

UBS Global I/O

Global Semiconductors TSMC's westward expansion

What does the Arizona fab mean in terms of revenue and costs?

TSMC announced its intention to build a 5nm fab in Arizona—why?

We see three key reasons: 1) the US needs an advanced fab. TSMC is not the only option but it is likely the path of least resistance. On page 11, we discuss alternatives such as Intel, Samsung and GlobalFoundries; 2) the need for talent. Now that TSMC is ahead of Intel on process tech, it needs to do more of its own advanced development, and US technical talent is a key advantage. We expect TSMC to recruit aggressively in the US; 3) Taiwan's electricity and water limitations are long-term concerns.

What are the revenue implications?

If TSMC decides to build, we would expect defence-related revenue from the US government which historically has been in the US\$60m/year range (see page 8 for details). We would also expect some market-share implications: As an example, for the Apple iPhone, if the 15% tariff was avoided by manufacturing chips in the US, we would expect Apple to be willing to pay more for the chips and still achieve overall savings.

What are the cost implications?

We estimate that a fab in the US would carry GM that is 3-5% lower than a comparable Taiwan fab. The margin is negatively impacted by labour costs and lack of economies of scale, but partially offset by slightly cheaper utilities rates. Put another way, for a 20,000/month fab, we would need to see subsidies/tax breaks in the US\$40-70m range for TSMC to offset the margin downside—which looks very achievable given that Honhai was promised US\$4.5bn for its Wisconsin facility. We also look at other moves to the US—Fuyao Glass and Honda Motor—and the subsidies received.

Stock implications: Positive for TSMC; negative for ASE—and for semicaps ...?

For TSMC, cost concerns are likely offset by government subsidies but we do see some additional share opportunities (although we disagree Intel outsources the CPU). For ASE, we believe TSMC chips made in the US are unlikely to be packaged in Taiwan—the initial impact may be small but over time this would be a negative. For semicaps, government incentives to add more US capacity are positive—at least for a period of time—as to some degree this fuels some duplicative spending. If the US government enacts further and broader export restrictions on US semi-equipment companies shipping into China, this could also serve to offset some of the lost revenue.

Equities

Global

Technology

Bill Lu

Analyst

bill.lu@ubs.com

+1-415-352 4696

Nicolas Gaudiois

Analyst

nicolas.gaudiois@ubs.com

+852-2971 5681

Timothy Arcuri

Analyst

timothy.arcuri@ubs.com

+1-415-352 5676

David Mulholland, CFA

Analyst

david.mulholland@ubs.com

+44-20-7568 4069

Kenji Yasui

Analyst

kenji.yasui@ubs.com

+81-3-5208 6211

Sunny Lin

Analyst

sunny.lin@ubs.com

+886-2-8722 7346

Taewoo Lee

Analyst

taewoo.lee@ubs.com

+852-2971 6873

Pradeep Ramani

Analyst

pradeep.ramani@ubs.com

+1-415-352 5517

Diana Chang

Analyst

diana.chang@ubs.com

+1-212-713 1474

Seth Gilbert

Associate Analyst

seth.gilbert@ubs.com

+1-212-713 2660

每日免费获取报告

1. 每日微信群内分享**7+**最新重磅报告；
2. 定期分享**华尔街日报、金融时报、经济学人**；
3. 和群成员切磋交流，对接**优质合作资源**；
4. 累计解锁**8万+行业报告/案例，7000+工具/模板**

申明：行业报告均为公开整理，权利归原作者所有，
小编整理自互联网，仅分发做内部学习。

限时领取【行业资料大礼包】，回复“2020”获取

手机用户建议先截屏本页，微信扫一扫

或搜索公众号**“有点报告”**

回复<进群>，加入每日报告分享微信群

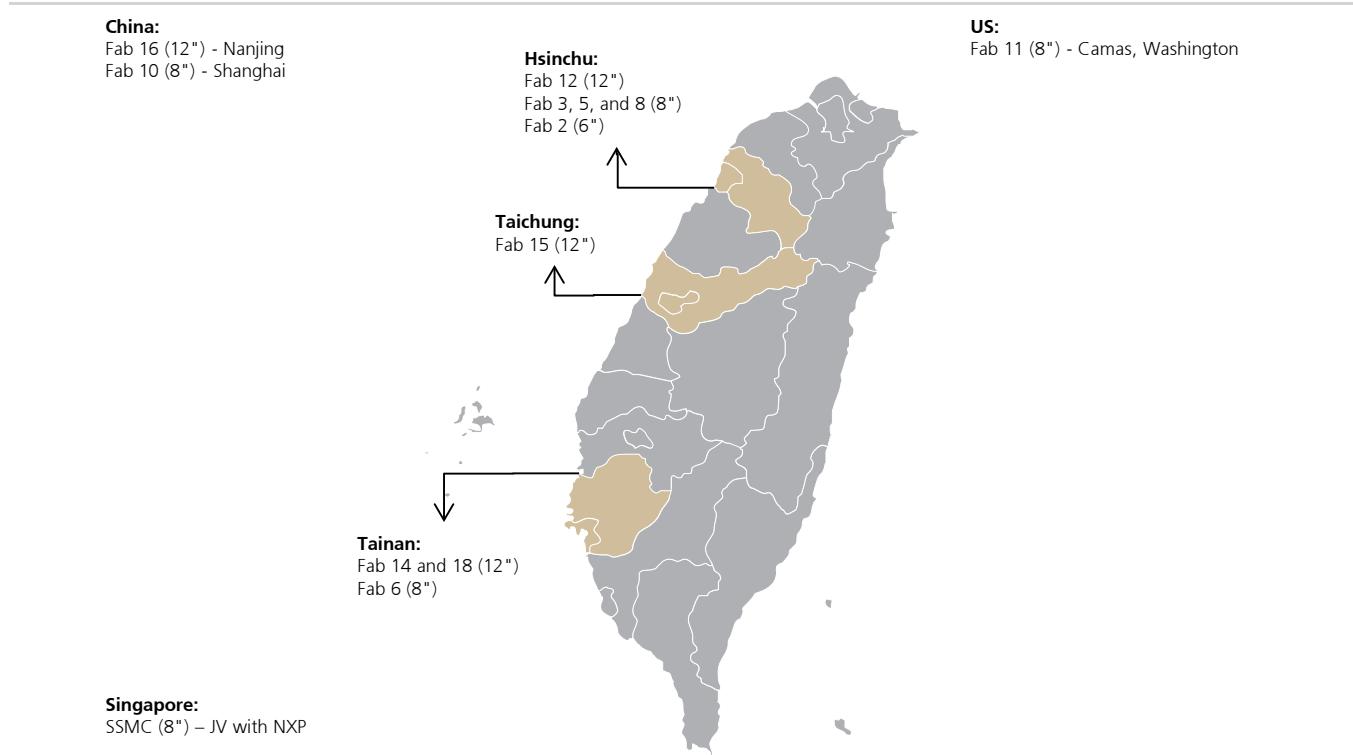


(此页只为需要行业资料的朋友提供便利，如果影响您的阅读体验，请多多理解)

Why would TSMC build a fab in the US?

TSMC has historically concentrated on building its fabs in Taiwan, with three focus areas: Hsinchu, Tainan, and Taichung. The company has built elsewhere in the past, include an 8" fab in Camas, Washington (called WaferTech) that was started as a JV, an 8" fab in Shanghai, China, and more recently a 12" fab (16nm) in Nanjing, China.

Figure 1: Global locations of TSMC's fabs



Source: Company data

TSMC has said that historically its fabs outside of Taiwan tend to be less profitable relative to its fabs in Taiwan, but why? We think there are several reasons:

- In Taiwan, TSMC builds fabs in clusters, or what the company calls “Gigafabs”. Doing so brings economies of scale: Fab 12A, B, C, D, and E can share facilities such as delivery systems for electricity, filtered water, gas and chemicals. The fabs can use one software licence, one set of support staff, etc. Outside Taiwan, each fab requires its own set of facilities.
- In Taiwan, TSMC has an established workforce, which includes fab operators, but also engineers that support development in case there are any issues.
- In Taiwan, the ecosystem is mature. Large suppliers are just minutes away, which makes service/support easy. In Nanjing, TSMC has the only fab there—as far as we know—and in Camas, Washington, TSMC is also the only semiconductor fab (although Intel in Hillsboro is less than an hour away).

What has changed? Given that historically TSMC has kept most of its facilities in Taiwan, why is it veering from that strategy? We believe there are three reasons:

Geopolitical pressure on civilian and military applications

The US government recently issued restrictions on TSMC's ability to [ship to Huawei](#). This is likely to severely limit Huawei's ability to procure application-specific integrated circuits (ASICs) for its 5G equipment, and to a lesser extent chips for its smartphones. The US has realised that Huawei is very dependent on TSMC for leading-edge foundry production, but it is likely also coming to the realisation that US fabless companies are just as dependent on TSMC as their Chinese competitors. In the case of conflicts or geopolitical tensions between China and Taiwan, this could cause significant issues for the US tech industry. Additionally, the US government has historically made military-related chips at the IBM fab in Fishkill, New York. The fab was sold to GlobalFoundries (GF) in 2015, and GF subsequently sold the fab to On Semiconductor (On Semi) in 2019. Given On Semi's product portfolio, we find it unlikely that it will continue to develop advanced technologies there. The US military needs manufacturing in the US and that need is more pressing since the fab's sale to On Semi.

The need to recruit US talent

Thirty years ago, when Intel passed IBM in semiconductor process technology, it also hired away many of IBM's key engineers. In 2019, TSMC finally exceeded Intel [in process technology](#). Even if Intel retakes its crown in the next few years, as it has stated it will do, it does not have the two-year lead it once had. As such, we would expect TSMC to hire more aggressively as it needs to do more trailblazing, and having a US base for advanced technologies is helpful when hiring.

Is there talent available? Based on published data, Intel has laid off over 12,000 employees since 2016. We cannot estimate what percentage was R&D staff, but we do believe hiring in the US should be achievable for TSMC.

