UBS Global I/O Semiconductors

Autos semis shortage: significant easing finally in sight?

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Capex, backlog and stock rally are the main highlights post results

Post Q2 we review the latest leading indicators and provide an update on the chip shortage experienced at the auto semis level. We highlight the following key points: 1) Q2 capex from main analog players was up 52% YTD y-o-y following 110% y-o-y growth in 2021. For 2022E, consensus expects analog capex to be up another 32% y-o-y vs 42% last quarter. Although it confirms our view that supply will continue to increase gradually and materially in the next two years, we note a small downward revision this quarter, likely due to delayed delivery and potential consumer slowdown. 2) Backlog remains at an all time high for most auto semis names post Q2 but we believe it is likely to reduce meaningfully in the next quarters driven by slower demand and reduction of leadtimes; 3) By using 10y historic average P/E and a 40% drop through on volumes, we estimate that the current market implies 5-10% price decline in 2023E for the main analog semis players. Our current assumption remains that the shortage is easing at a faster pace than expected due mainly to increasing supply but also slower demand.

Evidence post Q2: Distributor tracker, q-o-q revenue growth increase, EV penetration

Our Q2 analysis suggests that shortages will persist further into 2022 but will gradually ease, in our view. However, we highlight the following encouraging evidence as we move through 2022E: 1) UBS Evidence Lab distributor tracker is showing meaningful inventory increase in July. We note current unit inventory across our tracked products is sitting 29% above the level of Jan 2021 (vs 24% below two months ago, 28% three months ago and 29% four months ago) with product availability up again slightly to 13% vs 11-12% in the last two months. (here); 2) The share of EVs (BEV+PHEV) sold in July amounts to 17% in the top-5 WE markets (was 19% in June and 18% in 2021) with BEV sales +13% and PHEV -22% y/y. The data in July marks a small slowdown vs 19% YTD penetration. In China, July new energy vehicles NEV sales reached 564k units, down 1% MoM but up 124% YoY. EV penetration remained steady at 26%. This is key for semis in terms of content; 3) Semis delivered 5% q-o-q revenue growth in Q222 (vs 2% 5Y Q2 average) and Q322E company guidance suggests +2.5% q-o-q on average (vs +2% 5Y average).

Leading indicators - mixed picture

Our leading indicators give a mixed picture for the sector in H2'22E with pros and cons offsetting each other. 1) Y-o-Y semis rev growth is expected to slow down through 2022E due to high comps and semis are likely to underperform OEMs; 2) work in progress inventories continue to increase at OEMs in Q2 but mainly due to lack of modules availability leading to bottlenecks (consistent with last quarter).

Sector preferences - remain selective

Sector preferences - sector has re-rated due to the macro environment but we remain selective. Our most preferred names are Analog Devices, Microchip, Infineon and Renesas.

EXECUTIVE SUMMARY

Supply/demand likely to improve gradually and likely visible at OEMs by the end of the year

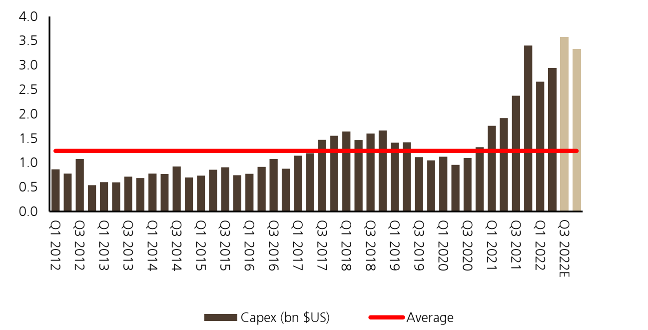
Although we expect the shortage to continue further into 2022, we expect stabilization to continue towards the end of the year especially for automotive. This is driven by the following:

Evidence: Semis

IDM capex continues to increase: Analog semis continue to invest to increase capacity in 2022/23 suggesting a gradual improvement. Main analog semis players capex in Q2 was 52% above Q2 last year. However, we note consensus forecasts a capex increase of 32% y-o-y in 2022E vs c40% last quarter mainly driven by delayed delivery.

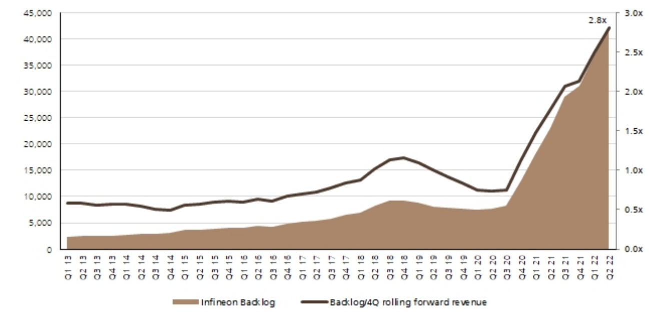
Trailing edge equipment shipments also increasing and we see some softer demand: As our team in Asia already flagged (here), despite the meaningful slowdown in several consumer-related end-markets since late 2021, we believe the fabless sector only started to adjust foundry production meaningfully from mid-Q2. The more imminent impact is on 8" foundries, which have higher exposure on TV/IT display drivers.

Figure 1: Capex ($bn)from analog semis accelerating. Consensus expects 32% y-o-y in 2022E vs +110% y-o-y in 2021.



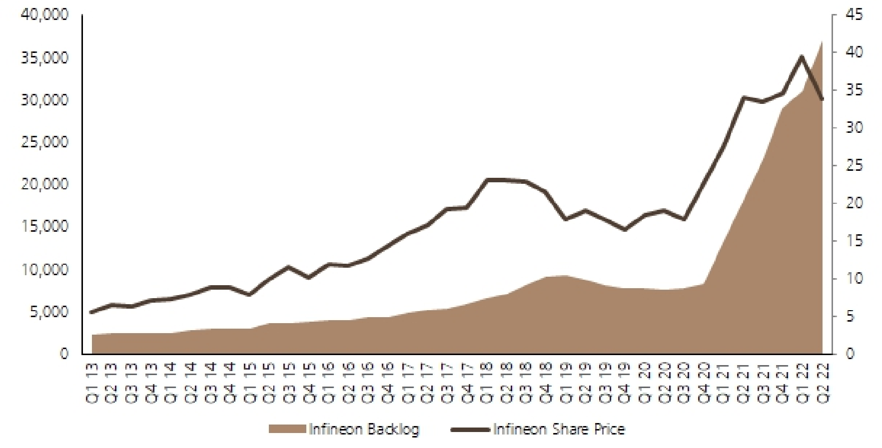
Source: UBS, company data; Note: data includes TI, ADI, ON, IFX, STM, Microchip, Melexis, NXP, Renesas

Figure 2: Infineon backlog/4q rolling forward revenues reaching 2.8x vs less than 1.5x in the last 10 years. We believe the backlog is likely to reduce significantly going forward.



