

Wharf REIC (1997.HK)

Robust retail sales momentum extends into 2Q; Reiterate Buy

Buy

1997.HK 12m Price Target: **HK\$66.00** Price: **HK\$60.55** Upside: **9.0%**

Justin Kwok, CFA
+852-2978-0481 | justin.kwok@gs.com
Goldman Sachs (Asia) L.L.C.

Colin Yao
+65-6654-5426 | colin.yao@gs.com
Goldman Sachs (Singapore) Pte

We see robust retail sales momentum to extend into 2Q18E -

- Government reported April retail sales on May 31 after the market close.
 - April's growth at +12.3% yoy, was faster than March's 11.5% and was still comparable to 1Q18's +14.4%, respectively. YTD growth now stands at +13.9% yoy.
 - Sales of jewellery/valuables were the key growth driver at +24.6% yoy, followed by medicines/cosmetics at +17.9% yoy.

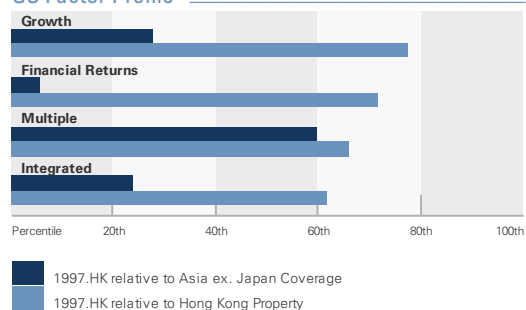
Key Data

Market cap: HK\$183.8bn / \$23.4bn
Enterprise value: HK\$233.1bn / \$29.7bn
3m ADTV: HK\$153.6mn / \$19.6mn
Hong Kong
Hong Kong Property
M&A Rank: 3

GS Forecast

	12/17	12/18E	12/19E	12/20E
Revenue (HK\$ mn) New	20,904.0	16,101.4	16,768.9	17,669.3
Revenue (HK\$ mn) Old	20,904.0	16,072.4	16,677.1	17,511.7
EBITDA (HK\$ mn)	15,586.0	12,245.4	12,671.2	13,382.6
EPS (HK\$) New	5.67	2.91	3.07	3.27
EPS (HK\$) Old	5.67	2.90	3.04	3.22
P/E (X)	8.9	20.8	19.7	18.5
P/B (X)	0.7	0.9	0.9	0.8
Dividend yield (%)	1.9	3.3	3.5	3.6
FCF yield (%)	(8.0)	3.3	5.1	5.4
	6/17	12/17	6/18E	12/18E
EPS (HK\$)	1.61	4.06	2.11	0.80

GS Factor Profile



Source: Company data, Goldman Sachs Research estimates. See disclosures for details.

Goldman Sachs does and seeks to do business with companies covered in its research reports. As a result, investors should be aware that the firm may have a conflict of interest that could affect the objectivity of this report. Investors should consider this report as only a single factor in making their investment decision. For Reg AC certification and other important disclosures, see the Disclosure Appendix, or go to www.gs.com/research/hedge.html. Analysts employed by non-US affiliates are not registered/qualified as research analysts with FINRA in the U.S.

Buy

Wharf REIC (1997.HK)

Rating since Apr 25, 2018

Ratios & Valuation

	12/17	12/18E	12/19E	12/20E
P/E (X)	8.9	20.8	19.7	18.5
P/B (X)	0.7	0.9	0.9	0.8
FCF yield (%)	(8.0)	3.3	5.1	5.4
EV/EBITDA (X)	12.9	19.0	18.1	16.9
CROCI (%)	4.8	4.0	4.1	4.4
ROE (%)	8.5	4.2	4.4	4.6
Net debt/equity (%)	19.9	20.0	17.9	16.1
Interest cover (X)	15.0	10.2	10.7	11.2
Days inventory outst, sales	18.5	3.8	4.0	3.8
Receivable days	12.7	14.4	13.8	13.1
Days payable outstanding	1,307.1	1,010.6	917.6	874.7
DuPont ROE (%)	8.1	4.1	4.2	4.4
Turnover (X)	0.1	0.1	0.1	0.1
Leverage (X)	1.3	1.3	1.3	1.3

Growth & Margins (%)

	12/17	12/18E	12/19E	12/20E
Total revenue growth	24.1	(23.0)	4.1	5.4
EBITDA growth	29.9	(21.4)	3.5	5.6
EPS growth	73.6	(48.7)	5.5	6.5
DPS growth	NM	110.2	4.7	5.6
EBIT margin	73.9	74.1	73.7	74.0
EBITDA margin	74.6	76.1	75.6	75.7
Net income margin	82.4	54.9	55.6	56.2

Price Performance



Source: FactSet. Price as of 31 May 2018 close.

Income Statement (HK\$ mn)

	12/17	12/18E	12/19E	12/20E
Total revenue	20,904.0	16,101.4	16,768.9	17,669.3
Cost of goods sold	(4,494.0)	(3,099.2)	(3,318.9)	(3,481.7)
SG&A	(824.0)	(756.8)	(778.8)	(805.0)
R&D	0.0	0.0	0.0	0.0
Other operating inc./exp.)	-	-	-	-
ESO expense	-	-	-	-
EBITDA	15,586.0	12,245.4	12,671.2	13,382.6
Depreciation & amortization	(144.0)	(311.7)	(311.7)	(311.7)
EBIT	15,442.0	11,933.7	12,359.5	13,070.8
Net interest inc./exp.)	(1,029.0)	(1,167.4)	(1,160.4)	(1,163.9)
Income/(loss) from associates	82.0	82.0	82.0	82.0
Pre-tax profit	22,160.0	10,773.3	11,281.1	11,988.9
Provision for taxes	(4,267.0)	(1,670.4)	(1,692.2)	(1,798.3)
Minority interest	(675.0)	(267.0)	(267.0)	(267.0)
Preferred dividends	-	-	-	-
Net inc. (pre-exceptionals)	17,218.0	8,836.0	9,321.9	9,923.6
Post-tax exceptionals	-	-	-	-
Net inc. (post-exceptionals)	17,218.0	8,836.0	9,321.9	9,923.6
EPS (basic, pre-exception) (HK\$)	5.67	2.91	3.07	3.27
EPS (diluted, pre-exception) (HK\$)	5.67	2.91	3.07	3.27
EPS (basic, post-exception) (HK\$)	5.67	2.91	3.07	3.27
EPS (diluted, post-exception) (HK\$)	5.67	2.91	3.07	3.27
EPS (diluted, excl. ESO) (HK\$)	--	--	--	--
DPS (HK\$)	0.95	2.00	2.09	2.21

