



# Asia and the global tech slump

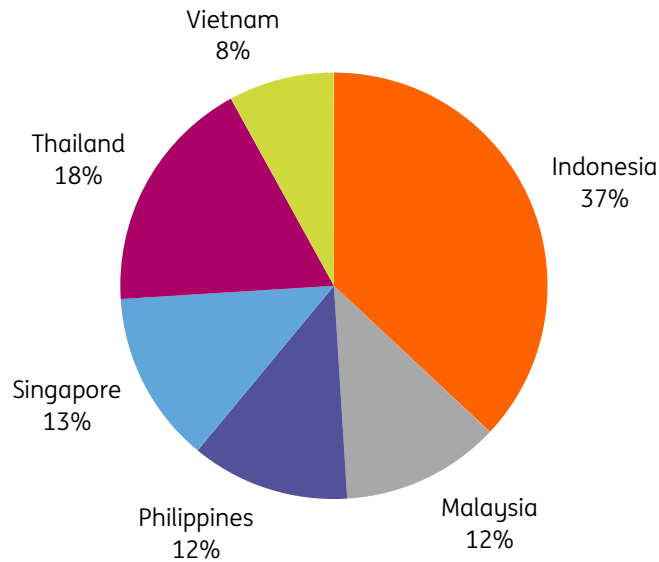
Rob Carnell - Head Of Research, APAC



# The global tech slump

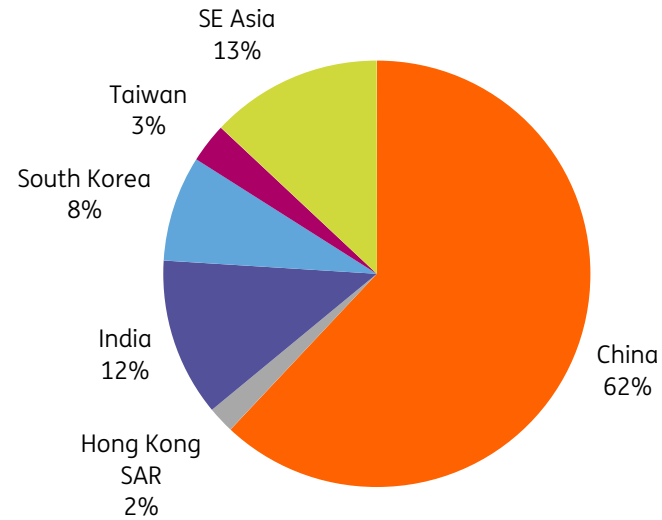
# Asia – some perspective (2018 nominal GDP)

SE Asia



Source: CEIC

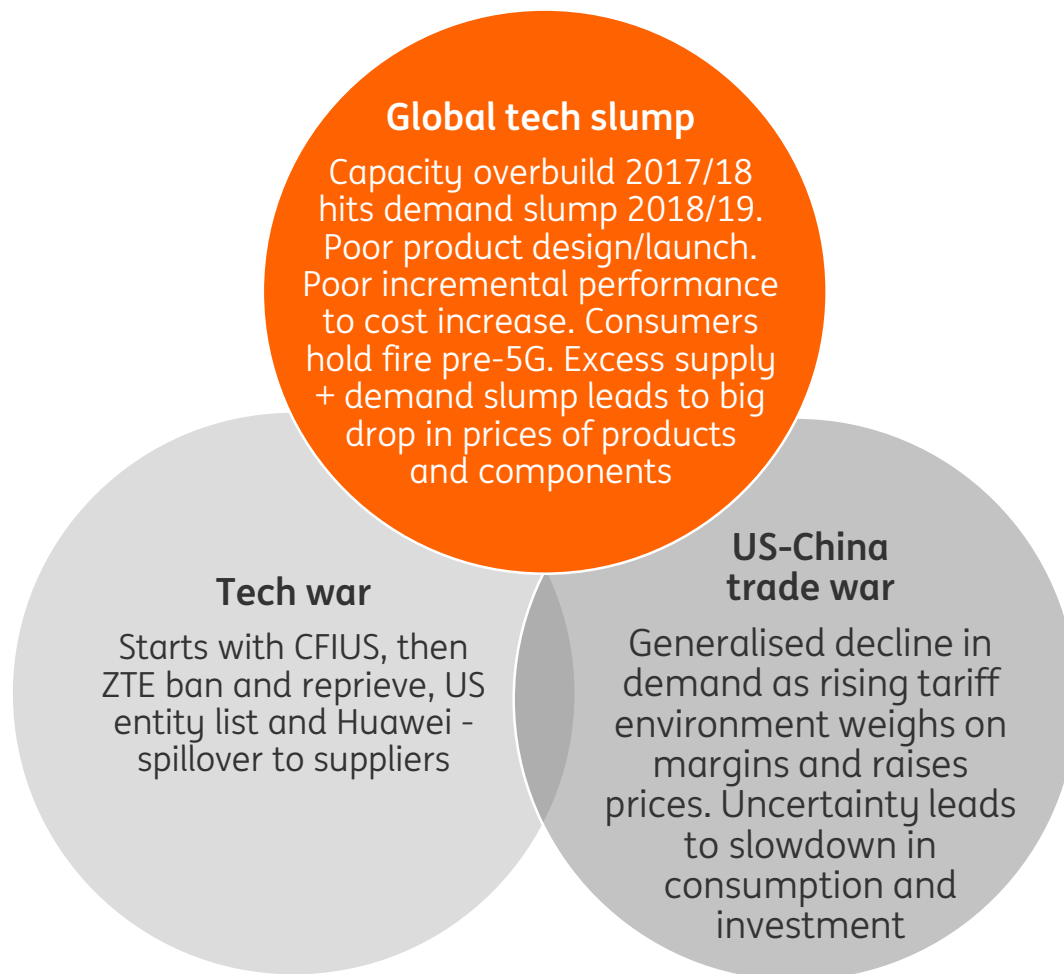
Asia Ex-Japan GDP



Source: CEIC

- There is a tendency to say “Asia” and think “China”.
- China does account for not far off two-thirds of non-Japan Asian Nominal GDP (2018).
- But there are still some important contributions from other North Asian countries, India, and of course, taken together, South East Asia.