Source: UBS estimates, company data

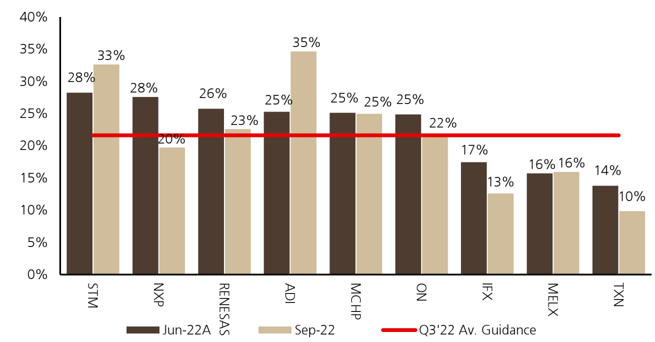
Figure 3: Infineon share price vs backlog



Source: UBS company data

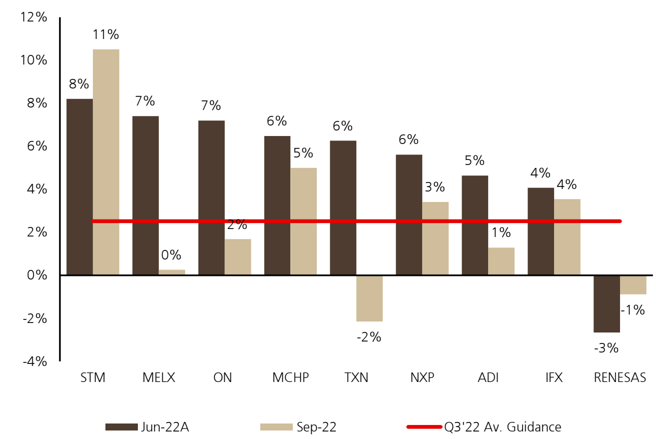
We also note that Q3'22 guidance for the main analog semis players implies c21.6% revenue growth y-o-y (vs growth of c22.6% y/y in Q2'22). Semis delivered 5.2% q-o-q revenue growth in Q2 and Q3'22 guidance suggests +2.5% q-o-q on average, in line with +2% q-o-q 5Y historic average.

Figure 4: Guidance Comp. Y-o-Y % Analog Semis



Source: Company data, Note: *Renesas - growth adj. for acquisition of Dialog

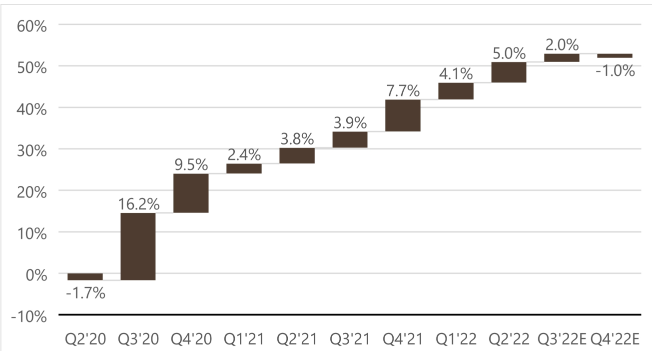
Figure 5: Guidance Comp. Q-o-Q % Analog Semis



Source: Company data, Note: *Renesas - growth adj. for acquisition of Dialog

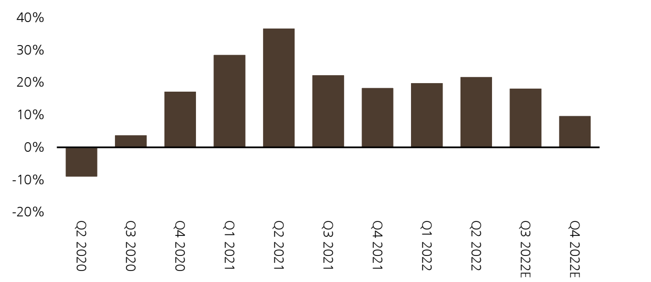
From a high level perspective, we see below limited impact from automotive production for most companies which suggests in our view ongoing supply ramp.

Figure 6: We are entering the ninth consecutive quarter of q-o-q semis growth...



Source: UBS, company data; Note: data includes TI, ON, IFX, STM, Microchip, Melexis, NXP, Renesas

Figure 7: ...Q4 22E likely to deliver less than 10% revenue growth for the first time since Q3 20.



Source: UBS, company data; Note: data includes TI, ON, IFX, STM, Microchip, Melexis, NXP, Renesas

What is priced in for semis?

By using 10y historic average P/E and 40% drop through on volumes, we estimate that the market currently implies 5-10% price decline in 2023E for the main analog semis players.

