS of $1.25 (incl. ESO).

Year end:Jan	CY13		CY14E		CY15E	
Currency USD	Old	Actual	Old	New	Old	New
Sales	-	3,404	3,928	3,969	4,048	4,265
EPS (incl. ESO)	-	$0.73	$0.96	$1.00	$1.04	$1.25
Consensus EPS		-		$0.94		$1.01
Difference		-		$0.06		$0.24
P/E		-		14.8x		11.9x

Source: Company data, FactSet, Nomura estimates
Key company data: See page 2 for company data and detailed price/index chart

Global Markets Research

11 June 2014

Rating Up from Neutral	**Buy**
Target price Increased from 15.00	USD 19.00
Closing price 9 June 2014	USD 14.84
Potential upside	+28%

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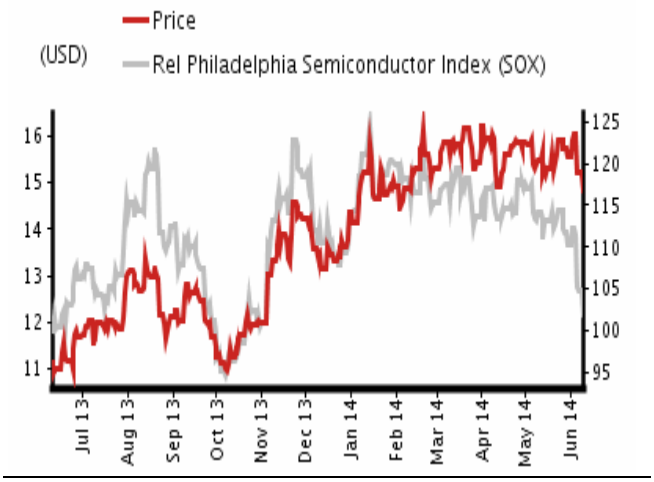
Key data on Marvell Technology Group Ltd.

Rating

Stock	Buy
Sector	Neutral

Relative performance chart



Source: Thomson Reuters, Nomura research

Performance

(%)	1M	3M	12M
Absolute	-4.1	-6.5	32.0
Relative to Philadelphia Semiconductor Index (SOX)	-11.5	-14.2	0.9

Market data

Current stock price (USD)	14.84
Market cap (USD - mn)	7,541.7
52-week low (USD)	10.82
52-week high (USD)	16.65
Shares outstanding (mn)	508.20

Source: Thomson Reuters, Nomura research

Income Statement	FY14	FY15E	FY16E
Revenue	3,404	3,969	4,265
Gross profit	1,764	1,981	2,158
Gross margin	51.8%	49.9%	50.6%
Operating expenses	1,269	1,336	1,363
Operating income	496	649	791
Other inc/(exp)	26	7	8
Pretax income	521	656	799
Income tax	(9)	(2)	4
Net income (Pro Forma)	530	657	795
EPS (ex ESO)	$1.02	$1.24	$1.49
EPS (incl ESO)	**$0.73**	**$1.00**	**$1.25**
Diluted shares	519	531	533

Balance Sheet	FY14	FY15E	FY16E
Cash & equivalents	966	1,617	2,350
Accounts receivable	453	554	600
Inventories	348	362	392
Other current assets	1,072	1,076	1,076
Total current assets	2,839	3,609	4,418
PP&E	356	317	289
Other non-current assets	2,256	2,247	2,247
Total non-current assets	2,612	2,563	2,535
Total assets	**5,451**	**6,173**	**6,953**
Total current liabilities	642	803	838
LT debt	0	0	0
Other non-current liabilities	124	124	124
Total liabilities	766	927	962
Shareholders' equity	4,685	5,246	5,991
Total liabilties & equity	**5,451**	**6,173**	**6,953**

Cash Flow	FY14	FY15E	FY16E
Cash from operations	448	794	862
Cash from investing	75	(73)	(80)
Cash from financing	(309)	(72)	(49)
Depreciation	103	108	108
Capital expenditures	67	65	80

Valuation Ratios	FY14	FY15E	FY16E
Return on equity	8%	10%	11%
Debt to capital	0%	0%	0%
Debt to assets	0%	0%	0%
Book value per share	$9.03	$9.88	$11.24
Cash per share	$3.83	$4.96	$6.32

Source: Company data, Nomura estimates

Summary

We are upgrading Marvell from Neutral to Buy and increasing our price target from $15 to $19. We believe Marvell's traction in LTE in China and its strengthening position at Samsung are underappreciated. Despite the company's revenue outperformance from improved traction in TD-LTE, most investors remain skeptical on the sustainability of the company's mobile traction in China, in our view. However, our research indicates that the company's lead in LTE against MediaTek is not well understood. In addition, we think the company's roadmap is increasingly aligned with Samsung's requirements, which could result in a multiperiod engagement with Samsung for its low- and midrange LTE phones.

LTE traction and lead over MediaTek likely stronger than understood. We think most investors believe that the company's current lead in TD-LTE in China is likely short-lived and not sustainable and view this similar to the dynamics that the company experienced with TDSCDMA in 2012. We note that Marvell is currently the only other player besides Qualcomm that is shipping a 5-mode LTE chipset in China. It is expected that MediaTek will launch two LTE chipsets later this year for the China TD-LTE market. While most investors believe that Marvell will end up on the sidelines when MediaTek launches its LTE chipsets in 2H this year, we think Marvell's LTE lead over MediaTek and further traction could be more defensible than is understood for the following reasons:

- **We are confident of Marvell's breadth in its LTE roadmap and cost-optimized offerings.** During the TDSCDMA ramp in China in the last cycle, Marvell had just one lead customer (ZTE) and one single-core SoC offering. In contrast, Marvell has multiple lead customers in China for its TD-LTE ramp, including OEMs such as Lenovo, ZTE, HiSense, and Yulong. We believe Marvell chips are currently designed into more than half of the best selling LTE phones in China, which reflects the company's lead in TD-LTE and better cost optimization for the mass market and mid-range segments. Another significant difference in the roadmap this time is that Marvell appears to have a very competitive midrange LTE roadmap (Figure 1). We believe this positions Marvell to capture more value from the TD-LTE ramp than in the last cycle.
- **Our research indicates that MediaTek too is facing the LTE learning curve**. MediaTek expects to launch two LTE chipsets later this year and expects to have a full-range of LTE SoCs offerings covering all the segments from high-end to low-end of the smartphones. That said, the company seems to be facing the LTE learning curve that we have seen other players facing as well. Nomura Tech analyst Aaron Jeng, who covers MediaTek, believes that it could take longer for MediaTek to optimize the die size of its LTE offerings for the mass market segment to compete effectively against Qualcomm and Marvell's low-cost solutions. Aaron Jeng estimates that MediaTek's first-generation LTE modem (40% of the SoC size) could be 50-100% bigger than Qualcomm's. We believe the die size of Marvell's LTE modem too is more competitive than MediaTek's. We estimate that Qualcomm may have 20-30% smaller die size for its LTE SoC and Marvell 10-20% smaller versus MediaTek's LTE SoC. This would mark the first time that Qualcomm (8916) and Marvell (1088) are offering their mass market solutions ahead of MediaTek, which is launching its high-end offerings (6595, 6752) first.
- **In addition, we believe Marvell is better positioned in FDD-LTE, which should favor Marvell chipsets for export handsets.** We note that Marvell's LTE solutions are already certified at AT&T (both voice and data) and Verizon (data only). Both these carriers use FDD-LTE flavor of LTE technology. While this may not impact MediaTek's TD-LTE design wins for the China domestic market (which uses only TD-LTE), we think this issue favors Marvell at Chinese OEMs that are also looking to export their LTE handsets to Europe and North America. We note that most European and North American operators use FDD-LTE. Moreover, our checks indicate that MediaTek may be facing issues in integrating its 2G/3G stacks with its newly acquired LTE stack. We believe MediaTek acquired its LTE stack from NTT DoCoMo. We think the difficulty in integration may lie in the fact that MediaTek's stacks came from different third parties. This is also evidenced by a lack of LTE certifications for MediaTek outside of China. We note that all Chinese carriers are currently using TD-LTE version of the LTE technology. We think this positions Marvell better with China handset OEMs that are looking to export their LTE handsets.

Fig. 83: Marvell LTE SoC roadmap

LTE SoC Roadmap	4Q13	1Q14	2Q14E	3Q14E	4Q14E
High-Performance Mainstream SP& Tablet				**1986** . Quad A12 . LTE Cat 4 . 1080P, GC5400 **1928** . Quad A53 1.5 GHz . LTE Cat 4 . 1080P, GC5000	**1986** . Quad A12 . LTE Cat 6 . 1080P, GC5400
Mass Market SP& Tablet	**1088LTE** . Quad A7 1.2GHz . LTE Cat 4 . 720p, GC2200	**1088LTE Pro** . Quad A7 1.4GHz+ . LTE Cat 4 . 1080p, GC2200	**1088LTE Ultra** . Quad A7 1.5GHz . LTE Cat 4 . 1080p, GC3000		
Thin Modem or Module, Data Communication, M2M	**180X** . mRAT Modem . LTE Cat 4				**18XX** . mRAT Modem . LTE Cat 6/7

Source: Company data, Nomura research

We believe the company is improving its share at Samsung, which could become sticky; in addition, Broadcom's exit disproportionately benefits Marvell. We believe Marvell is gaining share at Samsung, where it already has design wins for Galaxy Note 3 and Galaxy Win Pro smartphone (for China Mobile). We believe the company is poised to gain more share at Samsung in the low- and midrange devices, which are forecast to be 200mn-plus in 2014 and 250mn-plus in 2015 (Figure 2). We also believe Marvell disproportionately benefits from Broadcom's exit from the cellular baseband space. Samsung is Broadcom's biggest wireless customer and was supplying it with cellular chipsets for low-to-mid range handsets. We estimate that Broadcom is currently generating more than $300mn in annual revenues from Samsung. We believe a large portion of this revenue, which will increasingly shift toward LTE, will go to Marvell over the next few quarters. In addition, we believe Marvell is increasingly aligning its SoC roadmap to Samsung's low-end to midrange requirements and, as such, will see its relationship with Samsung becoming stickier over time.

Fig. 84: Forecast for Samsung's device shipments, 2012-2015E

	2012	2013	1Q	2QE	3QE	4QE	2014E	1QE	2QE	3QE	4QE	2015E
Total	**215**	**318**	**89**	**79**	**93**	**91**	**352**	**89**	**95**	**102**	**102**	**388**
High end	**90.0**	**119.0**	**27.8**	**31.3**	**28.9**	**26.9**	**114.9**	**25.3**	**29.0**	**30.7**	**30.9**	**115.9**
Galaxy	**61**	**79**	**14**	**23**	**19**	**12**	**68**	**11**	**19**	**19**	**14**	**63**
Galaxy S	1.6	-					-					-
Galaxy S2	20.5	1.5					-					-
Galaxy S3	39.0	30.3	2.0	1.0	0.0	0.0	3.0	-	-	-	-	-
Galaxy S4		47.1	10.0	3.0	1.0	0.0	14.0					-
Galaxy S5/6			1.5	19.0	18.0	12.0	50.5	11.0	19.0	19.0	14.0	63.0
Galaxy note 1/2	19.1	32.2	10.0	6.0	6.5	11.0	33.5	10.0	5.5	7.0	12.0	34.5
Nexus	2.5	0.6	-	-	-	-	-	-	-	-	-	-
MS	1.4	1.0	0.3	0.3	0.4	0.5	1.5	0.4	0.5	0.6	0.7	2.2
Others	5.9	6.3	2.5	2.0	3.0	3.4	10.9	3.9	4.0	4.1	4.2	16.2
Mid end	**61**	**102**	**30**	**23**	**31**	**31**	**115**	**31**	**31**	**33**	**33**	**128**
low end	**64**	**97**	**31**	**25**	**33**	**33**	**122**	**33**	**35**	**38**	**38**	**144**

Source: Nomura estimates

Mobile are wireless upside drives our estimates above consensus. We are increasing our mobile and wireless revenue forecast for CY14 from $1.3bn to $1.4bn and CY15 from $1.4bn to $1.6bn. The upside to our CY14 estimates assumes Marvell ships roughly 10-20mn TD-LTE devices at ASP of $12-13 in CY14. We also assume Marvell gains an incremental 5-6% share at Samsung's mid-to-low end shipments in CY14 (est. 237mn). We are conservatively assuming 14% growth for Marvell's mobile and wireless in CY15, resulting in a mobile and wireless forecast of $1.6bn. This translates to full-year