# Global tech slump – separate but connected to trade war



# WTO IT Agreement at risk



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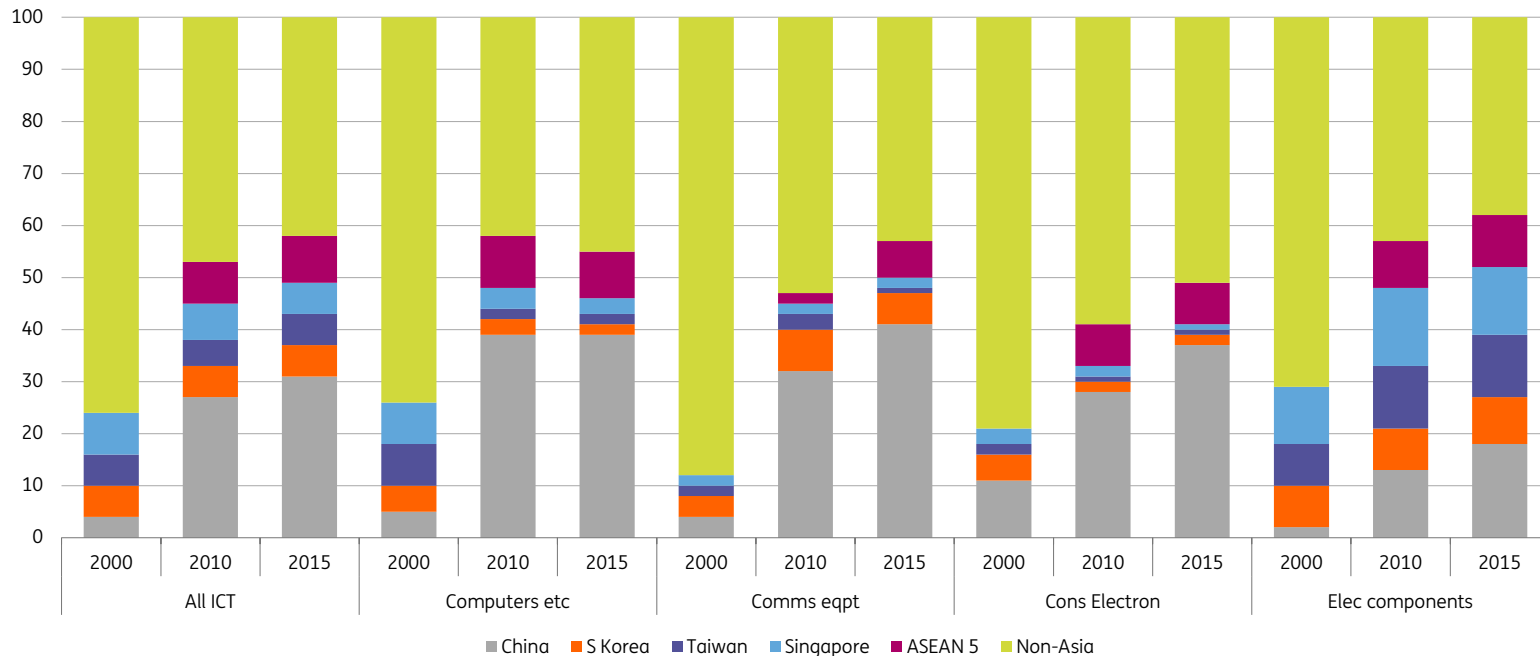
## Information Technology Agreement

The Information Technology Agreement (ITA) was concluded by 29 participants at the Singapore Ministerial Conference in December 1996. Since then, the number of participants has grown to 82, representing about 97 per cent of world trade in IT products. The participants are committed to completely eliminating tariffs on IT products covered by the Agreement. At the Nairobi Ministerial Conference in December 2015, over 50 members concluded the expansion of the Agreement, which now covers an additional 201 products valued at over \$1.3 trillion per year.

- It is probably fair to say that this agreement has helped spur global growth in technology.
- Recent tariffs and restrictions could slow the pace of global development.

# Asia dominates the ICT industry

## Global market share in technology exports



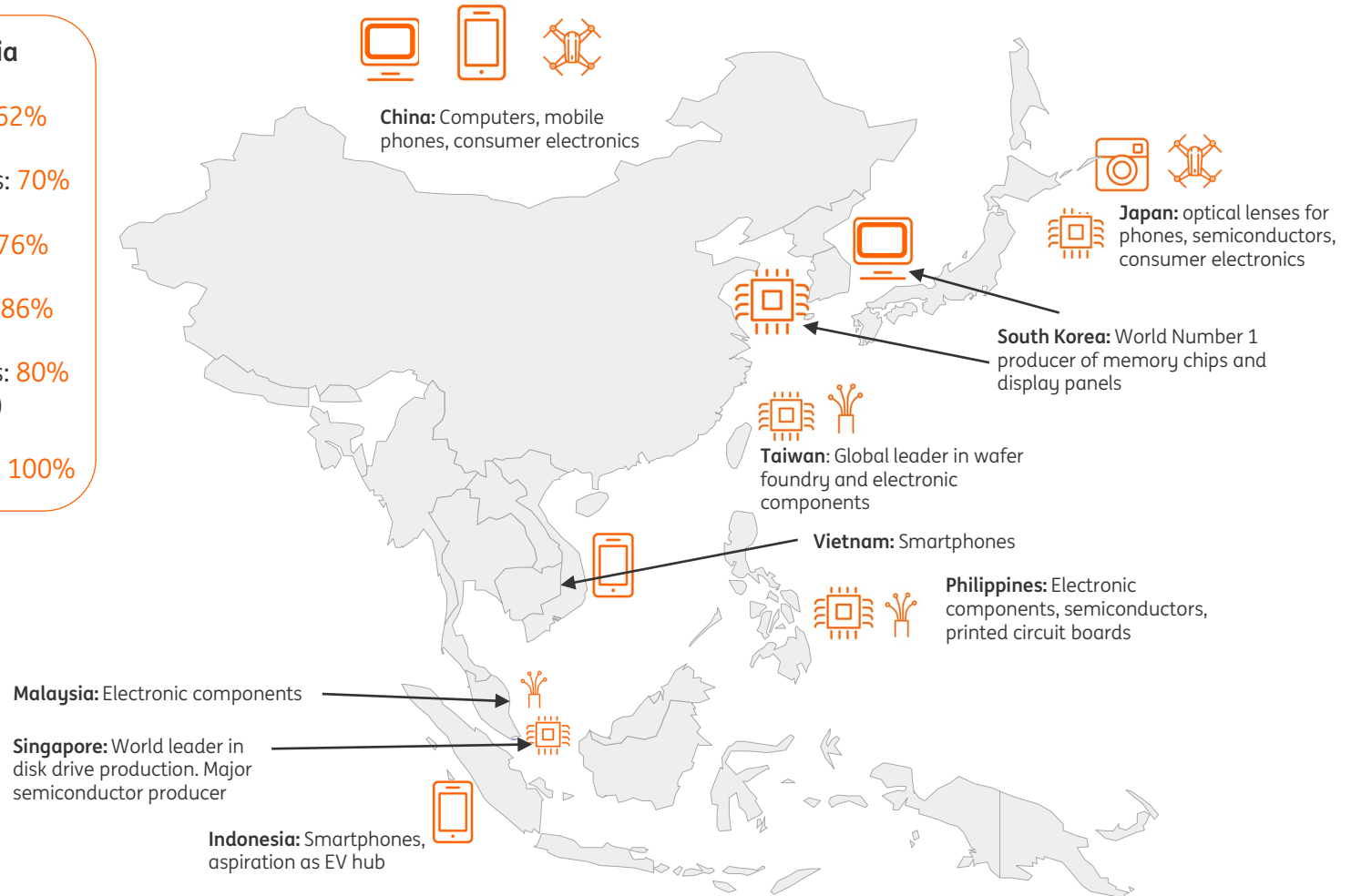
Source: cite CEIC and UNCTAD

- From a little over 20% in 2000, Asia now exports more than half of all the world's ICT, with China alone exporting more than half of Asia's export total.
- Intra-Asian trade has grown, some of this reflects more complicated value chains, but Asia is becoming an important end-market too.
- China for e.g. is today the world's biggest market for PCs.

