Goldman Sachs | Equity Research

2 December 2019 | 10:20PM CST

Buy

Shanghai M&G (603899.SS)

Consolidation and Office to drive growth; initiate at Buy

603899.SS	12m Price Target: **Rmb62.66**	Price: **Rmb45.78**	Upside: **36.9%**

Xufa Liao, CFA
+86(21)2401-8902 | xufa.liao@ghsl.cn
Beijing Gao Hua Securities Company Limited

Shanghai M&G, as the leading stationery player in China, is a rare opportunity to play the consolidation trend in the consumer space. Given its superior pricing power and extended distribution reach, we forecast the company increasing its market share from 9.8% in 2018 to 11.4% in 2023E in a growing market – we see TAM expanding at a 9% CAGR from US$24bn in 2019E to reach US$34bn in 2023E.We also see its expansion into office supplies as positive given the increasing penetration of centralized purchasing among SOEs and government entities, which in turn should provide better economics for suppliers. We forecast 23%/25% revenue/net profit CAGR over the next five years, and expect cash flow generation to materially improve on increasing efficiencies in the office supplies business. While the stock is up 50% YTD (vs. CSI 300's + 27%), it trades on 31X 2020E PE, below its historical average of 35X. Our 12-month target price of Rmb62.66, based on 30x 2023E P/E (15% discount vs. historical average) and discounted back to 2020E using 8.1% COE, implies 37% upside. Hence, we initiate Shanghai M&G at Buy.

The biggest risk facing stationery is the move to electronics and digital equipment on the back of disruptive technology innovations. While we recognize this risk, we believe it would not materialize in the near future given technology constraints and long-existing writing habits.

Key Data

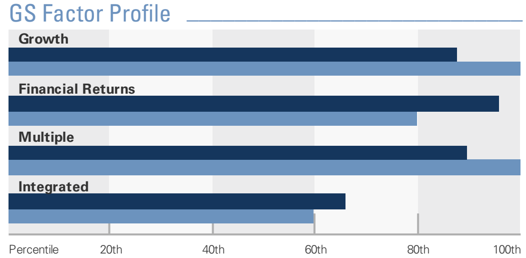
Market cap: Rmb42.1bn / $6.0bn
Enterprise value: Rmb41.1bn / $5.8bn
3m ADTV: Rmb229.1mn / $32.6mn
China
A-share Consumer Staples
M&A Rank: 3
Leases incl. in net debt & EV?: No

GS Forecast

	12/18	12/19E	12/20E	12/21E
Revenue (Rmb mn)	8,535.0	11,043.1	14,102.4	17,596.2
EBITDA (Rmb mn)	1,081.1	1,465.3	1,898.6	2,378.2
EPS (Rmb)	0.88	1.16	1.48	1.83
P/E (X)	32.8	39.4	31.0	25.1
P/B (X)	7.8	10.4	8.7	7.3
Dividend yield (%)	1.0	1.0	1.4	1.8
N debt/EBITDA (ex lease,X)	(1.0)	(0.8)	(0.9)	(1.0)
CROCI (%)	23.1	38.4	45.0	49.4
FCF yield (%)	1.9	0.9	2.1	2.9

	6/19	9/19E	12/19E	3/20E
EPS (Rmb)	0.23	0.36	0.29	0.34

GS Factor Profile



603899.SS relative to Asia ex. Japan Coverage
603899.SS relative to A-share Consumer Staples

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

Buy

Shanghai M&G (603899.SS)