CY14 revenue of $4.0b (up 17% yoy) versus consensus of $3.9bn and a forecast of $4.3bn (up 7% yoy) vs. consensus of $4.0bn. **Based on this, our overall estimates for F2Q remain unchanged at $960mn/$0.23, full-year overall CY14 estimates change from $3.9bn/$0.96 to $4.0bn/$1.00, and full-year CY15 estimates change from $4.0bn/$1.04 to $4.3bn/$1.25** (incl. ESO)**.**

Fig. 85: Estimate of revenue contribution in mobile and wireless

Revenue ($m)	2013	2014E	2015E
Mobile and Wireless	**837**	**1370**	**1566**
Connectivity	463	543	579
Smartphones and Tablets	374	827	987

Revenue (% of mobile and wireless)	2013	2014E	2015E
Mobile and Wireless	**100%**	**100%**	**100%**
Connectivity	55%	40%	37%
Smartphones and Tablets	45%	60%	63%

Revenue growth (YoY)	2013	2014E	2015E
Mobile and Wireless	**1%**	**64%**	**14%**
Connectivity	-	17%	7%
Smartphones and Tablets	-	121%	19%

Source: Nomura estimates

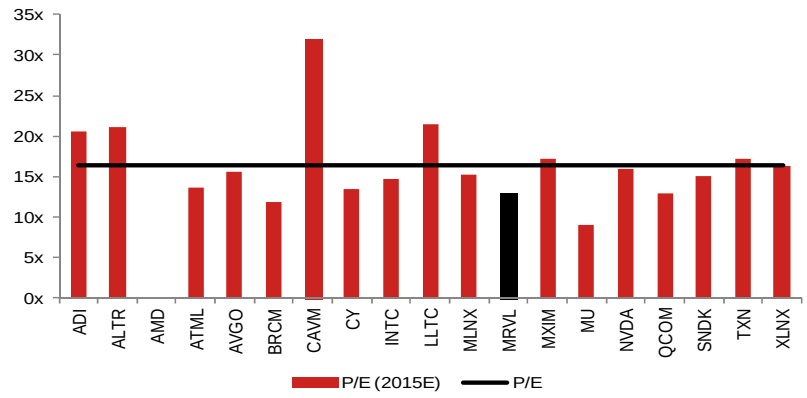
We are upgrading our rating of Marvell shares to Buy from Neutral and increasing price target to $19. Our price target of $19 (up from $15) is based on 15x CY15 EPS of $1.25 (incl. ESO). Marvell has $4 in net cash per share.

Fig. 86: Summary of estimate changes

Year end:Jan	Jul-14E		Oct-14E		CY14E		CY15E	
Currency USD mn	Old	**New**	Old	**New**	Old	**New**	Old	**New**
Sales	960	**960**	1,019	**1,025**	3,928	**3,969**	4,048	**4,265**
Seq growth	0.3%	**0.3%**	6.1%	**6.7%**	15.4%	**16.6%**	3.1%	**7.4%**
Gross Margin	50.0%	**50.0%**	50.0%	**50.0%**	49.9%	**49.9%**	50.3%	**50.6%**
EPS (ex ESO)	$0.28	**$0.28**	$0.33	**$0.34**	$1.20	**$1.24**	$1.27	**$1.49**
EPS (incl. ESO)	$0.23	**$0.23**	$0.27	**$0.28**	$0.96	**$1.00**	$1.04	**$1.25**

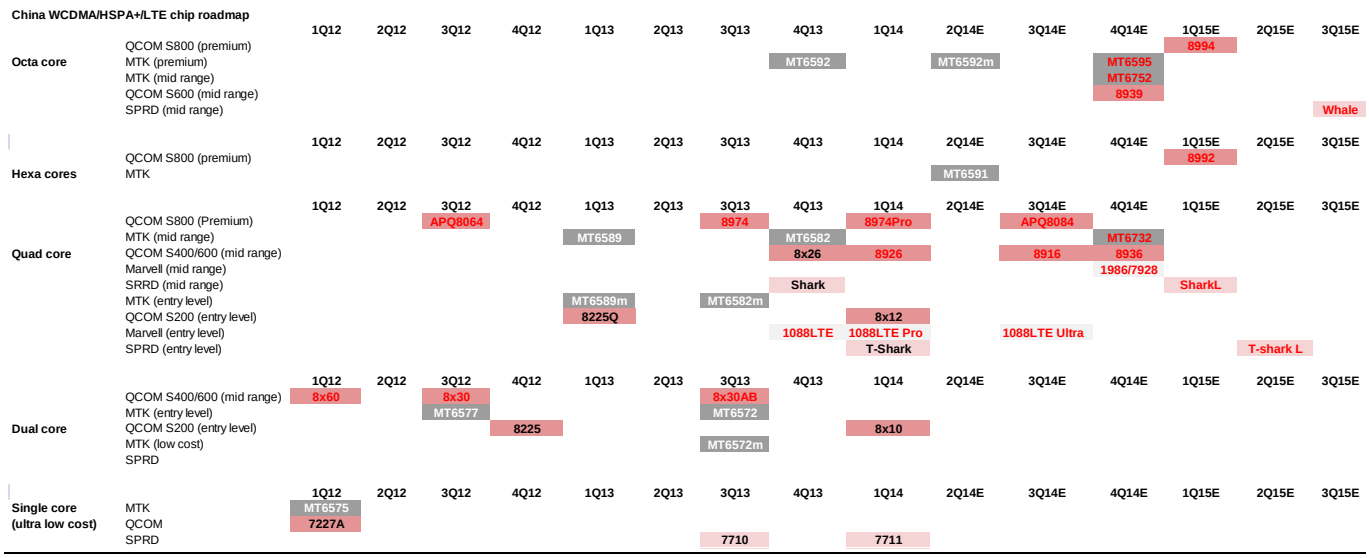
Source: Nomura estimates

Fig. 87: Marvell trades at 25% discount relative to our coverage on CY15 earnings