Figure 2: Intel's recent major lay-offs

Date	Summary	Remark
Apr-16	Intel cuts up to 12,000 people from its staff globally, or about 11% of its workforce. Intel says most of the employees affected by the layoffs will be notified in the next 60 days, while some of the cuts may happen through mid-2017.	
Mar-19	Intel lays off hundreds of IT workers at sites across the company, according to multiple sources inside the company.	Most substantial cutbacks since 2016; mainly tech administrators
Feb-20	Intel lays off 128 workers at four locations at its Santa Clara headquarters. The cuts follow the chipmaker's confirmation last month that it would cut roles as it shifts resources. The lay-offs were due to take place by 31 March, according to the filings with the EDD.	<1% of workforce

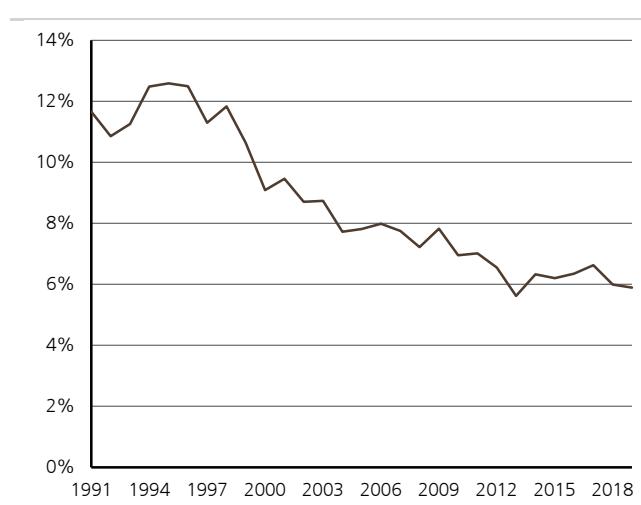
Source: Company data

Taiwan's resource limitations

Our conversations with Taiwanese tech manufacturers suggest they are increasingly concerned about utilities in Taiwan. We estimate that Taiwan imports 98% of the energy that is consumed domestically, and energy from renewable sources accounted for only 6% of 2019's electricity production. Additionally, as shown in Figure 3 and Figure 4, Taiwan's electricity surplus has been shrinking consistently—demand from the tech industry has doubled as a percentage of total consumption over the past 20 years. While we do not know the exact size of TSMC's portion of Taiwan's electronics manufacturing, we note the company's growth has been significantly higher than overall electricity consumption growth, plus advanced chip manufacturing uses extreme ultraviolet (EUV) equipment,

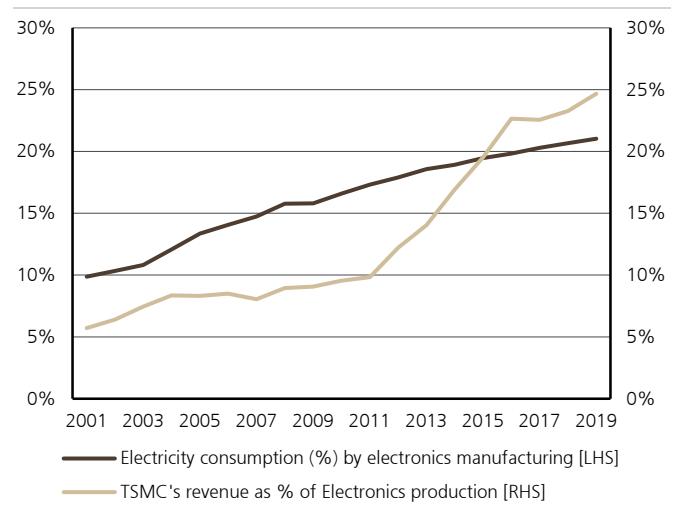
which consumes more electrical power than deep ultraviolet (DUV). Our view is that TSMC likely holds a meaningful portion of the increase by electronics manufacturers. Last, we note that the Taiwanese government has plans to phase out nuclear power by 2025.

Figure 3: Electricity surplus (generation minus consumption) as % of net electricity consumption in Taiwan



Source: Ministry of Economic Affairs (Taiwan)

Figure 4: Consumption by electronics manufacturers in Taiwan as % of total electricity consumption vs TSMC's revenue as % of Taiwan electronics production value



Source: Company data, Ministry of Economic Affairs (Taiwan)

What does this mean for TSMC?

Cost structure:

As TSMC prepares to build a leading-edge fab in the US, there could be changes to labour costs, various costs related to economies of scale, utilities, land, tax and CAPEX. Our assumption is the US government will work with TSMC to offset differences in land, utilities, taxes and, to a lesser extent, capital spending, and thus our focus here is on labour, dis-economies of scale and CAPEX. We also summarise the differences in utilities and taxes.

Figure 5: TSMC's COGS breakdown

	2018	2019
COGS (NT\$ m)	533,488	577,283
D&A	266,878	259,601
- Depreciation	264,805	256,531
- Amortisation	2,073	3,070
Labour	63,598	64,702
Materials	96,028	115,457
Utilities and others	106,984	137,524
As % of COGS		
D&A	50%	45%
Labour	12%	11%
Materials*	18%	20%
Utilities and others	20%	24%

Source: Company data, UBS estimates

Labour:

Figure 6 compares the minimum wages in Taiwan versus Arizona, USA. We note that the US minimum wage is 2.4x more than Taiwan's. TSMC's engineers and fab operators are some of the best paid in Taiwan, and our own informal poll suggests the salary gap is more in the 30-40% range. Since labour was 11-12% of TSMC's COGS in 2018/19, the labour rate doubling could impact GM by around 3-4%.

Figure 6: Minimum-wage comparisons

	Taiwan	US (Arizona)
Minimum wage		
Monthly	NT\$23,800	
Hourly	NT\$158 (approx. US\$5)	US\$12

Source: Executive Yuan (Taiwan), Industrial Commission of Arizona

CAPEX:

Even though TSMC has said that it will invest US\$12bn in the Arizona facility between 2021-29, we believe actual upside to TSMC's CAPEX is likely fairly small:

- US\$12bn is a total spend, not just CAPEX.
- TSMC has stated it plans to start with 5nm technology and 20,000 wafers/month capacity. We estimate a 20k/month fab built with new equipment likely costs around US\$4bn and TSMC could very well start with used equipment as, by 2024, its 5nm fab in Taiwan will be four years old.
- TSMC typically builds to demand. Unless the US fab materially changes TSMC's demand outlook, any upside to Arizona CAPEX is likely balanced by downside to Taiwan and other markets.

- Building in Arizona does require additional land and facilities, but assuming the land is at least partially granted by the government, the cost of building and facilities should be less than US\$1bn.

Net-net, we see no material changes to TSMC's cost structure on the CAPEX side.

Economies of scale:

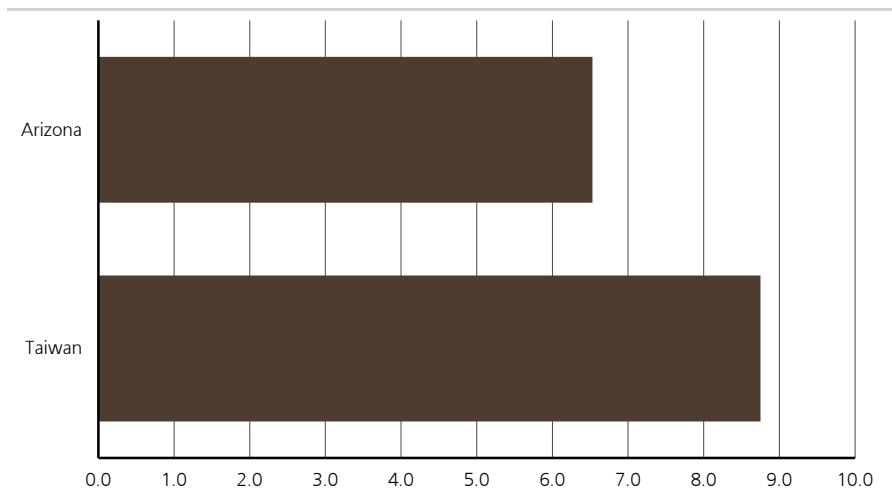
What cost advantages TSMC gets from clustering its fabs in Taiwan is hard to estimate. Part of it might be shared utilities, software licences, etc, but our guess is a good portion is the flexibility of moving customer products from fab to fab, the mobility of employees between fabs, and the accelerated learning as phase 2, phase 3, etc—factors that are subjective—could vary with each location and therefore remain hard to quantify.

Added together, our best guess is GM impact is in the 2-3% range.

Utilities:

Figure 7 compares the electricity costs for Taiwan versus the US; we note that Arizona is in fact over 25% cheaper than Taiwan.

Figure 7: Comparison of basic electricity rates (US¢/kWh)



Source: Electricitylocal, Taiwan Power

We estimate utilities are 10% of TSMC's COGS and thus this could be an incremental positive of around 2-3% as TSMC moves to Arizona.

Taxes:

The federal corporate tax rate in the US is a flat 21%, though TSMC could qualify for two tax credits in Arizona: 1) qualified facility tax credit, and 2) R&D tax credit.

Qualified facility tax credit offers a refundable income tax credit equal to the lesser of:

- 10% of the qualifying capital investment, or
- US\$20,000 per net new job at the facility, or
- US\$30,000,000 per taxpayer per year.

This offers up to US\$70mn per calendar year in tax credits currently.

R&D tax credit: The 2011-through-2022 R&D tax credit is equal to 24% of the first US\$2.5m in qualifying expenses, plus 15% of the qualifying expenses in excess of US\$2.5m. For 2023 and thereafter, tax credit rates will be 20% of the first US\$2.5m in qualifying expenses plus 11% of the qualifying expenses in excess of US\$2.5m.

Altogether, our guess is the initial fab in Arizona may carry GM that is 3-5% lower than TSMC's Taiwan fabs. The margin is negatively impacted by labour costs and lack of economies of scale, but partially offset by slightly cheaper utilities rates. Net-net, for a 20,000/month fab, we estimate that TSMC needs subsidies and tax breaks of US\$40-70m for it to offset the added costs.

Additional revenue and market share

While building the fab comes with additional costs, we also believe TSMC would see some new revenue opportunities. TSMC's initial commitment for capacity is fairly small at 20,000/month, and at US\$4,000 a wafer in 2024, that would equate to revenue of US\$960m a year versus total 2020E TSMC revenue of US\$41.5bn.

We note that the US Trusted Foundry Program has amounted to roughly US\$60m a year in foundry revenues to GlobalFoundries, mostly for chips used for fighter planes, satellite systems and weapon systems. That could move to TSMC given the lack of upgrades in the GlobalFoundries (and now On Semi) fabs.

- What is the Trusted Foundry Program? It is also called the Trusted Suppliers Program. It is a Department of Defense (DoD) program designed to secure the manufacturing infrastructure for IT vendors providing hardware to the military. It was originally implemented as an arrangement with IBM before being broadened in 2007 to ensure the entire supply chain could be trusted.
- In 2004, IBM's microelectronics segment won a contract to become the sole provider of leading-edge foundry services for the DoD.
- In 2007, the programme was broadened to include companies that cover the entire supply chain, such as integrated circuit (IC) design houses, photomask vendors, specialty foundries and packaging houses. Unlike the IBM deal, however, the other trusted suppliers don't have a yearly contract with guaranteed business.
- IBM provided foundry capacity under the Trusted Foundry program until 2015, when it sold its chip unit to GlobalFoundries. The Trusted Foundry contract was transferred from IBM to GlobalFoundries.

More recently, the CHIPS for America Act (Creating Helpful Incentives to Produce Semiconductors) is new bipartisan legislation that, according to our recent expert calls, appears likely to achieve congressional approval. This will establish a range of incentives to establish US-based manufacturing and could ultimately amount to around US\$40bn of incentives provided by the US government. The bill will also help to support leading-edge research for advanced semiconductor manufacturing in the US. These incentives appear likely to stimulate a new investment wave in US-based chipmaking capacity.

We also believe some US customers may choose to use TSMC's US fab given easier logistics and higher US content—eg, if Apple could avoid paying the 15% tariff on phones made in China, the saving per phone could be in the US\$50-75 range. We estimate that the A13 processor at TSMC currently costs US\$22, and thus Apple could be willing to pay for a US-made chip if it could reduce tariffs. This would not necessarily be additional business for TSMC if it were only Apple transferring production from Taiwan to the US, but it may help the company win shares with customers such as AMD, Qualcomm and Nvidia.

Case studies: Foxconn, Fuyao Glass and Honda

We look at instances of other major manufacturing companies that made the move from 'overseas' to the US.

Foxconn Technology Group

Foxconn Technology Group (Foxconn) is a Taiwanese multinational electronics contract manufacturer. It announced in July 2017 that it would build a US\$10bn TV LCD manufacturing plant in Wisconsin and would initially employ 3,000 workers (set to increase to 13,000 by as early as 2022).

