

Powered by  
**UBS Evidence Lab**

# EM Equity Strategy

## Can a weaker US dollar help EM equities?

**Equity Strategy**  
Emerging Markets

### USD under pressure, but less so this time against EM FX

Since 20 March 2020, the USD has weakened by 8.9% against the DXY index (a basket of DM currencies – see Figure 3). During the past 20 years, there have been [nine other periods](#) when the USD had weakened against the DXY index by c9% or more (Figure 5), or by an average of -13%, with the decline against the MSCI EM currency index averaging 10% (Figure 4). Yet, in the current episode, the USD has fallen more modestly against the MSCI EM currency index, by only 2.9%, suggesting that this time it could be different.

### In past periods of USD weakness, EM equities increased by 36% on average

Historically, there has been a [strong negative correlation](#) (-62%) between EM equities and the US dollar, with the [EM index rising on average by 36%](#) during the nine periods of USD weakness (Figure 8) – in line with the current rally. EM equities also outperformed DM equities in eight of the nine episodes, although the current USD weakness has seen the reverse happening with DM equities up 43% versus 36% for EM equities (Figure 12).

### Factors that are different this time; UBSe EM FX gain of only 0.2% by end-2020

The underperformance of the MSCI EM currency index relative to the DXY index since March 2020 reflects [insufficient carry in several parts of EM FX](#), [slowing globalisation](#), and a lack of foreign participation so far. Looking ahead, we forecast a modest [EM FX gain against the USD of 0.2% by year-end 2020](#) and 1.2% by year-end 2021 (Figure 7). Factors that could [hold back a further rally](#) in EM FX this time include: (1) the best of the [China credit expansion is behind us](#) (Figure 28); (2) a resurgence in new pandemic cases/reversal of [mobility trends](#), outside the US (Figure 32); and (3) a larger and [longer lasting hit](#) to EM than DM in this Covid-19 shock, especially for EM ex China (Figure 29).

### Implied equity implications based on historical trends

[We remain cautious on the outlook for EM equities](#), given the strength of the EM index rally in the current FX episode (Figure 20) and elevated valuations (Figure 23). However, should [history](#) repeat itself, and the USD weakens further than we forecast, past episodes show that Cyclical (up 38% on average) meaningfully outperform Defensives (+28%, Figure 11). [By markets](#), winners have included Hungary (+57%), Indonesia (+54%), and Brazil (+53%) with relative underperformers being Middle-Eastern countries (+4-13%) and Taiwan (+23%, Figure 15), while [at the sector level](#), Materials (+48%) and Energy (+40%) have been consistent winners, with Health Care the key underperformer (+18%, Figure 18).

**Philip Finch**  
Strategist  
philip.finch@ubs.com  
+44-20-7568 3456

**Alexey Ostapchuk**  
Strategist  
alexey.ostapchuk@ubs.com  
+44-20-7567 0239

**Bhanu Baweja**  
Strategist  
bhanu.baweja@ubs.com  
+44-20-7568 6833

**Manik Narain**  
Strategist  
manik.narain@ubs.com  
+44-20-7568 3635

Figure 1: USD vs MSCI EM performance relative to S&P500



Source: Bloomberg, MSCI, Datastream, UBS

Figure 2: Implied historical equity allocation implications

	Falling USD
EM vs DM	EM > DM
EM Regions	LatAm, EMEA > Asia
EM Markets	Hungary, Indonesia, Peru, Brazil, Turkey, Poland > UAE, Pakistan, Saudi Arabia, Qatar, Malaysia, Taiwan
EM Sectors	Materials, Energy, Financials > Health Care, IT, Utilities
EM Styles	Momentum, Cyclical, Value > Quality, Growth, Defensives

Source: UBS

[www.ubs.com/investmentresearch](http://www.ubs.com/investmentresearch)

# EM Equity Strategy

UBS Research THESIS MAP MOST FAVOURED IF USD FALLS

LEAST FAVOURED IF USD FALLS

Hungary, Indonesia, Peru, Brazil, Turkey, Poland

UAE, Pakistan, Saudi Arabia, Qatar, Malaysia, Taiwan

## PIVOTAL QUESTIONS

### Q: Do EM equities correlate with the USD?

Yes. Over the past 20 years, there has been a [strong negative correlation](#) (-62%) between EM equities and the US dollar, indicating that EM equities tend to perform well in periods of US dollar weakness. [Since 20 March 2020](#), the USD has weakened by 8.9% against the DXY index (a basket of DM currencies), although it has fallen more modestly against the MSCI EM currency index, or by only 2.9%, with the correlation between the USD and EM equities down to -53% in the past five years, albeit it has risen back to -62% over the past 12 months (Figure 9).

### Q: How did EM equities perform in previous periods of USD weakness?

Over the past 20 years, there have been [nine other episodes](#) where the USD had weakened against the DXY index by c9% or more (Figure 4). During these nine periods, [on average, EM equities rose by 36%](#) in USD terms (Figure 8), or [26% in local currency terms](#) (in the current period of a weaker USD, EM equities have already risen by 36% in USD terms). In the past, there were [four reasons why a weaker USD was positive for EM equities](#): (1) risk appetite/liquidity effects, as capital left the US to seek other opportunities; (2) translation effects, as the fall in the USD increases the dollar value of given local currency returns; (3) a weak USD tends to boost EPS growth and ROEs due to improved liquidity and translation effects; and (4) a falling USD also supports corporate earnings in EM via higher commodity prices.

### Q: In a falling USD environment, who were the winners and losers (style, market, sector)?

[In past episodes](#), Cyclical (up 38% on average, in USD terms) have meaningfully outperformed Defensives (+28%), while Momentum (+39%) and Value (+37%) have performed marginally better than Quality (36%) and Growth (35%, Figure 11). [By markets](#), winners have included Hungary (+57%), Indonesia (+54%), and Brazil (+53%), with underperformers being Middle-Eastern countries (+4-13%) and Taiwan (+23%, Figure 15). [At the sector level](#), Materials (+48%) and Energy (+40%) have been consistent winners, while Health Care has been the key underperformer (+18%, Figure 18).

## WHAT'S PRICED IN?

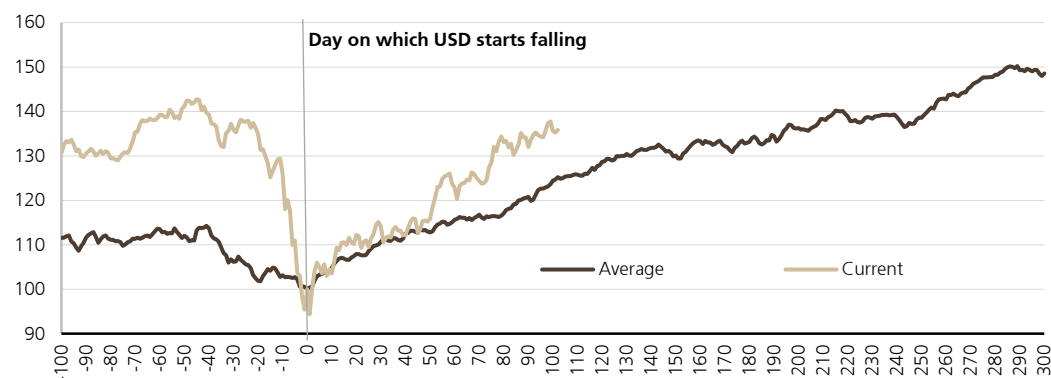
**Current valuations suggest the market is expecting a c34% upside to consensus 12-month forward EM EPS** to get back to the long-run average [12-month forward PE valuation](#). At 14.9x PE, EM equities are trading more than two standard deviations above their historical mean. On a [trailing P/BV](#), EM trades at 1.8x – in line with the long-term average, but the [ROE](#) of 10.1% is well below the historical average of 12.9%.

## UBS VIEW

[We remain cautious on the outlook for EM equities](#), given the strength of the EM index rally in the current FX episode (Figure 20) and elevated valuations (Figure 23). We continue to prefer North Asia over EMEA and LatAm, as well as sectors exposed to structural growth opportunities, such as [Internet](#) and [Tech](#), for which Covid-19 is proving to be a [positive catalyst](#).

## EVIDENCE

### MSCI EM index (USD) – rebased to 100



Source: MSCI, Datastream, UBS. Note: Average is the simple average for the previous nine periods of USD decline.

# Contents

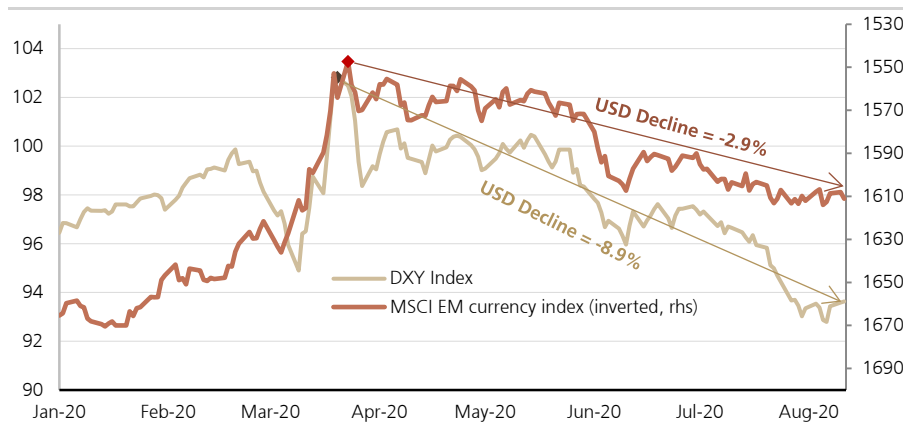
Periods of US dollar weakness .....	4
EM equities versus falling US dollar .....	6
Performance, earnings, valuations when USD falls.....	10
EM valuation summary .....	11
Investment strategy .....	12
Risks to current EM rally .....	13
Mobility trends .....	14
A snapshot: DM versus EM .....	15

---

We would like to thank **Sonam Jagga** and **Sagarika Asrani**, our research support service professionals, for their assistance in preparing this research report.