Source: FactSet, Nomura estimates

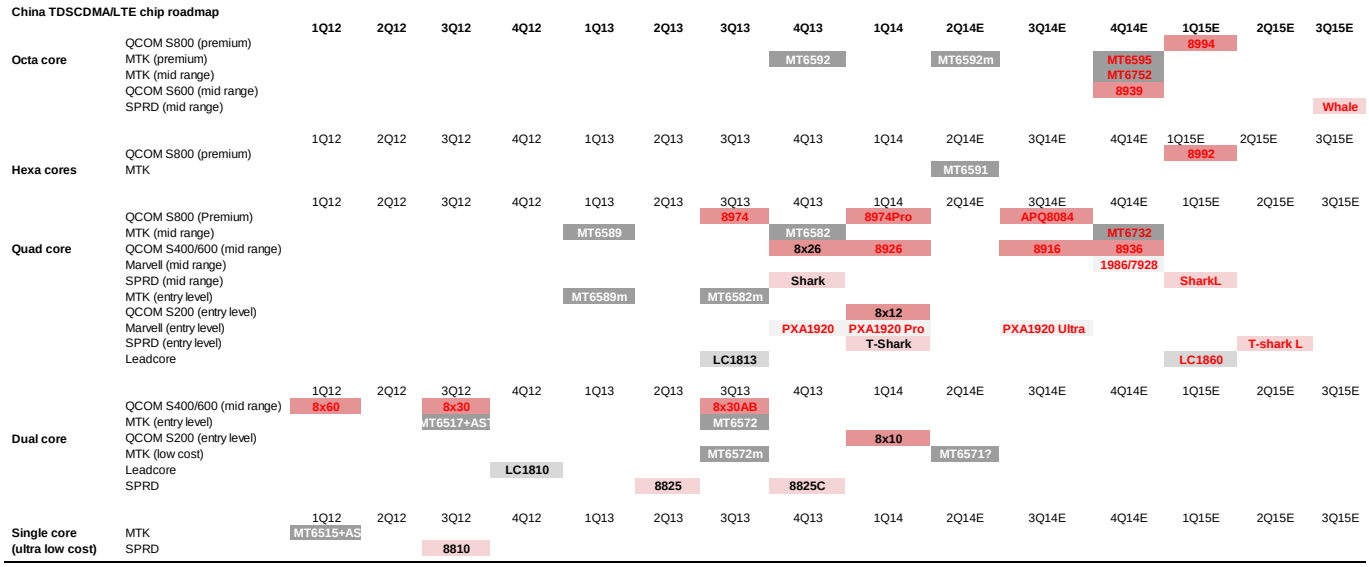
Fig. 88: Roadmap of China smartphone chip vendors, including 3G and 4G - WCDMA



Note: Numbers in red are LTE chips

Source: Company data, Nomura estimates

Fig. 89: Roadmap of China smartphone chip vendors, including 3G and 4G - TDSCDMA



Note: Numbers in red are LTE chips

Source: Company data, Nomura estimates

Fig. 90: Income statement summary, FY14-FY16E

Year End: January ($ in millions)	FY2014 Apr-13	FY2014 Jul-13	FY2014 Oct-13	FY2014 Jan-14	FY2015E Apr-14	FY2015E Jul-14E	FY2015E Oct-14E	FY2015E Jan-15E	FY2016E Apr-15E	FY2016E Jul-15E	FY2016E Oct-15E	FY2016E Jan-16E	CY13 FY14	CY14E FY15E	CY15E FY16E
INCOME STATEMENT															
Total Revenues	**$734**	**$807**	**$931**	**$932**	**$958**	**$960**	**$1,025**	**$1,026**	**$981**	**$1,047**	**$1,126**	**$1,111**	**$3,404**	**$3,969**	**$4,265**
QoQ	-5%	10%	15%	0%	3%	0%	7%	0%	-4%	7%	8%	-1%			
YoY	-8%	-1%	19%	20%	30%	19%	10%	10%	2%	9%	10%	8%	7%	17%	7%
Total COGS	335	386	465	468	494	483	515	510	488	521	560	552	1,654	2,001	2,120
Gross profit (non-GAAP)	401	428	469	467	467	481	513	519	496	530	570	562	1,764	1,981	2,158
R&D (incl ESO)	279	293	296	289	295	291	293	294	296	297	298	298	1,157	1,174	1,190
SG&A (incl ESO)	66	66	64	63	69	67	70	71	72	72	73	73	259	277	290
Amortization of Intangibles	11	11	11	12	7	8	8	8	8	8	8	8	44	31	32
Extraordinary Items	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total oper exp (non-GAAP, ex-ESO)	313	320	320	316	337	330	334	337	339	340	342	342	1,269	1,336	1,363
Operating inc (non-GAAP, ex-ESO)	88	108	155	144	138	151	179	182	157	189	227	219	496	649	791
Other Income (Expense)	3	8	2	13	2	1	2	2	2	2	2	2	26	7	8
Pretax income (non-GAAP)	91	116	157	157	140	152	181	184	159	191	229	221	521	656	799
Income Taxes Expense	(7)	(2)	(6)	6	(5)	1	1	1	1	1	1	1	(9)	(2)	4
GAAP Net Income	53	62	103	107	99	112	140	144	118	150	188	180	325	495	636
Proforma Net Income (incl ESO)	**65**	**77**	**120**	**113**	**114**	**120**	**148**	**152**	**126**	**158**	**196**	**188**	**374**	**533**	**668**
Proforma Net Income (ex ESO)	98	118	163	151	144	151	180	183	158	190	228	220	530	657	795
GAAP EPS	$0.11	$0.12	$0.21	$0.21	$0.19	$0.21	$0.27	$0.27	$0.23	$0.29	$0.36	$0.34	$0.65	$0.95	$1.21
Proforma EPS (Incl ESO)	**$0.12**	**$0.15**	**$0.23**	**$0.22**	**$0.22**	**$0.23**	**$0.28**	**$0.29**	**$0.24**	**$0.30**	**$0.37**	**$0.35**	**$0.73**	**$1.00**	**$1.25**
Proforma EPS (ex ESO)	$0.19	$0.23	$0.32	$0.29	$0.27	$0.28	$0.34	$0.34	$0.30	$0.36	$0.43	$0.41	$1.02	$1.24	$1.49
Shares outstanding	505	501	501	498	521	522	523	522	523	524	525	524	501	522	524
Shares outstanding (non-GAAP)	522	516	514	523	530	531	532	531	532	533	534	533	519	531	533
Percent of Sales															
Gross Margin (non-GAAP)	54.6%	53.0%	50.3%	50.1%	48.8%	50.0%	50.0%	50.5%	50.5%	50.5%	50.5%	50.5%	51.8%	49.9%	50.6%
R&D, excl ESO	34.8%	32.7%	28.6%	28.1%	28.7%	28.1%	26.4%	26.6%	28.0%	26.3%	24.5%	24.9%	30.8%	27.4%	25.8%
SG&A, excl ESO	7.9%	6.9%	5.7%	5.9%	6.4%	6.2%	6.1%	6.2%	6.6%	6.2%	5.8%	5.9%	7.6%	7.0%	6.8%
Oper margin (non-GAAP, ex-ESO)	12.0%	13.4%	16.7%	15.5%	14.4%	15.7%	17.5%	17.7%	16.0%	18.0%	20.1%	19.7%	14.6%	16.3%	18.5%
Effective Tax Rate	-15.6%	-2.6%	-6.6%	5.4%	-4.8%	0.9%	0.7%	0.7%	0.8%	0.7%	0.5%	0.6%	-2.9%	-0.3%	0.6%
Net Margin	13.4%	14.6%	17.5%	16.2%	15.1%	15.7%	17.6%	17.8%	16.1%	18.1%	20.2%	19.8%	15.6%	16.6%	18.6%