Balance Sheet (HK\$ mn)

	12/17	12/18E	12/19E	12/20E
Cash & cash equivalents	3,076.0	2,227.8	6,214.8	9,627.6
Accounts receivable	635.0	635.0	635.0	635.0
Inventory	156.0	181.6	181.6	181.6
Other current assets	24.0	24.0	24.0	24.0
Total current assets	3,891.0	3,068.5	7,055.5	10,468.3
Net PP&E	262,376.0	264,718.3	264,606.5	264,494.8
Net intangibles	-	-	-	-
Total investments	6,001.0	6,083.0	6,165.0	6,247.0
Other long-term assets	407.0	407.0	407.0	407.0
Total assets	272,675.0	274,276.7	278,234.0	281,617.1
Accounts payable	8,818.0	8,343.4	8,343.4	8,343.4
Short-term debt	20,800.0	2,000.0	5,400.0	3,500.0
Other current liabilities	2,816.0	1,674.5	2,245.3	1,959.9
Total current liabilities	32,434.0	12,017.9	15,988.6	13,803.2
Long-term debt	24,752.0	43,552.0	40,152.0	42,052.0
Other long-term liabilities	2,521.0	2,521.0	2,521.0	2,521.0
Total long-term liabilities	27,273.0	46,073.0	42,673.0	44,573.0
Total liabilities	59,707.0	58,090.9	58,661.6	58,376.2
Preferred shares	--	--	--	--
Total common equity	207,318.0	210,268.9	213,388.4	216,789.8
Minority interest	5,650.0	5,917.0	6,184.0	6,451.0
Total liabilities & equity	272,675.0	274,276.7	278,234.0	281,617.1
Net debt, adjusted	42,476.0	43,324.2	39,337.2	35,924.4
Average capital employed	244,865.5	257,477.0	259,209.8	259,037.4
RNAV	-	277,008.3	286,362.9	-
BVPS (HK\$)	68.28	69.25	70.28	71.40

Cash Flow (HK\$ mn)

	12/17	12/18E	12/19E	12/20E
Net income	17,218.0	8,836.0	9,321.9	9,923.6
D&A add-back	144.0	311.7	311.7	311.7
Minority interest add-back	675.0	267.0	267.0	267.0
Net (inc)/dec working capital	(12,555.0)	(500.3)	-	-
Other operating cash flow	(7,101.0)	(82.0)	(82.0)	(82.0)
Cash flow from operations	(1,619.0)	8,832.4	9,818.6	10,420.3
Capital expenditures	(11,001.0)	(2,654.0)	(200.0)	(200.0)
Acquisitions	-	-	-	-
Divestitures	-	-	-	-
Others	-	-	-	-
Cash flow from investing	(11,001.0)	(2,654.0)	(200.0)	(200.0)
Dividends paid (common & pref)	-	(5,885.1)	(6,202.4)	(6,522.1)
Inc/(dec) in debt	8,438.0	-	-	-
Other financing cash flows	2,046.0	(1,141.5)	570.8	(285.4)
Cash flow from financing	10,484.0	(7,026.6)	(5,631.7)	(6,807.5)
Total cash flow	(2,136.0)	(848.2)	3,987.0	3,412.8
Free cash flow	(12,620.0)	6,178.4	9,618.6	10,220.3

Source: Company data, Goldman Sachs Research estimates.

Exhibit 1: HK retail has rebounded by 13.9%yoy up to YTD2018

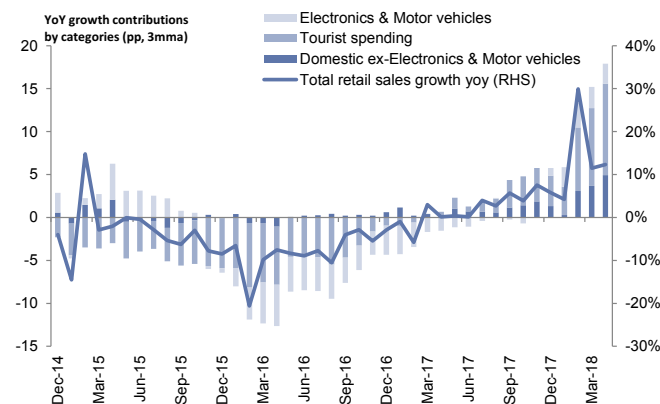
Hong Kong retail sales growth by segment