## Periods of US dollar weakness

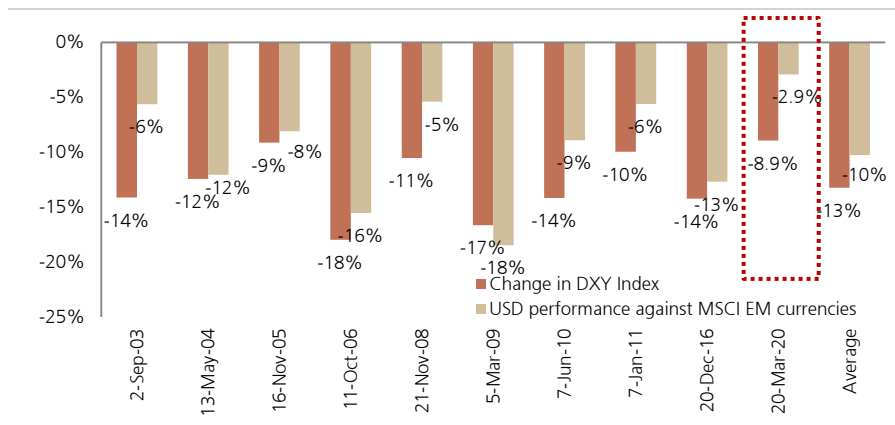
Figure 3: DXY and MSCI EM currency indexes YTD



Source: Bloomberg, UBS. Note: DXY index used for dollar performance

Since 20 March 2020, the USD has weakened by ~9% relative to the DXY index (a basket of DM currencies, such as the EUR, JPY, GBP, CAD, SEK, CHF). Over the same period, the USD fell by 2.9% against the MSCI EM currency index. In July 2020 alone, the USD declined by 4.2% against the DXY index – the most in one month since 2010.

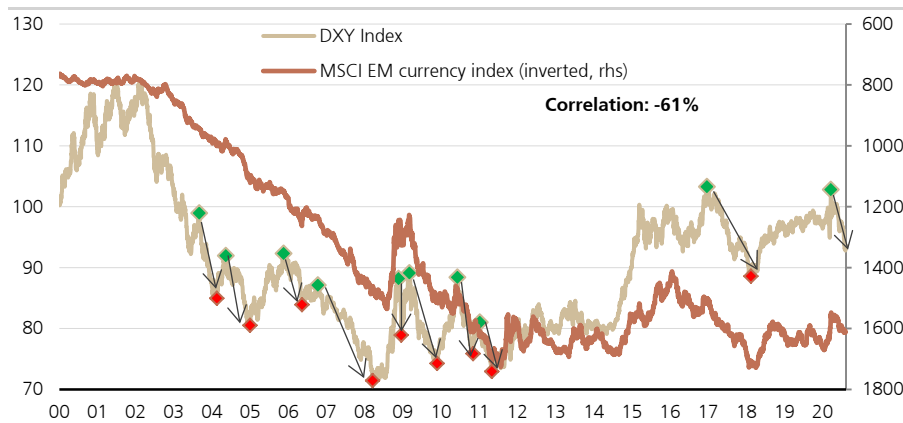
Figure 4: Dollar performance against DM and EM currencies



Source: Bloomberg, UBS. Note: DXY index used to measure USD performance against DM currencies; MSCI EM currency index used to measure USD performance against EM currencies. X axis dates show the date at which the USD started to decline for the respective periods.

In the past 20 years, there have been nine episodes where the USD has weakened by c9% or more against the DXY index, with the average fall being 13%. Over the same period, the USD declined on average by 10% versus the MSCI EM currency index.

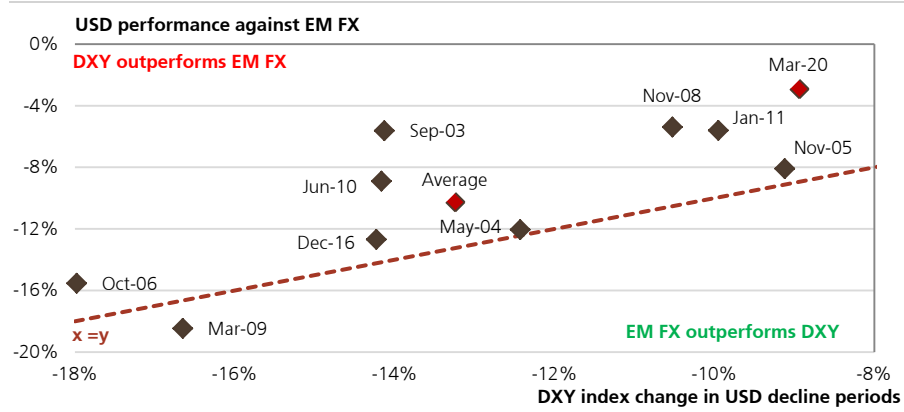
Figure 5: Dollar performance since 2000; 9 episodes of USD/DXY weakness



Source: Bloomberg, UBS. Note: DXY index used for dollar performance.

In the past 20 years, there has been a strong negative correlation (-61%) between the DXY and MSCI EM currency indexes: when the DXY goes up (i.e. USD strengthens versus DM FX), EM FX weakens (i.e. USD strengthens versus EM). Since January 2015 and over the past 12 months, the correlation has weakened to -46% and -41% respectively.

Figure 6: Changes in DXY index vs changes in MSCI EM FX



Source: Bloomberg, MSCI, UBS

Based on the past nine periods, when DXY depreciates by 10%, EM FX appreciates by ~6.6% versus 2.9% this time (since 20 March 2020).

An aggregation of UBS FX forecasts by markets (Figure 7) implies EM FX appreciation of only 0.2% by the end of 2020 and of 1.2% by the end of 2021, underpinning our view of limited upside to EM FX versus USD. By region, LatAm is expected to show the strongest FX appreciation followed by EMEA with Asia lagging.

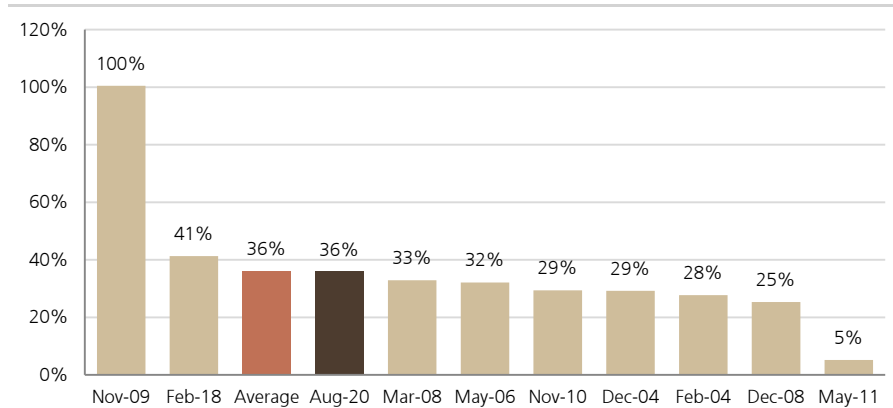
Figure 7: EM currencies expected appreciation

Market	Weight, %	Currency	Exchange rates			Expected appreciation			
			Current	Dec-20	Dec-21	2020	Next 12 months	2021	
Argentina	0.1%	ARS	73.0	90.0	113.0	-19%	-29%	-35%	
Brazil	5.1%	BRL	5.4	5.0	4.6	10%	15%	18%	
Chile	0.6%	CLP	792	800	770	-1.0%	1.3%	2.8%	
China	41%	CNY	6.9	7.0	7.0	-0.8%	-0.8%	-0.8%	
Colombia	0.2%	COP	3,752	3,850	3,950	-2.6%	-4.1%	-5.0%	
Czech Republic	0.1%	CZK	22.2	21.7	20.3	2.2%	6.3%	9.0%	
Egypt	0.1%	EGP	16.0	16.5	16.5	-3.3%	-3.3%	-3.3%	
Greece	0.1%	EUR	0.85	0.83	0.81	1.8%	3.3%	4.3%	
Hungary	0.2%	HUF	293	292	289	0.4%	1.0%	1.4%	
India	8.2%	INR	74.8	75.0	77.0	-0.2%	-1.8%	-2.8%	
Indonesia	1.4%	IDR	14,760	15,000	15,000	-1.6%	-1.6%	-1.6%	
Korea	12%	KRW	1,185	1,180	1,150	0.4%	2.0%	3.1%	
Malaysia	1.7%	MYR	4.2	4.3	4.2	-1.3%	-0.6%	-0.2%	
Mexico	1.7%	MXN	22.4	23.5	22.0	-4.8%	-0.8%	1.7%	
Pakistan	0.0%	PKR	168	168	168	0.0%	0.0%	0.0%	
Peru	0.2%	PEN	3.6	3.5	3.4	2.6%	3.9%	4.7%	
Philippines	0.8%	PHP	48.9	50.0	50.0	-2.1%	-2.1%	-2.1%	
Poland	0.7%	PLN	3.7	3.8	3.6	-0.4%	2.6%	4.4%	
Qatar	0.8%	QAR	3.7	3.7	3.7	0.0%	0.0%	0.0%	
Russia	3.1%	RUB	73.7	70.0	66.0	5.2%	9.1%	12%	
Saudi Arabia	2.5%	SAR	3.8	3.8	3.8	0.0%	0.0%	0.0%	
South Africa	3.5%	ZAR	17.4	17.3	18.0	0.5%	-1.9%	-3.4%	
Taiwan	13%	TWD	29.5	29.5	29.0	-0.1%	0.9%	1.6%	
Thailand	2.0%	THB	31.1	31.5	31.0	-1.3%	-0.3%	0.3%	
Turkey	0.4%	TRY	7.3	7.3	8.0	0.9%	-5.0%	-8.6%	
UAE	0.5%	AED	3.7	3.7	3.7	0.0%	0.0%	0.0%	
<b>MSCI-weighted average</b>									
<b>EM</b>							<b>0.2%</b>		<b>1.2%</b>
<b>EM Asia</b> 80%							-0.5%		0.0%
<b>EM EMEA</b> 12%							1.5%		2.2%
<b>EM LatAm</b> 8%							5.1%		12%

Source: MSCI, Datastream, Bloomberg, UBS. Note: UBS forecasts used for December 2020 and December 2021, unless specified otherwise. Bloomberg consensus forecasts used for Egyptian Pound. Fixed exchange rates for Qatari Riyal, Saudi Riyal and UAE Dirham. No forecasts available for Pakistani Rupee.