Source: Company data, Nomura estimates

NOMURA

Intel Corporation INTC.O INTC US

EQUITY: AMERICAS SEMICONDUCTORS

2015 Likely a Better Year for LTE Traction

Not positioned to benefit from China ramp

Incremental progress in LTE; more meaningful gains likely from 2H15

Intel is currently shipping its LTE thin modem to Samsung (Note 3, Galaxy K Zoom) and expects to ship at a few other OEMs (Acer, ASUS, Lenovo). The biggest gap in Intel's roadmap today is an integrated LTE offering. The company expects to launch SoFIA LTE in late 2H this year, combining an Atom core (64-bit) with its LTE modem. While it is unclear what traction Intel could get with SoFIA, we think the BOM cost issue that Intel is facing with its tablet design wins should be less of an issue as we expect SoFIA to be a more integrated SoC than BayTrail chips. That said, we think that the company will likely get more meaningful traction with the launch of Broxton SoC in 1H15. We expect Broxton to integrate 14nm Goldmont cores with a LTE modem and the company might have a 1-2 quarter process advantage vs.16/14nm ARM SoCs that may ship in late 2015 to early 2016.

China TD-LTE ramp not a driver for the company this year

The company recently added TD-SCDMA support in its XMM 7260 thin modem, which we believe started shipping this quarter. In addition, the company is partnering with Rockchip to develop quad-core SoFIA LTE chips for the China market, which are expected to be available in 1H15. Considering the timing of the quad-core SoFIA launch, we expect Intel to get limited traction this year in China TD-LTE ramp. We think a vast majority of TD-LTE devices are expected to be in entry and mid-range segments and are expected to use an integrated platform, which would not be available before 1H15.

In addition, Android optimization remains an issue for mass market SKUs

We believe Android optimization efforts on x86 remain a burden in the low-end and value segments for handset OEMs. Competitive data suggest that more than 50% of Android apps do not work or require binary translation to work on x86-based devices. This is due to the fact that many app developers still use some native components in their apps, making them partly incompatible with x86-based devices.

Maintain Neutral rating and $25 target price

Our $25 TP is based on a multiple of 13x CY15 EPS of $1.90. This represents a 12% discount to the S&P 500, versus a three-year average - 20%.

Year end:Dec	2013A	2014E		2015E	
(in $mn)	Actual	Old	New	Old	New
Sales	52,708	-	52,919	-	53,872
Nomura EPS	$1.89	-	$1.86	-	$1.90
Cons EPS	-		$1.89		$2.01
Difference	-		($0.03)		($0.12)
P/E	14.8x		15.0x		14.7x

Source: Company data, Nomura estimates

Key company data: *See page 2 for company data, and detailed price/index chart.*

Global Markets Research

11 June 2014

Rating Remains	**Neutral**
Target price Remains	USD 25.00
Closing price 9 June 2014	USD 27.91
Potential downside	-10.4%

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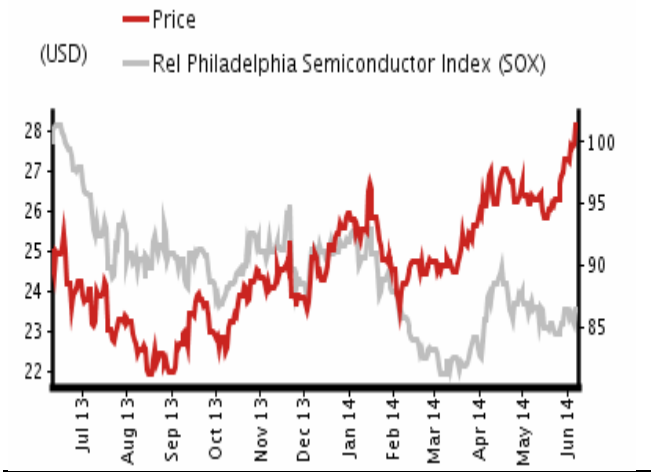
Key data on Intel Corporation

Rating

Stock	Neutral
Sector	Neutral

Relative performance chart



Source: Thomson Reuters, Nomura research

Performance

(%)	1M	3M	12M
Absolute	6.1	13.3	13.5
Relative to Philadelphia Semiconductor Index (SOX)	-1.3	5.6	-17.7

Market data

Current stock price (USD)	27.91
Market cap (USD - mn)	138,936.0
52-week low (USD)	21.89
52-week high (USD)	28.42
Shares outstanding (mn)	4,978.00

Source: Thomson Reuters, Nomura research

Income Statement (in $mn)	2013	2014E	2015E
Revenue	52,708	52,919	53,872
Gross income	31,521	32,298	31,781
Gross margin	59.8%	61.0%	59.0%
Operating expenses	19,230	19,435	18,513
Operating income	12,291	12,863	13,268
Other inc/(exp)	320	154	0
Pretax income	12,611	13,017	13,268
Income tax	2,991	3,512	3,582
Net income	9,620	9,505	9,686
EPS (GAAP)	**$1.89**	**$1.86**	**$1.90**
Diluted shares	5,098	5,109	5,109