(YoY%)	Total	Food	Super-market	Fuel	Clothing	Durables	Dept stores	Valuable	Others
By year									
2010	18.3%	9.6%	5.6%	9.9%	17.3%	26.9%	16.4%	36.1%	12.8%
2011	24.9%	7.2%	12.5%	14.7%	28.0%	28.6%	21.6%	46.6%	17.5%
2012	9.8%	2.8%	10.3%	3.3%	7.6%	19.6%	9.7%	7.7%	9.1%
2013	11.0%	3.5%	6.8%	0.1%	8.3%	3.4%	17.7%	22.9%	9.3%
2014	-0.2%	6.6%	4.6%	-1.4%	4.1%	2.2%	1.3%	-13.7%	6.4%
2015	-3.7%	5.8%	1.3%	-10.5%	-6.7%	6.1%	-4.1%	-15.6%	-2.8%
2016	-8.1%	1.7%	0.8%	-0.4%	-4.6%	-20.9%	-6.2%	-17.2%	-0.4%
2017	2.2%	3.2%	-0.2%	4.0%	0.2%	-3.1%	3.4%	5.2%	5.4%
1Q18	14.4%	8.6%	1.3%	4.9%	16.8%	17.2%	13.2%	22.0%	16.0%
Apr-18	12.3%	3.9%	1.1%	10.0%	6.7%	15.3%	12.6%	24.6%	15.0%
YTD18	13.9%	7.5%	1.2%	6.2%	14.3%	16.8%	13.0%	22.5%	15.7%

Source: CEIC

Exhibit 2: Ongoing recovery in the HK retail market, with the latest trend pointing to c.12% sales growth

Our estimated HK retail sales growth decomposed by three key swing factors



Source: CEIC, Goldman Sachs Global Investment Research

- ... And we think the May 1 Labour Day “mini Golden Week” holidays continue to show positive momentum.
 - According to HKET, during the first 2 days of the Labour Day holiday of 2018, 475k mainland Chinese travellers visited Hong Kong, +23% yoy, and individual traveller arrivals increased by +26% yoy.
 - According to HKEJ, during the three days of the Labour Day holiday (Apr 29 to May 1), c.599,000 mainland travellers visited Hong Kong, +22% yoy, hitting a six-year high.
 - According to Hong Kong General Chamber of Pharmacy, the general industry-wide transaction value increased by 20-30% yoy in the Labour Day holidays.

Exhibit 3: Mainland visitors arrival levels are hitting an all-time high since 2014

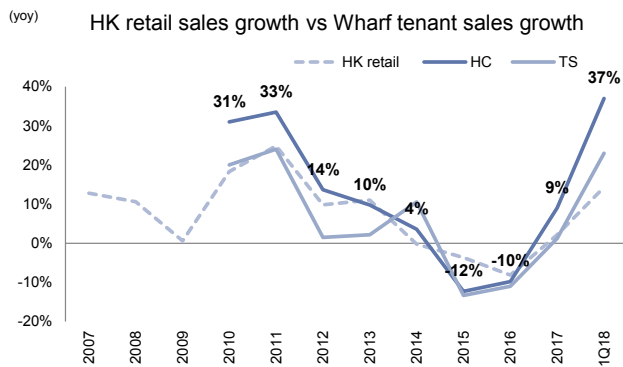
Visitor arrivals growth by mainland Chinese/others

(YoY %)	Total visitors arrivals			By category					
	Mainland China	Other countries	Total	Overnight			Same-day		
				Mainland China	Other countries	Sub-total	Mainland China	Other countries	Sub-total
By year									
2010	26.3%	14.7%	21.8%	20.8%	15.8%	18.7%	32.7%	13.0%	25.9%
2011	23.9%	3.6%	16.4%	16.5%	3.7%	11.1%	31.7%	3.4%	23.0%
2012	24.2%	-0.8%	16.0%	11.1%	-0.6%	6.5%	36.6%	-1.2%	26.7%
2013	16.7%	-1.1%	11.7%	13.1%	-1.0%	8.0%	19.5%	-1.2%	15.3%
2014	16.0%	0.3%	12.0%	11.6%	1.4%	8.2%	19.1%	-1.7%	15.5%
2015	-3.0%	-0.9%	-2.5%	-5.7%	0.0%	-3.9%	-1.2%	-2.5%	-1.4%
2016	-6.7%	3.1%	-4.5%	-3.5%	5.7%	-0.5%	-8.7%	-1.8%	-7.7%
2017	3.9%	1.1%	3.2%	6.7%	1.9%	5.0%	2.0%	-0.4%	1.6%
1Q2018	12.6%	0.3%	9.6%	10.5%	0.9%	7.2%	13.9%	-1.1%	11.7%
Apr-18	15.2%	-0.7%	11.0%	8.9%	0.0%	5.7%	19.5%	-1.9%	15.8%
YTD2018	13.2%	0.0%	10.0%	10.1%	0.7%	6.8%	15.2%	-1.3%	12.7%

Source: CEIC

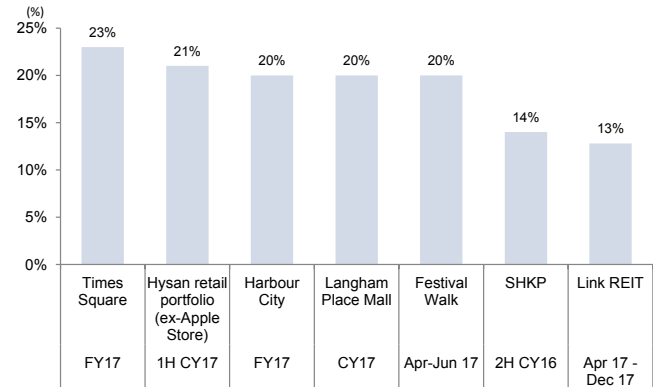
- As retail sales growth is being driven largely by tourist/luxury spending, we expect Wharf REIC’s tenant sales growth to continue its path to outperform the broader market.
 - Wharf REIC’s operating data announcement in mid-May showed 37%/23% tenant sales growth yoy in Harbour City and Times Square in 1Q18, an acceleration from 2017’s 9.0%/1.2%, respectively, and much above the overall HK retail market growth of 14.3% in 1Q.
 - Management commented that both malls benefited from the improved performance of most categories, especially luxury brands.