- The Scott Walker administration in Wisconsin approved an agreement that Foxconn was set to receive subsidies of US\$3-4.8bn (paid in increments if Foxconn met certain targets).
- The firm was exempted from Wisconsin's environmental rules regarding wetlands and streams. In 2018, the Walker administration shifted up to US\$90m in local road funding to road works related to the Foxconn factory.
- At the end of 2018, Foxconn did not qualify for US\$10m in subsidies as it created only 156 of the 260 jobs required under the agreement.
- In January 2019, Foxconn said it was reconsidering its initial plans to manufacture LCD screens at the Wisconsin plant, due to high US labour costs, and that it would hire mostly engineering, rather than manufacturing, staff.

Fuyao Glass Industry Group

Fuyao Glass Industry Group (Fuyao) is a manufacturing company in China engaged in the production of float, automobile and construction glass, with customers including large international car manufacturers. In 2014, it acquired the former General Motors facility in Moraine, Ohio and operations began in late 2015.

- The Ohio Tax Credit Authority voted unanimously to grant Fuyao a 15-year tax credit worth up to nearly US\$10m for its first North American manufacturing plant.
- The 75% state tax credit is worth up to US\$9.69m if Fuyao Glass America Inc. lives up to its promises: hiring 800 employees, generating an annual payroll of US\$32.5m by the end-2019 and staying at the Moraine facility for at least 18 years.
- The state tax credits are in addition to a US\$700,000 grant from Montgomery County for infrastructure improvements and a US\$1m, five-year forgivable loan from the city of Moraine.

Honda Motor Company

Honda Marysville Auto Plant is a Honda manufacturing facility located near the intersection of US 33 and State Route 739. It is one of the most integrated and flexible auto plants in North America. The assembly opened in 1982.

- Honda received US\$27m in direct economic development incentives from the state of Ohio over 1977-88. Another US\$64m was spent improving and widening US 33.

- Honda's economic impact study states that for every US\$1 Ohio spent on incentives, the state has received nearly US\$40 in revenue benefits from Honda.

Alternatives to TSMC: Intel & Samsung Foundry

We note that besides TSMC, Samsung currently has a fab in Austin, Texas, Intel has offered foundry services in the past, and GlobalFoundries has owned fabs in New York and Texas. Given that GF has announced that it will no longer develop advanced logic processes, our view is the most likely alternatives would be Intel and Samsung.

Intel: The location of the new TSMC fab is close to a large existing Intel manufacturing site and we have previously theorised that, given a host of factors, Intel could move to outsource more production over time. These factors include some migration in some architecture elements that would disaggregate functionality into different pieces of silicon rather than a single monolithic strategy. This is similar to what AMD has done with its "chiplet" architecture. In theory, this could enable Intel to potentially partner with TSMC for a US fab and serve as an 'anchor' customer. Alternatively, the two chipmakers could partner and take on additional customers, though that seems less likely. Intel has historically had much higher COGS per wafer than TSMC, partially due to its architecture and partially due to its design flow and tight manufacturing tolerances. The chiplet move would to some degree change this dynamic, though we still expect any insourcing foundry efforts by Intel to remain limited by its design windows and higher wafer costs. For this reason, we see it as more of an outsourcer versus insourcer.

Our US semiconductor research team currently does not expect Intel to offer additional foundry services.

Samsung: Samsung already has a manufacturing site in Austin used by Samsung Foundry (Logic). We believe it recently secured some adjacent greenfield in case they would have to build an additional fab. We believe that if it was to do so, it would also be for Samsung Foundry (Logic). For memory, we do believe that cost considerations could be too penalising (Austin, incidentally, was originally a memory fab).

We do not believe that Samsung has taken any decision yet. But we do believe it would give due consideration to a project considering potential incentives, proximity to clients, access to the US talent pool, risk management (all Logic capacity currently is in South Korea), and potential political capital. We would however expect the Korea government to continue to impose an "N-1" rule, as enacted by law, whereby a Korean chipmaker cannot mass produce at the most leading-edge process technology at the same time or ahead of doing so in Korea.

Supply-chain implications

Semicap equipment: Government incentives to add more US capacity are seen as positive for semi equipment—at least for a period of time—as to some degree this fuels some duplicative spending, especially considering China’s substantial manufacturing efforts. Specifically for the TSMC fab, though, any money spent in the US would likely come at the expense of CAPEX spent elsewhere—either by TMSC itself or a by a potential partner such as Intel—so it is hard to argue a significant positive for semiconductor production equipment (SPE) companies. If the US government were to enact further and broader export restrictions on US semi equipment companies shipping into China, this US effort could also serve to offset some of the lost revenue.

Outsourced semiconductor assembly and test (OSAT): Geography matters for assembly and testing. For wafers manufactured in the US, we think the odds are low that they would then be tested and packaged in Asia only to be shipped back to a US customer. TSMC’s announced 20,000/month fab is small in the overall scheme, so the impact to Asian OSAT is not significant. We also note that ASE has a test facility in Silicon Valley and the company could choose to expand. That said, we feel less confident OSAT would get the same subsidies/tax breaks as foundries if it were to expand into the US. Net-net, we view it as a slight negative to Asian OSAT companies.

Valuation Method and Risk Statement

ASE: Our price target is based on a P/BV valuation, relative to previous historical valuation ranges for ASE and SPIL.

Intel: Due to ramping depreciation, we focus on EV/FCF but use PE as a sanity-check.

Samsung: We value Samsung Electronics based on a target PE multiple.

TSMC: We derive our price target based on a PE multiple.

Tech investing involves risk. It is difficult for the investment community, ourselves included, to project tech companies financial results' as their operating models are highly volatile and unpredictable, and they compete in a highly dynamic market place. In addition to their low predictability, valuing tech stocks can be challenging because neither traditional nor non-traditional valuation measures have provided much insight into how tech stocks trade.

Required Disclosures

This report has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

For information on the ways in which UBS manages conflicts and maintains independence of its research product; historical performance information; certain additional disclosures concerning UBS research recommendations; and terms and conditions for certain third party data used in research report, please visit www.ubs.com/disclosures. The figures contained in performance charts refer to the past; past performance is not a reliable indicator of future results. Additional information will be made available upon request. UBS Securities Co. Limited is licensed to conduct securities investment consultancy businesses by the China Securities Regulatory Commission. UBS acts or may act as principal in the debt securities (or in related derivatives) that may be the subject of this report. This recommendation was finalized on: 01 July 2020 10:03 AM GMT. UBS has designated certain Research department members as Derivatives Research Analysts where those department members publish research principally on the analysis of the price or market for a derivative, and provide information reasonably sufficient upon which to base a decision to enter into a derivatives transaction. Where Derivatives Research Analysts co-author research reports with Equity Research Analysts or Economists, the Derivatives Research Analyst is responsible for the derivatives investment views, forecasts, and/or recommendations.

Analyst Certification: Each research analyst primarily responsible for the content of this research report, in whole or in part, certifies that with respect to each security or issuer that the analyst covered in this report: (1) all of the views expressed accurately reflect his or her personal views about those securities or issuers and were prepared in an independent manner, including with respect to UBS, and (2) no part of his or her compensation was, is, or will be, directly or indirectly, related to the specific recommendations or views expressed by that research analyst in the research report.

UBS Investment Research: Global Equity Rating Definitions

12-Month Rating	Definition	Coverage ¹	IB Services ²
Buy	FSR is > 6% above the MRA.	48%	32%
Neutral	FSR is between -6% and 6% of the MRA.	40%	28%
Sell	FSR is > 6% below the MRA.	13%	20%
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 31 March 2020.

1:Percentage of companies under coverage globally within the 12-month rating category.

2:Percentage of companies within the 12-month rating category for which investment banking (IB) services were provided within the past 12 months.

3:Percentage of companies under coverage globally within the Short-Term rating category.

4:Percentage of companies within the Short-Term rating category for which investment banking (IB) services were provided within the past 12 months.

KEY DEFINITIONS: **Forecast Stock Return (FSR)** is defined as expected percentage price appreciation plus gross dividend yield over the next 12 months. In some cases, this yield may be based on accrued dividends. **Market Return Assumption (MRA)** is defined as the one-year local market interest rate plus 5% (a proxy for, and not a forecast of, the equity risk premium). **Under Review (UR)** Stocks may be flagged as UR by the analyst, indicating that the stock's price target and/or rating are subject to possible change in the near term, usually in response to an event that may affect the investment case or valuation. **Short-Term Ratings** reflect the expected near-term (up to three months) performance of the stock and do not reflect any change in the fundamental view or investment case. **Equity Price Targets** have an investment horizon of 12 months.

EXCEPTIONS AND SPECIAL CASES: UK and European Investment Fund ratings and definitions are: **Buy:** Positive on factors such as structure, management, performance record, discount; **Neutral:** Neutral on factors such as structure, management, performance record, discount; **Sell:** Negative on factors such as structure, management, performance record, discount. **Core Banding Exceptions (CBE):** Exceptions to the standard +/-6% bands may be granted by the Investment Review Committee (IRC). Factors considered by the IRC include the stock's volatility and the credit spread of the respective company's debt. As a result, stocks deemed to be very high or low risk may be subject to higher or lower bands as they relate to the rating. When such exceptions apply, they will be identified in the Company Disclosures table in the relevant research piece.

Research analysts contributing to this report who are employed by any non-US affiliate of UBS Securities LLC are not registered/qualified as research analysts with FINRA. Such analysts may not be associated persons of UBS Securities LLC and therefore are not subject to the FINRA restrictions on communications with a subject company, public appearances, and trading securities held by a research analyst account. The name of each affiliate and analyst employed by that affiliate contributing to this report, if any, follows.

UBS Securities LLC: Bill Lu; Timothy Arcuri; Pradeep Ramani; Diana Chang; Seth Gilbert. **UBS AG Hong Kong Branch:** Nicolas Gaudois; Taewoo Lee. **UBS AG London Branch:** David Mulholland, CFA. **UBS Securities Japan Co., Ltd.:** Kenji Yasui. **UBS Securities Pte. Ltd., Taipei Branch:** Sunny Lin.

Company Disclosures

Company Name	Reuters 12-month rating	Short-term rating	Price	Price date
ASE Industrial ¹⁶	3711.TW	Neutral	N/A	NT\$67.60 30 Jun 2020
Intel Corp. ^{4, 6a, 6b, 6c, 7, 16}	INTC.O	Buy	N/A	US\$59.83 30 Jun 2020
Samsung Electronics	005930.KS	Buy	N/A	Won52,800 30 Jun 2020
Taiwan Semiconductor Manufacturing ¹⁶	2330.TW	Buy	N/A	NT\$313.00 30 Jun 2020

Source: UBS. All prices as of local market close.