Rating since Dec 2, 2019

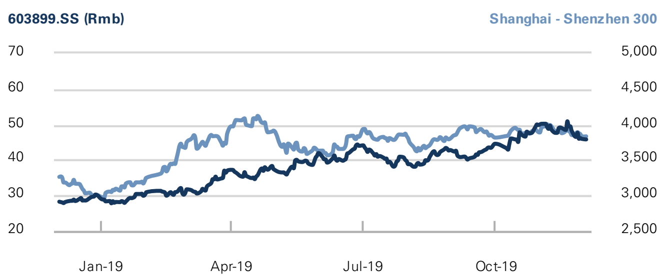
Ratios & Valuation

	12/18	12/19E	12/20E	12/21E
P/E (X)	32.8	39.4	31.0	25.1
P/B (X)	7.8	10.4	8.7	7.3
FCF yield (%)	1.9	0.9	2.1	2.9
EV/EBITDAR (X)	23.6	28.0	21.4	16.8
EV/EBITDA (excl. leases) (X)	23.6	28.0	21.4	16.8
CROCI (%)	23.1	38.4	45.0	49.4
ROE (%)	25.8	28.6	30.6	31.6
Net debt/equity (%)	(29.9)	(27.4)	(32.5)	(38.0)
Net debt/equity (excl. leases) (%)	(29.9)	(27.4)	(32.5)	(38.0)
Interest cover (X)	–	–	–	–
Days inventory outst, sales	40.9	37.4	34.9	33.8
Receivable days	32.6	39.2	44.3	47.4
Days payable outstanding	93.3	99.2	97.9	98.9
DuPont ROE (%)	23.1	25.7	27.2	28.0
Turnover (X)	1.5	1.6	1.6	1.7
Leverage (X)	1.6	1.7	1.7	1.8
Gross cash invested (ex cash) (Rmb)	2,679.9	3,334.1	3,825.2	4,375.5
Average capital employed (Rmb)	2,463.8	2,734.3	3,195.3	3,549.3
BVPS (Rmb)	3.71	4.40	5.26	6.28

Growth & Margins (%)

	12/18	12/19E	12/20E	12/21E
Total revenue growth	34.3	29.4	27.7	24.8
EBITDA growth	36.0	35.5	29.6	25.3
EPS growth	27.3	32.5	27.1	23.7
DPS growth	20.0	54.9	33.5	29.6
EBIT margin	10.3	11.2	11.4	11.5
EBITDA margin	12.7	13.3	13.5	13.5
Net income margin	9.5	9.7	9.6	9.5

Price Performance



	3m	6m	12m
Absolute	8.1%	9.2%	67.1%
Rel. to the Shanghai - Shenzhen 300	8.5%	3.4%	38.3%

Source: FactSet. Price as of 2 Dec 2019 close.

Income Statement (Rmb mn)

	12/18	12/19E	12/20E	12/21E
Total revenue	8,535.0	11,043.1	14,102.4	17,596.2
Cost of goods sold	(6,330.4)	(8,097.5)	(10,376.3)	(12,999.7)
SG&A	(1,306.9)	(1,689.6)	(2,094.2)	(2,544.4)
R&D	(11.3)	(14.6)	(18.6)	(23.2)
Other operating inc./(exp.)	(3.4)	–	(1.0)	(2.0)
EBITDA	**1,081.1**	**1,465.3**	**1,898.6**	**2,378.2**
Depreciation & amortization	(198.1)	(223.9)	(286.4)	(351.5)
EBIT	**883.0**	**1,241.4**	**1,612.3**	**2,026.8**
Net interest inc./(exp.)	8.0	10.5	11.4	16.2
Income/(loss) from associates	(0.4)	–	–	–
Pre-tax profit	**960.2**	**1,321.9**	**1,705.7**	**2,138.8**
Provision for taxes	(152.4)	(231.3)	(301.9)	(382.8)
Minority interest	(1.0)	(21.6)	(45.1)	(75.8)
Preferred dividends	–	–	–	–
Net inc. (pre-exceptionals)	**806.8**	**1,068.9**	**1,358.7**	**1,680.2**
Post-tax exceptionals	–	–	–	–
Net inc. (post-exceptionals)	**806.8**	**1,068.9**	**1,358.7**	**1,680.2**
EPS (basic, pre-except) (Rmb)	**0.88**	**1.16**	**1.48**	**1.83**
EPS (diluted, pre-except) (Rmb)	**0.88**	**1.16**	**1.48**	**1.83**
EPS (basic, post-except) (Rmb)	**0.88**	**1.16**	**1.48**	**1.83**
EPS (diluted, post-except) (Rmb)	**0.88**	**1.16**	**1.48**	**1.83**
DPS (Rmb)	0.30	0.46	0.62	0.80
Div. payout ratio (%)	34.2	40.0	42.0	44.0

Balance Sheet (Rmb mn)