Exhibit 4: In 1Q 2018, HC and TS recorded 37% and 23% YoY growth in sales respectively, both outperforming overall HK retail sales
Wharf’s REIC portfolio tenant sales growth vs overall market



Source: Company data, CEIC

Exhibit 5: For 4Q17 alone, Harbour City and Times Square’s OCRs have already fallen to 17% and 19%, respectively
Select HK retail properties’ OCR



Source: Company data

Common investor pushback to our positive stance on Wharf REIC since our initiation on April 25

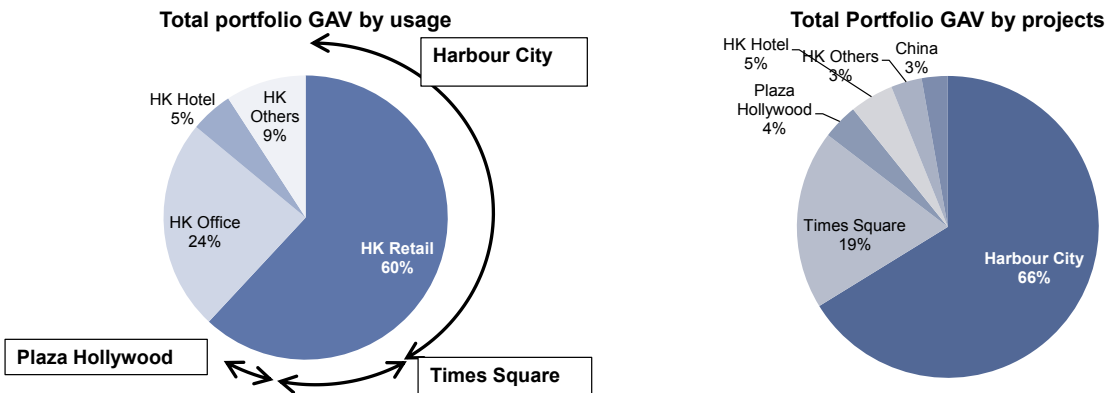
- **Sustainability of retail sales growth:** We recognize that while most investors are already expecting an ongoing recovery in HK retail market, their expectation on the sustainability of double-digit-growth trajectory into 2H18E and beyond is relatively low. We forecast the volume growth story from visitor arrivals to remain solid, amid upcoming infrastructure additions (e.g. high speed rail and HK-Zhuhai-Macau bridge). However, we do agree that on per capita spending front, currency is likely to remain a swing factor.
- **Occupancy-cost-ratio (OCR) started at relatively high levels:** While we acknowledge that Wharf REIC’s OCR for CY2017 looked relatively high at c.20% and 23% for Harbour City and Times Square, if we were to look at only 4Q17, the ratios have already improved substantially to 17% and 19%, respectively. We see this as positive set-up for OCR to revert back to a relatively comfortable range, amid further improvement in retail sales 2018 YTD versus the historical range around mid-teens’ levels, for company to raise retail rentals going forward.
- **Turnover rentals as a blackbox:** Our view is that we are likely to see likely a positive uptick from turnover rentals (was at c.8% of retail revenue back in 2017 per management) amid broader market retail sales growth 2018 YTD (we expect Wharf REIC’s portfolio to outperform this given their exposure to luxury tourist spending)

although the exact amount is difficult to quantify. However, we think the correct angle to look at on this subject is from the occupancy-cost-ratio (OCR) perspective in which retail landlords will continue to move up their base rents when the tenants are paying more and more turnover rents, in order to raise the floor of income. In the longer term, if the malls can keep their OCR in a relatively tight range, it would mean that their operators are more or less raising the base rentals alongside with tenant sales growth.

Raising EPS and TP; Reiterate Buy on Wharf REIC

- We raise our NAV/EPS by up to 2% to factor in the current robust run-rate, with retail spot rental growth assumptions up to 8% p.a. between 2018E/19E (from 7% p.a.), with a new 12-month NAV-based target price of HK\$66 (from HK\$65), set at 20% target discount (unchanged) to FY19E NAV. Key risks: Interest rates, new supply, policy changes and evolution of tourist spending behavior.
- We like Wharf REIC for its direct access to giant and quality retail assets in Hong Kong. It is the third-largest listed retail-focused landlord globally, is an owner and operator of key mixed-use investment properties in Hong Kong, with aggregate GAV of c.HK\$283bn and c.12mn sq ft GFA of properties. The flagship retail malls in Hong Kong (Harbour City, Times Square and Hollywood Plaza) account for 59% of GAV and contributed c.70% to total HK IP revenue in 2017. Their retail tenant sales together account for c.9.2% of total HK retail market sales in 2017.
- Compared to key listed HK retailers, we believe that the share price performance of HK retail landlords (Wharf REIC and Hysan Development) has been relatively benign. In addition to Wharf REIC, there are other Buy rated names with sizable HK retail property exposure, including Sino Land and SHKP. There are also Neutral rated names with substantial exposure to HK retail property: Mapletree North Asia Commercial Trust, Fortune REIT, Link REIT, Hysan Development and Hang Lung Properties.