Figure 8: We use historic average P/E to assess what is priced in by the market

	Main analog players	
Current P/E	13	
10Y average P/E	19	
Implied EPS/EBIT	**-31%**	
Cons ($bn)	**2022E**	**2023E**
Revs	104.1	104.8
y-o-y		1%
EBIT	39.2	37.2
% margin	38%	36%
Implied EBIT		**25.7**
y/y		**-34.3%**
% margin		**28.6%**
Assumptions	**2023E**	
Volume y/y	-5%	
Drop through %	40%	
Implied price y/y	-9%	
Implied revs y/y	-14%	

Source: UBS, company data; Note: data includes TI, ADI, ON, IFX, STM, Microchip, Melexis, NXP, Renesas

Figure 9: we estimate the market is pricing in 5-10% price decline in 2023E

		Volume y-o-y 23E					
23E price y-o-y	-9.0%	**-15%**	**-10%**	**-5%**	**0%**	**5%**	**10%**
	9	-13%	-15%	-17%	-19%	-21%	-23%
	12	-7%	-9%	-11%	-13%	-15%	-17%
P/E 23E	**13**	-5%	-7%	-9%	-11%	-13%	-15%
	15	-1%	-3%	-5%	-7%	-9%	-11%
	18	4%	2%	0%	-2%	-4%	-6%

Source: UBS, company data; Note: data includes TI, ADI, ON, IFX, STM, Microchip, Melexis, NXP, Renesas

Leading indicators remain mixed

Figure 10: UBS leading indicators for Autos semis

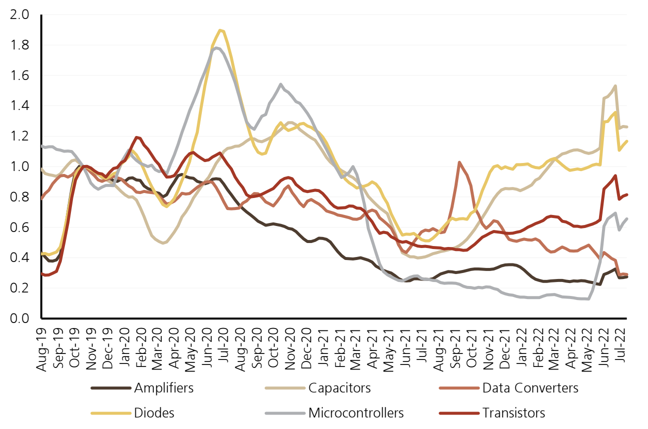
Indicator	Q1'21	Q2'21	Trend Q3'21	Q4'21	Q1'22	Q2'22	Q3'22E	Q4'22E	Commentary
1) Semis y-o-y revenue growth	28%	35%	21%	19%	21%	22%	20%	10%	**Neutral** - Revenue slowing down through 2022E due to high comps, albeit to mid-single digit growth
2) Semis vs OEM revenue gap	16%	-28%	26%	30%	22%	24%	12%	4%	**Negative** - Gap is expected to close in Q3'22E and is expected to revert in favour of OEMs by the end of the year, according to consensus
3) Inventory days - Semis	102	104	105	103	114	115	112	114	**Negative** - Inventory days went up a in Q1'22 and are expected to remain at the same level through the rest of 2022
4) Inventory days - OEMs	66	72	73	71	76	80			**Negative** - Inventories at OEMs increasing due to shortage of some modules and currently sit slighly above historic averages
5) Autos production y-o-y	16%	48%	-19%	-10%	-4%	0.4%	21%	-1%	**Positive**- Cutting global 2022 production forecast to 79.7m (from 82.6m), but recovery expected ahead of Q2.

Source: UBS estimates

Units continue to increase

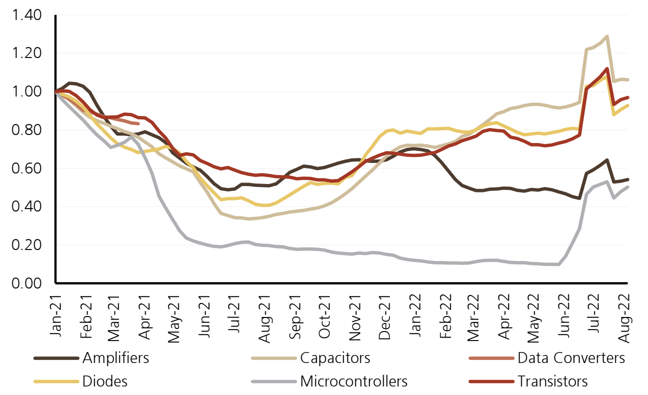
We note current unit inventory across our tracked products is sitting 29% above the level of Jan 2021 (vs 24% below two months ago, 28% three months ago and 29% four months ago) with product availability up again slightly to 13% vs 11-12% in the last two months. LfL pricing was flat mom (vs -3% on average last month). Therefore, prices were more resilient at this stage, despite inventories increasing more meaningfully. We also note ongoing improvement on the MCU side with units 50% below the level of January 2021 (similar to last month) vs 86% two month ago. With demand being increasingly under pressure following Micron/Nvidia recent warnings as examples, we expect inventories to increase further across the board. We believe the main question will be on pricing and we will look closely at the evolution. At this stage, pricing is showing a resilient development but we expect more pressures in the coming month as demand and backlog is being adjusted.

Figure 11: Normalised unit inventory trends



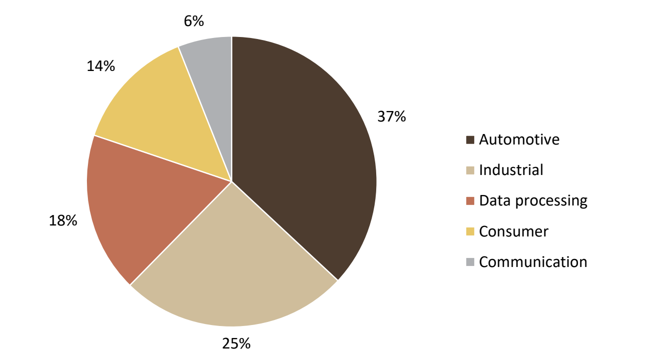
Source: UBS Evidence Lab ([> Access dataset])

Figure 12: Inventory trend since the beginning of 2021



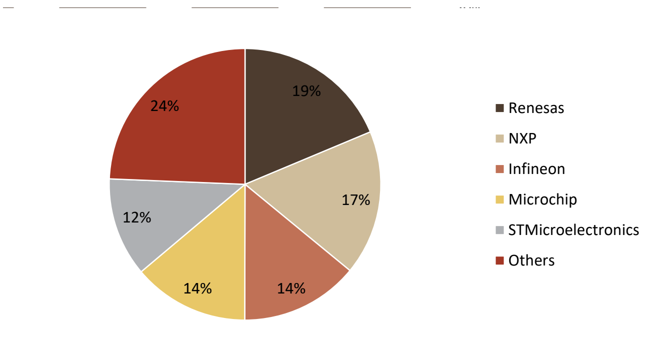
Source: UBS Evidence Lab ([> Access dataset])