# Asia – who makes what?

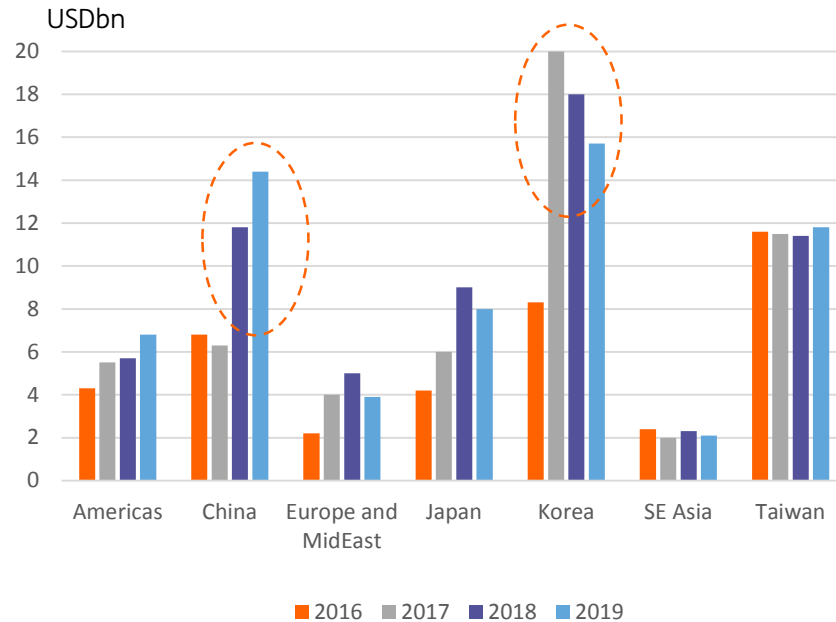
## Made In Asia

- LED/LCD TVs: 62%
- Semiconductors: 70%
- Car Sat Navs: 76%
- Smartphones: 86%
- Hard Disk Drives: 80%  
(In ASEAN)
- Digital Cameras: 100%



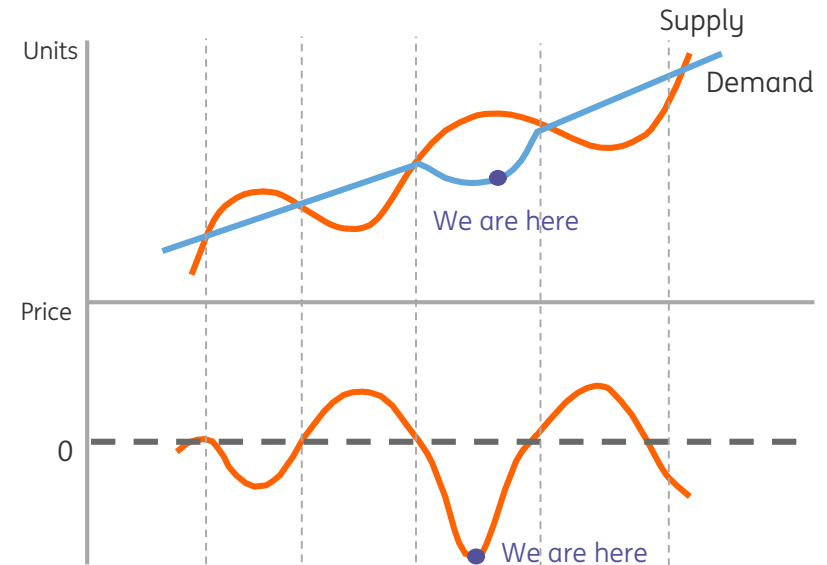
# There is more than just “cycle” at play

Fab equipment spending by region



Source: Statista

Electronics cycle



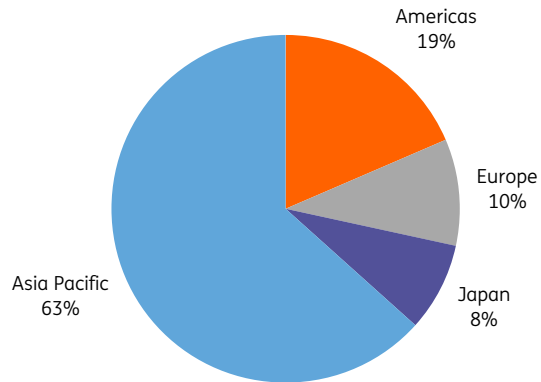
Source: ING

- The electronics industry is prone to strong cyclical behavior. And there is an element of oversupply weighing on the industry right now.
- But there is more to this than a capacity / price story. Right now, demand for electronics has slumped.
- This preceded the Trade and Tech Wars, but now overlaps it. This is a genuine dip in demand for Hi-tech and the reasons for this are various.



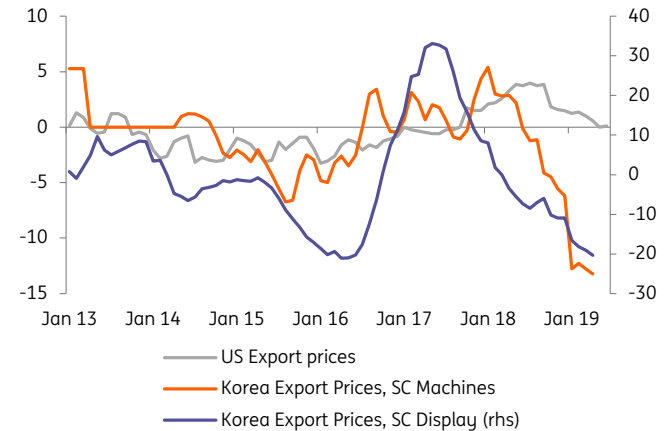
# Electronics / parts – prices, billings, have fallen