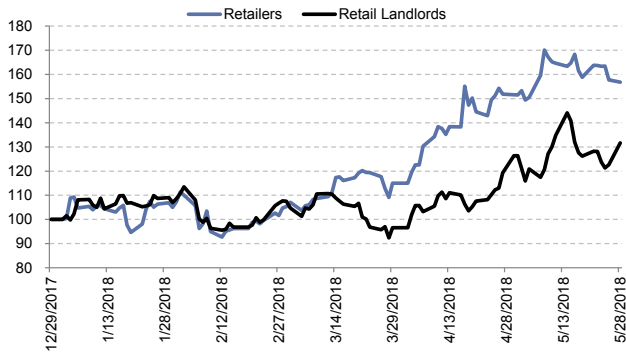
Exhibit 6: 60% of Wharf REIC is exposed to HK retail property, and 66% is from the crown jewel Harbour City complex
 Wharf REIC’s portfolio mix for our FY19E HK\$286bn worth of assets



Source: Company data, Goldman Sachs Global Investment Research

Exhibit 7: Retail landlords (index +32% YTD2018) are lagging behind retailers (index+57% YTD2018)

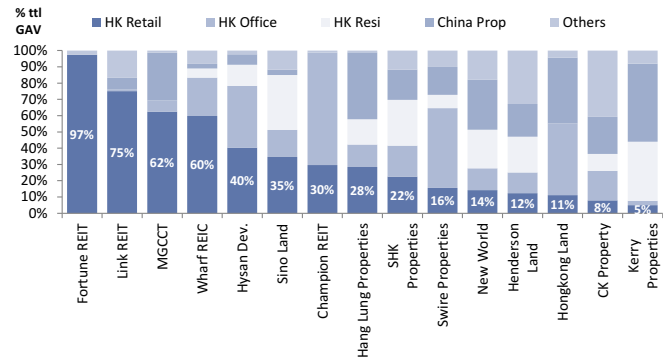
Hong Kong major Retailers and Retail landlords market cap weighted pricing index



Note: Retailers include Chow Tai Food, Sa Sa, and Luk Fook; Retail landlords include Hysan, and Wharf REIC

Source: Datastream

Exhibit 8: Wharf REIC is having 60% of its GAV in HK Retail sector
HK PropCo NAV breakdown by property types



Source: Company data, Goldman Sachs Global Investment Research

Rating and pricing information: Fortune REIT (Hong Kong) (N/N, HK\$9.48), Hang Lung Properties (N/N, HK\$17.80), Hysan Development (N/N, HK\$45.35), Link REIT (N/N, HK\$69.40), Mapletree Commercial Trust (N/N, S\$1.57), Sino Land (B/N, HK\$13.58) and Sun Hung Kai Properties (B/N, HK\$126.60)

Disclosure Appendix

Reg AC

I, Justin Kwok, CFA, hereby certify that all of the views expressed in this report accurately reflect my personal views about the subject company or companies and its or their securities. I also certify that no part of my compensation was, is or will be, directly or indirectly, related to the specific recommendations or views expressed in this report.

Unless otherwise stated, the individuals listed on the cover page of this report are analysts in Goldman Sachs' Global Investment Research division.

GS Factor Profile

The Goldman Sachs Factor Profile provides investment context for a stock by comparing key attributes to the market (i.e. our coverage universe) and its sector peers. The four key attributes depicted are: Growth, Financial Returns, Multiple (e.g. valuation) and Integrated (a composite of Growth, Financial Returns and Multiple). Growth, Financial Returns and Multiple are calculated by using normalized ranks for specific metrics for each stock. The normalized ranks for the metrics are then averaged and converted into percentiles for the relevant attribute. The precise calculation of each metric may vary depending on the fiscal year, industry and region, but the standard approach is as follows:

Growth is based on a stock's forward-looking sales growth, EBITDA growth and EPS growth (for financial stocks, only EPS and sales growth), with a higher percentile indicating a higher growth company. **Financial Returns** is based on a stock's forward-looking ROE, ROCE and CROCI (for financial stocks, only ROE), with a higher percentile indicating a company with higher financial returns. **Multiple** is based on a stock's forward-looking P/E, P/B, price/dividend (P/D), EV/EBITDA, EV/FCF and EV/Debt Adjusted Cash Flow (DACF) (for financial stocks, only P/E, P/B and P/D), with a higher percentile indicating a stock trading at a higher multiple. The **Integrated** percentile is calculated as the average of the Growth percentile, Financial Returns percentile and (100% - Multiple percentile).

Financial Returns and Multiple use the Goldman Sachs analyst forecasts at the fiscal year-end at least three quarters in the future. Growth uses inputs for the fiscal year at least seven quarters in the future compared with the year at least three quarters in the future (on a per-share basis for all metrics).

For a more detailed description of how we calculate the GS Factor Profile, please contact your GS representative.

M&A Rank

Across our global coverage, we examine stocks using an M&A framework, considering both qualitative factors and quantitative factors (which may vary across sectors and regions) to incorporate the potential that certain companies could be acquired. We then assign a M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high (30%-50%) probability of the company becoming an acquisition target, 2 representing medium (15%-30%) probability and 3 representing low (0%-15%) probability. For companies ranked 1 or 2, in line with our standard departmental guidelines we incorporate an M&A component into our target price. M&A rank of 3 is considered immaterial and therefore does not factor into our price target, and may or may not be discussed in research.

Quantum

Quantum is Goldman Sachs' proprietary database providing access to detailed financial statement histories, forecasts and ratios. It can be used for in-depth analysis of a single company, or to make comparisons between companies in different sectors and markets.

GS SUSTAIN

GS SUSTAIN is a global investment strategy focused on the generation of long-term alpha through identifying high quality industry leaders. The GS SUSTAIN 50 list includes leaders we believe to be well positioned to deliver long-term outperformance through superior returns on capital, sustainable competitive advantage and effective management of ESG risks vs. global industry peers. Candidates are selected largely on a combination of quantifiable analysis of these three aspects of corporate performance.

Disclosures

Coverage group(s) of stocks by primary analyst(s)

Justin Kwok, CFA: Hong Kong Property.