Figure 13: Microcontrollers are highly exposed to automotive (2019)



Source: Gartner, Inc, UBSe

Figure 14: Top 5 players represents more than 70% of the market (2019)

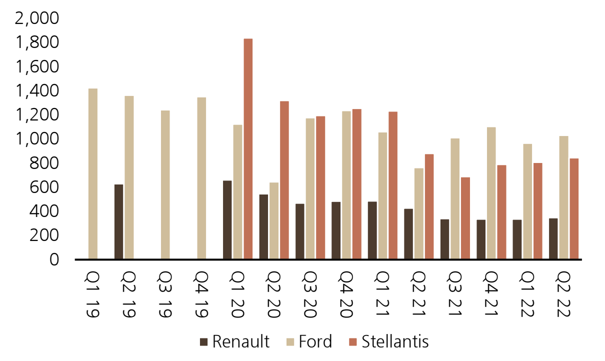


Source: Gartner, Inc, UBSe

Inventories increase likely due to more work in progress inventories

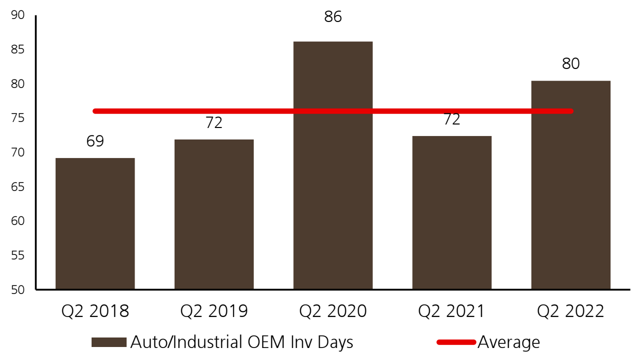
Overall autos/industrial inventory days: On a combined basis, the inventory level appears to have increased in Q2 22 and stood at c8 days above seasonally normal for Q2. Hence, inventory days (DOI) was up to c80, up 8 days vs Q2'21 and above the normal DOI of 76 (five-year average for Q2s). We believe this is due to more work in progress inventory impacted by the shortage of some modules.

Figure 15: Total inventories '000 units: inventories remain low vs recent history



Source: Company data, UBS estimates

Figure 16: Q2s Autos/Industrial OEMs inventory days



Source: Company data, UBS estimates

Q2'22 SLUGGISH DUE TO SUPPLY SHORTAGES DUE SLOWING TREND AND SUPPLY SHORTAGES AND HIGH COMPS BEFORE NORMALIZATION IN 2023E?

For 2022, we estimate global sales declining by -1% y/y to 79.2m units, and our 2022 production forecast gets cut to 79.7m (from 82.6m), up 3% y/y. For 2023, we reduce the sales and production outlook to 84m/85m units, respectively (from 86m/88m)

Figure 17: UBS leading indicators for Autos/Industrial semis

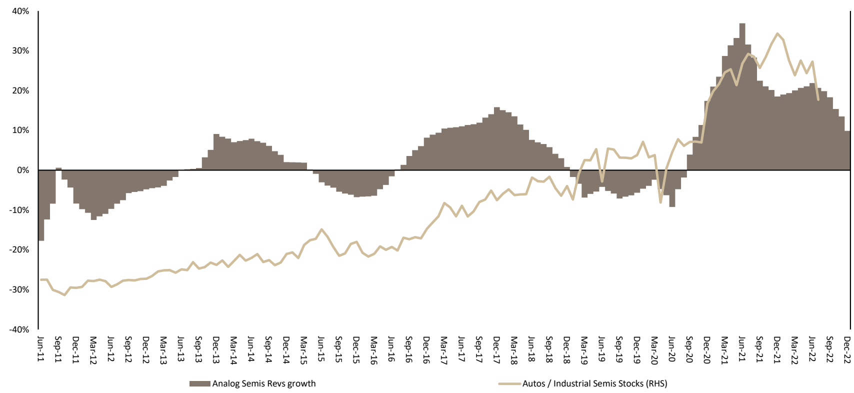
Indicator	Q1'21	Q2'21	Q3'21	Q4'21	Q1'22	Q2'22	Q3'22E	Q4'22E	Commentary
1) Semis y-o-y revenue growth	28%	35%	21%	19%	21%	22%	20%	10%	**Neutral** - Revenue slowing down through 2022E due to high comps, albeit to mid-single digit growth
2) Semis vs OEM revenue gap	16%	-28%	26%	30%	22%	24%	12%	4%	**Negative** - Gap is expected to close in Q3'22E and is expected to revert in favour of OEMs by the end of the year, according to consensus
3) Inventory days - Semis	102	104	105	103	114	115	112	114	**Negative** - Inventory days went up a in Q1'22 and are expected to remain at the same level through the rest of 2022
4) Inventory days - OEMs	66	72	73	71	76	80			**Negative** - Inventories at OEMs increasing due to shortage of some modules and currently sit slighly above historic averages
5) Autos production y-o-y	16%	48%	-19%	-10%	-4%	0.4%	21%	-1%	**Positive**- Cutting global 2022 production forecast to 79.7m (from 82.6m), but recovery expected ahead of Q2.

Source: UBS estimates

1) y-o-y growth likely to slow down going forward

As we had a revenue growth slowdown going forward due to high comps primarily but also due to supply chain shortages, share prices have corrected as well in light of macro concerns.