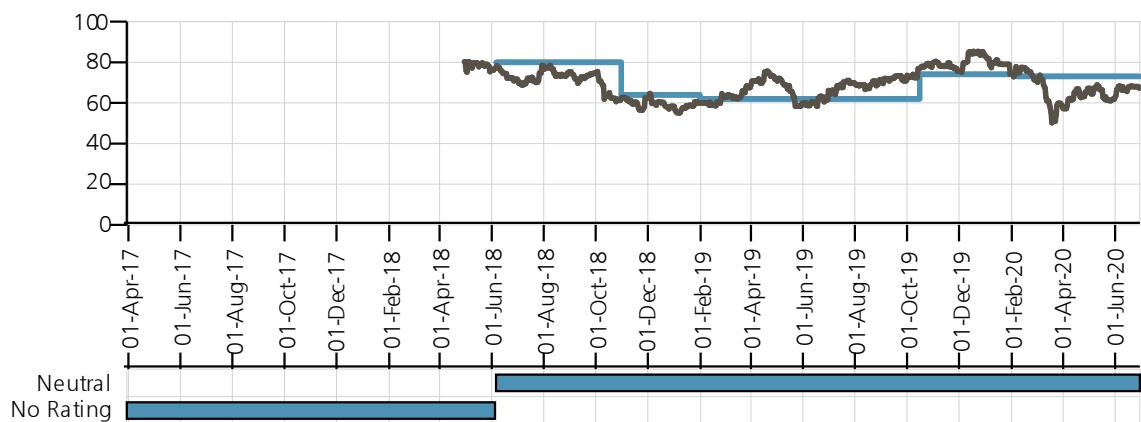
Ratings in this table are the most current published ratings prior to this report. They may be more recent than the stock pricing date

- 4. Within the past 12 months, UBS AG, its affiliates or subsidiaries has received compensation for investment banking services from this company/entity or one of its affiliates.
- 6a. This company/entity is, or within the past 12 months has been, a client of UBS Securities LLC, and investment banking services are being, or have been, provided.
- 6b. This company/entity is, or within the past 12 months has been, a client of UBS Securities LLC, and non-investment banking securities-related services are being, or have been, provided.
- 6c. This company/entity is, or within the past 12 months has been, a client of UBS Securities LLC, and non-securities services are being, or have been, provided.
- 7. Within the past 12 months, UBS Securities LLC and/or its affiliates have received compensation for products and services other than investment banking services from this company/entity.
- 16. UBS Securities LLC makes a market in the securities and/or ADRs of this company.

Unless otherwise indicated, please refer to the Valuation and Risk sections within the body of this report. For a complete set of disclosure statements associated with the companies discussed in this report, including information on valuation and risk, please contact UBS Securities LLC, 1285 Avenue of Americas, New York, NY 10019, USA, Attention: Investment Research.

ASE Industrial (NT\$)

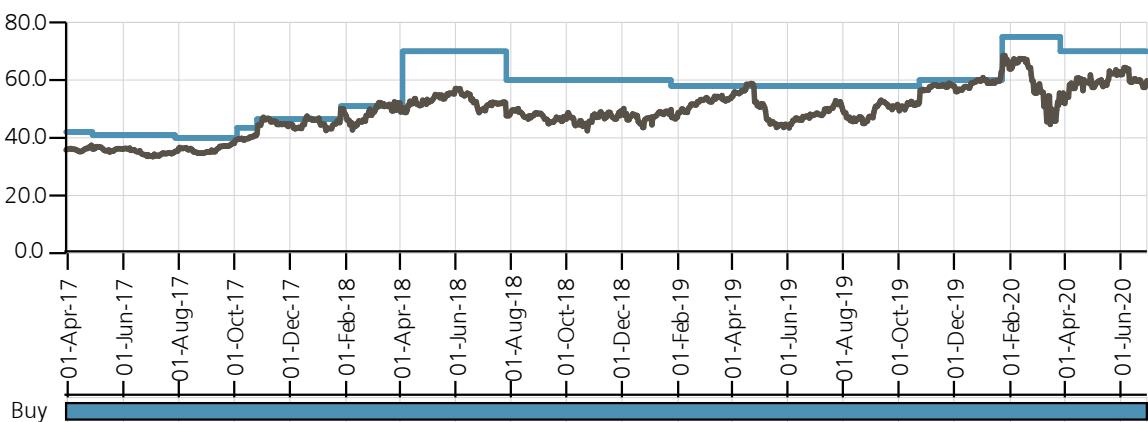
— Price Target(NT\$) — Stock Price (NT\$)



Source: UBS; as of 30 Jun 2020

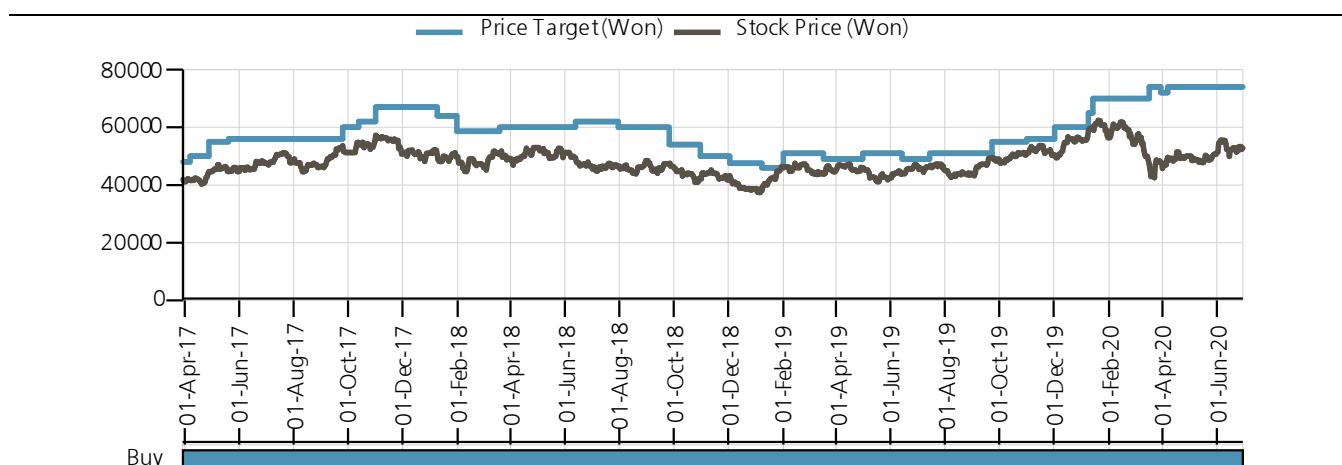
Intel Corp. (US\$)

— Price Target(US\$) — Stock Price (US\$)



Source: UBS; as of 30 Jun 2020

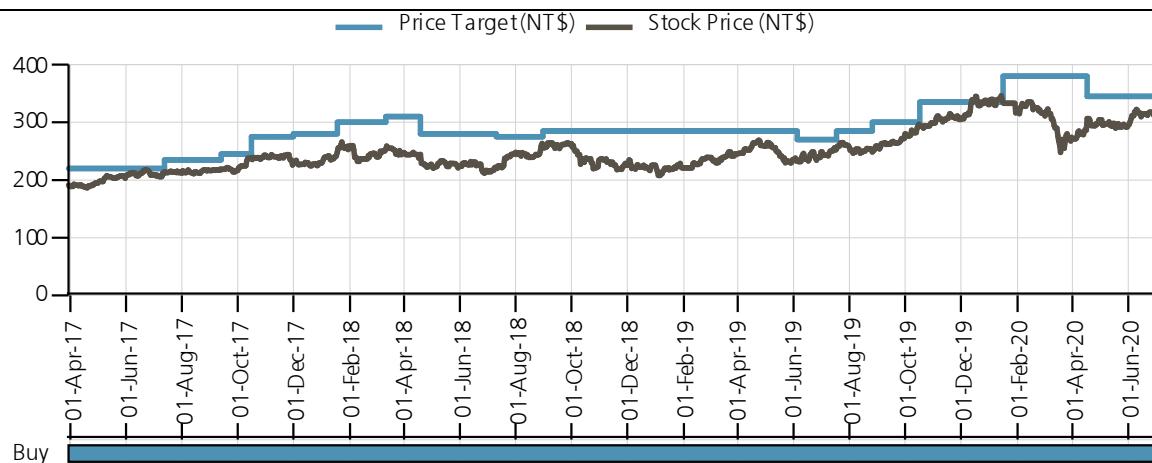
Samsung Electronics (Won)



Date	Stock Price (Won)	Price Target (Won)	Rating
2017-03-30	41980.0	48000.0	Buy
2017-04-07	41600.0	50000.0	Buy
2017-04-28	44620.0	55000.0	Buy
2017-05-20	44720.0	56000.0	Buy
2017-09-25	53620.0	60000.0	Buy
2017-10-13	54000.0	62000.0	Buy
2017-11-01	57220.0	67000.0	Buy
2018-01-09	50400.0	64000.0	Buy
2018-01-31	49900.0	58600.0	Buy
2018-03-20	51200.0	60000.0	Buy
2018-06-13	49400.0	62000.0	Buy
2018-07-31	46250.0	60000.0	Buy
2018-09-26	47400.0	54000.0	Buy
2018-10-31	42400.0	50000.0	Buy
2018-12-03	43250.0	47500.0	Buy
2019-01-08	38100.0	46000.0	Buy
2019-02-01	46350.0	51000.0	Buy
2019-03-18	43700.0	49000.0	Buy
2019-05-01	45850.0	51000.0	Buy
2019-06-14	44000.0	49000.0	Buy
2019-07-15	46450.0	51000.0	Buy
2019-09-23	49300.0	55000.0	Buy
2019-11-01	51200.0	56000.0	Buy
2019-12-02	50400.0	60000.0	Buy
2020-01-09	58600.0	65000.0	Buy
2020-01-14	60000.0	70000.0	Buy
2020-03-17	47300.0	74000.0	Buy
2020-03-30	47850.0	72000.0	Buy
2020-04-07	49600.0	74000.0	Buy

Source: UBS; as of 30 Jun 2020

Taiwan Semiconductor Manufacturing (NT\$)



Date	Stock Price (NT\$)	Price Target (NT\$)	Rating
2017-03-30	191.5	220.0	Buy
2017-07-13	214.5	235.0	Buy
2017-09-13	218.0	245.0	Buy
2017-10-16	238.0	275.0	Buy
2017-12-01	231.0	280.0	Buy
2018-01-18	248.5	300.0	Buy
2018-03-12	254.0	310.0	Buy
2018-04-19	244.5	280.0	Buy
2018-07-11	220.0	275.0	Buy
2018-08-31	256.0	285.0	Buy
2019-06-05	235.0	270.0	Buy
2019-07-18	254.0	285.0	Buy
2019-08-26	248.5	300.0	Buy
2019-10-17	293.5	335.0	Buy
2020-01-16	334.5	380.0	Buy
2020-04-17	306.5	345.0	Buy

Source: UBS; as of 30 Jun 2020

The Disclaimer relevant to Global Wealth Management clients follows the Global Disclaimer.

Global Disclaimer

This document has been prepared by UBS Securities LLC, an affiliate of UBS AG. UBS AG, its subsidiaries, branches and affiliates are referred to herein as UBS.

This Document is provided solely to recipients who are expressly authorized by UBS to receive it. If you are not so authorized you must immediately destroy the Document.

Global Research is provided to our clients through UBS Neo, and in certain instances, UBS.com and any other system or distribution method specifically identified in one or more communications distributed through UBS Neo or UBS.com (each a system) as an approved means for distributing Global Research. It may also be made available through third party vendors and distributed by UBS and/or third parties via e-mail or alternative electronic means. The level and types of services provided by Global Research to a client may vary depending upon various factors such as a client's individual preferences as to the frequency and manner of receiving communications, a client's risk profile and investment focus and perspective (e.g., market wide, sector specific, long-term, short-term, etc.), the size and scope of the overall client relationship with UBS and legal and regulatory constraints.

All Global Research is available on UBS Neo. Please contact your UBS sales representative if you wish to discuss your access to UBS Neo.

When you receive Global Research through a system, your access and/or use of such Global Research is subject to this Global Research Disclaimer and to the UBS Neo Platform Use Agreement (the "Neo Terms") together with any other relevant terms of use governing the applicable System.