	12/18	12/19E	12/20E	12/21E
Cash & cash equivalents	1,046.7	1,141.1	1,620.7	2,283.0
Accounts receivable	920.9	1,452.2	1,970.5	2,603.3
Inventory	1,042.7	1,220.2	1,478.3	1,780.8
Other current assets	1,089.3	1,189.3	1,209.3	1,229.3
Total current assets	**4,099.6**	**5,002.8**	**6,278.8**	**7,896.4**
Net PP&E	901.1	1,181.6	1,467.0	1,734.4
Net intangibles	188.1	226.4	262.1	295.3
Total investments	33.8	33.8	33.8	33.8
Other long-term assets	454.8	527.6	593.5	651.2
Total assets	**5,677.5**	**6,972.1**	**8,635.1**	**10,611.0**
Accounts payable	1,960.2	2,440.3	3,127.1	3,917.7
Short-term debt	–	–	–	–
Short-term lease liabilities	–	–	–	–
Other current liabilities	147.6	299.2	442.3	610.9
Total current liabilities	**2,107.9**	**2,739.5**	**3,569.4**	**4,528.7**
Long-term debt	–	–	–	–
Long-term lease liabilities	–	–	–	–
Other long-term liabilities	73.0	73.0	73.0	73.0
Total long-term liabilities	**73.0**	**73.0**	**73.0**	**73.0**
Total liabilities	**2,180.8**	**2,812.5**	**3,642.4**	**4,601.6**
Preferred shares	–	–	–	–
Total common equity	3,410.8	4,052.1	4,840.2	5,781.1
Minority interest	**85.9**	**107.5**	**152.6**	**228.3**
Total liabilities & equity	**5,677.5**	**6,972.1**	**8,635.1**	**10,611.0**
Net debt, adjusted	(1,046.7)	(1,141.1)	(1,620.7)	(2,283.0)

Cash Flow (Rmb mn)

	12/18	12/19E	12/20E	12/21E
Net income	806.8	1,068.9	1,358.7	1,680.2
D&A add-back	198.1	223.9	286.4	351.5
Minority interest add-back	1.0	21.6	45.1	75.8
Net (inc)/dec working capital	196.5	(228.7)	(89.6)	(144.7)
Other operating cash flow	(374.5)	(150.0)	(70.0)	(70.0)
Cash flow from operations	**827.9**	**935.8**	**1,530.6**	**1,892.7**
Capital expenditures	(318.2)	(565.4)	(623.4)	(659.8)
Acquisitions	–	–	–	–
Divestitures	0.9	–	–	–
Others	21.3	–	–	–
Cash flow from investing	**(296.0)**	**(565.4)**	**(623.4)**	**(659.8)**
Repayment of lease liabilities	–	–	–	–
Dividends paid (common & pref)	(230.0)	(276.0)	(427.6)	(570.6)
Inc/(dec) in debt	–	–	–	–
Other financing cash flows	7.5	0.0	0.0	0.0
Cash flow from financing	**(222.5)**	**(276.0)**	**(427.6)**	**(570.6)**
Total cash flow	**309.5**	**94.4**	**479.6**	**662.3**
Free cash flow	509.7	370.4	907.2	1,232.9

Source: Company data, Goldman Sachs Research estimates.