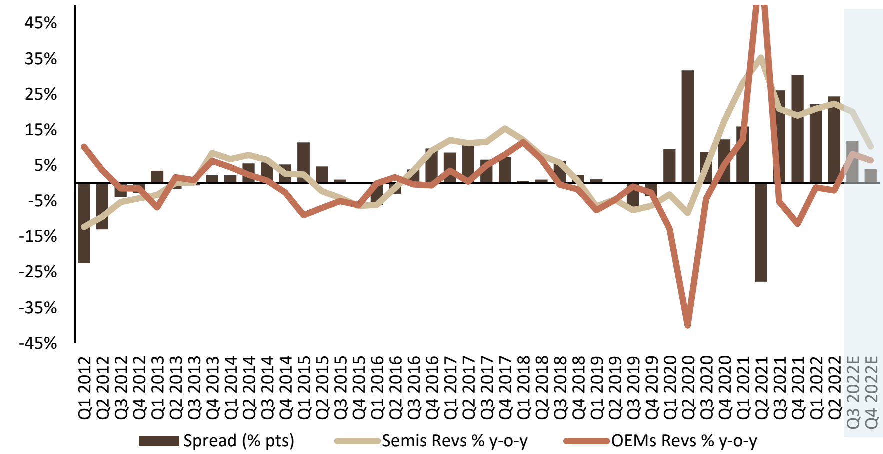
Figure 18: Analog semis revenue growth (3-mths rolling) vs. stock performance



Source: UBS estimates, Company data, Datastream: Note: Analog Semis index consists of ADI, RENESAS, ON Semi, STM, TXN,, IFX, MCHP, MELEXIS, NXP

2) Semis vs OEM gap analysis – OEMs revenue growth likely to catch up with semis according to consensus in 2022E: We note that the gap between the semis and OEM revenue growth was still high in Q2'22 vs history which can be explained by 1) content growth; 2) price increases, and 3) inventory build-up (although limited in our view for semis). Interestingly, we believe that inventories have gone up a bit at Semis (partly due to shipment issues globally) levels which means that prices and content are likely to be the main drivers. It will be important to track how prices evolve and more particularly the shortage that could have an impact on pricing dynamics. We expect the gap to close by Q4'22E.

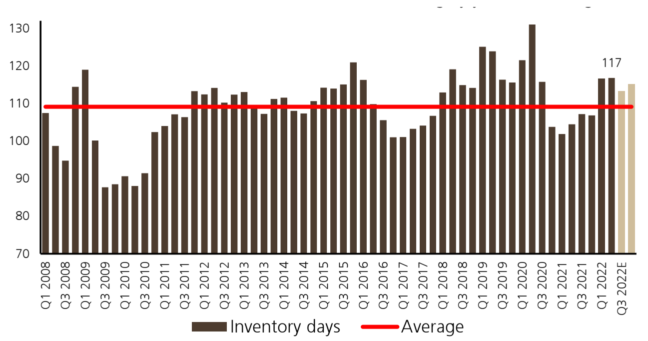
Figure 19: Semis revenue growth vs OEM growth



Source: UBS estimates, Visible Alpha, company data

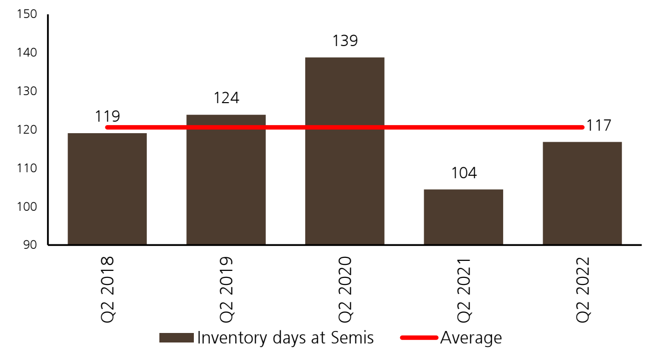
3) Semis inventory – Days of Inventory on hand (DOI) increased to 117 days and are likely to stay at a similar level through 2022E. As a result, on a seasonal basis, we see Semis sitting at the same level of medium- and long-term averages for Q2'22 at 117 days, and c12 days above Q2'21. Looking ahead, supply expectations point to similar inventory levels as Q2 for the rest of 2022E, c113 in Q3E and 115 in Q4E.

Figure 20: Autos/industrial semis inventory days



Source: Company data, UBS estimates

Figure 21: Q2'22 autos/industrial semis inventory days

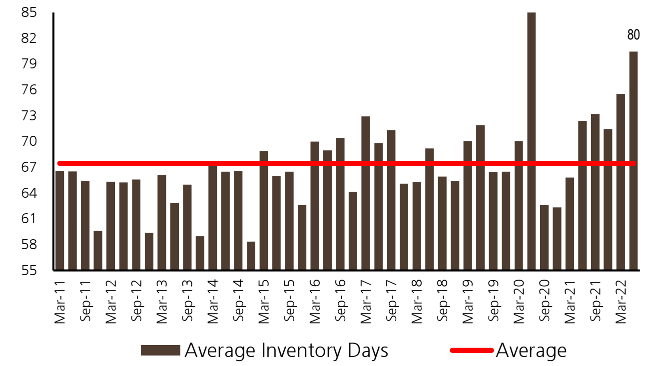


Source: Company data, UBS estimates

4) OEM Inventory – above medium- and long-term averages: The demand shock and impact on sales have not only affected Auto inventories but also Industrial OEMs that used to be resilient in recent months. As a result, inventories have gone up and are likely to stay at such levels over the course of 2022E. We expect supply/demand to remain tight in the next three to six months mainly due to shortages of 200mm wafers at the foundry level (UBSe).

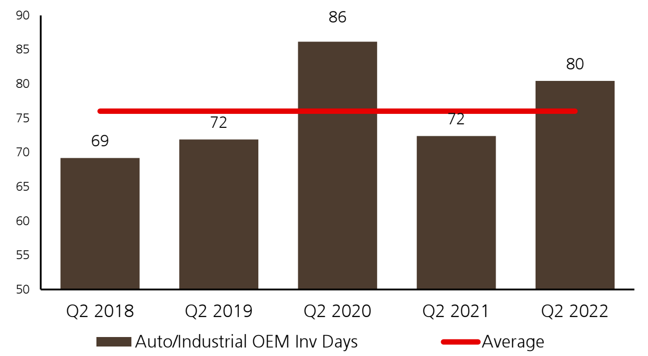
- **Overall autos/industrial inventory days:** On a combined basis, the inventory level appears to have increased and stood at a slightly higher level than normal for Q2s. We calculate inventory days (DOI) of c80, up c8 days vs. Q2'21, and up c4 days from the normal DOI of 76 (five-year average for Q2s).