When you receive Global Research via a third party vendor, e-mail or other electronic means, you agree that use shall be subject to this Global Research Disclaimer, the Neo Terms and where applicable the UBS Investment Bank terms of business (<https://www.ubs.com/global/en/investment-bank/regulatory.html>) and to UBS's Terms of Use/Disclaimer (<http://www.ubs.com/global/en/legalinfo2/disclaimer.html>). In addition, you consent to UBS processing your personal data and using cookies in accordance with our Privacy Statement (<http://www.ubs.com/global/en/legalinfo2/privacy.html>) and cookie notice (<http://www.ubs.com/global/en/homepage/cookies/cookie-management.html>).

If you receive Global Research, whether through a System or by any other means, you agree that you shall not copy, revise, amend, create a derivative work, provide to any third party, or in any way commercially exploit any UBS research provided via Global Research or otherwise, and that you shall not extract data from any research or estimates provided to you via Global Research or otherwise, without the prior written consent of UBS.

This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject UBS to any registration or licensing requirement within such jurisdiction.

This document is a general communication and is educational in nature; it is not an advertisement nor is it a solicitation or an offer to buy or sell any financial instruments or to participate in any particular trading strategy. Nothing in this document constitutes a representation that any investment strategy or recommendation is suitable or appropriate to an investor's individual circumstances or otherwise constitutes a personal recommendation. By providing this document, none of UBS or its representatives has any responsibility or authority to provide or have provided investment advice in a fiduciary capacity or otherwise. Investments involve risks, and investors should exercise prudence and their own judgment in making their investment decisions. None of UBS or its representatives is suggesting that the recipient or any other person take a specific course of action or any action at all. By receiving this document, the recipient acknowledges and agrees with the intended purpose described above and further disclaims any expectation or belief that the information constitutes investment advice to the recipient or otherwise purports to meet the investment objectives of the recipient. The financial instruments described in the document may not be eligible for sale in all jurisdictions or to certain categories of investors.

Options, structured derivative products and futures (including OTC derivatives) are not suitable for all investors. Trading in these instruments is considered risky and may be appropriate only for sophisticated investors. Prior to buying or selling an option, and for the complete risks relating to options, you must receive a copy of "The Characteristics and Risks of Standardized Options." You may read the document at <http://www.theocc.com/publications/risks/riskchap1.jsp> or ask your salesperson for a copy. Various theoretical explanations of the risks associated with these instruments have been published. Supporting documentation for any claims, comparisons, recommendations, statistics or other technical data will be supplied upon request. Past performance is not necessarily indicative of future results. Transaction costs may be significant in option strategies calling for multiple purchases and sales of options, such as spreads and straddles. Because of the importance of tax considerations to many options transactions, the investor considering options should consult with his/her tax advisor as to how taxes affect the outcome of contemplated options transactions.

Mortgage and asset-backed securities may involve a high degree of risk and may be highly volatile in response to fluctuations in interest rates or other market conditions. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument referred to in the document. For investment advice, trade execution or other enquiries, clients should contact their local sales representative.

The value of any investment or income may go down as well as up, and investors may not get back the full (or any) amount invested. Past performance is not necessarily a guide to future performance. Neither UBS nor any of its directors, employees or agents accepts any liability for any loss (including investment loss) or damage arising out of the use of all or any of the Information.

Prior to making any investment or financial decisions, any recipient of this document or the information should take steps to understand the risk and return of the investment and seek individualized advice from his or her personal financial, legal, tax and other professional advisors that takes into account all the particular facts and circumstances of his or her investment objectives.

Any prices stated in this document are for information purposes only and do not represent valuations for individual securities or other financial instruments. There is no representation that any transaction can or could have been effected at those prices, and any prices do not necessarily reflect UBS's internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by UBS or any other source may yield substantially different results.

No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained in any materials to which this document relates (the "Information"), except with respect to Information concerning UBS. The Information is not intended to be a complete statement or summary of the securities, markets or developments referred to in the document. UBS does not undertake to update or keep current the Information. Any opinions expressed in this document may change without notice and may differ or be contrary to opinions expressed by other business areas or groups, personnel or other representative of UBS. Any statements contained in this report attributed to a third party represent UBS's interpretation of the data, information and/or opinions provided by that third party either publicly or through a subscription service, and such use and interpretation have not been reviewed by the third party. In no circumstances may this document or any of the Information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes:

- (i) valuation or accounting purposes;
- (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or
- (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees.

By receiving this document and the Information you will be deemed to represent and warrant to UBS that you will not use this document or any of the Information for any of the above purposes or otherwise rely upon this document or any of the Information.

UBS has policies and procedures, which include, without limitation, independence policies and permanent information barriers, that are intended, and upon which UBS relies, to manage potential conflicts of interest and control the flow of information within divisions of UBS and among its subsidiaries, branches and affiliates. For further information on the ways in which UBS manages conflicts and maintains independence of its research products, historical performance information and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures.

Research will initiate, update and cease coverage solely at the discretion of UBS Research Management, which will also have sole discretion on the timing and frequency of any published research product. The analysis contained in this document is based on numerous assumptions. All material information in relation to published research reports, such as valuation methodology, risk statements, underlying assumptions (including sensitivity analysis of those assumptions), ratings history etc. as required by the Market Abuse Regulation, can be found on UBS Neo. Different assumptions could result in materially different results.

The analyst(s) responsible for the preparation of this document may interact with trading desk personnel, sales personnel and other parties for the purpose of gathering, applying and interpreting market information. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS into other areas, units, groups or affiliates of UBS. The compensation of the analyst who prepared this document is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues; however, compensation may relate to the revenues of UBS and/or its divisions as a whole, of which investment banking, sales and trading are a part, and UBS's subsidiaries, branches and affiliates as a whole.

For financial instruments admitted to trading on an EU regulated market: UBS AG, its affiliates or subsidiaries (excluding UBS Securities LLC) acts as a market maker or liquidity provider (in accordance with the interpretation of these terms under English law or, if not carried out by UBS in the UK, the law of the relevant jurisdiction in which UBS determines it carries out the activity) in the financial instruments of the issuer save that where the activity of liquidity provider is carried out in accordance with the definition given to it by the laws and regulations of any other EU jurisdictions, such information is separately disclosed in this document. For financial instruments admitted to trading on a non-EU regulated market: UBS may act as a market maker save that where this activity is carried out in the US in accordance with the definition given to it by the relevant laws and regulations, such activity will be specifically disclosed in this document. UBS may have issued a warrant the value of which is based on one or more of the financial instruments referred to in the document. UBS and its affiliates and employees may have long or short positions, trade as principal and buy and sell in instruments or derivatives identified herein; such transactions or positions may be inconsistent with the opinions expressed in this document.

Within the past 12 months UBS AG, its affiliates or subsidiaries may have received or provided investment services and activities or ancillary services as per MiFID II which may have given rise to a payment or promise of a payment in relation to these services from or to this company.

Where Global Research refers to "UBS Evidence Lab Inside" or has made use of data provided by UBS Evidence Lab you understand that UBS Evidence Lab is a separate department to Global Research and that UBS Evidence Lab does not provide research, investment recommendations or advice.

United Kingdom: This material is distributed by UBS AG, London Branch to persons who are eligible counterparties or professional clients. UBS AG, London Branch is authorised by the Prudential Regulation Authority and subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority.

Europe: Except as otherwise specified herein, these materials are distributed by UBS Europe SE, a subsidiary of UBS AG, to persons who are eligible counterparties or professional clients (as detailed in the Bundesanstalt für Finanzdienstleistungsaufsicht (BaFin) Rules and according to MiFID) and are only available to such persons. The information does not apply to, and should not be relied upon by, retail clients. UBS Europe SE is authorised by the [European Central Bank (ECB)] and regulated by the BaFin and the ECB. **France:** Prepared by UBS Europe SE and distributed by UBS Europe SE and UBS Securities France S.A. UBS Securities France S.A. is regulated by the ACPR (Autorité de Contrôle Prudentiel et de Résolution) and the Autorité des Marchés Financiers (AMF). Where an analyst of UBS Securities France S.A. has contributed to this document, the document is also deemed to have been prepared by UBS Securities France S.A. **Germany:** Where an analyst of UBS Europe SE has contributed to this document, the document is also deemed to have been prepared by UBS Europe SE. In all cases it is distributed by UBS Europe SE and UBS AG, London Branch. **Luxembourg, the Netherlands, Belgium and Ireland:** Where an analyst of UBS Europe SE has contributed to this document, the document is also deemed to have been prepared by UBS Europe SE. In all cases it is distributed by UBS Europe SE and UBS AG, London Branch. **Spain:** Prepared by UBS Europe SE and distributed by UBS Europe SE and UBS Securities España SV, SA. UBS Securities España SV, SA is regulated by the Comisión Nacional del Mercado de Valores (CNMV).