Hong Kong Property: Champion REIT, China Lodging Group, CK Asset Holdings Ltd, eHi Car Services, Fortune REIT (Hong Kong), Hang Lung Properties, Henderson Land, Hongkong Land, Hysan Development, Kerry Properties, Link REIT, Mapletree Greater China Commercial, New World Development, Shangri-La Asia, Sino Land, Sun Hung Kai Properties, Swire Properties, Wharf REIC.

Company-specific regulatory disclosures

The following disclosures relate to relationships between The Goldman Sachs Group, Inc. (with its affiliates, "Goldman Sachs") and companies covered by the Global Investment Research Division of Goldman Sachs and referred to in this research.

Goldman Sachs had a non-securities services client relationship during the past 12 months with: Wharf REIC (HK\$60.55)

Distribution of ratings/investment banking relationships

Goldman Sachs Investment Research global Equity coverage universe

	Rating Distribution			Investment Banking Relationships		
	Buy	Hold	Sell	Buy	Hold	Sell
Global	35%	53%	12%	63%	57%	51%

As of April 1, 2018, Goldman Sachs Global Investment Research had investment ratings on 2,896 equity securities. Goldman Sachs assigns stocks as Buys and Sells on various regional Investment Lists; stocks not so assigned are deemed Neutral. Such assignments equate to Buy, Hold and Sell for the purposes of the above disclosure required by the FINRA Rules. See 'Ratings, Coverage groups and views and related definitions' below. The Investment Banking Relationships chart reflects the percentage of subject companies within each rating category for whom Goldman Sachs has provided investment banking services within the previous twelve months.

Regulatory disclosures

Disclosures required by United States laws and regulations

See company-specific regulatory disclosures above for any of the following disclosures required as to companies referred to in this report: manager or co-manager in a pending transaction; 1% or other ownership; compensation for certain services; types of client relationships; managed/co-managed public offerings in prior periods; directorships; for equity securities, market making and/or specialist role. Goldman Sachs trades or may trade as a principal in debt securities (or in related derivatives) of issuers discussed in this report.

The following are additional required disclosures: **Ownership and material conflicts of interest:** Goldman Sachs policy prohibits its analysts, professionals reporting to analysts and members of their households from owning securities of any company in the analyst's area of coverage.

Analyst compensation: Analysts are paid in part based on the profitability of Goldman Sachs, which includes investment banking revenues. **Analyst as officer or director:** Goldman Sachs policy generally prohibits its analysts, persons reporting to analysts or members of their households from serving as an officer, director or advisor of any company in the analyst's area of coverage. **Non-U.S. Analysts:** Non-U.S. analysts may not be associated persons of Goldman Sachs & Co. LLC and therefore may not be subject to FINRA Rule 2241 or FINRA Rule 2242 restrictions on communications with subject company, public appearances and trading securities held by the analysts.

Distribution of ratings: See the distribution of ratings disclosure above. **Price chart:** See the price chart, with changes of ratings and price targets in prior periods, above, or, if electronic format or if with respect to multiple companies which are the subject of this report, on the Goldman Sachs website at <http://www.gs.com/research/hedge.html>.

Additional disclosures required under the laws and regulations of jurisdictions other than the United States

The following disclosures are those required by the jurisdiction indicated, except to the extent already made above pursuant to United States laws and regulations. **Australia:** Goldman Sachs Australia Pty Ltd and its affiliates are not authorised deposit-taking institutions (as that term is defined in the Banking Act 1959 (Cth)) in Australia and do not provide banking services, nor carry on a banking business, in Australia. This research, and any access to it, is intended only for "wholesale clients" within the meaning of the Australian Corporations Act, unless otherwise agreed by Goldman Sachs. In producing research reports, members of the Global Investment Research Division of Goldman Sachs Australia may attend site visits and other meetings hosted by the companies and other entities which are the subject of its research reports. In some instances the costs of such site visits or meetings may be met in part or in whole by the issuers concerned if Goldman Sachs Australia considers it is appropriate and reasonable in the specific circumstances relating to the site visit or meeting. To the extent that the contents of this document contains any financial product advice, it is general advice only and has been prepared by Goldman Sachs without taking into account a client's objectives, financial situation or needs. A client should, before acting on any such advice, consider the appropriateness of the advice having regard to the client's own objectives, financial situation and needs. **Brazil:** Disclosure information in relation to CVM Instruction 483 is available at <http://www.gs.com/worldwide/brazil/area/gir/index.html>. Where applicable, the Brazil-registered analyst primarily responsible for the content of this research report, as defined in Article 16 of CVM Instruction 483, is the first author named at the beginning of this report, unless indicated otherwise at the end of the text. **Canada:** Goldman Sachs Canada Inc. is an affiliate of The Goldman Sachs Group Inc. and therefore is included in the company specific disclosures relating to Goldman Sachs (as defined above). Goldman Sachs Canada Inc. has approved of, and agreed to take responsibility for, this research report in Canada if and to the extent that Goldman Sachs Canada Inc. disseminates this research report to its clients. **Hong Kong:** Further information on the securities of covered companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C. **India:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (India) Securities Private Limited, Research Analyst - SEBI Registration Number INH000001493, 951-A, Rational House, Appasaheb Marathe Marg, Prabhadevi, Mumbai 400 025, India, Corporate Identity Number U74140MH2006FTC160634, Phone +91 22 6616 9000, Fax +91 22 6616 9001. Goldman Sachs may beneficially own 1% or more of the securities (as such term is defined in clause 2 (h) the Indian Securities Contracts (Regulation) Act, 1956) of the subject company or companies referred to in this research report. **Japan:** See below. **Korea:** Further information on the subject company or companies referred to in this research may be obtained from Goldman Sachs (Asia) L.L.C., Seoul Branch. **New Zealand:** Goldman Sachs New Zealand Limited and its affiliates are neither "registered banks" nor "deposit takers" (as defined in the Reserve Bank of New Zealand Act 1989) in New Zealand. This research, and any access to it, is intended for "wholesale clients" (as defined in the Financial Advisers Act 2008) unless otherwise agreed by Goldman Sachs. **Russia:** Research reports distributed in the Russian Federation are not advertising as defined in the Russian legislation, but are information and analysis not having product promotion as their main purpose and do not provide appraisal within the meaning of the Russian legislation on appraisal activity. **Singapore:** Further information on the covered companies referred to in this research may be obtained from Goldman Sachs (Singapore) Pte. (Company Number: 198602165W). **Taiwan:** This material is for reference only and must not be reprinted without permission. Investors should carefully consider their own investment risk. Investment results are the responsibility of the individual investor. **United Kingdom:** Persons who would be categorized as retail clients in the United Kingdom, as such term is defined in the rules of the Financial Conduct Authority, should read this research in conjunction with prior Goldman Sachs research on the covered companies referred to herein and should refer to the risk warnings that have been sent to them by Goldman Sachs International. A copy of these risks warnings, and a glossary of certain financial terms used in this report, are available from Goldman Sachs International on request.