## Asia Pacific dominates Semiconductor industry



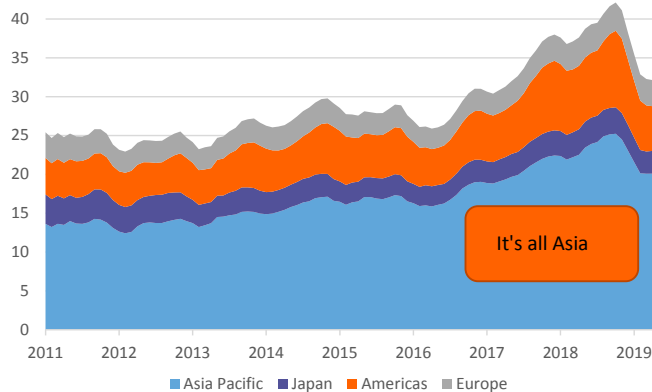
Source: CEIC

## Semiconductor industry – prices (%YoY)



Source: CEIC

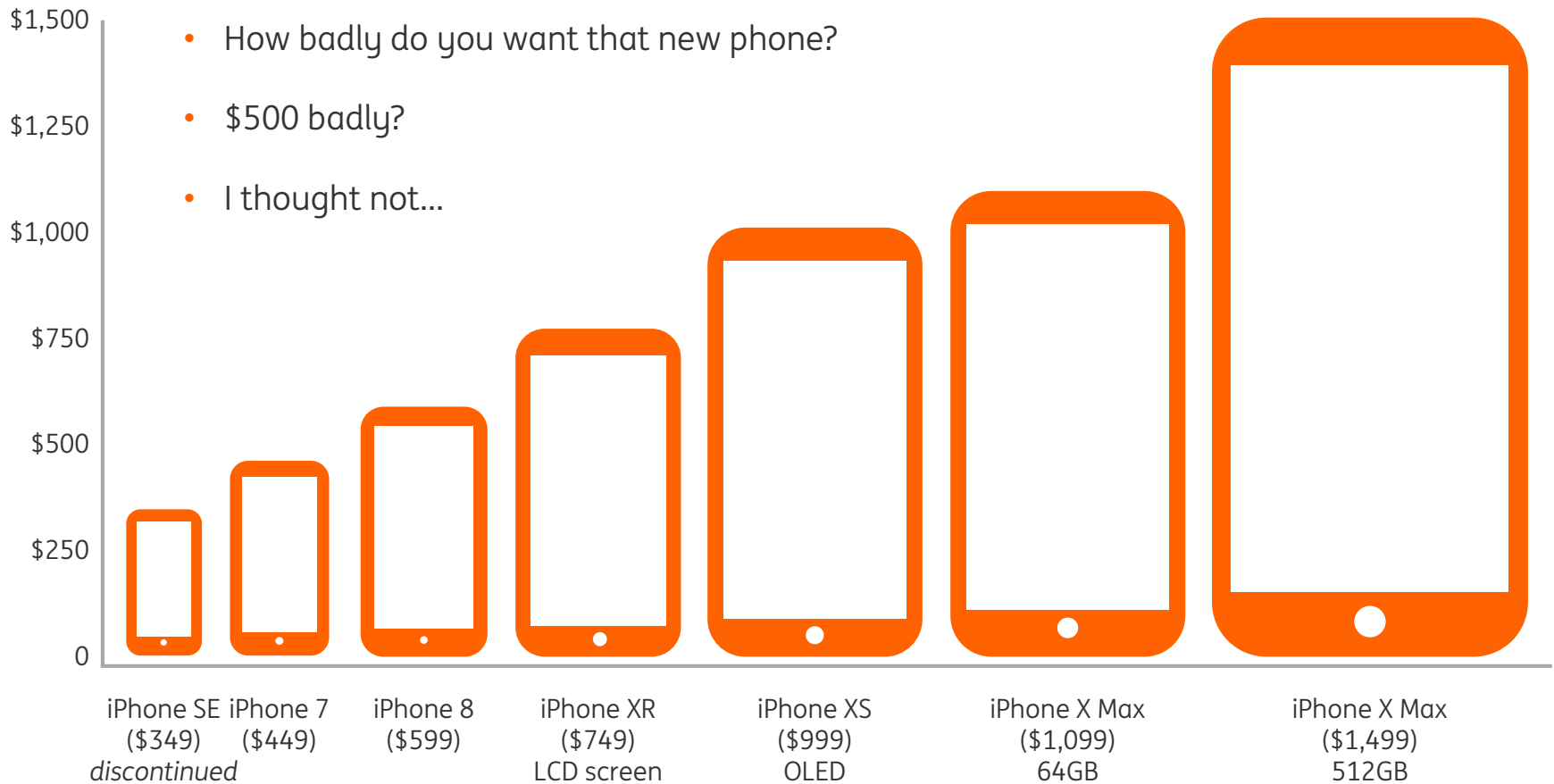
## Semiconductor billings (billions per month)



Source: CEIC

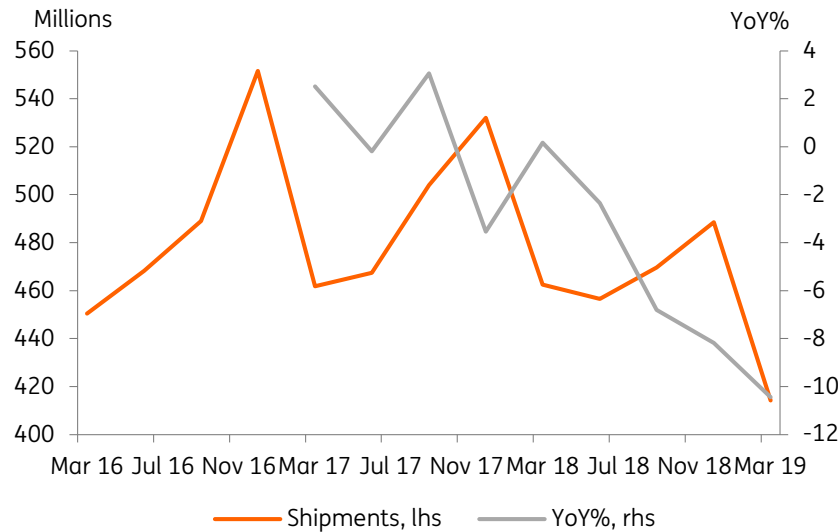
- It's not just export volumes, production and orders that are falling...
- ...prices of semiconductors and electronics are also plunging.
- Too much capacity, not enough demand, poor product and poor pricing points have all generated this problem.
- Good news – It is cyclical.
- Bad News – it could take years to recover.