## EM equities versus falling US dollar

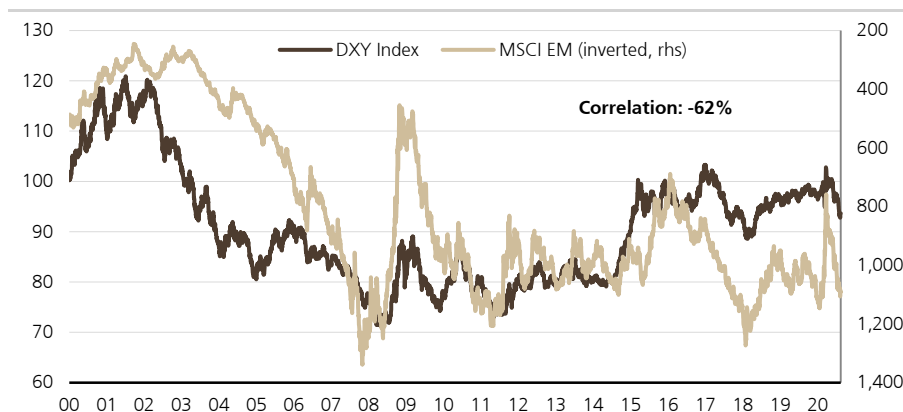
Figure 8: MSCI EM price return in periods of falling dollar



Source: MSCI, Datastream, UBS. Note: The dates on the x axis show the bottom for the USD decline in the period. For the current period, the latest data is as of 11 August 2020. The average price return does not include the current period.

During the nine previous episodes of USD weakness, EM equities rose by 36% on average, in line with the current episode of USD weakness, with the strongest (USD) performance in November 2009 (at 100%) and the smallest in May 2011 (at 5%). Excluding the outlying periods (i.e. November 2009 and May 2011), the average EM performance was 31%. In local currency terms, the average EM performance during the nine episodes was 26% or 23% excluding the two outlying periods.

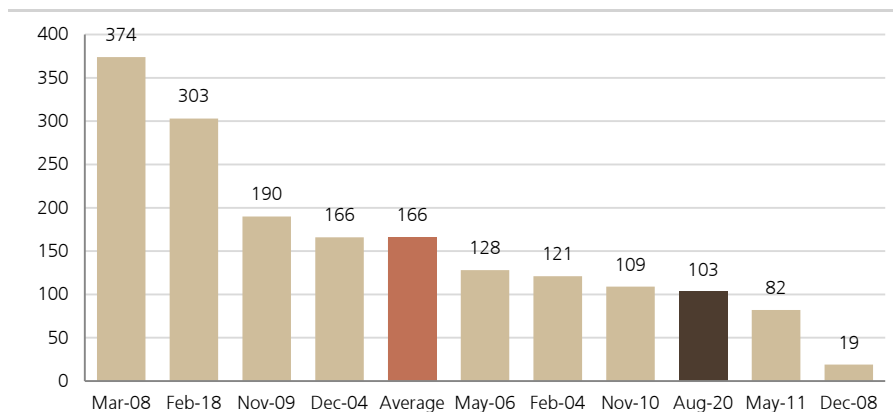
Figure 9: MSCI EM USD index and dollar



Source: Bloomberg, MSCI, Datastream, UBS

Over the past 20 years, there has been a strong negative correlation between EM equities and the US dollar (-62% correlation), indicating that EM equities tend to perform well in periods of US dollar weakness. In the past five years, this correlation has weakened to -53%, although it has risen to -62% over the past 12 months.

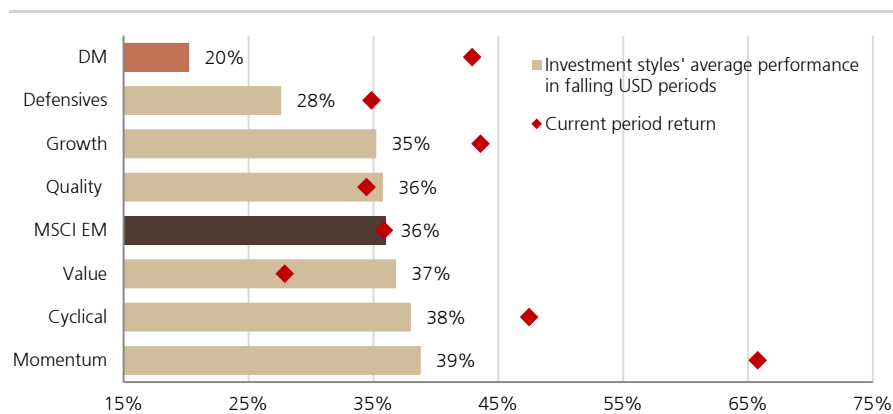
Figure 10: # of trading days of dollar decline



Source: MSCI, Datastream, UBS. Note: The dates on the x axis show the bottom for the USD decline in the period. For the current period, the latest data is as of 11 August 2020. The average price return does not include the current period.

The current period of USD weakness started on 20 March 2020 and, so far, has lasted 103 trading days. Over the previous nine episodes, USD weakness on average lasted 166 days, implying that the current episode could extend further.

**Figure 11: Investment styles' average performance in falling USD periods**



Source: MSCI, Datastream, UBS. Note: Returns are price returns. The average returns are for the previous nine periods of the USD fall.

During previous episodes of USD weakness, EM equities (up 36% on average) outperformed DM equities (up 20%), although the reverse has happened in the current episode with DM equities currently up 43%. Cyclical has meaningfully outperformed Defensives, while Momentum and Value have performed marginally better than Quality and Growth. In the current episode, Momentum has outperformed strongly, suggesting less scope for upside, while Value has lagged.

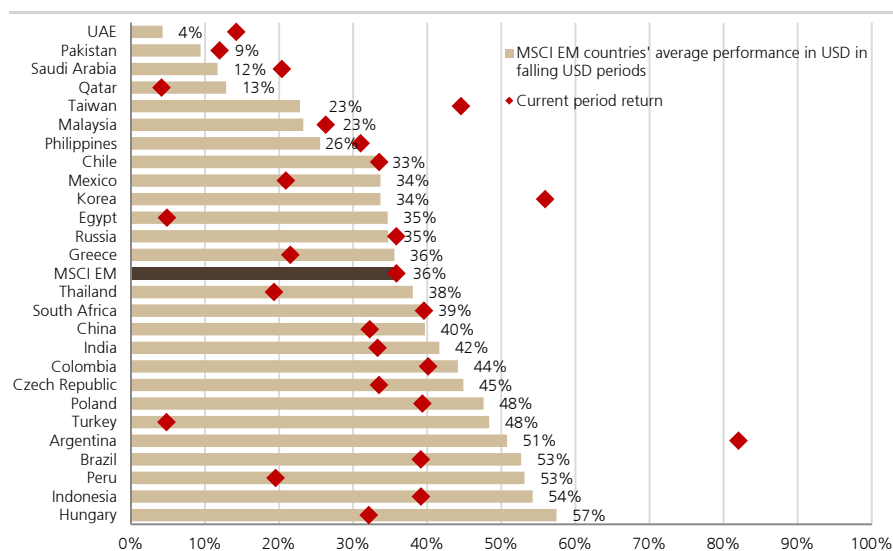
**Figure 12: Investment styles' performance in past falling USD periods**

Dates	DXY	MSCI EM	Value	Growth	Quality	Momentum	DM	Cyclical	Defensives
17-Feb-04	-14.1%	28%	31%	25%	23%	33%	18%	28%	26%
30-Dec-04	-12.4%	29%	33%	26%	31%	34%	16%	25%	31%
12-May-06	-9.1%	32%	34%	31%	34%	38%	14%	36%	22%
17-Mar-08	-18.0%	33%	39%	28%	43%	43%	0%	35%	40%
17-Dec-08	-10.5%	25%	26%	24%	26%	20%	17%	28%	18%
25-Nov-09	-16.7%	100%	106%	96%	94%	78%	67%	108%	61%
4-Nov-10	-14.2%	29%	28%	31%	29%	36%	21%	29%	24%
2-May-11	-10.0%	5%	5%	5%	6%	13%	9%	7%	4%
15-Feb-18	-14.2%	41%	31%	52%	35%	54%	21%	47%	22%
11-Aug-20	-8.9%	36%	28%	44%	34%	66%	43%	47%	35%
<b>Average</b>	<b>-13%</b>	<b>36%</b>	<b>37%</b>	<b>35%</b>	<b>36%</b>	<b>39%</b>	<b>20%</b>	<b>38%</b>	<b>28%</b>

Source: MSCI, Datastream, UBS. Cyclical include Materials, Industrials, Energy, IT and Consumer Discretionary, Defensives include Communication Services, Consumer Staples, Utilities and Health Care. The dates show the bottom for the USD decline in the period. For the current period, the latest data is as of 11 August 2020.

Across investment styles, Momentum has been the clear winner, outperforming in seven of the nine previous episodes, and continuing to do so in the current episode. In contrast, Defensives have underperformed in six of the nine periods, including the last five episodes. DM has also underperformed EM in eight of the nine periods of USD weakness.

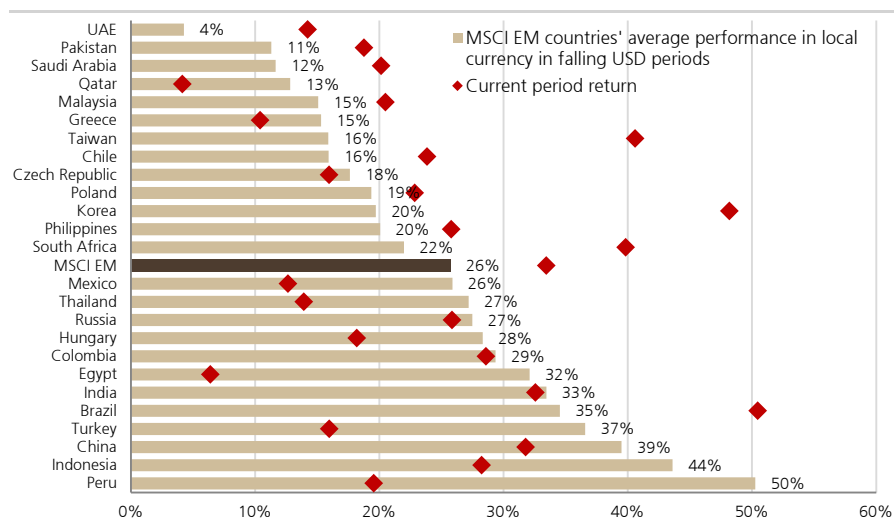
**Figure 13: MSCI EM markets' average performance in USD in falling USD periods**



Source: MSCI, Datastream, UBS

By markets, the winners across the nine previous episodes have included Hungary (up on average 57% in USD terms; typically considered a beta play on a strong Europe/euro), Indonesia (+54%), Peru (+53%) and Brazil (+53%) with relative underperformers being Middle-Eastern countries, such as UAE, Saudi Arabia and Qatar (+4-13%), as well as Taiwan (+23%) and Malaysia (+23%). China (+40%) performed slightly above the EM average.