Turkey: Distributed by UBS AG, London Branch. No information in this document is provided for the purpose of offering, marketing and sale by any means of any capital market instruments and services in the Republic of Turkey. Therefore, this document may not be considered as an offer made or to be made to residents of the Republic of Turkey. UBS AG, London Branch is not licensed by the Turkish Capital Market Board under the provisions of the Capital Market Law (Law No. 6362). Accordingly, neither this document nor any other offering material related to the instruments/services may be utilized in connection with providing any capital market services to persons within the Republic of Turkey without the prior approval of the Capital Market Board. However, according to article 15 (d) (ii) of the Decree No. 32, there is no restriction on the purchase or sale of the securities abroad by residents of the Republic of Turkey. **Poland:** Distributed by UBS Europe SE (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce regulated by the Polish Financial Supervision Authority. Where an analyst of UBS Europe SE (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce has contributed to this document, the document is also deemed to have been prepared by UBS Europe SE (spółka z ograniczoną odpowiedzialnością) Oddział w Polsce. **Russia:** Prepared and distributed by UBS Bank (OOO). Should not be construed as an individual Investment Recommendation for the purpose of the Russian Law – Federal Law #39-FZ ON THE SECURITIES MARKET Articles 6.1-6.2. **Switzerland:** Distributed by UBS AG to persons who are institutional investors only. UBS AG is regulated by the Swiss Financial Market Supervisory Authority (FINMA). **Italy:** Prepared by UBS Europe SE and distributed by UBS Europe SE and UBS Europe SE, Italy Branch. Where an analyst of UBS Europe SE, Italy Branch has contributed to this document, the document is also deemed to have been prepared by UBS Europe SE, Italy Branch. **South Africa:** Distributed by UBS South Africa (Pty) Limited (Registration No. 1995/011140/07), an authorised user of the JSE and an authorised Financial Services Provider (FSP 7328). **Saudi Arabia:** This document has been issued by UBS AG (and/or any of its subsidiaries, branches or affiliates), a public company limited by shares, incorporated in Switzerland with its registered offices at Aeschenvorstadt 1, CH-4051 Basel and Bahnhofstrasse 45, CH-8001 Zurich. This publication has been approved by UBS Saudi Arabia (a subsidiary of UBS AG), a Saudi closed joint stock company incorporated in the Kingdom of Saudi Arabia under commercial register number 1010257812 having its registered office at Tatweer Towers, P.O. Box 75724, Riyadh 11588, Kingdom of Saudi Arabia. UBS Saudi Arabia is authorized and regulated by the Capital Market Authority to conduct securities business under license number 08113-37. **UAE / Dubai:** The information distributed by UBS AG Dubai Branch is only intended for Professional Clients and/or Market Counterparties, as classified under the DFSA rulebook. No other person should act upon this material/communication. The information is not for further distribution within the United Arab Emirates. UBS AG Dubai Branch is regulated by the DFSA in the DIFC. UBS is not licensed to provide banking services in the UAE by the Central Bank of the UAE, nor is it licensed by the UAE Securities and Commodities Authority. **United States:** Distributed to US persons by either UBS Securities LLC or by UBS Financial Services Inc., subsidiaries of UBS AG; or by a group, subsidiary or affiliate of UBS AG that is not registered as a US broker-dealer (a '**non-US affiliate**') to major US institutional investors only. UBS Securities LLC or UBS Financial Services Inc. accepts responsibility for the content of a report prepared by another non-US affiliate when distributed to US persons by UBS Securities LLC or UBS Financial Services Inc. All transactions by a US person in the securities mentioned in this report must be effected through UBS Securities LLC or UBS Financial Services Inc., and not through a non-US affiliate. UBS Securities LLC is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule"), and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule. **Canada:** Distributed by UBS Securities Canada Inc., a registered investment dealer in Canada and a Member-Canadian Investor Protection Fund, or by another affiliate of UBS AG that is registered to conduct business in Canada or is otherwise exempt from registration. **Brazil:** Except as otherwise specified herein, this material is prepared by UBS Brasil CCTVM S.A. to persons who are eligible investors residing in Brazil, which are considered to be Investidores Profissionais, as designated by the applicable regulation, mainly the CVM Instruction No. 539 from the 13th of November 2013 (determines the duty to verify the suitability of products, services and transactions with regards to the client's profile). **Hong Kong:** Distributed by UBS Securities Asia Limited and/or UBS AG, Hong Kong Branch, which is incorporated in Switzerland with limited liability. Please contact local licensed/registered representatives of UBS Securities Asia Limited and/or UBS AG, Hong Kong Branch in respect of any matters arising from, or in connection with, the analysis or document. **Singapore:** Distributed by UBS Securities Pte. Ltd. [MCI (P) 079/08/2019 and Co. Reg. No.: 198500648C] or UBS AG, Singapore Branch. Please contact UBS Securities Pte. Ltd., an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110); or UBS AG, Singapore Branch, an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110) and a wholesale bank licensed under the Singapore Banking Act (Cap. 19) regulated by the Monetary Authority of Singapore, in respect of any matters arising from, or in connection with, the analysis or document. The recipients of this document represent and warrant that they are accredited and institutional investors as defined in the Securities and Futures Act (Cap. 289). **Japan:** Distributed by UBS Securities Japan Co., Ltd. to professional investors (except as otherwise permitted). Where this report has been prepared by UBS Securities Japan Co., Ltd., UBS Securities Japan Co., Ltd. is the author, publisher and distributor of the report. Distributed by UBS AG, Tokyo Branch to Professional Investors (except as otherwise permitted) in relation to foreign exchange and other banking businesses when relevant. **Australia:** Clients of UBS AG: Distributed by UBS AG (ABN 47 088 129 613 and holder of Australian Financial Services License No. 231087). Clients of UBS Securities Australia Ltd: Distributed by UBS Securities Australia Ltd (ABN 62 008 586 481 and holder of Australian Financial Services License No. 231098). This Document contains general information and/or general advice only and does not constitute personal financial product advice. As such, the information in this document has been prepared without taking into account any investor's objectives, financial situation or needs, and investors should, before acting on the information, consider the appropriateness of the information, having regard to their objectives, financial situation and needs. If the information contained in this document relates to the acquisition, or potential acquisition of a particular financial product by a 'Retail' client as defined by section 761G of the Corporations Act 2001 where a Product Disclosure Statement would be required, the retail client should obtain and consider the Product Disclosure Statement relating to the product before making any decision about whether to acquire the product. The UBS Securities Australia Limited Financial Services Guide is available at: www.ubs.com/ecs-research-fsg. **New Zealand:** Distributed by UBS New Zealand Ltd. UBS New Zealand Ltd is not a registered bank in New Zealand. You are being provided with this UBS publication or material because you have indicated to UBS that you are a "wholesale client" within the meaning of section 5C of the Financial Advisers Act 2008 of New Zealand (Permitted Client). This publication or material is not intended for clients who are not Permitted Clients (non-permitted Clients). If you are a non-permitted Client you must not rely on this publication or material. If despite this

warning you nevertheless rely on this publication or material, you hereby (i) acknowledge that you may not rely on the content of this publication or material and that any recommendations or opinions in such this publication or material are not made or provided to you, and (ii) to the maximum extent permitted by law (a) indemnify UBS and its associates or related entities (and their respective Directors, officers, agents and Advisors) (each a 'Relevant Person') for any loss, damage, liability or claim any of them may incur or suffer as a result of, or in connection with, your unauthorised reliance on this publication or material and (b) waive any rights or remedies you may have against any Relevant Person for (or in respect of) any loss, damage, liability or claim you may incur or suffer as a result of, or in connection with, your unauthorised reliance on this publication or material. **Korea:** Distributed in Korea by UBS Securities Pte. Ltd., Seoul Branch. This report may have been edited or contributed to from time to time by affiliates of UBS Securities Pte. Ltd., Seoul Branch. This material is intended for professional/institutional clients only and not for distribution to any retail clients. **Malaysia:** This material is authorized to be distributed in Malaysia by UBS Securities Malaysia Sdn. Bhd (Capital Markets Services License No.: CMSL/A0063/2007). This material is intended for professional/institutional clients only and not for distribution to any retail clients. **India:** Distributed by UBS Securities India Private Ltd. (Corporate Identity Number U67120MH1996PTC097299) 2/F, 2 North Avenue, Maker Maxity, Bandra Kurla Complex, Bandra (East), Mumbai (India) 400051. Phone: +912261556000. It provides brokerage services bearing SEBI Registration Number: INZ000259830; merchant banking services bearing SEBI Registration Number: INM000010809 and Research Analyst services bearing SEBI Registration Number: INH000001204. UBS AG, its affiliates or subsidiaries may have debt holdings or positions in the subject Indian company/companies. Within the past 12 months, UBS AG, its affiliates or subsidiaries may have received compensation for non-investment banking securities-related services and/or non-securities services from the subject Indian company/companies. The subject company/companies may have been a client/clients of UBS AG, its affiliates or subsidiaries during the 12 months preceding the date of distribution of the research report with respect to investment banking and/or non-investment banking securities-related services and/or non-securities services. With regard to information on associates, please refer to the Annual Report at: http://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting.html **Taiwan:** Except as otherwise specified herein, this material may not be distributed in Taiwan. Information and material on securities/instruments that are traded in a Taiwan organized exchange is deemed to be issued and distributed by UBS Securities Pte. LTD., Taipei Branch, which is licensed and regulated by Taiwan Financial Supervisory Commission. Save for securities/instruments that are traded in a Taiwan organized exchange, this material should not constitute "recommendation" to clients or recipients in Taiwan for the covered companies or any companies mentioned in this document. No portion of the document may be reproduced or quoted by the press or any other person without authorisation from UBS. **Indonesia:** This report is being distributed by PT UBS Sekuritas Indonesia and is delivered by its licensed employee(s), including marketing/sales person, to its client. PT UBS Sekuritas Indonesia, having its registered office at Wisma GKBL, 22nd floor, JL. Jend. Sudirman, kav.28, Jakarta 10210, Indonesia, is a subsidiary company of UBS AG and licensed under Capital Market Law no. 8 year 1995, a holder of broker-dealer and underwriter licenses issued by the Capital Market and Financial Institution Supervisory Agency (now Otoritas Jasa Keuangan/OJK). PT UBS Sekuritas Indonesia is also a member of Indonesia Stock Exchange and supervised by Otoritas Jasa Keuangan (OJK). Neither this report nor any copy hereof may be distributed in Indonesia or to any Indonesian citizens except in compliance with applicable Indonesian capital market laws and regulations. This report is not an offer of securities in Indonesia and may not be distributed within the territory of the Republic of Indonesia or to Indonesian citizens in circumstance which constitutes an offering within the meaning of Indonesian capital market laws and regulations.

The disclosures contained in research documents produced by UBS AG, London Branch or UBS Europe SE shall be governed by and construed in accordance with English law.

UBS specifically prohibits the redistribution of this document in whole or in part without the written permission of UBS and in any event UBS accepts no liability whatsoever for any redistribution of this document or its contents or the actions of third parties in this respect. Images may depict objects or elements that are protected by third party copyright, trademarks and other intellectual property rights. © UBS 2020. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.

Global Wealth Management Disclaimer

You receive this document in your capacity as a client of UBS Global Wealth Management. This publication has been distributed to you by UBS Switzerland AG (regulated by FINMA in Switzerland) or its affiliates ("UBS") with whom you have a banking relationship with. The full name of the distributing affiliate and its competent authority can be found in the country-specific disclaimer at the end of this document.

The date and time of the first dissemination of this publication is the same as the date and time of its publication.

Risk information:

You agree that you shall not copy, revise, amend, create a derivative work, provide to any third party, or in any way commercially exploit any UBS research, and that you shall not extract data from any research or estimates, without the prior written consent of UBS.

This document is for distribution only as may be permitted by law. It is not directed to, or intended for distribution to or use by, any person or entity who is a citizen or resident of or located in any locality, state, country or other jurisdiction where such distribution, publication, availability or use would be contrary to law or regulation or would subject UBS to any registration or licensing requirement within such jurisdiction.

This document is a general communication and is educational in nature; it is not an advertisement nor is it a solicitation or an offer to buy or sell any financial instruments or to participate in any particular trading strategy. Nothing in this document constitutes a representation that any investment strategy or recommendation is suitable or appropriate to an investor's individual circumstances or otherwise constitutes a personal recommendation. By providing this document, none of UBS or its representatives has any responsibility or authority to provide or have provided investment advice in a fiduciary capacity or otherwise. Investments involve risks, and investors should exercise prudence and their own judgment in making their investment decisions. None of UBS or its representatives is suggesting that the recipient or any other person take a specific course of action or any action at all. By receiving this document, the recipient acknowledges and agrees with the intended purpose described above and further disclaims any expectation or belief that the information constitutes investment advice to the recipient or otherwise purports to meet the investment objectives of the recipient. The financial instruments described in the document may not be eligible for sale in all jurisdictions or to certain categories of investors.

Options, derivative products and futures are not suitable for all investors, and trading in these instruments is considered risky. Mortgage and asset-backed securities may involve a high degree of risk and may be highly volatile in response to fluctuations in interest rates or other market conditions. Foreign currency rates of exchange may adversely affect the value, price or income of any security or related instrument referred to in the document. For investment advice, trade execution or other enquiries, clients should contact their local sales representative.

The value of any investment or income may go down as well as up, and investors may not get back the full (or any) amount invested. Past performance is not necessarily a guide to future performance. Neither UBS nor any of its directors, employees or agents accepts any liability for any loss (including investment loss) or damage arising out of the use of all or any of the information (as defined below).

Prior to making any investment or financial decisions, any recipient of this document or the information should take steps to understand the risk and return of the investment and seek individualized advice from his or her personal financial, legal, tax and other professional advisors that takes into account all the particular facts and circumstances of his or her investment objectives.

Any prices stated in this document are for information purposes only and do not represent valuations for individual securities or other financial instruments. There is no representation that any transaction can or could have been effected at those prices, and any prices do not necessarily reflect UBS's internal books and records or theoretical model-based valuations and may be based on certain assumptions. Different assumptions by UBS or any other source may yield substantially different results.