# Handsets – incremental improvements, quantum price changes



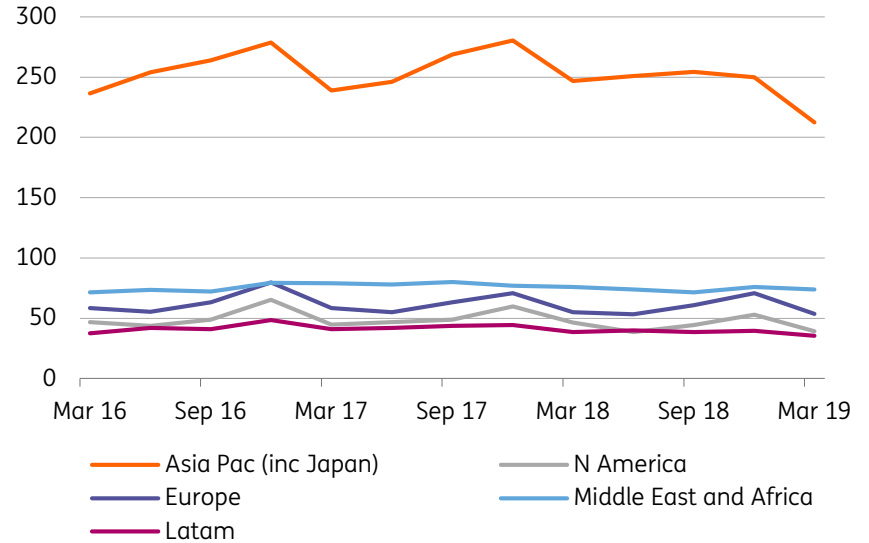
# Phones flop

## Global handset shipments



Source: Bloomberg

## Global handset shipments (m)

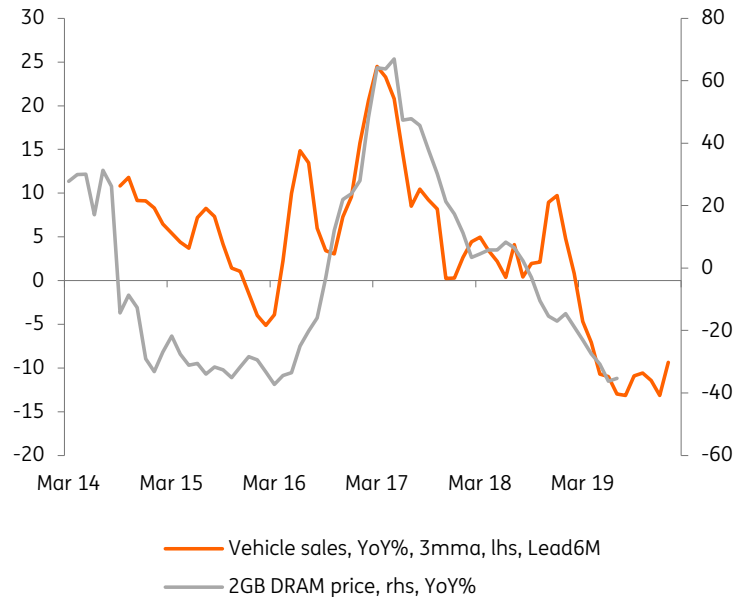


Source: Bloomberg

- Smartphones, 86% of which are made in Asia, have seen shipments flounder at the end of 2018 and 2019.
- This is a global phenomenon, but an Asian problem.

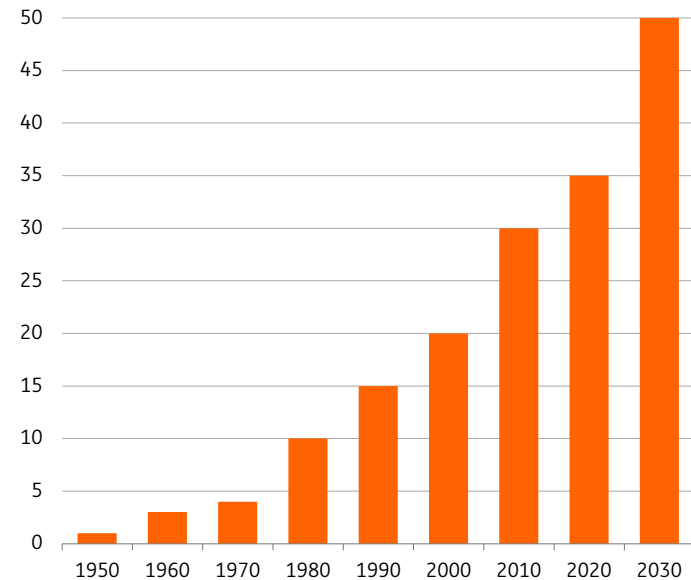
# Cars and chips

Chinese auto sales (+6m) and DRAM prices (%YoY)



Source: Bloomberg

Automotive electronic cost as % total car costs



Source: PWC

- Electronics account for about 35% of the costs of a vehicle. For an E-vehicle, it is closer to 50%.
- Sales of vehicles in China are falling – Chinese car production accounts for more than a quarter (27.8%) of the global total (US: 13.1% in 2018), and 45% of global E-Vehicles.
- Chinese vehicle sales lead DRAM prices by about 6m. At best, we can say the decline is slowing.

# Cryptocurrency usage dipping

- There was a time when you could mine crypto using your home computer – no longer.
- Mining is becoming more and more difficult and energy intensive and the returns are not as high as they were.
- Some estimate crypto mining uses as much electricity annually as Switzerland – that has probably dipped as crypto-fever has ebbed.



This was once all you needed for mining crypto.

## Bitcoin / USD cross



The Antminer S9  
Rocking a lot of  
top spec chips.

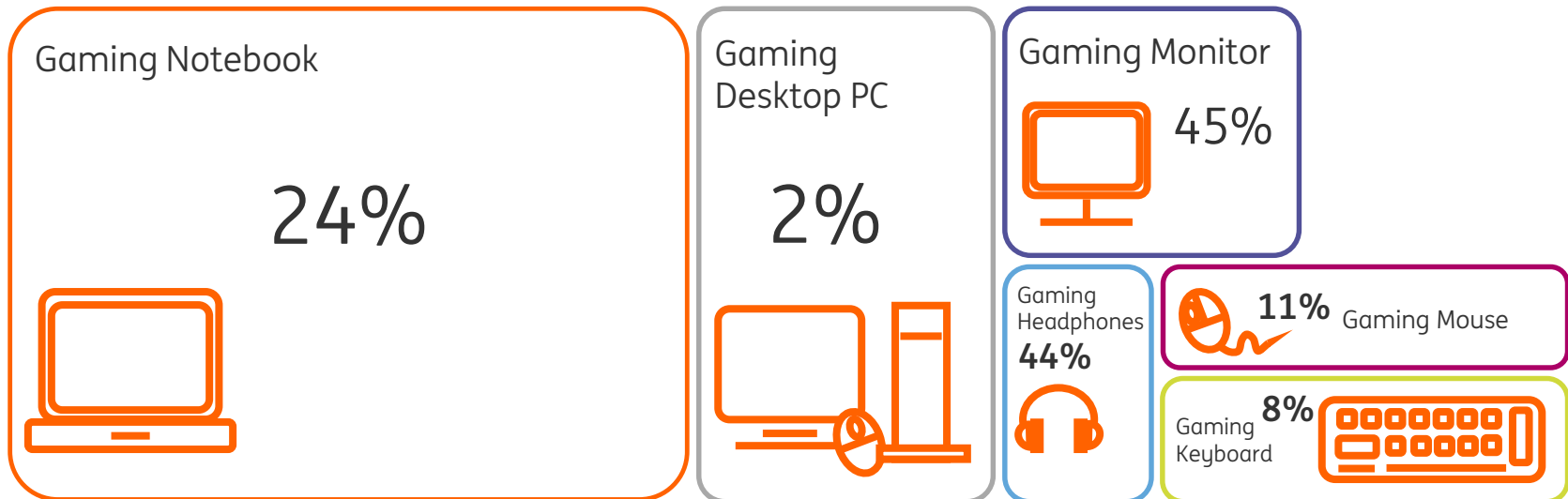


Source: Bloomberg

# Gaming growing, but still very small



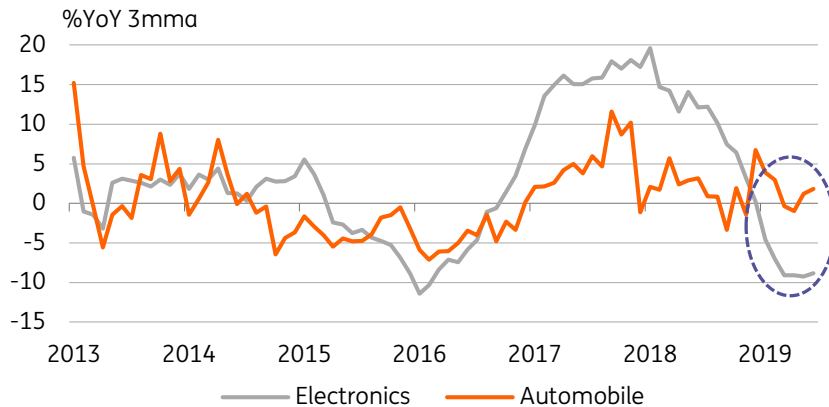
- This was once a niche market.
- It is now becoming an industry.
- But it is still way too small to become a substantial driver of tech demand.
- Asia Pacific dominates market share of gaming notebook market – growth rates @30%.