**Figure 14: MSCI EM markets' average performance in local currency in falling USD periods**



Source: MSCI, Datastream, UBS

In local currency terms, China's average equity performance of 39% ranks it third highest in EM by market with Hungary (+28%) moving down to the middle of the pack.

**Figure 15: MSCI EM markets' average performance in USD in falling USD periods**

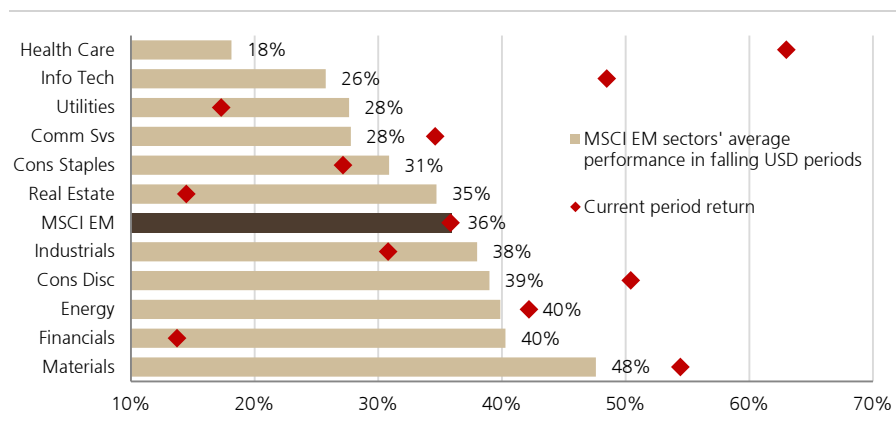
	Feb-04	Dec-04	May-06	Mar-08	Dec-08	Nov-09	Nov-10	May-11	Feb-18	Aug-20	Average
DXY	-14%	-12%	-9%	-18%	-11%	-17%	-14%	-10%	-14%	-9%	-13%
MSCI EM	28%	29%	32%	33%	25%	100%	29%	5%	41%	36%	36%
Asia	25%	18%	32%	25%	23%	95%	28%	5%	44%	37%	33%
EMEA	28%	40%	34%	26%	24%	99%	31%	11%	32%	28%	36%
LatAm	35%	50%	30%	66%	33%	117%	32%	0%	39%	34%	45%
Argentina	50%	45%	45%	30%	33%	110%	83%	-16%	77%	82%	51%
Brazil	38%	68%	36%	93%	36%	124%	30%	1%	48%	39%	53%
Chile	35%	40%	7%	50%	7%	63%	45%	7%	46%	34%	33%
China	41%	22%	40%	52%	29%	83%	25%	2%	63%	32%	40%
Colombia	60%	85%	26%	19%	27%	108%	49%	3%	21%	40%	44%
Czech Republic	29%	67%	28%	73%	33%	84%	22%	26%	42%	33%	45%
Egypt	58%	75%	12%	83%	18%	79%	6%	-30%	11%	5%	35%
Greece	41%	33%	30%	14%	10%	105%	29%	15%	44%	22%	36%
Hungary	26%	69%	22%	17%	38%	227%	40%	33%	46%	32%	57%
India	40%	26%	46%	36%	15%	147%	31%	-2%	37%	33%	42%
Indonesia	50%	37%	75%	55%	42%	156%	30%	15%	29%	39%	54%
Korea	23%	21%	27%	7%	31%	114%	29%	13%	39%	56%	34%
Malaysia	15%	12%	17%	44%	2%	62%	29%	1%	28%	26%	23%
Mexico	30%	35%	25%	24%	32%	112%	25%	0%	20%	21%	34%
Pakistan	-2%	2%	28%	29%	-16%	59%	5%	0%	-21%	12%	9%
Peru	41%	23%	33%	127%	47%	124%	53%	-16%	46%	20%	53%
Philippines	18%	19%	29%	27%	17%	55%	41%	2%	22%	31%	26%
Poland	9%	67%	42%	22%	21%	134%	51%	23%	59%	39%	48%
Qatar	-	-	-36%	46%	15%	65%	16%	-2%	-13%	4%	13%
Russia	23%	-1%	64%	21%	26%	130%	20%	17%	12%	36%	35%
Saudi Arabia	-	-	-	-	-	-	-	-	12%	20%	12%
South Africa	29%	53%	36%	24%	29%	96%	34%	6%	47%	40%	39%
Taiwan	14%	6%	27%	15%	16%	74%	26%	5%	23%	45%	23%
Thailand	52%	21%	27%	41%	18%	82%	48%	9%	44%	19%	38%
Turkey	76%	75%	14%	21%	37%	122%	52%	2%	37%	5%	48%
UAE	-	-	-52%	-4%	-6%	77%	18%	-2%	0%	14%	4%

Source: MSCI, Datastream, UBS

Region wise, LatAm (+45%) and EMEA (+36%) have outperformed Asia (+33%). By market, Brazilian equities outperformed the EM equity index in eight of the nine previous periods of USD weakness, with an average performance of 51% in USD terms. Indonesian equities also outperformed EM in eight of the nine previous occasions, having failed to do so during the last episode in February 2018. In contrast, the UAE market underperformed EM on all seven occasions since its inception.



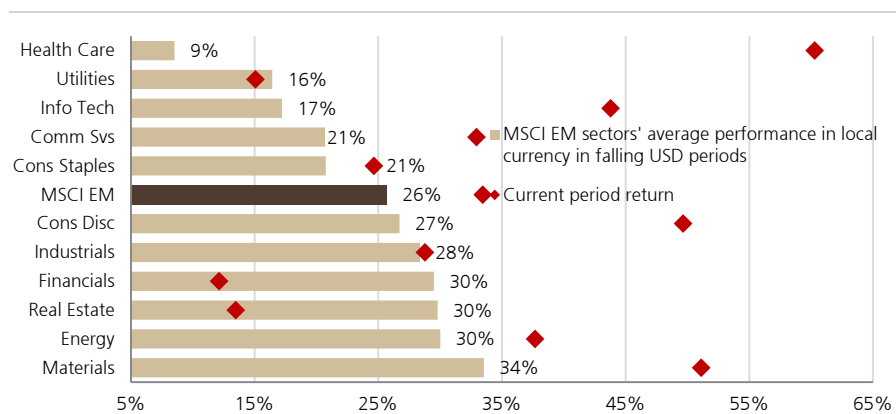
**Figure 16: MSCI EM sectors' average performance in falling USD periods**



Source: MSCI, Datastream, UBS

Sector wise, Materials (up on average 48% in USD terms), and, to a lesser extent, Energy (+40%) have been consistent winners, benefitting from higher prices as commodity prices are quoted in USD, while Health Care has been the key underperformer (+18%). In the current episode, we see downside risk in the Health Care sector (+18% versus the +64% rally in the current episode), and most potential upside for Financials (40%) with further USD weakness.

**Figure 17: MSCI EM sectors' average performance in LC in falling USD periods**



Source: MSCI, Datastream, UBS.

We see similar trends in local currency terms: Materials, on average, increased 34% with Energy up 30% in the nine previous episodes. In contrast, Health Care only posted an average performance of 9% versus 61% in the current period of USD weakness.

**Figure 18: MSCI EM sectors' average performance in falling USD periods**

Dates	DX	MSCI EM	Cons Disc	Cons Staples	Energy	Financials	Health Care	Industrials	Info Tech	Materials	Comm Svs	Utilities	Real Estate
17-Feb-04	-14.1%	28%	27%	21%	36%	28%	15%	32%	19%	33%	32%	23%	29%
30-Dec-04	-12.4%	29%	35%	31%	25%	42%	3%	37%	3%	40%	37%	36%	26%
12-May-06	-9.1%	32%	23%	29%	53%	34%	10%	36%	23%	42%	19%	30%	56%
17-Mar-08	-18.0%	33%	10%	30%	46%	21%	15%	46%	-6%	78%	53%	36%	34%
17-Dec-08	-10.5%	25%	20%	15%	35%	28%	7%	26%	17%	36%	21%	18%	29%
25-Nov-09	-16.7%	100%	143%	92%	102%	129%	40%	93%	93%	123%	50%	66%	73%
4-Nov-10	-14.2%	29%	42%	32%	22%	35%	31%	44%	16%	35%	20%	19%	25%
2-May-11	-10.0%	5%	9%	4%	12%	3%	0%	2%	4%	5%	4%	4%	-6%
15-Feb-18	-14.2%	41%	42%	24%	28%	42%	42%	26%	63%	37%	13%	17%	47%
11-Aug-20	-8.9%	36%	50%	27%	42%	14%	63%	31%	48%	54%	35%	17%	14%
<b>Average</b>	<b>-13%</b>	<b>36%</b>	<b>39%</b>	<b>31%</b>	<b>40%</b>	<b>40%</b>	<b>18%</b>	<b>38%</b>	<b>26%</b>	<b>48%</b>	<b>28%</b>	<b>28%</b>	<b>35%</b>

Source: MSCI, Datastream, UBS. Note: Conditional formatting is by rows.

In seven of the nine previous periods of USD weakness, Materials outperformed the EM equity index with Energy and Financials doing so on six occasions, although it is interesting to note that both Materials and Energy underperformed EM during the last episode in February 2018. In contrast, IT, having underperformed in the first eight episodes, meaningfully outperformed EM in February 2018 and is continuing to do so in the current episode.