Figure 22: Autos/Industrial OEMs inventory days



Source: Company data, UBS estimates

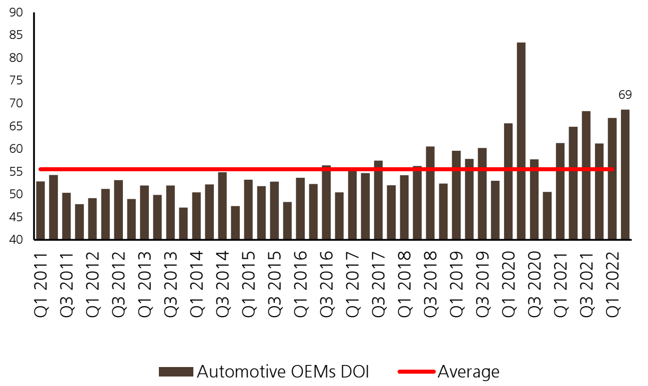
Figure 23: Q2'22 Autos/Industrial OEMs inventory days



Source: Company data, UBS estimates

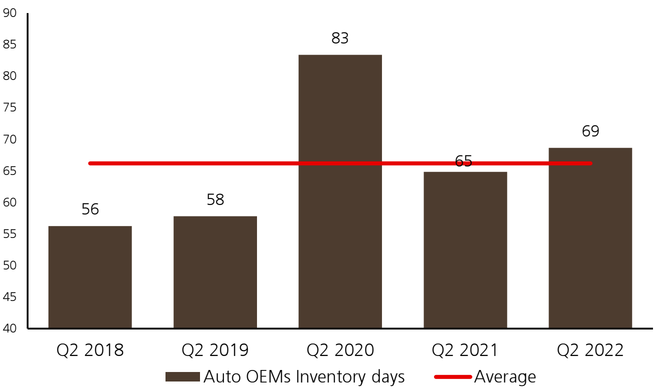
- **Automotive inventory days increasing due to work in progress, in our view**

Figure 24: Auto Tier 1/OEM inventory days



Source: UBS, Company data

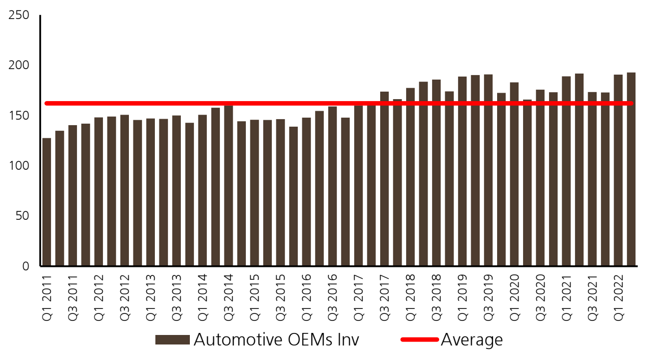
Figure 25: Q2'22 Auto Tier 1/OEM inventory days



Source: UBS, Company data

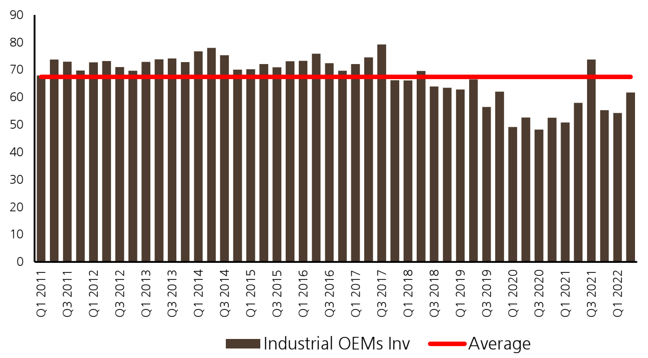
- **Absolute inventories in-line with history at Auto OEMs due to work in progress inventory:** If we dig deeper down into the absolute inventory levels and we conclude that absolute inventories are in line with historic levels. Within automotive, we currently see the inventories to stand above l-t average. At Auto OEMs, the inventory level has risen somewhat in $-denominated terms, while industrials are still well-managed. Part of the increase in auto might be also due to inflation.

Figure 26: Absolute auomotive inventory level (US$bn)



Source: UBS, Company data

Figure 27: Absolute industrial inventory level (US$bn)



Source: UBS, Company data

We include below a summary of some of inventory comments made by OEMs both at automotive and industrial end markets post Q2. They highlight the emphasis being placed on tightly managing inventory near term; however - it seems - there has been increased pressure on inventories vs Q2'21.

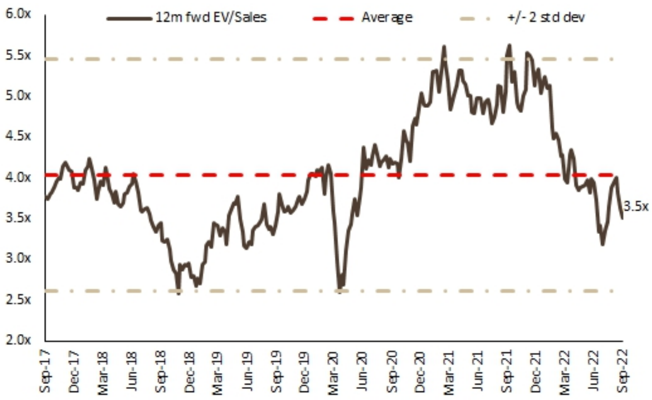
Figure 28: Comments on inventory from Automotive OEMs/suppliers