European Union: Disclosure information in relation to Article 4 (1) (d) and Article 6 (2) of the European Commission Directive 2003/125/EC is available at <http://www.gs.com/disclosures/europeanpolicy.html> which states the European Policy for Managing Conflicts of Interest in Connection with Investment Research.

Japan: Goldman Sachs Japan Co., Ltd. is a Financial Instrument Dealer registered with the Kanto Financial Bureau under registration number Kinsho 69, and a member of Japan Securities Dealers Association, Financial Futures Association of Japan and Type II Financial Instruments Firms Association. Sales and purchase of equities are subject to commission pre-determined with clients plus consumption tax. See company-specific disclosures as to any applicable disclosures required by Japanese stock exchanges, the Japanese Securities Dealers Association or the Japanese Securities Finance Company.

Ratings, coverage groups and views and related definitions

Buy (B), Neutral (N), Sell (S) -Analysts recommend stocks as Buys or Sells for inclusion on various regional Investment Lists. Being assigned a Buy or Sell on an Investment List is determined by a stock's total return potential relative to its coverage. Any stock not assigned as a Buy or a Sell on an Investment List with an active rating (i.e., a stock that is not Rating Suspended, Not Rated, Coverage Suspended or Not Covered), is deemed Neutral. Each regional Investment Review Committee manages various regional Investment Lists to a global guideline of 25%-35% of stocks as Buy and 10%-15% of stocks as Sell; however, the distribution of Buys and Sells in any particular analyst's coverage group may vary as determined by the regional Investment Review Committee. Additionally, each Investment Review Committee manages Regional Conviction lists, which represent investment recommendations focused on the size of the total return potential and/or the likelihood of the realization of the return across their respective areas of coverage. The addition or removal of stocks from such Conviction lists do not represent a change in the analysts' investment rating for such stocks.

Total return potential represents the upside or downside differential between the current share price and the price target, including all paid or anticipated dividends, expected during the time horizon associated with the price target. Price targets are required for all covered stocks. The total return potential, price target and associated time horizon are stated in each report adding or reiterating an Investment List membership.

Coverage groups and views: A list of all stocks in each coverage group is available by primary analyst, stock and coverage group at <http://www.gs.com/research/hedge.html>. The analyst assigns one of the following coverage views which represents the analyst's investment outlook on the coverage group relative to the group's historical fundamentals and/or valuation. **Attractive (A).** The investment outlook over the following 12 months is favorable relative to the coverage group's historical fundamentals and/or valuation. **Neutral (N).** The investment outlook over the following 12 months is neutral relative to the coverage group's historical fundamentals and/or valuation. **Cautious (C).** The investment outlook over the following 12 months is unfavorable relative to the coverage group's historical fundamentals and/or valuation.

Not Rated (NR). The investment rating and target price have been removed pursuant to Goldman Sachs policy when Goldman Sachs is acting in an advisory capacity in a merger or strategic transaction involving this company and in certain other circumstances. **Rating Suspended (RS).** Goldman Sachs Research has suspended the investment rating and price target for this stock, because there is not a sufficient fundamental basis for determining, or there are legal, regulatory or policy constraints around publishing, an investment rating or target. The previous investment rating and price target, if any, are no longer in effect for this stock and should not be relied upon. **Coverage Suspended (CS).** Goldman Sachs has suspended coverage of this company. **Not Covered (NC).** Goldman Sachs does not cover this company. **Not Available or Not Applicable (NA).** The information is not available for display or is not applicable. **Not Meaningful (NM).** The information is not meaningful and is therefore excluded.

Global product; distributing entities

The Global Investment Research Division of Goldman Sachs produces and distributes research products for clients of Goldman Sachs on a global basis. Analysts based in Goldman Sachs offices around the world produce equity research on industries and companies, and research on macroeconomics, currencies, commodities and portfolio strategy. This research is disseminated in Australia by Goldman Sachs Australia Pty Ltd (ABN 21 006 797 897); in Brazil by Goldman Sachs do Brasil Corretora de Títulos e Valores Mobiliários S.A.; Ombudsman Goldman Sachs Brazil: 0800 727 5764 and / or ouvidoriagoldmansachs@gs.com. Available Weekdays (except holidays), from 9am to 6pm. Ouvidoria Goldman Sachs Brasil: 0800 727 5764 e/ou ouvidoriagoldmansachs@gs.com. Horário de funcionamento: segunda-feira à sexta-feira (exceto feriados), das 9h às 18h; in Canada by either Goldman Sachs Canada Inc. or Goldman Sachs & Co. LLC; in Hong Kong by Goldman Sachs (Asia) L.L.C.; in India by Goldman Sachs (India) Securities Private Ltd.; in Japan by Goldman Sachs Japan Co., Ltd.; in the Republic of Korea by Goldman Sachs (Asia) L.L.C., Seoul Branch; in New Zealand by Goldman Sachs New Zealand Limited; in Russia by OOO Goldman Sachs; in Singapore by Goldman Sachs (Singapore) Pte. (Company Number: 198602165W); and in the United States of America by Goldman Sachs & Co. LLC. Goldman Sachs International has approved this research in connection with its distribution in the United Kingdom and European Union.