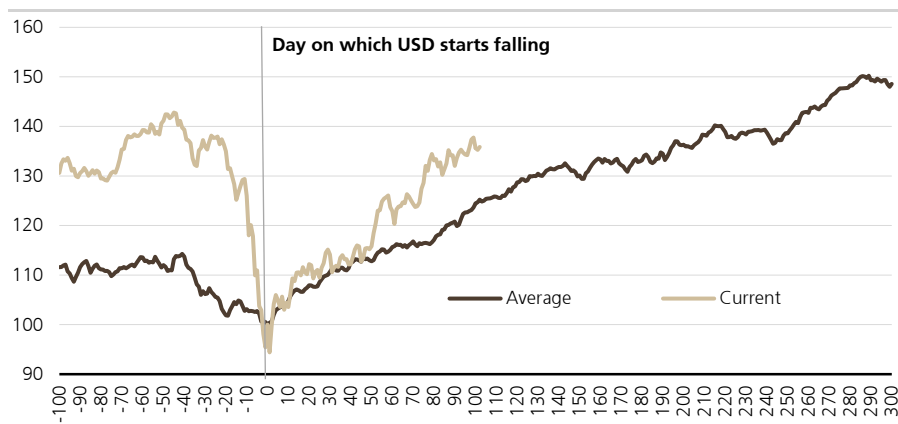
**Figure 19: MSCI EM sectors' beta in falling USD periods**

High	Low	# of weeks	MSCI EM	Cons Disc	Cons Staples	Energy	Financials	Health Care	Industrials	Info Tech	Materials	Comm Svs	Utilities	Real Estate
2-Sep-03	17-Feb-04	24	-0.6	-0.4	-0.6	-0.9	-0.7	0.2	-0.4	-0.2	-0.6	-1.2	-0.9	-0.7
13-May-04	30-Dec-04	34	-0.8	-0.7	-0.6	-0.7	-0.9	-0.5	-0.6	-0.7	-1.0	-0.8	-0.5	-0.3
16-Nov-05	12-May-06	26	-0.9	-0.5	-0.6	-1.3	-1.0	-0.7	-0.6	-0.7	-1.0	-1.1	-0.7	-0.6
11-Oct-06	17-Mar-08	75	-0.8	-0.5	-0.4	-1.2	-0.5	-0.4	-0.5	-0.8	-1.2	-0.6	-0.6	-1.0
21-Nov-08	17-Dec-08	5	-3.9	-3.5	-2.7	-5.3	-3.5	-0.4	-4.1	-4.2	-5.5	-2.7	-2.8	-2.3
5-Mar-09	25-Nov-09	39	-1.2	-1.0	-0.8	-2.0	-1.2	-0.6	-1.3	-0.4	-1.7	-0.9	-1.0	-1.3
7-Jun-10	4-Nov-10	23	-0.9	-1.0	-0.7	-0.9	-1.0	-1.0	-0.8	-0.7	-1.0	-0.7	-1.0	-0.7
7-Jan-11	2-May-11	18	-0.7	-0.3	-0.3	-1.2	-0.5	-0.4	-0.5	-0.8	-1.0	-0.3	-0.3	0.2
20-Dec-16	15-Feb-18	61	-1.0	-1.1	-0.7	-0.8	-1.1	-1.2	-0.7	-1.0	-1.0	-0.9	-0.6	-1.4
20-Mar-20	11-Aug-20	21	-1.8	-1.8	-1.3	-1.2	-2.2	-1.3	-2.2	-2.0	-2.3	-0.9	-1.7	-2.1

Source: MSCI, Datastream, Bloomberg, UBS. Note: Conditional formatting is by rows.

## Performance, earnings, valuations when USD falls

**Figure 20: MSCI EM price index (USD) – rebased to 100**

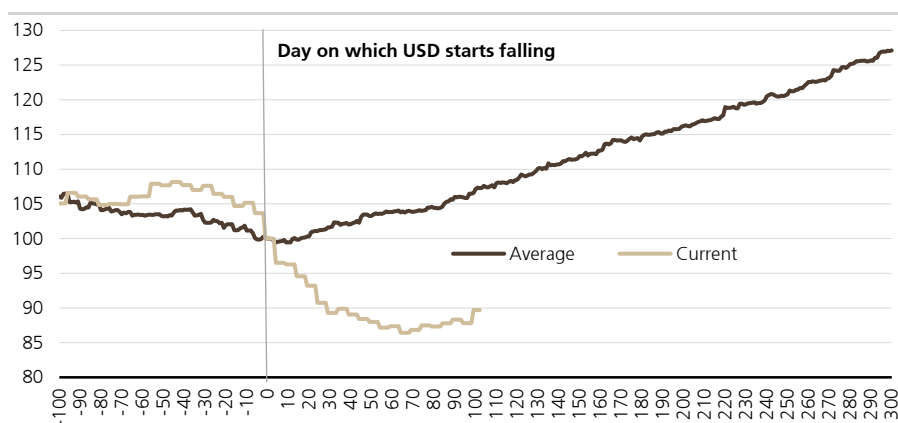


Source: MSCI, Datastream, UBS. Note: The average is the simple average for the previous nine periods of the USD decline.

The current episode of USD weakness has one of the highest beta between the MSCI EM index and the USD. By sector, the highest beta is for Materials and Financials with the lowest in Communication Services, largely in line with historical trends.

The current EM equity rally has been much stronger than previous rallies in periods of USD weakness. Although we forecast limited EM FX gains for the rest of the year (see Figure 7), past episodes indicate upside of another c10% by the end of the year, should the USD weaken further.

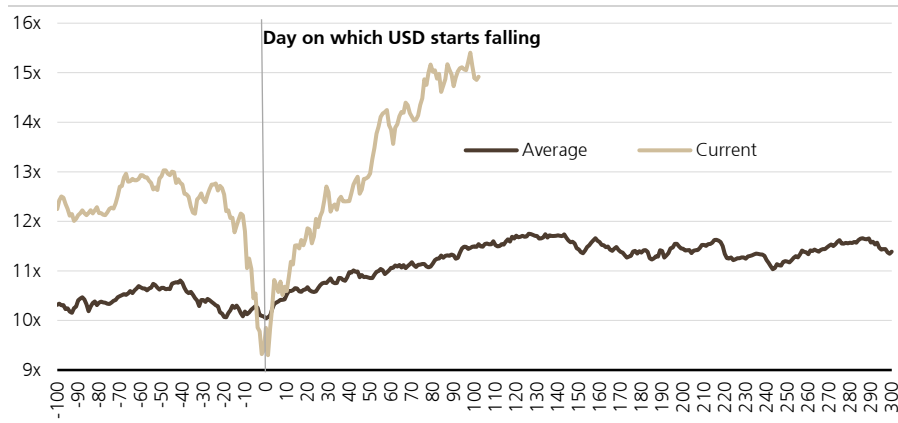
**Figure 21: MSCI EM (USD) 12-month forward EPS – rebased to 100**



Source: MSCI, Datastream, UBS. Note: The average is the simple average for the previous nine periods of the USD decline.

In previous periods of USD weakness, EM EPS was not really impacted. The growth rate was largely unchanged. In the current episode, EM EPS has fallen sharply, largely due to Covid-19-driven economic shocks, albeit it has recently started to stabilise.

**Figure 22: MSCI EM (USD) 12-month forward PE**

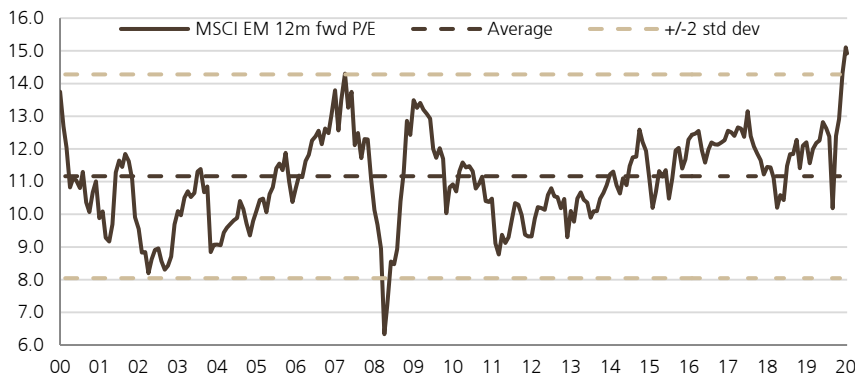


Source: MSCI, Datastream, UBS. Note: The average is the simple average for the previous nine periods of the USD decline.

In past episodes, EM PE multiples expanded modestly, from 10x to 11.7x on average, whereas in this episode, they have broken out to the current peak level.

## EM valuation summary

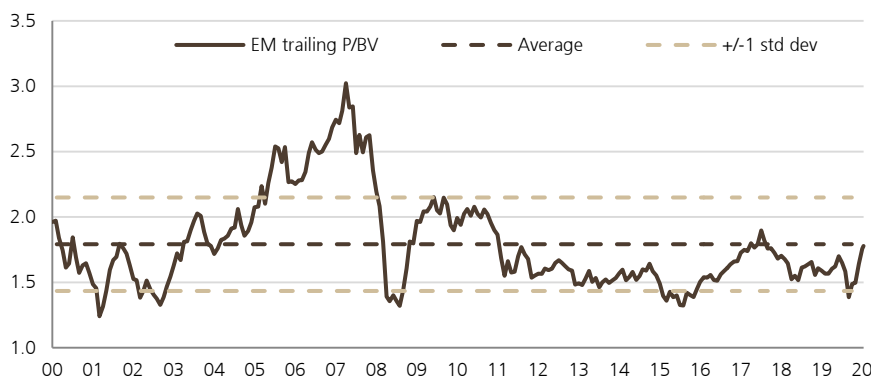
**Figure 23: MSCI EM 12-month forward PE**



Source: IBES, MSCI, Datastream, UBS

EM equities are currently trading at peak PE multiples. At 14.9x PE, EM is now more than two standard deviations above its historical mean.