Source: GfK

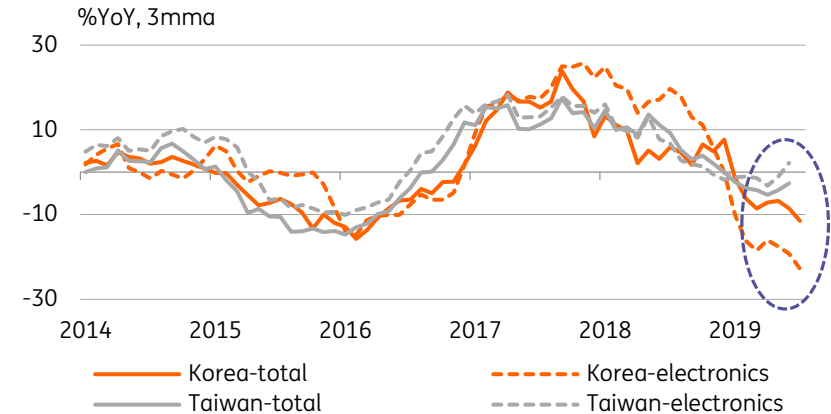
# Asian exports – trade war vs tech slump

## Asian electronics and auto exports



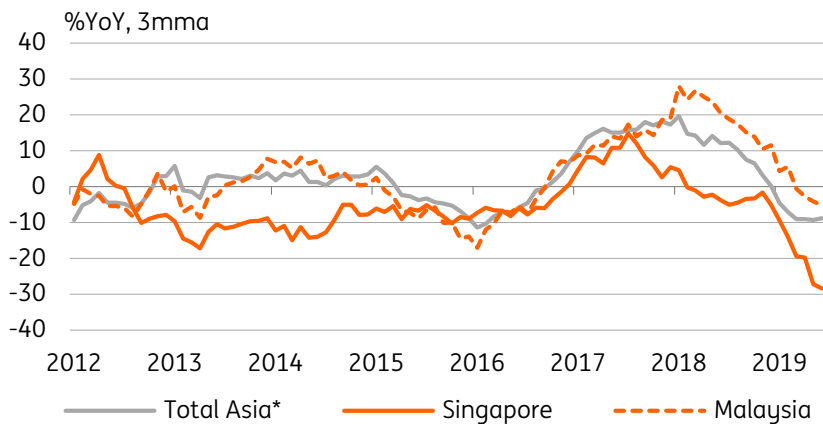
Source: CEIC

## Korea, Taiwan electronics, total exports



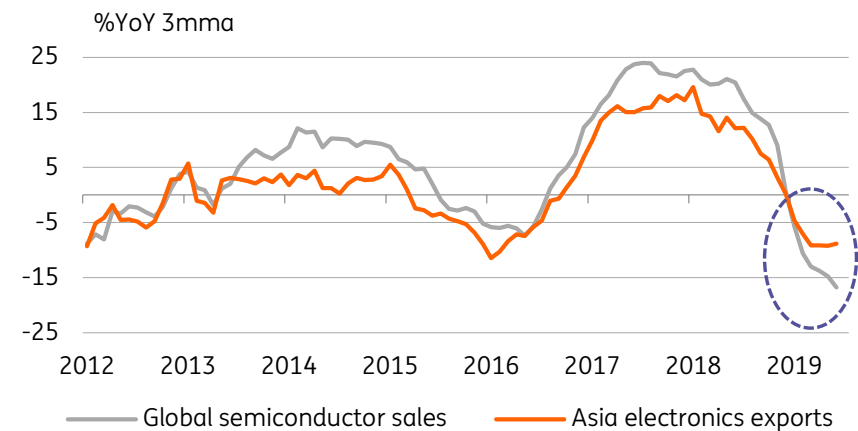
Source: CEIC

## Selected SE Asian electronics exports



\*Includes Japan, Korea, Taiwan, Singapore, Malaysia, Philippines and Thailand  
Source: CEIC

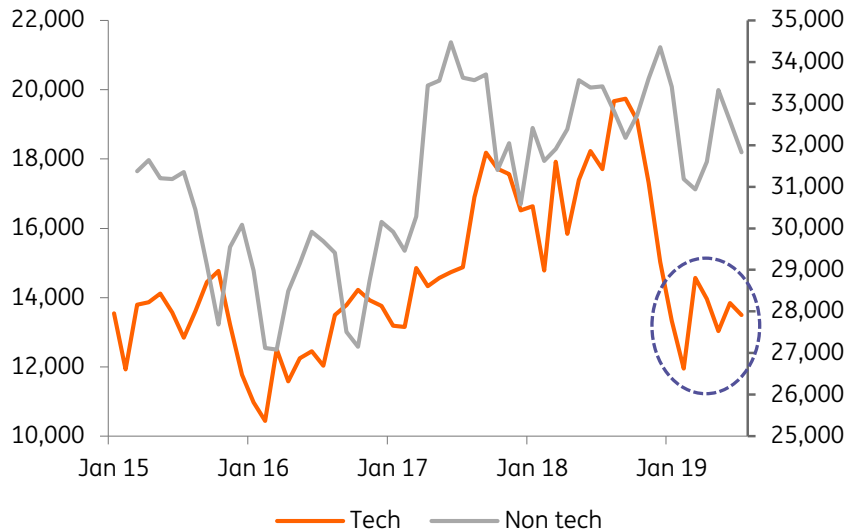
## Global semiconductor sales, Asian Electronics exports