Companies	Comments
BMW	1/ The **inventories** on the car side, of course, we perfectionized our **inventories** to demand and that is independent of the region in the world. We try to lower our **inventories** to a level where we can supply the demand, but that we definitely do not have over-capacities. Of course, that means that we have a more stringent control of **inventories**. 2/ On the parts side, we increase our **inventories** for critical parts. So, we become more and more independent of the extra supply situation. And that's specifically on the semiconductor side, but also on the critical electric mobility part side. 3/ We have one of the lowest dealer **inventory** levels in the industry, and if you look at the share between SAVs and cars, it's exactly the right one in line with customer demand.
Daimler	1/ We continue to build unfinished semi-related unfinished **inventory** and products consciously in the second quarter. 2/ Not only the number of **inventory** went up, but also the mix. That means heavier structure, good margin vehicles coming off the line in the second half of the year. And we now have achieved with the second quarter, the turning point in terms of the **inventory**.
Ford	1/ We're going to be very disciplined with our **inventory** 2/ Free cash flow was $600 million negative, more than explained by unfavorable timing differences and working capital deterioration due to the higher **inventory** levels, which included about 53,000 vehicles on wheels completed but awaiting installation of components affected by the semiconductor supply shortage.
GM	1/ The supply chain challenges causing the company vehicle **inventory** buildup primarily occurred in June and have continued in July, affecting some of our plans. 2/We see tailwinds with volume, including completing the vehicles in company **inventory**. 3/We still have some work to do to get a healthy level of **inventory**, a very lean but healthy level of **inventory**. 4/ When you look at the **inventory** levels as they sit right now, the overwhelming majority of the **inventory** is actually in transit.
Renault	1/ So dealer stock financing for which the average performing assets was down 28.3% due to the reduction of dealer **inventories** resulting from the group's strategy and from the shortage of electronic components. 2/ **Inventories** are still very low, reflecting stricter **inventory** management, but also the chip shortage. 3/ I think in **inventory**, two-month plus of order bank and two months minus in stock, and you need to find that kind of balance to be able to satisfy customer demand, reduce delays in deliveries. Right now, we are not in normal situation. People are waiting six months, seven months for a car.
Stellantis	1/We had positive synergies again in SG&A and overall strong performance in terms of shipments – in terms of sales helped us to offset last year's reduction in **inventory** and get us to 10.4% margins for the half. 2/ Working capital was negative because of lower factoring and higher **inventories** due to price inflation for raw materials and other components and some higher safety stock also to protect production. 3/ Higher **inventory**, partly because of the cost of **inventory** and the inflation impacts and also some higher safety stock levels given the volatility in the supply chain, which maybe is not a permanent impact, but will be for the short term. 4/ So there is no interest in a very volatile environment to have a very high level of **inventory**, because in terms of sales expenses, it becomes immediately very costly to reduce your **inventory** if you are caught with a high **inventory** and a downturn in the market. So we will try to keep our **inventory** possibly between 1 million and 1.2 million in that kind of range, which I think is the right range.
Volkswagen	1/ Despite the strong operating performance, net cash flow of the Automotive Division is somewhat muted due to the working capital being burdened by higher **inventories**. 2/ We have really long lead times. We have a huge order bank and we increased **inventory**. And that **inventory** increase is basically due to an – basically, better production in June. 3/ We want to go back to an **inventory** level we saw at the beginning of the year or end of next year. So, this is quite a challenge. But this is very important to achieve our free cash flow targets and our working capital targets 4/ We build up basically **inventory** in anticipation of the higher production in the second half of the year, which we are really confident we can achieve. We see better situation in semi. We don't expect a further lockdown in China from today's perspective. 5/ The comps in the second half get much tougher. Pricing started to rise last year, obviously, with the lack of **inventory**.
Volvo	1/ We are continuing to build **inventories** mainly connected to the supply chain disturbances, meaning that we don't have a fully efficient incoming material flow to our industrial system. But **inventories** continue to be a main focus for us, especially then thinking about the uncertainty in the economic outlook. 2/ When we look into also downstream factors like finished **inventory**, **inventory** of new trucks but also used, is still on healthy levels 3/ But we also have to remember that the main part of the **inventories** that we have built up is coming from the supply chain disturbances. So, it's incoming material and the **inventories** that we have in the plants. The finished unit **inventories** is usually still on a low level. So it depends very much on where we will be in the supply chain in the second half of the year