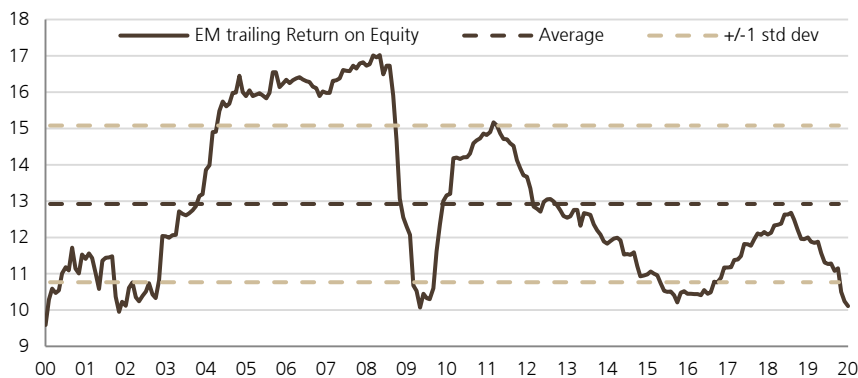
**Figure 24: MSCI EM trailing P/BV**



Source: MSCI, Datastream, UBS

In terms of trailing P/BV, EM equities are trading in line with their long-term average of 1.8x, but ROE of 10.1% is well below the historical average of 12.9%.

Figure 25: MSCI EM trailing return on equity (%)



Source: MSCI, Datastream, UBS. Latest data as of 31 July 2020.

The current trailing ROE of 10.1% in EM is in line with the trough level during the GFC in November 2009. Previously, it was this low in July 2002 when EM was trading on 1.5x trailing P/BV.

## Investment strategy

Figure 26: Implied historical equity allocation implications

	Falling USD
EM vs DM	EM > DM
EM Regions	LatAm, EMEA > Asia
EM Markets	Hungary, Indonesia, Peru, Brazil, Turkey, Poland > UAE, Pakistan, Saudi Arabia, Qatar, Malaysia, Taiwan
EM Sectors	Materials, Energy, Financials > Health Care, IT, Utilities
EM Styles	Momentum, Cyclical, Value > Quality, Growth, Defensives

Source: UBS

Should history repeat itself, EM equities should outperform DM equities with LatAm and EMEA beating Asia. Markets that have beaten the EM benchmark include Hungary, Indonesia, Peru and Brazil with sector winners being Material and Energy, while Momentum, Cyclical and Value have been the best-performing investment styles.

Figure 27: UBS EM sector and market ratings

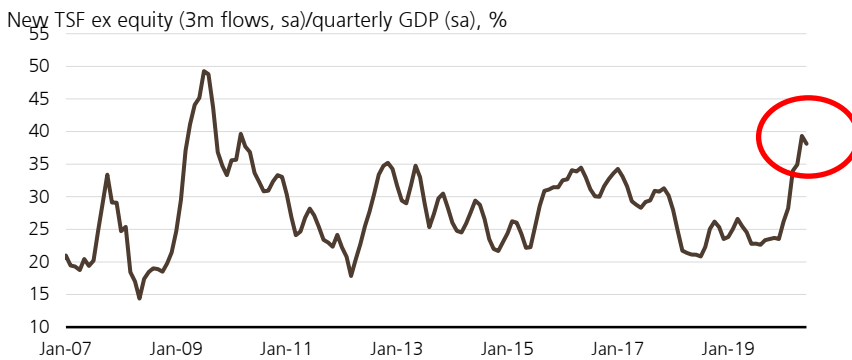
	Overweight	Neutral	Underweight
<b>Sectors</b>	Financials Comm Svs Cons Staples Info Tech	Utilities Energy Cons Disc	Materials Industrials Real Estate Health Care
<b>Markets</b>	Korea Poland Peru Hungary Mexico	China India Brazil Russia Malaysia Indonesia Turkey Colombia Greece Czech Republic	Taiwan South Africa Thailand Philippines Chile

Source: UBS

We remain cautious on the outlook for EM equities given the strength of the EM index rally in the current FX episode and elevated valuations. We continue to prefer North Asia over EMEA and LatAm, as well as sectors exposed to structural growth opportunities, such as Internet and Tech, for which Covid-19 is proving to be a positive catalyst.

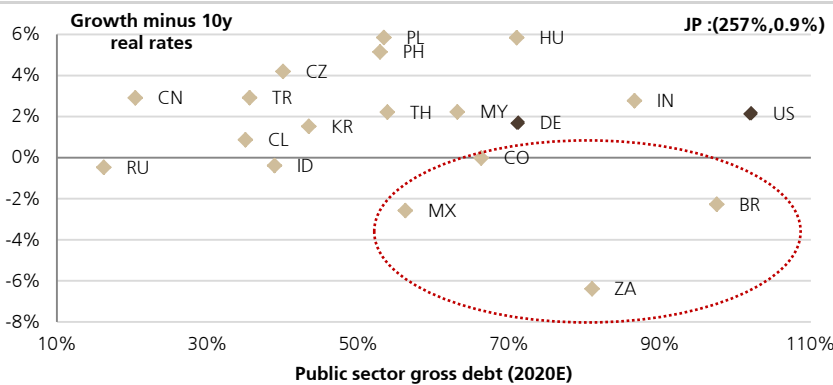
## Risks to current EM rally

**Figure 28: Sequential measures of Chinese credit growth may now be peaking after a robust upswing**



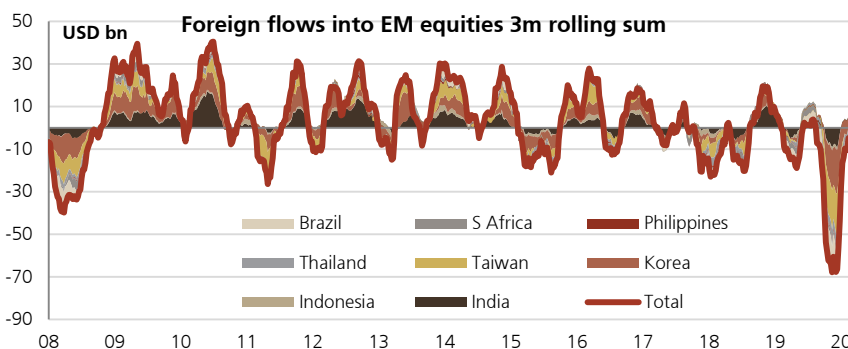
Source: MSCI, Datastream, UBS

**Figure 29: Public debt % of GDP 2020E vs spread over real GDP growth over 10y real rate**



Source: IMF, Haver, Bloomberg, UBS. Note: Nominal rates are deflated by 24m exponential core inflation to obtain real yields. Data for Korea and China shows central government debt.

**Figure 30: Foreign flows into EM equities**



Source: Macrobond, UBS estimates.

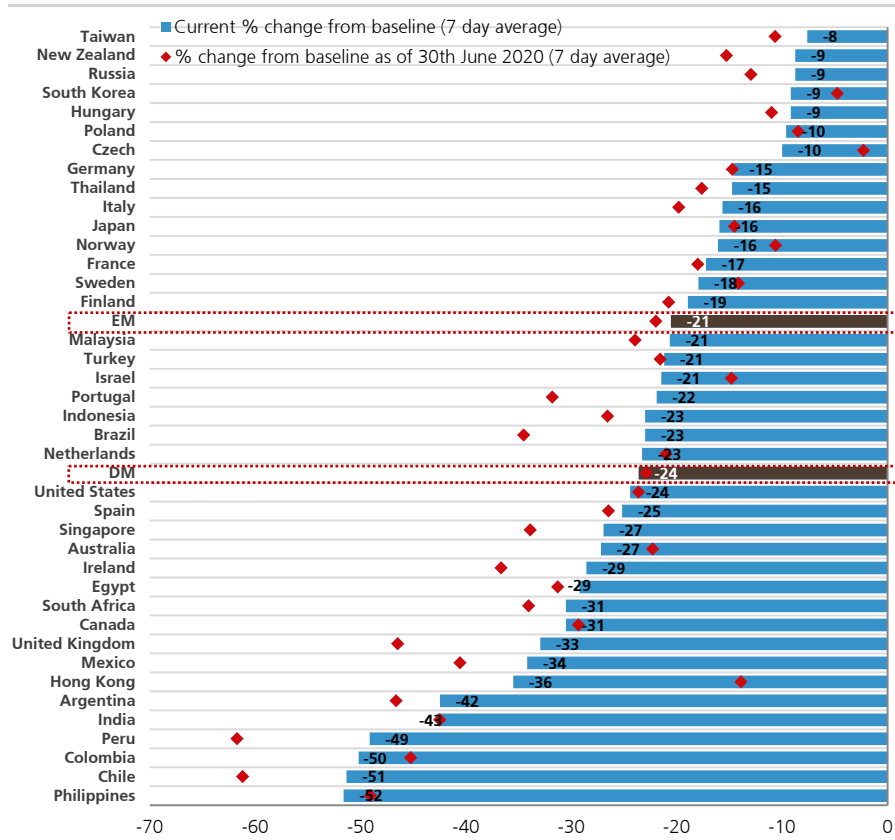
With China's equity and property markets recovering, and interbank rates rising, our economists expect credit growth to now sequentially slow. In fact, faster moving measures of credit flow may have already peaked in May. If this is correct, historical precedent would suggest that EM FX appreciation, credit spread compression, and equity outperformance versus DM will begin to level off by September (see [EM Navigator: What China's slowing credit growth means for EM](#)).

While public debt stocks are higher still in DM, DM has significantly stronger capacity to finance that higher debt: real interest rates in general are well below trend growth rates for those economies. For many parts of EM, the opposite is true. Thus, debt sustainability can unravel faster. Higher public debt, particularly amid structurally weaker global trade, implies lower savings to fund future (trend) growth.

Assuming no new major waves of Covid-19, foreign investor positioning in equity markets should be a less negative technical factor for markets. While the 37% drop in MSCI EM up to 23 March was accompanied by US\$55bn of foreign outflows, foreign participation in the subsequent 43% recovery has been absent, with a further net US\$5.7bn of outflows. Recently, foreign flows into Taiwan and India have recovered more clearly than in Korea, Thailand and Brazil.