Balance Sheet	2013	2014E	2015E
Cash & equivalents	20,087	21,120	23,852
Accounts receivable	3,582	3,749	3,894
Inventories	4,172	4,000	4,310
Other current assets	4,243	4,240	4,240
Total current assets	32,084	33,109	36,297
PP&E	31,428	34,889	37,889
LT Investments	1,473	1,765	1,765
Equity investments	6,221	6,085	6,085
Other non-current assets	21,152	20,138	18,990
Total non-current assets	60,274	62,877	64,729
Total assets	**92,358**	**95,986**	**101,026**
Total current liabilities	13,568	13,697	13,946
LT debt	13,165	13,172	13,172
Other non-current liabilities	7,369	7,170	7,170
Total liabilities	34,102	34,039	34,288
Shareholders' equity	58,256	61,947	66,738
Total liabilties & equity	**92,358**	**95,986**	**101,026**

Cash Flow	2013	2014E	2015E
Cash from operations	20,776	19,417	20,265
Cash from investing	(18,073)	(10,858)	(11,000)
Cash from financing	(5,498)	(6,070)	(6,533)
Depreciation	6,790	7,400	8,000
Capital expenditures	(10,711)	(10,756)	(11,000)

Valuation Ratios	2013	2014E	2015E
Return on equity	17%	15%	15%
Debt to equity	59%	55%	51%
Debt to assets	37%	35%	34%
Book value per share	$11.43	$12.13	$13.06
Cash per share	$2.58	$2.75	$3.28

Source: Company data, Nomura estimates

Appendix A-1

Analyst Certification

We, Aaron Jeng, Jason Ho, Grace Sun, Romit Shah and Sanjay Chaurasia, hereby certify (1) that the views expressed in this Research report accurately reflect our personal views about any or all of the subject securities or issuers referred to in this Research report, (2) no part of our compensation was, is or will be directly or indirectly related to the specific recommendations or views expressed in this Research report and (3) no part of our compensation is tied to any specific investment banking transactions performed by Nomura Securities International, Inc., Nomura International plc or any other Nomura Group company.

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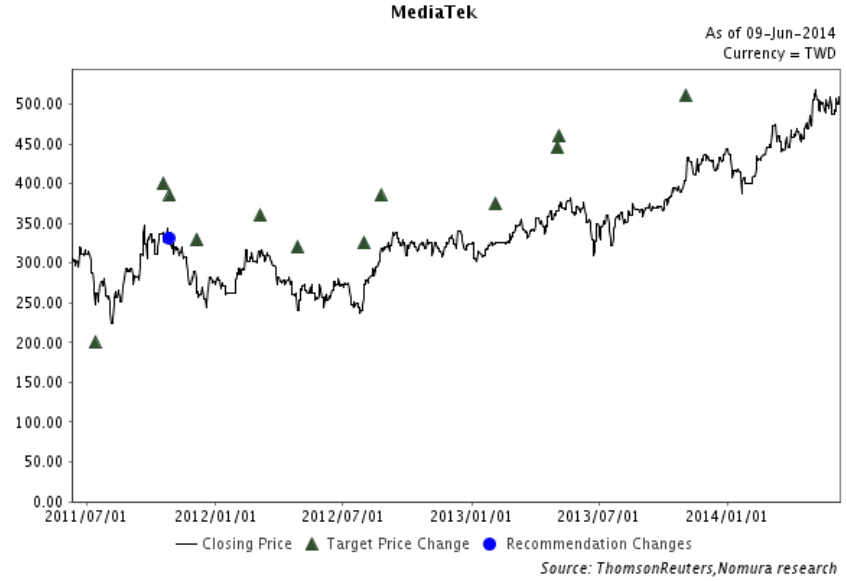
Materially mentioned issuers

Issuer	Ticker	Price	Price date	Stock rating	Sector rating	Disclosures
MediaTek	2454 TT	TWD 510.0	10-Jun-2014	Reduce	N/A	
Novatek Microelectronics	3034 TT	TWD 150.0	10-Jun-2014	Buy	N/A	
Intel Corporation	INTC US	USD 27.91	09-Jun-2014	Neutral	Neutral	
Marvell Technology Group Ltd.	MRVL US	USD 14.84	09-Jun-2014	Buy	Neutral	
Qualcomm, Inc.	QCOM US	USD 79.95	09-Jun-2014	Buy	Neutral	

MediaTek (2454 TT) **TWD 510.0 (10-Jun-2014)** Reduce (Sector rating: N/A)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
02-Nov-13		510.00	404.50
06-May-13		460.00	372.50
03-May-13		446.00	366.50
04-Feb-13		375.00	325.00
24-Aug-12		385.00	318.00
31-Jul-12		325.00	255.00
27-Apr-12		320.00	240.50
05-Mar-12		360.00	308.00
06-Dec-11		330.00	262.00
28-Oct-11		385.00	324.00
18-Oct-11	Buy		339.00
18-Oct-11		400.00	339.00
13-Jul-11		200.00	247.00

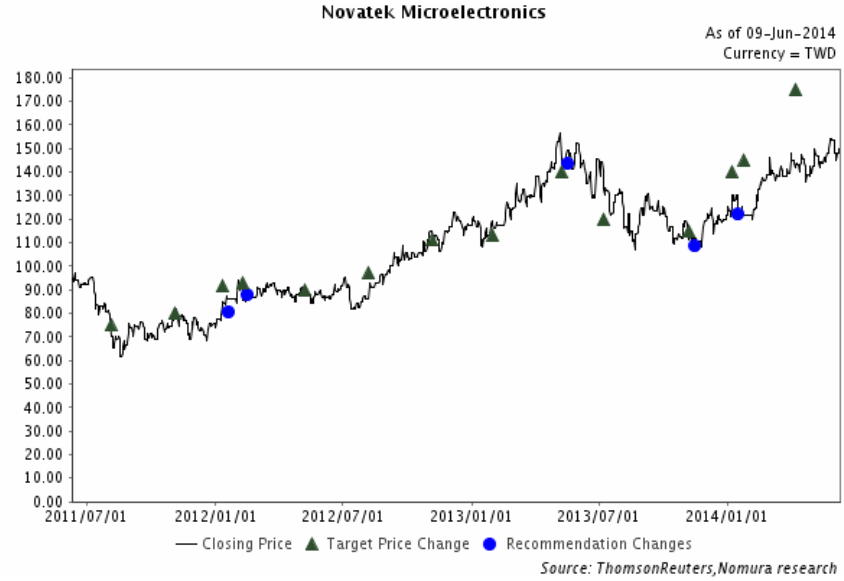
For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology Our TP of TWD450 is based on 15x our FY15F EPS forecast of TWD30. The benchmark index for this stock is MSCI Taiwan.