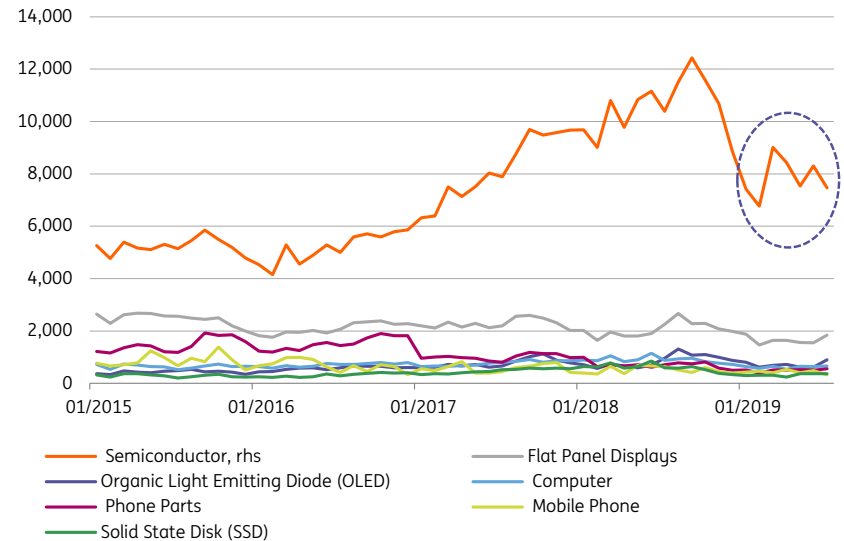
Source: CEIC

# Korea highlights the tech slump / trade war

Tech vs non tech export split



Korea Tech complex – exports (\$m)



Source: CEIC

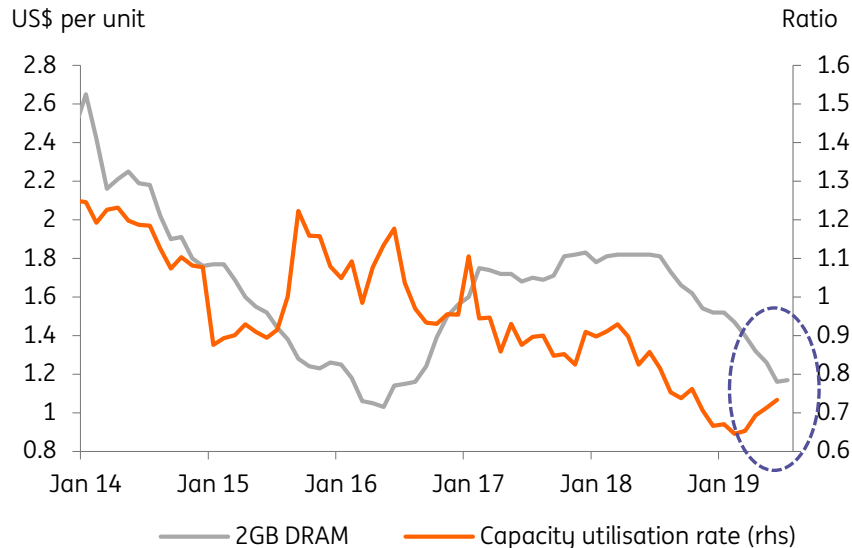
Source: CEIC

- If it were just the trade war that was a problem, tech exports would be falling, but so too would everything else.
- Well if we use Korea as a benchmark, one of the world's biggest producers and exporters of tech, then we can see that tech has very special problems.
- The trade war is mainly an issue for China.

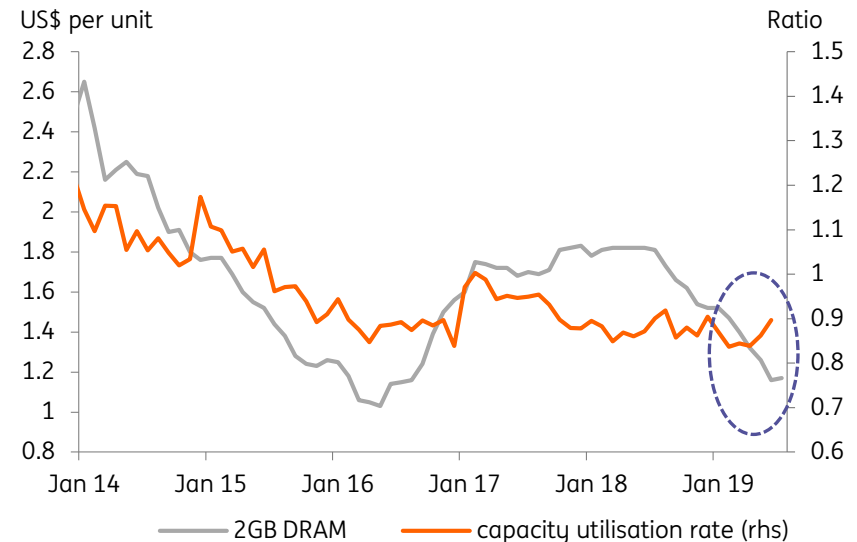


# Overcapacity has dragged down prices

## Semiconductors



## Electronic components



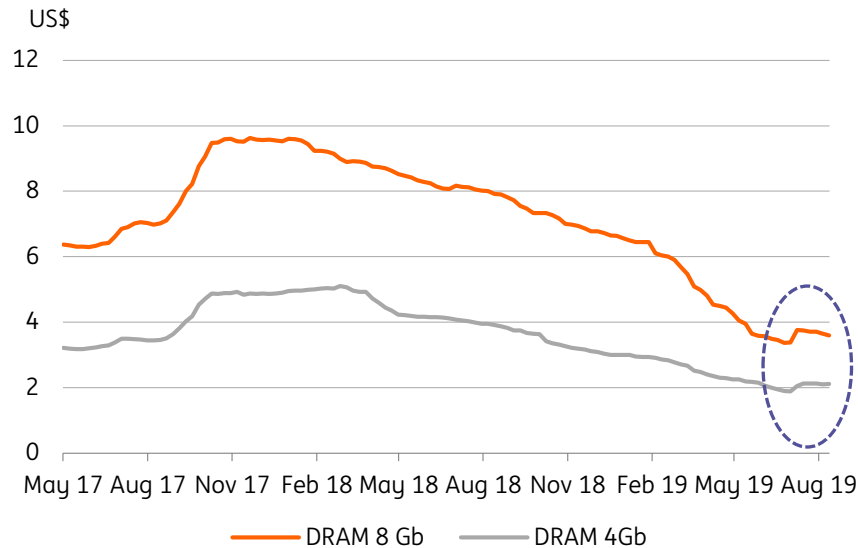
Source: Bloomberg, CEIC

Source: Bloomberg, CEIC

- The global tech slump isn't all a volume effect.
- Price effects are very important.
- Price weakness has been driven by overcapacity.
- This will either be overcome by attritional capacity reductions (obsolescence) or a demand pick-up.
- A slight upturn is possibly happening now.