Source: Company conference call transcripts and Q2 22 press releases, UBS

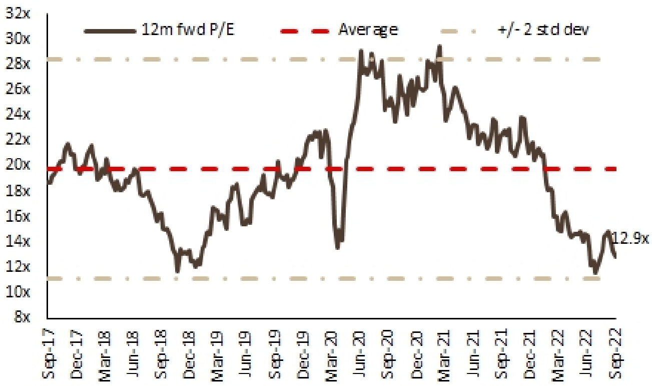
VALUATION

Figure 29: Autos/Industrial semis Forward EV/Sales



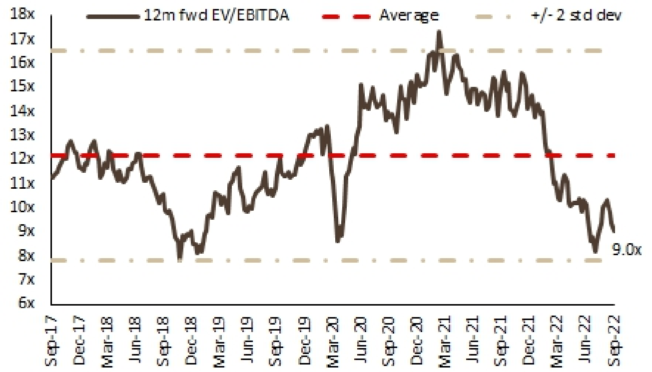
Source: UBS, Datastream

Figure 30: Autos/Industrial semis Forward P/E



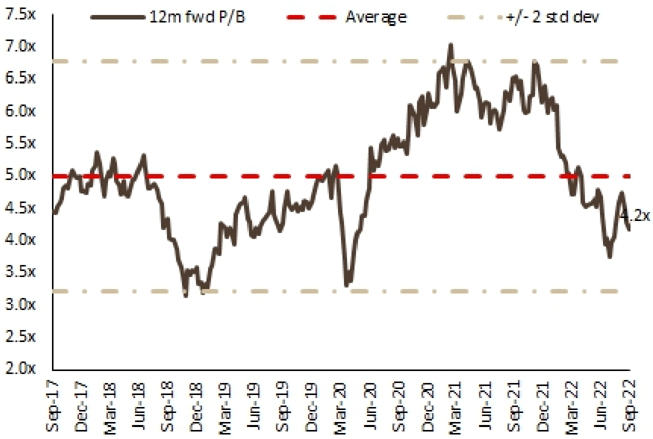
Source: UBS, Datastream

Figure 31: Autos/Industrial semis Forward EV/EBITDA



Source: UBS, Datastream

Figure 32: Autos/Industrial semis Forward P/BV



Source: UBS, Datastream

Figure 33: Recent commentary from major Analog Semis

Company	Date	Current Qtr	Next qtr guide (mid-point guidance)	Comments				
				Inventories	Autos trend H2/FY	Industrials trend H2/FY	Orders book-to-bill	General comments
Texas Instruments	26-Jul	+6% q/q, +14% y/y	-2% q/q, +10% y/y	Inventory days were 125, down two days sequentially and below desired levels. We have talked about a target of 130 to 190 days.	The industrial market was up high-single digits and the automotive market was up more than 20%.		NA	April started out weak from COVID-19 restrictions in China. As those restrictions began to ease towards the latter part of May and into June, customers began to pull product generally consistent with their prior demand forecast at the start of the quarter.
STMicro	28-Jul	+8.2% q/q, +28.3% y/y	+10.5% q/q, +32.6% y/y	The inventory level at our distributor is lean. Inventory turns are higher than the standard level, very higher standard level to make business.	We continued to see strong demand in Q2, still reflecting the combined effect of replenishment of inventories across the automotive supply chain and the ongoing electrification and digitalization transformation of the industry.	We saw strong demand through the quarter in business-to-business industrial from both distribution and OEMs, with distribution inventories of our products remaining lean across all product families and high inventory turns.	Book-to-bill is well above parity. Our manufacturing capacity is fully saturated.	From an end-market standpoint, demand both in automotive and in what we call the business-to-business part of the industrial market, so factory automation, robotics and industrial infrastructure, remains strong, driven by semiconductor pervasion and structural transformation.
NXP	26-Jul	+6% q/q, +28% y/y	+3% q/q, +20% y/y	On a days basis, DIO was 94, an increase of five days sequentially and closer to our long-term target of 95 days.	Automotive is expected to be up in the low 20% range versus quarter three 2021 and up in the mid-single-digit range versus quarter two 2022.	Industrial & IoT is expected to be up in the low 20% range year-on-year and up in the mid-single-digit range versus quarter two 2022.	Days payable were 94, an increase of one day versus the prior quarter	In terms of customer behaviors, we do not see any substantial weakening within the Auto and Industrial customer base.
Microchip	02-Aug	+6.5% q/q, +25.1% y/y	+5% q/q, +25% y/y	We had 127 days of inventory at the end of the June quarter, which was up 2 days from the prior quarter's level	Our end market exposure is concentrated in the industrial aerospace and defense, automotive, data center and communications infrastructure markets, all of which have demonstrated much higher durability in prior cycles.		The order volatility we see is sporadic. It's very small and it is well, well below the unsupported orders that we have	The level of expedites and customer escalations we're experiencing has not abated, indicating that demand and supply remain imbalanced for many customer situations.
Infineon	03-Aug	+10% q/q, +33% y/y	+8% q/q, +30% y/y	Essentially flat inventory reach level at 124 days, despite headwinds from rising input costs and a stronger US dollar	The highest sequential growth rate was achieved by Automotive, with revenues of €1.701 billion. The segment recorded a 14% increase compared to the previous quarter.	For Industrial drives, we currently see stable demand. While macro uncertainties are looming	A sign of unabated customer demand for many of our products is the backlog of confirmed and unconfirmed orders. The figure moved up further from €37 billion at the end of March to €42 billion at the end of June.	Market conditions for applications like automotive, industrial, renewables, data center and IoT remain supportive
ON Semi	01-Aug	+7% q/q, +25% y/y	+2% q/q, +22% y/y	Inventory increased $67 million sequentially to $1.56 billion and days of inventory decreased by 3 days to 136 days.	We achieved our first-ever $2 billion revenue quarter with record revenue in the automotive and industrial end markets. Our automotive and industrial revenue now accounts for 66% of our overall business and combined grew 9% quarter-over-quarter and 38%		NA	The volatility in energy markets and supply chain disruptions across the globe are driving an accelerated adoption of electric vehicles, alternative energy, and industrial automation

Source: Company results post Q2 2022, call transcripts; Note: Implied from the midpoint guidance.

Valuation Method and Risk Statement

The upside risks to the semiconductor sector include stronger end demand from OEMs and tightness of supply due to the financial distress of competitors. Downside risks include macro-economic factors, over-capacity in times of peaking demand and poor yields. The semiconductor sector is high cyclical and vulnerable to sudden shifts in customer sentiment while many companies also have high cost bases meaning they can go loss-making in the downturn.

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Buy	FSR is > 6% above the MRA.	57%	32%
Neutral	FSR is between -6% and 6% of the MRA.	35%	26%
Sell	FSR is > 6% below the MRA.	9%	21%
Short-Term Rating	**Definition**	**Coverage[3]**	**IB Services[4]**
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 30 June 2022.
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2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.
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Company Name	Reuters	12-month rating	Price	Price date
ASML[16]	ASML.AS	Buy	€484.15	02 Sep 2022
Analog Devices Inc[16,7]	ADI.O	Buy	US$148.63	02 Sep 2022
Infineon Technologies AG	IFXGn.DE	Buy	€24.80	02 Sep 2022
Melexis NV	MLXS.BR	Sell	€75.65	02 Sep 2022
Microchip Technology Inc[16]	MCHP.O	Buy	US$64.50	02 Sep 2022
Onsemi[16,20]	ON.O	Neutral (CBE)	US$67.51	02 Sep 2022
Renesas Electronics	6723.T	Buy	¥1,283	05 Sep 2022
STMicroelectronics[5,16]	STM.PA	Neutral	€35.60	02 Sep 2022
Texas Instruments Inc[16]	TXN.O	Neutral	US$163.00	02 Sep 2022

Source: UBS. All prices as of local market close. Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date.

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