Risks that may impede the achievement of the target price Key risks include: 1) The easing of price competition from Qualcomm/Spreadtrum, 2) better-than-expected smartphone demand; and 3) consumers' choices between high-spec and low-spec smartphones.

Novatek Microelectronics (3034 TT) **TWD 150.0 (10-Jun-2014)** Buy (Sector rating: N/A)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
08-Apr-14		175.00	142.00
25-Jan-14		145.00	122.00
07-Jan-14	Buy		124.50
07-Jan-14		140.00	124.50
07-Nov-13	Neutral		111.00
07-Nov-13		115.00	111.00
08-Jul-13		120.00	140.50
09-May-13	Reduce		146.00
09-May-13		140.00	146.00
31-Jan-13		113.00	117.50
06-Nov-12		111.00	115.00
07-Aug-12		97.00	86.30
08-May-12		90.00	90.30
09-Feb-12		93.00	92.10
07-Feb-12	Neutral		90.30
11-Jan-12	Buy		83.00
11-Jan-12		91.50	83.00
04-Nov-11		80.00	81.90
05-Aug-11		75.00	70.30

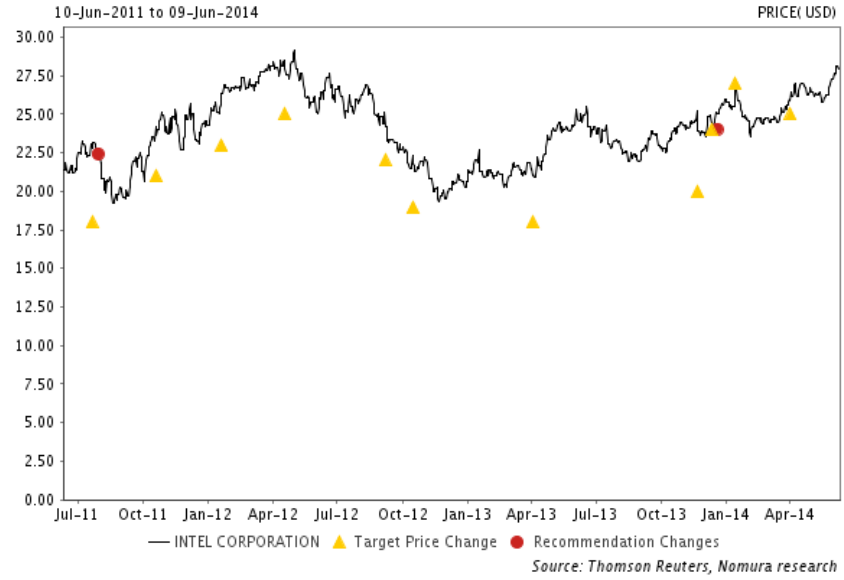
For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology Our TP of TWD175 is based on 16x our 2014-15F average EPS of TWD10.9. The benchmark index for this stock is MSCI Taiwan.

Risks that may impede the achievement of the target price Downside risks include worse-than-expected end demand for smartphone and 4K2K TVs.

Intel Corporation (INTC US) **USD 27.91 (09-Jun-2014)** Neutral (Sector rating: Neutral)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
02-Apr-14		25.00	25.89
14-Jan-14		27.00	26.51
11-Dec-13	Neutral		24.42
11-Dec-13		24.00	24.42
22-Nov-13		20.00	23.87
03-Apr-13		18.00	21.05
16-Oct-12		19.00	22.35
07-Sep-12		22.00	24.19
18-Apr-12		25.00	27.95
20-Jan-12		23.00	26.38
19-Oct-11		21.00	24.24
21-Jul-11	Reduce		22.81
21-Jul-11		18.00	22.81

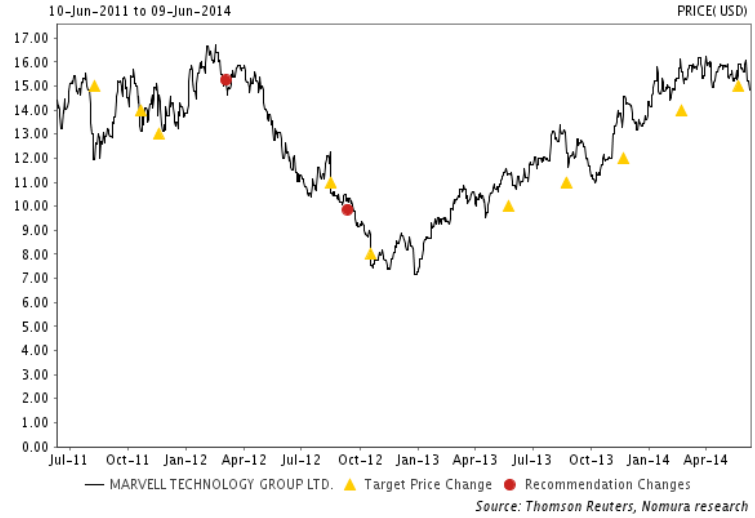
For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology Our target price of $25 for Intel Corporation (INTC) is based on 13x CY15E EPS of $1.90. The benchmark for this stock is the Philadelphia Semiconductor Index (SOX).

Risks that may impede the achievement of the target price Upside risks to our price target for Intel Corporation (INTC) include better-than-expected PC demand growth, especially in emerging markets, higher factory utilization, and lower tablet cannibalization. Downside risks include worse-than-expected demand for PCCG and DCG segments, and lack of momentum in the wireless space.

Marvell Technology Group Ltd. (MRVL US) **USD 14.84 (09-Jun-2014)** Buy (Sector rating: Neutral)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
23-May-14		15.00	15.89
21-Feb-14		14.00	15.60
22-Nov-13		12.00	14.58
23-Aug-13		11.00	12.19
24-May-13		10.00	11.34
19-Oct-12		8.00	7.566
04-Sep-12	Neutral		10.085
17-Aug-12		11.00	10.54
24-Feb-12	Reduce		15.46
18-Nov-11		13.00	14.65
21-Oct-11		14.00	13.14
09-Aug-11		15.00	11.98