European Union: Goldman Sachs International authorised by the Prudential Regulation Authority and regulated by the Financial Conduct Authority and the Prudential Regulation Authority, has approved this research in connection with its distribution in the European Union and United Kingdom; Goldman Sachs AG and Goldman Sachs International Zweigniederlassung Frankfurt, regulated by the Bundesanstalt für Finanzdienstleistungsaufsicht, may also distribute research in Germany.

General disclosures

This research is for our clients only. Other than disclosures relating to Goldman Sachs, this research is based on current public information that we consider reliable, but we do not represent it is accurate or complete, and it should not be relied on as such. The information, opinions, estimates and forecasts contained herein are as of the date hereof and are subject to change without prior notification. We seek to update our research as appropriate, but various regulations may prevent us from doing so. Other than certain industry reports published on a periodic basis, the large majority of reports are published at irregular intervals as appropriate in the analyst's judgment.

Goldman Sachs conducts a global full-service, integrated investment banking, investment management, and brokerage business. We have investment banking and other business relationships with a substantial percentage of the companies covered by our Global Investment Research Division. Goldman Sachs & Co. LLC, the United States broker dealer, is a member of SIPC (<http://www.sipc.org>).

Our salespeople, traders, and other professionals may provide oral or written market commentary or trading strategies to our clients and principal trading desks that reflect opinions that are contrary to the opinions expressed in this research. Our asset management area, principal trading desks and investing businesses may make investment decisions that are inconsistent with the recommendations or views expressed in this research.

The analysts named in this report may have from time to time discussed with our clients, including Goldman Sachs salespersons and traders, or may discuss in this report, trading strategies that reference catalysts or events that may have a near-term impact on the market price of the equity securities discussed in this report, which impact may be directionally counter to the analyst's published price target expectations for such stocks. Any such trading strategies are distinct from and do not affect the analyst's fundamental equity rating for such stocks, which rating reflects a stock's return potential relative to its coverage group as described herein.

We and our affiliates, officers, directors, and employees, excluding equity and credit analysts, will from time to time have long or short positions in, act as principal in, and buy or sell, the securities or derivatives, if any, referred to in this research.

The views attributed to third party presenters at Goldman Sachs arranged conferences, including individuals from other parts of Goldman Sachs, do not necessarily reflect those of Global Investment Research and are not an official view of Goldman Sachs.

Any third party referenced herein, including any salespeople, traders and other professionals or members of their household, may have positions in the products mentioned that are inconsistent with the views expressed by analysts named in this report.

This research is not an offer to sell or the solicitation of an offer to buy any security in any jurisdiction where such an offer or solicitation would be illegal. It does not constitute a personal recommendation or take into account the particular investment objectives, financial situations, or needs of individual clients. Clients should consider whether any advice or recommendation in this research is suitable for their particular circumstances and, if appropriate, seek professional advice, including tax advice. The price and value of investments referred to in this research and the income from them may fluctuate. Past performance is not a guide to future performance, future returns are not guaranteed, and a loss of original capital may occur. Fluctuations in exchange rates could have adverse effects on the value or price of, or income derived from, certain investments.

Certain transactions, including those involving futures, options, and other derivatives, give rise to substantial risk and are not suitable for all investors. Investors should review current options disclosure documents which are available from Goldman Sachs sales representatives or at <http://www.theocc.com/about/publications/character-risks.jsp>. Transaction costs may be significant in option strategies calling for multiple purchase and sales of options such as spreads. Supporting documentation will be supplied upon request.

Differing Levels of Service provided by Global Investment Research: The level and types of services provided to you by the Global Investment Research division of GS may vary as compared to that provided to internal and other external clients of GS, depending on various factors including your individual preferences as to the frequency and manner of receiving communication, your risk profile and investment focus and perspective (e.g., marketwide, sector specific, long term, short term), the size and scope of your overall client relationship with GS, and legal and regulatory constraints. As an example, certain clients may request to receive notifications when research on specific securities is published, and certain clients may request that specific data underlying analysts' fundamental analysis available on our internal client websites be delivered to them electronically through data feeds or otherwise. No change to an analyst's fundamental research views (e.g., ratings, price targets, or material changes to earnings estimates for

equity securities), will be communicated to any client prior to inclusion of such information in a research report broadly disseminated through electronic publication to our internal client websites or through other means, as necessary, to all clients who are entitled to receive such reports.

All research reports are disseminated and available to all clients simultaneously through electronic publication to our internal client websites. Not all research content is redistributed to our clients or available to third-party aggregators, nor is Goldman Sachs responsible for the redistribution of our research by third party aggregators. For research, models or other data related to one or more securities, markets or asset classes (including related services) that may be available to you, please contact your GS representative or go to <http://360.gs.com>.

Disclosure information is also available at <http://www.gs.com/research/hedge.html> or from Research Compliance, 200 West Street, New York, NY 10282.

© 2018 Goldman Sachs.

No part of this material may be (i) copied, photocopied or duplicated in any form by any means or (ii) redistributed without the prior written consent of The Goldman Sachs Group, Inc.