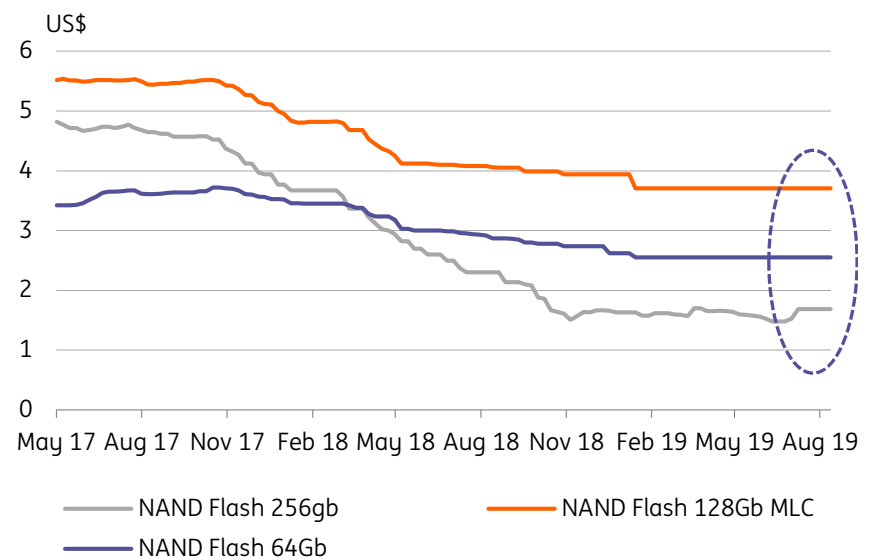
# Memory price fall stabilizing?

## DRAM spot prices



Source: Bloomberg

## NAND flash spot prices



Source: Bloomberg

- Here are some spot prices for memory.
- Since 2017, DRAM memory chip prices have roughly halved.
- NAND Flash memory (Solid state device memory) have likewise fallen.
- There seems to be a little bounce going on now – have we hit bottom?

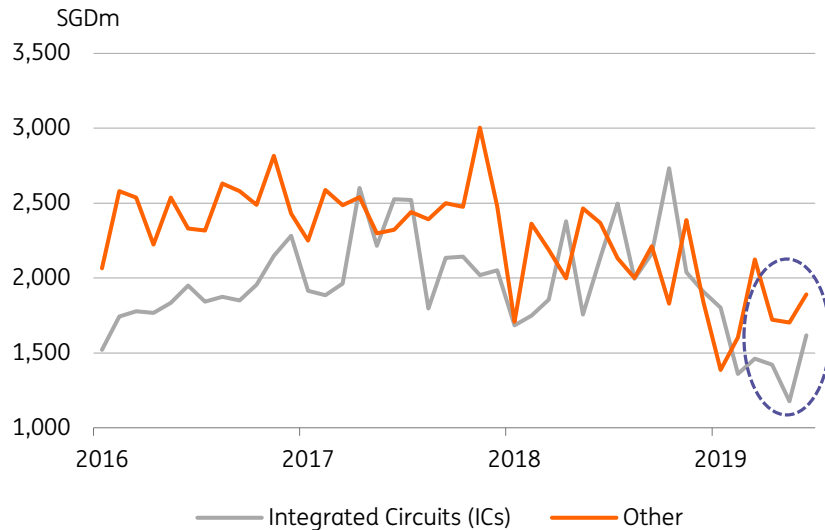
If you want a not too technical link to a site that explains what some of this stuff is here are two:

<https://www.mydigitaldiscount.com/everything-you-need-to-know-about-slc-mlc-and-tlc-nand-flash.html>

<https://www.atpinc.com/blog/computer-memory-types-dram-ram-module>

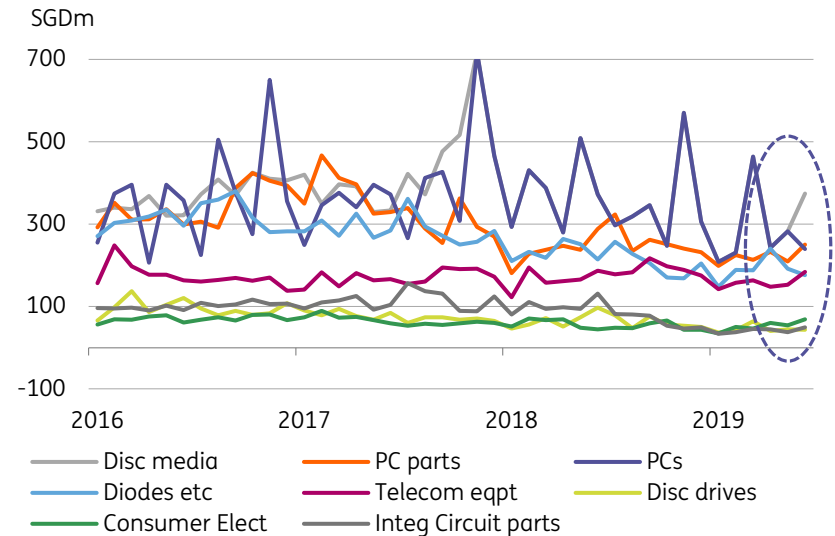
# Chips Ahoy! Beginning of the end?

## Singapore electronic exports



Source: Bloomberg

## Non-IC electronics

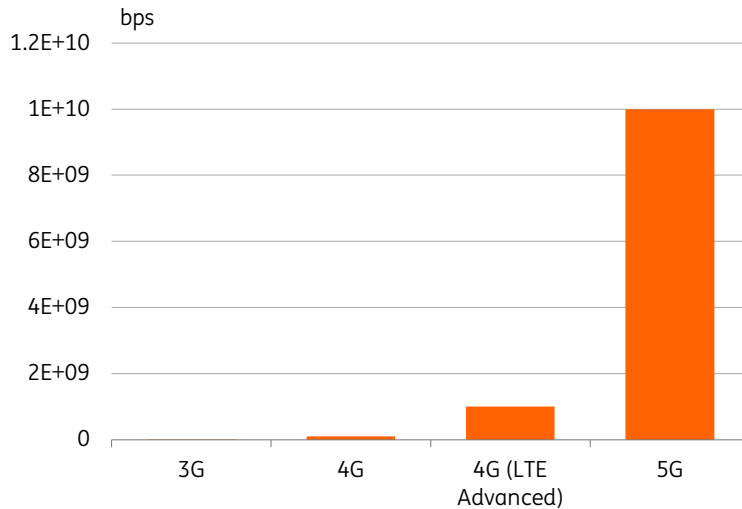


Source: Bloomberg

- Some of the most recent data from Singapore (and elsewhere) also suggests that the downturn in electronics exports / production, may be finding a trough...
- Don't look for a V-Shaped recovery though, this one will likely be more "L"-shaped.
- That's better than nothing though...

# Electronics: could rise like a phoenix, but when?

## 5G vs 4G speed comparison



Source: Phonearena.com



Source: Shutterstock

- The electronics product cycle is not the worst problem for Asia to have, though it may seem bad now.
- 5-G rollout could make most existing hardware redundant / obsolete. IOT finally becomes a reality, as do autonomous vehicles, etc.
- Will we need to replace all our hardware? Probably. Big boost to Asian manufactures of consumer electronics, content providers.
- Difficult to imagine what the impact on components will be but storage in consumer devices may become redundant? (NAND)
- In short, positive, but maybe massively disruptive.

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“When caution’s not enough for the euro”

“What we really think of the Bank of England’s rate decision”

“Some Brexit clarity at last?”

“Riding the cryptocoaster”

“Normalisation will be a long, uncomfortable journey”

“Trade war: What is it good for?”

“G10 FX: Careless Central Bank Whispers”

“Trump: The next 100 days”

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