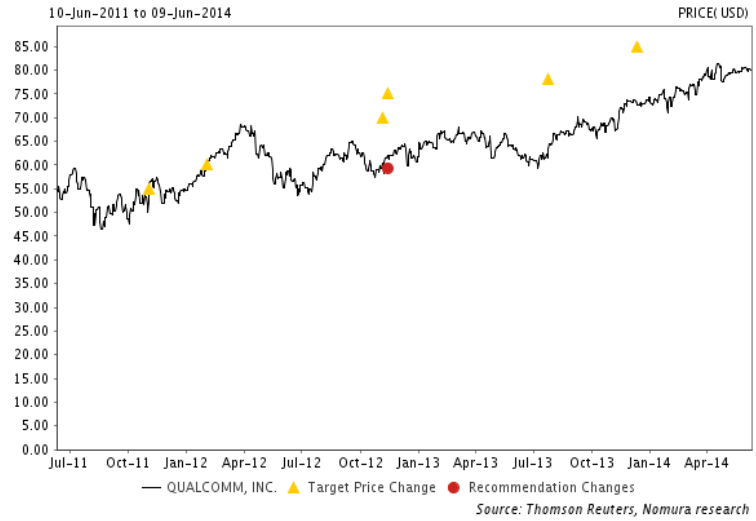
For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology Our price target of $19 is based on 15x multiple of CY15E EPS (with options) of $1.25. The benchmark for this stock is the Philadelphia Semiconductor Index (SOX).

Risks that may impede the achievement of the target price Higher-than-expected share gain ins HDD and stronger growth in mobile & wireless could provide upside to our price target on Marvell Tecnology Group (MRVL). Key downside risk include a higher than expected payout in the the patent litigation case with CMU.

Qualcomm, Inc. (QCOM US) **USD 79.95 (09-Jun-2014)** Buy (Sector rating: Neutral)

Rating and target price chart (three year history)



Date	Rating	Target price	Closing price
11-Dec-13		85.00	73.01
25-Jul-13		78.00	63.42
13-Nov-12		75.00	62.13
05-Nov-12	Buy		60.43
05-Nov-12		70.00	60.43
02-Feb-12		60.00	60.73
03-Nov-11		55.00	56.11

For explanation of ratings refer to the stock rating keys located after chart(s)

Valuation Methodology Our price target of $90 is based on a multiple 16x fully expensed EPS of $5.73 in CY15 or 12x excluding cash. The benchmark for the stock is Philadelphia Semiconductor Index (SOX).

Risks that may impede the achievement of the target price Risks to our price target for Qualcomm include slow adoption of 3G technology in emerging regions and higher pricing pressure on mobile devices, which are risks to Qualcomm's royalty business (QTL), and increasing mix toward emerging markets and competition from Asia baseband suppliers, which could lead to more ASP and margin pressure for Qualcomm's chipset business (QCT).

Rating and target price changes

Issuer	Ticker	Old stock rating	New stock rating	Old target price	New target price
MediaTek	2454 TT	Buy	Reduce	TWD 510.0	TWD 450.0
Marvell Technology Group Ltd.	MRVL US	Neutral	Buy	USD 15.00	USD 19.00
Qualcomm, Inc.	QCOM US	Buy	Buy	USD 85.00	USD 90.00

Important Disclosures

Online availability of research and conflict-of-interest disclosures

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Explanation of Nomura's equity research rating system in Europe, Middle East and Africa, US and Latin America, and Japan and Asia ex-Japan from 21 October 2013

The rating system is a relative system, indicating expected performance against a specific benchmark identified for each individual stock, subject to limited management discretion. An analyst's target price is an assessment of the current intrinsic fair value of the stock based on an appropriate valuation methodology determined by the analyst. Valuation methodologies include, but are not limited to, discounted cash flow analysis, expected return on equity and multiple analysis. Analysts may also indicate expected absolute upside/downside relative to the stated target price, defined as (target price - current price)/current price.

STOCKS

A rating of **'Buy'**, indicates that the analyst expects the stock to outperform the Benchmark over the next 12 months. A rating of **'Neutral'**, indicates that the analyst expects the stock to perform in line with the Benchmark over the next 12 months. A rating of **'Reduce'**, indicates that the analyst expects the stock to underperform the Benchmark over the next 12 months. A rating of **'Suspended'**, indicates that the rating, target price and estimates have been suspended temporarily to comply with applicable regulations and/or firm policies. Securities and/or companies that are labelled as **'Not rated'** or shown as **'No rating'** are not in regular research coverage. Investors should not expect continuing or additional information from Nomura relating to such securities and/or companies. Benchmarks are as follows: **United States/Europe/Asia ex-Japan**: please see valuation methodologies for explanations of relevant benchmarks for stocks, which can be accessed at: http://go.nomuranow.com/research/globalresearchportal/pages/disclosures/disclosures.aspx; **Global Emerging Markets (ex-Asia)**: MSCI Emerging Markets ex-Asia, unless otherwise stated in the valuation methodology; **Japan:** Russell/Nomura Large Cap.

SECTORS

A **'Bullish'** stance, indicates that the analyst expects the sector to outperform the Benchmark during the next 12 months. A **'Neutral'** stance, indicates that the analyst expects the sector to perform in line with the Benchmark during the next 12 months. A **'Bearish'** stance, indicates that the analyst expects the sector to underperform the Benchmark during the next 12 months. Sectors that are labelled as **'Not rated'** or shown as **'N/A'** are not assigned ratings. Benchmarks are as follows: **United States:** S&P 500; **Europe:** Dow Jones STOXX 600; **Global Emerging Markets (ex-Asia):** MSCI Emerging Markets ex-Asia. **Japan/Asia ex-Japan:** Sector ratings are not assigned.

Explanation of Nomura's equity research rating system in Japan and Asia ex-Japan prior to 21 October 2013

STOCKS

Stock recommendations are based on absolute valuation upside (downside), which is defined as (Target Price - Current Price) / Current Price, subject to limited management discretion. In most cases, the Target Price will equal the analyst's 12-month intrinsic valuation of the stock, based on an appropriate valuation methodology such as discounted cash flow, multiple analysis, etc. A **'Buy'** recommendation indicates that potential upside is 15% or more. A **'Neutral'** recommendation indicates that potential upside is less than 15% or downside is less than 5%. A **'Reduce'** recommendation indicates that potential downside is 5% or more. A rating of **'Suspended'** indicates that the rating and target price have been suspended temporarily to comply with applicable regulations and/or firm policies in certain circumstances including when Nomura is acting in an advisory capacity in a merger or strategic transaction involving the subject company. Securities and/or companies that are labelled as **'Not rated'** or shown as **'No rating'** are not in regular research coverage of the Nomura entity identified in the top banner. Investors should not expect continuing or additional information from Nomura relating to such securities and/or companies.

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