# Mobility trends

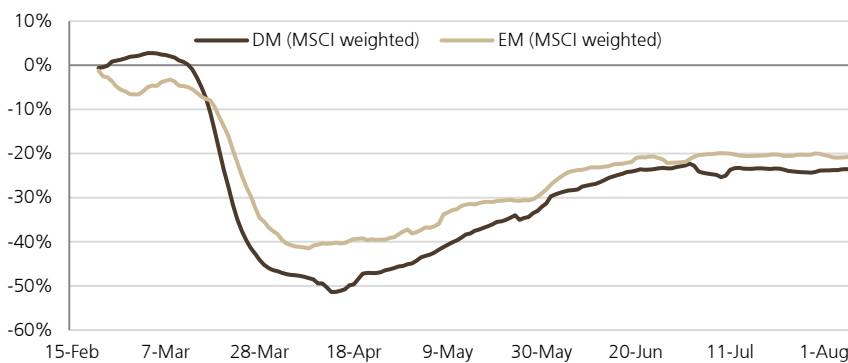
Figure 31: Mobility trends in major EM and DM markets



Source: UBS Evidence Lab, UBS. >Access Dataset. Note: (1) Average mobility is the simple average of the percentage change from the baseline in the mobility of retail and recreation, transit stations and workplaces. (2) DM and EM averages are MSCI World and MSCI EM ex-China market cap weighted averages, respectively. (3) Latest data as of 7 August 2020.

EM's MSCI weighted seven-day moving average mobility is currently 21% below pre-Covid-19 normal, worsened by 1.4pp since June-end. While for DMs it is 24% below baseline, 0.7pp down in the same period.

Figure 32: EM vs DM 7-day moving average mobility deviations from normal

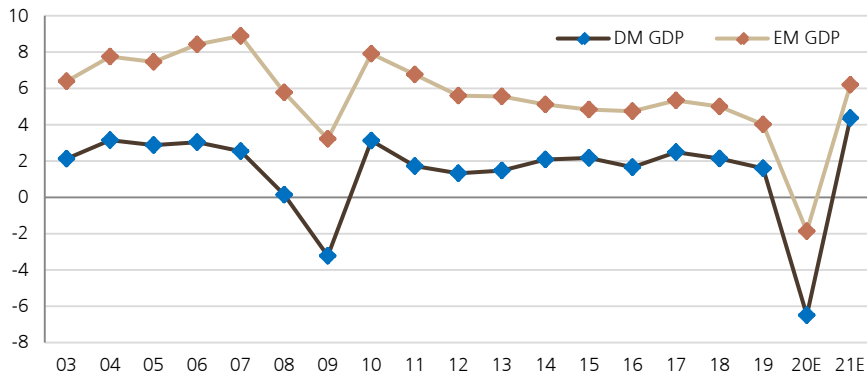


Source: UBS Evidence Lab, UBS. >Access Dataset. Note: (1) average mobility is the simple average of the percentage change from the baseline in the mobility of retail and recreation, transit stations and workplaces. (2) DM and EM averages are MSCI World and MSCI EM ex-China market cap weighted averages, respectively. (3) Latest data as of 7 August 2020.

Average mobility has recovered in both DM and EM from trough levels in mid-April 2020. Currently, seven-day moving average mobility in EM stands at c21% below pre-Covid-19 levels while in DM, this is at -24%.

## A snapshot: DM versus EM

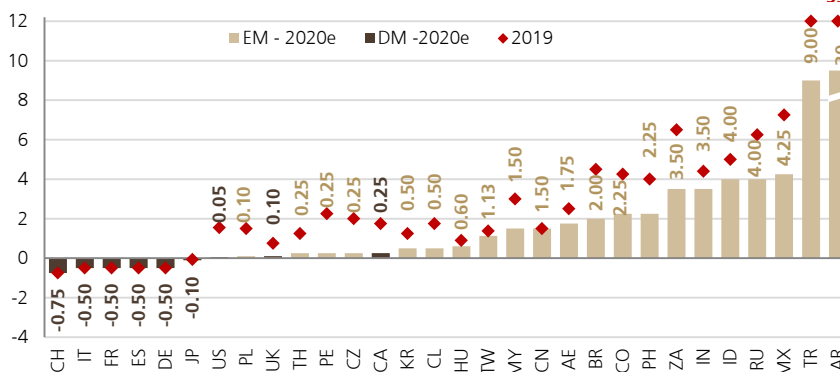
Figure 33: EM vs DM real GDP YoY growth (%)



Source: UBS estimates

Our economics team estimates a sharp rebound in economic activity in 2021 with GDP growth estimated at 4.4% in DM, up from -6.5% in 2020, and 6.2% in EM, up from -1.9%. In EM, China is expected to be a dominant driver of the recovery with GDP growth in 2021 forecast at 7.6% – up from 2.5% in 2020.

Figure 34: Year-end policy rates for 2019 and 2020E (%)



Source: UBS estimates

Policy rates have come down sharply in recent months. Today, several DM markets have negative rates, with a number of EM markets have record low rates. While rates are close to bottoming out in several markets, they are also expected to remain lower for longer.

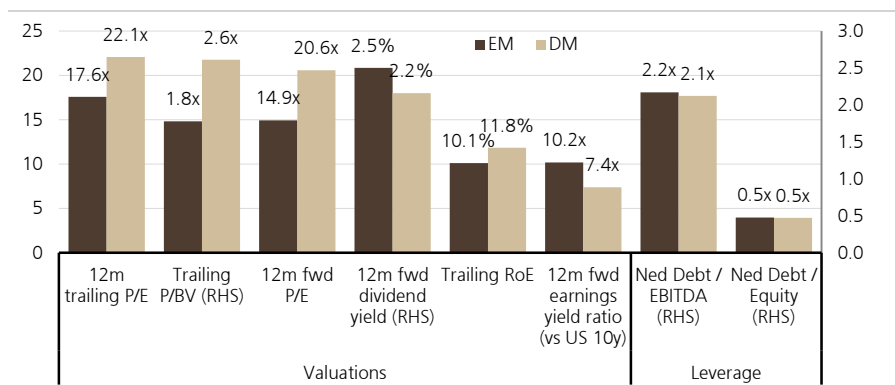
Figure 35: MSCI EM and DM weight in ACWI and composition

	EM	DM
<b>MSCI Index as % of ACWI</b>	12%	88%
<b>Energy + Materials as % of index</b>	13%	8%
<b>IT + Internet + E-commerce as % of index</b>	39%	31%
<b>Sector weights</b>		
Cons Disc	18.2%	11.3%
Cons Staples	6.3%	8.2%
Energy	5.8%	3.1%
Financials	18.1%	12.7%
Health Care	4.3%	13.7%
Industrials	4.6%	10.4%
Info Tech	18.2%	21.1%
Materials	7.2%	4.5%
Comm Svs	12.8%	8.8%
Utilities	2.1%	3.3%
Real Estate	2.5%	2.9%

Source: MSCI, Datastream, UBS. Note: Internet and E-commerce is the sum of the media and entertainment industry group, and internet and direct marketing retail industry. Conditional formatting is by column.

The global equity universe is dominated by DM (88%), with the US accounting for 58% of it. Tech is now the largest sector for both DM and EM. In EM, Consumer Discretionary and Financials are the next largest, while in DM, Health Care and Financials are next largest.

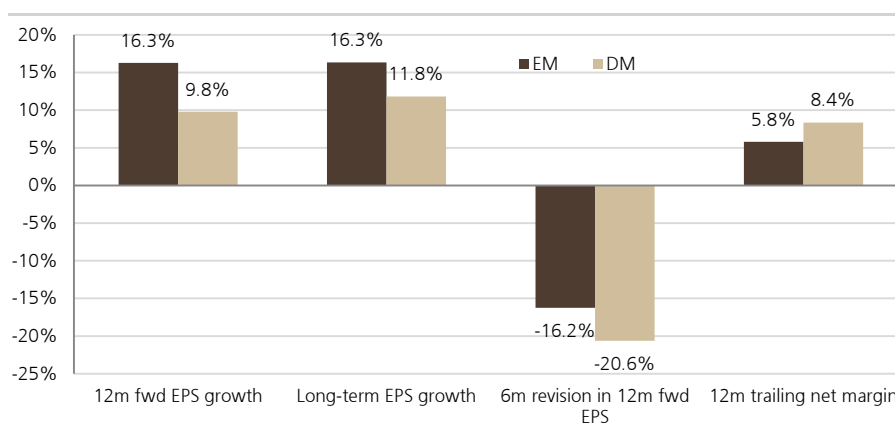
**Figure 36: Valuations and leverage: MSCI EM vs DM**



Source: Bloomberg, IBES, MSCI, Datastream, UBS .

Although EM is trading at peak PE multiples, it still remains at a 20% discount to DM. The discount to DM is largest when looking at trailing P/BV (31%) or 12-month forward PE (28%), although profitability is also lower in EM with ROE at 10.1% versus 11.8% in DM.

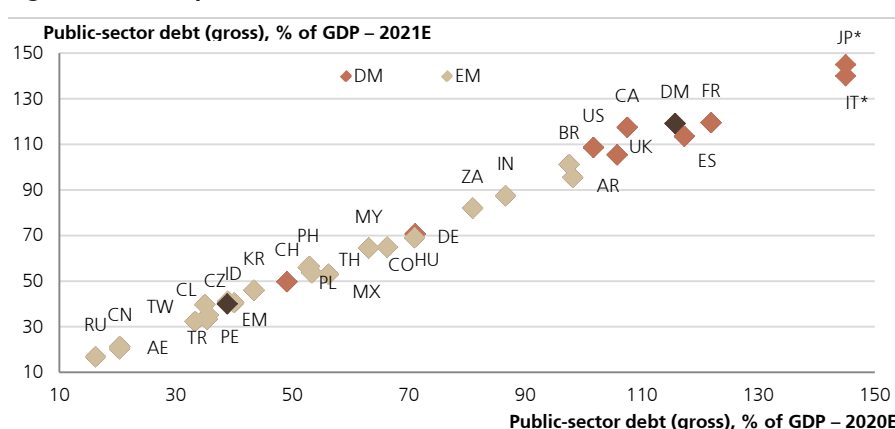
**Figure 37: Earnings and margins – MSCI EM vs DM**



Source: IBES, MSCI, Datastream, UBS

EM also offers a superior earnings growth outlook compared with DM, both in the short and longer term, while the recent earnings shock from the Covid-19 crisis has also been less. In line with its inferior ROE, EM's net margins have been lower than those in DM.