No representation or warranty, either expressed or implied, is provided in relation to the accuracy, completeness or reliability of the information contained in any materials to which this document relates (the "Information"), except with respect to Information concerning UBS. The Information is not intended to be a complete statement or summary of the securities, markets or developments referred to in the document. UBS does not undertake to update or keep current the Information. Any opinions expressed in this document may change without notice and may differ or be contrary to opinions expressed by other business areas or groups, personnel or other representative of UBS. Any statements contained in this report attributed to a third party represent UBS's interpretation of the data, information and/or opinions provided by that third party either publicly or through a subscription service, and such use and interpretation have not been reviewed by the third party. In no circumstances may this document or any of the Information (including any forecast, value, index or other calculated amount ("Values")) be used for any of the following purposes:

- (i) valuation or accounting purposes;
- (ii) to determine the amounts due or payable, the price or the value of any financial instrument or financial contract; or
- (iii) to measure the performance of any financial instrument including, without limitation, for the purpose of tracking the return or performance of any Value or of defining the asset allocation of portfolio or of computing performance fees.

By receiving this document and the Information you will be deemed to represent and warrant to UBS that you will not use this document or any of the Information for any of the above purposes or otherwise rely upon this document or any of the Information.

UBS has policies and procedures, which include, without limitation, independence policies and permanent information barriers, that are intended, and upon which UBS relies, to manage potential conflicts of interest and control the flow of information within divisions of UBS (including between Global Wealth Management and Research) and among its subsidiaries, branches and affiliates. For further information on the ways in which UBS manages conflicts and maintains independence of its research products, historical performance information and certain additional disclosures concerning UBS research recommendations, please visit www.ubs.com/disclosures.

Research will initiate, update and cease coverage solely at the discretion of research management, which will also have sole discretion on the timing and frequency of any published research product. The analysis contained in this document is based on numerous assumptions. Different assumptions could result in materially different results.

The analyst(s) responsible for the preparation of this document may interact with trading desk personnel, sales personnel and other parties for the purpose of gathering, applying and interpreting market information. UBS relies on information barriers to control the flow of information contained in one or more areas within UBS into other areas, units, groups or affiliates of UBS. The compensation of the analyst who prepared this document is determined exclusively by research management and senior management (not including investment banking). Analyst compensation is not based on investment banking revenues; however, compensation may relate to the revenues of UBS and/or its divisions as a whole, of which investment banking, sales and trading are a part, and UBS's subsidiaries, branches and affiliates as a whole.

For financial instruments admitted to trading on an EU regulated market: UBS AG, its affiliates or subsidiaries (excluding UBS Securities LLC) acts as a market maker or liquidity provider (in accordance with the interpretation of these terms in the UK) in the financial instruments of the issuer save that where the activity of liquidity provider is carried out in accordance with the definition given to it by the laws and regulations of any other EU jurisdictions, such information is separately disclosed in this document. For financial instruments admitted to trading on a non-EU regulated market: UBS may act as a market maker save that where this activity is carried out in the US in accordance with the definition given to it by the relevant laws and regulations, such activity will be specifically disclosed in this document. UBS may have issued a warrant the value of which is based on one or more of the financial instruments referred to in the document. UBS and its affiliates and employees may have long or short positions, trade as principal and buy and sell in instruments or derivatives identified herein; such transactions or positions may be inconsistent with the opinions expressed in this document.

Options and futures are not suitable for all investors, and trading in these instruments is considered risky and may be appropriate only for sophisticated investors. Prior to buying or selling an option, and for the complete risks relating to options, you must receive a copy of "Characteristics and Risks of Standardized Options". You may read the document at <https://www.theocc.com/about/publications/character-risks.jsp> or ask your financial advisor for a copy.

Investing in structured investments involves significant risks. For a detailed discussion of the risks involved in investing in any particular structured investment, you must read the relevant offering materials for that investment. Structured investments are unsecured obligations of a particular issuer with returns linked to the performance of an underlying asset. Depending on the terms of the investment, investors could lose all or a substantial portion of their investment based on the performance of the underlying asset. Investors could also lose their entire investment if the issuer becomes insolvent. UBS Financial Services Inc. does not guarantee in any way the obligations or the financial condition of any issuer or the accuracy of any financial information provided by any issuer. Structured investments are not traditional investments and investing in a structured investment is not equivalent to investing directly in the underlying asset. Structured investments may have limited or no liquidity, and investors should be prepared to hold their investment to maturity. The return of structured investments may be limited by a maximum gain, participation rate or other feature. Structured investments may include call features and, if a structured investment is called early, investors would not earn any further return and may not be able to reinvest in similar investments with similar terms. Structured investments include costs and fees which are generally embedded in the price of the investment. The tax treatment of a structured investment may be complex and may differ from a direct investment in the underlying asset. UBS Financial Services Inc. and its employees do not provide tax advice. Investors should consult their own tax advisor about their own tax situation before investing in any securities.

Within the past 12 months UBS Switzerland AG, its affiliates or subsidiaries may have received or provided investment services and activities or ancillary services as per MiFID II which may have given rise to a payment or promise of a payment in relation to these services from or to this company.

If you require detailed information on disclosures of interest or conflict of interest as required by Market Abuse Regulation please contact the mailbox MAR_disclosures_twopager@ubs.com. Please note that e-mail communication is unsecured.

External Asset Managers / External Financial Consultants: In case this research or publication is provided to an External Asset Manager or an External Financial Consultant, UBS expressly prohibits that it is redistributed by the External Asset Manager or the External Financial Consultant and is made available to their clients and/or third parties.

Distributed to US persons by UBS Financial Services Inc. or UBS Securities LLC, subsidiaries of UBS AG. UBS Switzerland AG, UBS Europe SE, UBS Bank, S.A., UBS Brasil Administradora de Valores Mobiliarios Ltda, UBS Asesores Mexico, S.A. de C.V., UBS Securities Japan Co., Ltd, UBS Wealth Management Israel Ltd and UBS Menkull Degerler AS are affiliates of UBS AG. UBS Financial Services Incorporated of Puerto Rico is a subsidiary of UBS Financial Services Inc. **UBS Financial Services Inc. accepts responsibility for the content of a report prepared by a non-US affiliate when it distributes reports to US persons. All transactions by a US person in the securities mentioned in this report should be effected through a US-registered broker dealer affiliated with UBS, and not through a non-US affiliate. The contents of this report have not been and will not be approved by any securities or investment authority in the United States or elsewhere. UBS Financial Services Inc. is not acting as a municipal advisor to any municipal entity or obligated person within the meaning of Section 15B of the Securities Exchange Act (the "Municipal Advisor Rule") and the opinions or views contained herein are not intended to be, and do not constitute, advice within the meaning of the Municipal Advisor Rule.**

Austria: This publication is not intended to constitute a public offer under Austrian law. It is distributed only for information purposes to clients of UBS Europe SE, Niederlassung Österreich, with place of business at Wächtergasse 1, A-1010 Wien. UBS Europe SE, Niederlassung Österreich is subject to the joint supervision of the European Central Bank ("ECB"), the German Central Bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Austrian Financial Market Authority (Finanzmarktaufsicht, FMA), to which this publication has not been submitted for approval. UBS Europe SE is a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Bahrain:** UBS is a Swiss bank not licensed, supervised or regulated in Bahrain by the Central Bank of Bahrain and does not undertake banking or investment business activities in Bahrain. Therefore, clients have no protection under local banking and investment services laws and regulations. **Canada:** The information contained herein is not, and under no circumstances is to be construed as, a prospectus, an advertisement, a public offering, an offer to sell securities described herein, solicitation of an offer to buy securities described herein, in Canada or any province or territory thereof. Any offer or sale of the securities described herein in Canada will be made only under an exemption from the requirements to file a prospectus with the relevant Canadian securities regulators and only by a dealer properly registered under applicable securities laws or, alternatively, pursuant to an exemption from the dealer registration requirement in the relevant province or territory of Canada in which such offer or sale is made. Under no circumstances is the information contained herein to be construed as investment advice in any province or territory of Canada and is not tailored to the needs of the recipient. To the extent that the information contained herein references securities of an issuer incorporated, formed or created under the laws of Canada or a province or territory of Canada, any trades in such securities must be conducted through a dealer registered in Canada or, alternatively, pursuant to a dealer registration exemption. No securities commission or similar regulatory authority in Canada has reviewed or in any way passed upon these materials, the information contained herein or the merits of the securities described herein and any representation to the contrary is an offence. In Canada, this publication is distributed by UBS Investment Management Canada Inc. **China:** This research report is neither intended to be distributed to PRC investors nor to provide securities investment consultancy services within the territory of PRC. **Czech Republic:** UBS is not a licensed bank in the Czech Republic and thus is not allowed to provide regulated banking or investment services in the Czech Republic. Please notify UBS if you do not wish to receive any further correspondence. **Denmark:** This publication is not intended to constitute a public offer under Danish law. It is distributed only for information purposes to clients of UBS Europe SE, Denmark Branch, filial af UBS Europe SE, with place of business at Sankt Annæ Plads 13, 1250 Copenhagen, Denmark, registered with the Danish Commerce and Companies Agency, under No. 38 17 24 33. UBS Europe SE, Denmark Branch, filial af UBS Europe SE is subject to the joint supervision of the European Central Bank ("ECB"), the German Central Bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Danish Financial Supervisory Authority (Finanstilsynet), to which this publication has not been submitted for approval. UBS Europe SE is a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Egypt:** Securities or other investment products are not being offered or sold by UBS to the public in Egypt and they have not been and will not be registered with the Egyptian Financial Supervisory Authority. **France:** This publication is distributed by UBS (France) S.A, French "société anonyme" with share capital of € 132.975.556, 69, boulevard Haussmann F-75008 Paris, R.C.S. Paris B 421 255 670, to its clients and prospects. UBS (France) S.A. is a provider of investment services duly authorized according to the terms of the "Code Monétaire et Financier", regulated by French banking and financial authorities as the "Autorité de Contrôle Prudentiel et de Résolution." **Germany:** This publication is not intended to constitute a public offer under German law. It is distributed only for information purposes to clients of UBS Europe SE, Germany, with place of business at Bockenheimer Landstrasse 2-4, 60306 Frankfurt am Main. UBS Europe SE is a

credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the European Central Bank ("ECB"), and supervised by the ECB, the German Central Bank (Deutsche Bundesbank) and the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), to which this publication has not been submitted for approval. **Greece:** UBS Switzerland AG and its affiliates (UBS) are not licensed as bank or financial institution under Greek legislation and do not provide banking and financial services in Greece. Consequently, UBS provides such services from branches outside of Greece, only. This document may not be considered as a public offering made or to be made to residents of Greece. **Hong Kong:** This publication is distributed to clients of UBS AG Hong Kong Branch by UBS AG Hong Kong Branch, a licensed bank under the Hong Kong Banking Ordinance and a registered institution under the Securities and Futures Ordinance. UBS AG Hong Kong Branch is incorporated in Switzerland with limited liability. **Indonesia, Malaysia, Philippines, Thailand:** This material was provided to you as a result of a request received by UBS from you and/or persons entitled to make the request on your behalf. Should you have received the material erroneously, UBS asks that you kindly destroy/delete it and inform UBS immediately. Any and all advice provided and/or trades executed by UBS pursuant to the material will only have been provided upon your specific request or executed upon your specific instructions, as the case may be, and may be deemed as such by UBS and you. The material may not have been reviewed, approved, disapproved or endorsed by any financial or regulatory authority in your jurisdiction. The relevant investments will be subject to restrictions and obligations on transfer as set forth in the material, and by receiving the material you undertake to comply fully with such restrictions and obligations. You should carefully study and ensure that you understand and exercise due care and discretion in considering your investment objective, risk appetite and personal circumstances against the risk of the investment. You are advised to seek independent professional advice in case of doubt. **India:** UBS Securities India Private Ltd. (Corporate Identity Number U67120MH1996PTC097299) 2/F, 2 North Avenue, Maken Maxity, Bandra Kurla Complex, Bandra (East), Mumbai (India) 400051. Phone: +912261556000. It provides brokerage services bearing SEBI Registration Number INZ000259830; merchant banking services bearing SEBI Registration Number: INM000010809 and Research Analyst services bearing SEBI Registration Number: INH000001204. UBS AG, its affiliates or subsidiaries may have debt holdings or positions in the subject Indian company/companies. Within the past 12 months, UBS AG, its affiliates or subsidiaries may have received compensation for non-investment banking securities-related services and/or non-securities services from the subject Indian company/companies. The subject company/companies may have been a client/clients of UBS AG, its affiliates or subsidiaries during the 12 months preceding the date of distribution of the research report with respect to investment banking and/or non-investment banking securities-related services and/or non-securities services. With regard to information on associates, please refer to the Annual Report at: http://www.ubs.com/global/en/about_ubs/investor_relations/annualreporting.html. **Israel:** UBS is a premier global financial firm offering wealth management, asset management and investment banking services from its headquarters in Switzerland and its operations in over 50 countries worldwide to individual, corporate and institutional investors. In Israel, UBS Switzerland AG is registered as Foreign Dealer in cooperation with UBS Wealth Management Israel Ltd., a wholly owned UBS subsidiary. UBS Wealth Management Israel Ltd. is a Portfolio Manager licensee which engages also in Investment Marketing and is regulated by the Israel Securities Authority. This publication is intended for information only and is not intended as an offer to buy or solicitation of an offer. Furthermore, this publication is not intended as an investment advice and/or investment marketing and is not replacing any investment advice and/or investment marketing provided by the relevant licensee which is adjusted to each person needs. No action has been, or will be, taken in Israel that would permit an offering of the product(s) mentioned in this document or a distribution of this document to the public in Israel. In particular, this document has not been reviewed or approved by the Israeli Securities Authority. The product(s) mentioned in this document is/are being offered to a limited number of sophisticated investors who qualify as one of the investors listed in the first supplement to the Israeli Securities Law, 5728-1968. This document may not be reproduced or used for any other purpose, nor be furnished to any other person other than those to whom copies have been sent. Anyone who purchases the product(s) mentioned herein shall do so for its own benefit and for its own account and not with the aim or intention of distributing or offering the product(s) to other parties. Anyone who purchases the product(s) shall do so in accordance with its own understanding and discretion and after it has received any relevant financial, legal, business, tax or other advice or opinion required by it in connection with such purchase(s). The word "advice" and/or any of its derivatives shall be read and construed in conjunction with the definition of the term "investment marketing" as defined under the Israeli Regulation of Investment Advice, Investment Marketing and Portfolio Management Law, 1995. **Italy:** This publication is not intended to constitute a public offer under Italian law. It is distributed only for information purposes to clients of UBS Europe SE, Succursale Italia, with place of business at Via del Vecchio Politecnico, 3-20121 Milano. UBS Europe SE, Succursale Italia is subject to the joint supervision of the European Central Bank ("ECB"), the German Central Bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Bank of Italy (Banca d'Italia) and the Italian Financial Markets Supervisory Authority (CONSOB - Commissione Nazionale per le Società e la Borsa), to which this publication has not been submitted for approval. UBS Europe SE is a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Jersey:** UBS AG, Jersey Branch, is regulated and authorized by the Jersey Financial Services Commission for the conduct of banking, funds and investment business. Where services are provided from outside Jersey, they will not be covered by the Jersey regulatory regime. UBS AG, Jersey Branch is a branch of UBS AG a public company limited by shares, incorporated in Switzerland whose registered offices are at Aeschenvorstadt 1, CH-4051 Basel and Bahnhofstrasse 45, CH 8001 Zurich. UBS AG, Jersey Branch's principal place business is 1, IFC Jersey, St Helier, Jersey, JE2 3BX. **Luxembourg:** This publication is not intended to constitute a public offer under Luxembourg law. It is distributed only for information purposes to clients of UBS Europe SE, Luxembourg Branch, with place of business at 33A, Avenue J. F. Kennedy, L-1855 Luxembourg. UBS Europe SE, Luxembourg Branch is subject to the joint supervision of the European Central Bank ("ECB"), the German Central bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Luxembourg supervisory authority (Commission de Surveillance du Secteur Financier), to which this publication has not been submitted for approval. UBS Europe SE is a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Mexico:** This information is distributed by UBS Asesores México, S.A. de C.V. ("UBS Asesores"), an affiliate of UBS Switzerland AG, incorporated as a non-independent investment advisor under the Securities Market Law due to the relation with a Foreign Bank. UBS Asesores is a regulated entity and it is subject to the supervision of the Mexican Banking and Securities Commission ("CNBV"), which exclusively regulates UBS Asesores regarding the rendering of portfolio management, as well as on securities investment advisory services, analysis and issuance of individual investment recommendations, so that the CNBV has no surveillance faculties nor may have over any other service provided by UBS Asesores. UBS Asesores is registered before CNBV under Registry number 30060. You are being provided with this UBS publication or material because you have indicated to UBS Asesores that you are a Sophisticated Qualified Investor located in Mexico. The compensation of the analyst(s) who prepared this report is determined exclusively by research management and senior management of any entity of UBS Group to which such analyst(s) render services. **Nigeria:** UBS Switzerland AG and its affiliates (UBS) are not licensed, supervised or regulated in Nigeria by the Central Bank of Nigeria or the Nigerian Securities and Exchange Commission (SEC) and do not undertake banking or investment business activities in Nigeria. The investment products mentioned in this material are not being offered or sold by UBS to the public in Nigeria and they have not been submitted for approval nor registered with the Nigerian SEC. If you are interested in products of this nature, please let us know and we will direct you to someone who can advise you. The investment products mentioned in this material are not being directed to, and are not being made available for subscription by any persons within Nigeria other than the selected investors to whom the offer materials have been addressed as a private sale or domestic concern within the exemption and meaning of Section 69(2) of the Investments and Securities Act, 2007 (ISA). **Poland:** UBS is a premier global financial services firm offering wealth management services to individual, corporate and institutional investors. UBS is established in Switzerland and operates under Swiss law and in over 50 countries and from all major financial centres. UBS Switzerland AG is not licensed as a bank or as an investment firm under Polish legislation and is not permitted to provide banking and financial services in Poland. **Portugal:** UBS Switzerland AG is not licensed to conduct banking and financial activities in Portugal nor is UBS Switzerland AG supervised by the Portuguese regulators (Bank of Portugal "Banco de Portugal" and Portuguese Securities Exchange Commission "Comissão do Mercado de Valores Mobiliários"). **Russia:** This document or information contained therein is for information purposes only and constitute neither a public nor a private offering, is not an invitation to make offers, to sell, exchange or otherwise transfer any financial instruments in the Russian Federation to or for the benefit of any Russian person or entity and does not constitute an advertisement or offering of securities in the Russian Federation within the meaning of Russian securities laws. **Singapore:** This material was provided to you as a result of a request received by UBS from you and/or persons entitled to make the request on your behalf. Should you have received the material erroneously, UBS asks that you kindly destroy/delete it and inform UBS immediately. Clients of UBS AG Singapore branch are asked to please contact UBS AG Singapore branch, an exempt financial adviser under the Singapore Financial Advisers Act (Cap. 110) and a wholesale bank licensed under the Singapore Banking Act (Cap. 19) regulated by the Monetary Authority of Singapore, in respect of any matters arising from, or in connection with, the analysis or report. **Spain:** This publication is not intended to constitute a public offer under Spanish law. It is distributed only for information purposes to clients of UBS Europe SE, Sucursal en España, with place of business at Calle María de Molina 4, C.P. 28006, Madrid. UBS Europe SE, Sucursal en España is subject to the joint supervision of the European Central Bank ("ECB"), the German Central bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Spanish supervisory authority (Banco de España), to which this publication has not been submitted for approval. Additionally it is authorized to provide investment services on securities and financial instruments, regarding which it is supervised by the Comisión Nacional del Mercado de Valores as well. UBS Europe SE, Sucursal en España is a branch of UBS Europe SE, a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Sweden:** This publication is not intended to constitute a public offer under Swedish law. It is distributed only for information purposes to clients of UBS Europe SE, Sweden Bankfilial, with place of business at Regeringsgatan 38, 11153 Stockholm, Sweden, registered with the Swedish Companies Registration Office under Reg. No 516406-1011. UBS Europe SE, Sweden Bankfilial is subject to the joint supervision of the European Central Bank ("ECB"), the German Central bank (Deutsche Bundesbank), the German Federal Financial Services Supervisory Authority (Bundesanstalt für Finanzdienstleistungsaufsicht), as well as of the Swedish supervisory authority (Finansinspektionen), to which this publication has not been submitted for approval. UBS Europe SE is a credit institution constituted under German law in the form of a Societas Europaea, duly authorized by the ECB. **Taiwan:** This material is provided by UBS AG, Taipei Branch in accordance with laws of Taiwan, in agreement with or at the request of clients/prospects. **Turkey:** No information in this document is provided for the purpose of offering, marketing and sale by any means of any capital market instruments and services in the Republic of Turkey. Therefore, this document may not be

considered as an offer made or to be made to residents of the Republic of Turkey in the Republic of Turkey. UBS Switzerland AG is not licensed by the Turkish Capital Market Board (the CMB) under the provisions of the Capital Market Law (Law No. 6362). Accordingly neither this document nor any other offering material related to the instruments/services may be utilized in connection with providing any capital market services to persons within the Republic of Turkey without the prior approval of the CMB. However, according to article 15 (d) (ii) of the Decree No. 32 there is no restriction on the purchase or sale of the instruments by residents of the Republic of Turkey. **UAE:** UBS is not licensed in the UAE by the Central Bank of UAE or by the Securities & Commodities Authority. The UBS AG Dubai Branch is licensed in the DIFC by the Dubai Financial Services Authority as an authorised firm. **United Kingdom:** This document is issued by UBS Wealth Management, a division of UBS AG which is authorised and regulated by the Financial Market Supervisory Authority in Switzerland. In the United Kingdom, UBS AG is authorised by the Prudential Regulation Authority and is subject to regulation by the Financial Conduct Authority and limited regulation by the Prudential Regulation Authority. Details about the extent of regulation by the Prudential Regulation Authority are available from us on request. A member of the London Stock Exchange. This publication is distributed to retail clients of UBS Wealth Management. **Ukraine:** UBS is not registered and licensed as a bank/financial institution under Ukrainian legislation and does not provide banking and other financial services in Ukraine. UBS has not made and will not make any offer of the mentioned products to the public in Ukraine. No action has been taken to authorize an offer of the mentioned products to the public in Ukraine and the distribution of this document shall not constitute financial services for the purposes of the Law of Ukraine "On Financial Services and State Regulation of Financial Services Markets" dated 12 July 2001. Accordingly, nothing in this document or any other document, information or communication related to the mentioned products shall be interpreted as containing an offer or invitation to offer, or solicitation of securities in the territory of Ukraine. Electronic communication must not be considered as an offer to enter into an electronic agreement or electronic instrument within the meaning of the Law of Ukraine "On Electronic Commerce" dated 3 September 2015.

This document is strictly for private use by its holder and may not be passed on to third parties or otherwise publicly distributed.

© UBS 2020. The key symbol and UBS are among the registered and unregistered trademarks of UBS. All rights reserved.



有点报告社群

分享8万+行业报告/案例、7000+工具/模版；
精选各行业前沿数据、经典案例、职场干货等。



截屏本页，微信扫一扫或搜索公众号“有点报告”
回复<进群>即刻加入