**Figure 38: Gross public-sector debt as a % of GDP**

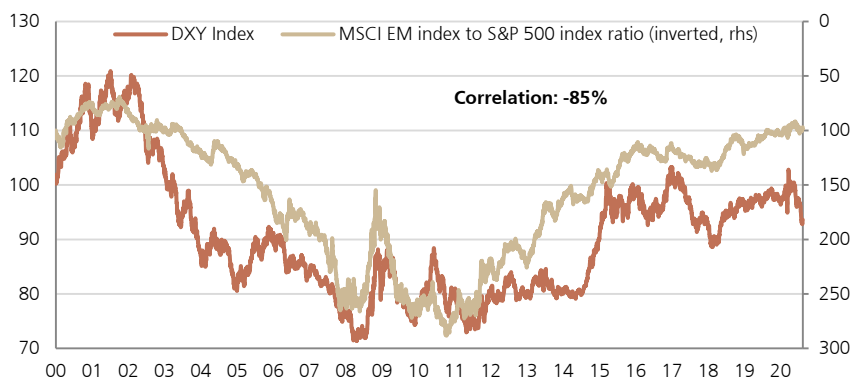


Source: UBS estimates. \*JP: x = 257%, y = 256%. IT: x = 160%, y = 155%.

Covid-19-driven fiscal stimuli are raising public debt levels in both DM and EM. In DM, UBS forecasts public debt/GDP to rise from 116% in 2020 to 119% in 2021, while in EM, we estimate this at 39% in 2020, rising to 40% in 2021.



Figure 39: USD vs MSCI EM performance relative to S&P 500



Over the past 20 years, there has been a -85% correlation between the performance of EM equities relative to the S&P 500 and the DXY index. This indicates that in periods of a falling USD relative to other DM currencies, EM equities outperform the S&P 500.

Source: Bloomberg, MSCI, Datastream, UBS

Figure 40: MSCI EM and sector valuations

	YTD perf	Wt. in EM	12m fwd								Earnings Growth (%)	
			P/E (x)	Z score	%ile	P/BV (x)	Z score	%ile	RoE (%)	DY (%)	2020E	2021E
GEMs	-2.1%		14.9	2.9x	100%	1.6	0.1x	63%	10.7	2.5	-8.8	31.0
Info Tech	16%	18.2%	17.2	0.8x	94%	2.2	0.7x	75%	12.8	2.6	24.6	28.6
Cons Disc	15%	18.2%	26.4	4.4x	99%	3.1	4.5x	100%	11.7	0.5	-1.3	49.3
Financials	-24%	18.1%	8.3	-0.9x	13%	0.9	-1.4x	2%	10.5	4.4	-10.1	13.3
Comm Services	15%	12.8%	22.5	3.1x	99%	3.0	1.9x	93%	13.3	1.5	8.4	21.9
Materials	-2%	7.2%	13.1	1.2x	87%	1.4	-0.2x	62%	10.8	3.8	-6.8	55.8
Cons Staples	-3%	6.3%	24.2	1.8x	100%	3.4	1.2x	94%	14.1	2.2	6.8	18.9
Energy	-22%	5.8%	15.2	4.3x	100%	0.8	-0.6x	37%	5.4	3.8	-77.2	226.2
Industrials	-11%	4.6%	13.3	0.4x	62%	1.1	-0.9x	10%	8.5	2.4	-12.4	37.3
Health Care	36%	4.3%	37.0	4.0x	100%	4.6	1.9x	99%	12.3	0.8	24.4	26.9
Real Estate	-21%	2.5%	6.4	-1.0x	12%	0.9	-1.4x	8%	14.1	5.7	4.9	20.3
Utilities	-18%	2.1%	10.6	-0.6x	27%	1.0	-0.7x	21%	9.2	4.1	5.2	18.2

Source: IBES, MSCI, Datastream, UBS. Note: The Z-score and latest percentiles are calculated on weekly data since December 2004.


Figure 41: MSCI EM and markets valuations

	YTD perf	Wt. in EM	12m fwd								Earnings Growth (%)	
			P/E (x)	Z score	%ile	P/BV (x)	Z score	%ile	RoE (%)	DY (%)	2020E	2021E
GEMs	-2.1%		14.9	2.9x	100%	1.6	0.1x	63%	10.7	2.5	-8.8	31.0
China	12%	40.8%	14.6	1.2x	90%	1.8	0.1x	67%	12.1	1.8	1.5	19.6
Taiwan	12%	12.9%	17.7	1.4x	94%	2.1	2.2x	99%	12.0	3.5	9.4	14.6
Korea	6%	12.2%	13.1	2.8x	100%	1.0	-0.6x	34%	7.7	2.3	15.1	43.9
India	-7%	8.2%	23.3	3.0x	100%	2.7	0.1x	60%	11.5	1.6	-11.1	40.9
Brazil	-34%	5.1%	15.8	2.7x	99%	2.0	0.6x	76%	12.4	3.2	-58.9	159.1
S. Africa	-23%	3.5%	11.7	-0.3x	45%	1.8	-0.6x	20%	15.2	3.0	1.9	38.8
Russia	-21%	3.1%	8.5	0.8x	80%	0.7	-0.4x	53%	8.3	7.5	-49.3	51.2
Saudi Arabia	-13%	2.5%	19.6	2.2x	100%	1.8	0.2x	60%	9.0	4.1	-13.5	20.9
Thailand	-22%	2.0%	18.3	2.8x	100%	1.6	-1.0x	11%	8.5	2.9	-32.3	27.9
Malaysia	-5%	1.7%	17.9	2.4x	99%	1.5	-1.3x	9%	8.3	3.2	-18.8	26.6
Mexico	-24%	1.7%	15.0	0.1x	55%	1.8	-1.3x	11%	11.8	3.3	-28.0	60.1
Indonesia	-23%	1.4%	16.4	1.4x	97%	2.1	-1.4x	6%	12.7	3.1	-24.4	29.3
Qatar	-11%	0.8%	13.8	0.9x	89%	1.7	-0.2x	47%	12.4	3.9	-15.3	18.4
Philippines	-21%	0.8%	15.3	-0.2x	42%	1.5	-1.8x	3%	9.6	2.1	-24.8	30.5
Poland	-15%	0.7%	12.5	0.4x	64%	0.9	-1.2x	4%	7.6	3.2	-14.2	9.5
Chile	-22%	0.6%	15.6	-0.1x	52%	1.1	-2.1x	2%	7.1	2.8	-32.8	49.7
UAE	-20%	0.5%	10.4	-0.3x	44%	0.9	-1.9x	3%	8.5	4.4	-35.1	20.8
Turkey	-28%	0.4%	6.2	-1.5x	13%	0.8	-1.9x	1%	12.1	5.1	-14.1	55.2
Peru	-29%	0.2%	15.4	0.9x	92%	1.6	-0.7x	9%	10.1	3.3	-46.0	76.2
Hungary	-25%	0.2%	9.8	0.1x	50%	1.0	-0.6x	32%	10.3	3.3	-38.8	39.1
Colombia	-45%	0.2%	8.9	-1.6x	3%	1.1	-0.3x	7%	11.9	3.7	-29.7	40.7
Greece	-37%	0.1%	12.5	0.1x	49%	2.2	0.8x	77%	18.0	6.3	-27.0	42.7
Argentina	-3.3%	0.1%	1,536.1	-0.2x	100%	2.1	0.4x	75%	0.1	0.4	0.0	0.0
Egypt	-23%	0.1%	7.7	-1.0x	18%	1.5	-0.6x	35%	19.1	3.8	-7.9	21.2
Czech Republic	-21%	0.1%	11.9	-0.4x	41%	1.0	-1.5x	2%	8.3	7.4	-13.5	-0.7
Pakistan	-23%	0.0%	8.3	0.0x	59%	0.9	-1.3x	3%	10.9	7.8	-0.3	-2.2

Source: IBES, MSCI, Datastream, UBS. Note: Z-score and latest percentiles are calculated on weekly data since December 2004.

---

*\*UBS Evidence Lab is a sell-side team of experts, independent of UBS Research, that work across 12 practice areas and 45 specialized labs creating insight-ready datasets. The experts turn data into evidence by applying a combination of tools and techniques to harvest, cleanse, and connect billions of data items each month. Since 2014, UBS Research Analysts have utilized the expertise of UBS Evidence Lab for insight-ready datasets on companies, sectors, and themes, resulting in the production of over 6,000 differentiated UBS Research reports. UBS Evidence Lab does not provide research, investment recommendations, or advice, but provides insight-ready datasets for further analysis by UBS Research and by clients.*



### **Valuation Method and Risk Statement**

In addition to industry- and company-specific risk, we point out to investors the potential risks inherent in investing in companies with significant assets and business operations in emerging markets. Potential EM-related risks include the volatile nature of the currency, regulatory and sociopolitical risk, and abrupt potential changes in the cost of capital and economic growth outlook. Valuations can also be impacted by 'contagion' from developments in other emerging markets. Each of the above has the potential to significantly impact company/industry performance.

## Required Disclosures

This report has been prepared by UBS AG London Branch, 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](http://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: 12 August 2020 08:56 PM 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 <sup>1</sup>	IB Services <sup>2</sup>
Buy	FSR is > 6% above the MRA.	49%	32%
Neutral	FSR is between -6% and 6% of the MRA.	39%	30%
Sell	FSR is > 6% below the MRA.	13%	20%
Short-Term Rating	Definition	Coverage <sup>3</sup>	IB Services <sup>4</sup>
Buy	Stock price expected to rise within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%
Sell	Stock price expected to fall within three months from the time the rating was assigned because of a specific catalyst or event.	<1%	<1%

Source: UBS. Rating allocations are as of 30 June 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 AG London Branch:** Philip Finch; Alexey Ostapchuk; Bhanu Baweja; Manik Narain.

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.

## Global Disclaimer

This document has been prepared by UBS AG London Branch, 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](http://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 (spolka z ograniczona odpowiedzialnoscia) Oddzial w Polsce regulated by the Polish Financial Supervision Authority. Where an analyst of UBS Europe SE (spolka z ograniczona odpowiedzialnoscia) Oddzial w Polsce has contributed to this document, the document is also deemed to have been prepared by UBS Europe SE (spolka z ograniczona odpowiedzialnoscia) Oddzial 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](http://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](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 GKBI, 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.