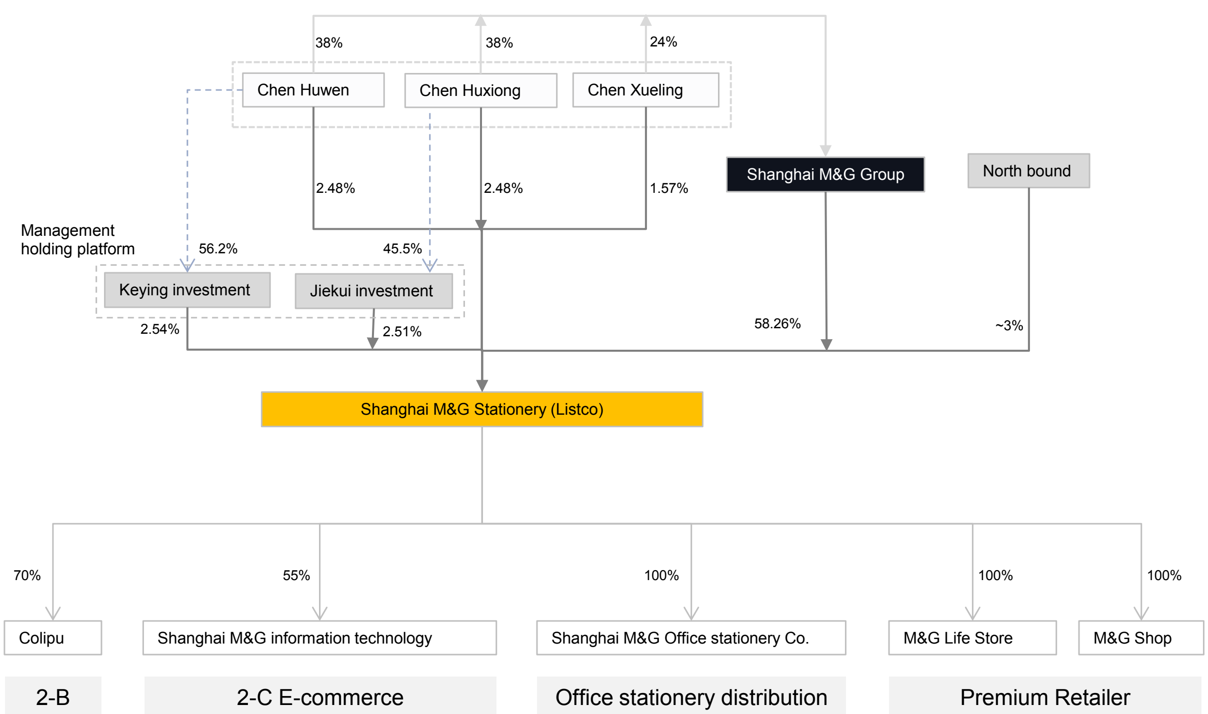
Table of Contents

#1. Business highlights

Business overview and growth forecasts

Shanghai M&G was founded in 1997 by Mr. Huxiong Chen. Prior to establishing the company, he had more than 10 years of experience in stationery sales and distribution. Relying on his expertise, he successfully grew Shanghai M&G into a leading player in the China stationery industry and the company was listed on the Shanghai Stock Exchange in 2015. Shanghai M&G is currently run by Mr. Huxiong Chen, his brother Mr. Huwen Chen and his sister Ms. Xueling Chen. Together, the three of them owned a c.67% stake in the company as of June 2019. Prior to its IPO, Shanghai M&G launched an ESOP for its management and executives through management holding platforms (Keying Investment and Jiekui Investment), which owned a c.5% stake in the company as of June 2019.

Exhibit 1: Shareholding structure of Shanghai M&G
As of June 2019



Source: Company data, compiled by Gao Hua Securities Research

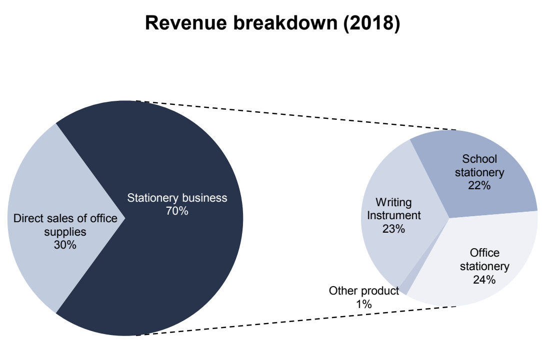
Shanghai M&G has two main businesses: 1) stationery, which comprises three categories, namely writing instrument, school stationery and office stationery; and 2) office supplies, providing stationery and other office supplies such as office consumables and consumer products to enterprises and government entities. In 2018, the stationery business accounted for 70% of revenue and 84% of gross profit — by category, writing instrument contributed 23% of revenue/31% of gross profit, school stationery contributed 22%/28%, and office stationery contributed 24%/24%.

In terms of net profit contribution, the stationery business contributed 88% in 2018, with only 3% contribution from the emerging office supplies business.

Exhibit 2: Structure of Shanghai M&G's stationery business

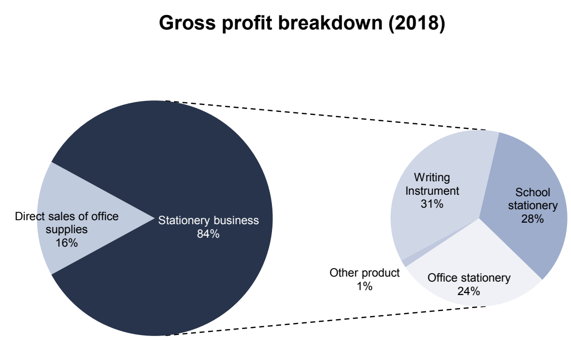
Source: Company data, compiled by Gao Hua Securities Research

Exhibit 3: Stationery business accounted for 70% of revenue in 2018...



Source: Company data

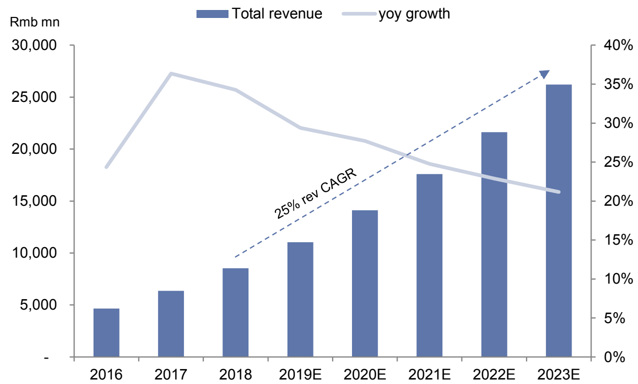
Exhibit 4: ... and 84% of gross profit



Source: Company data

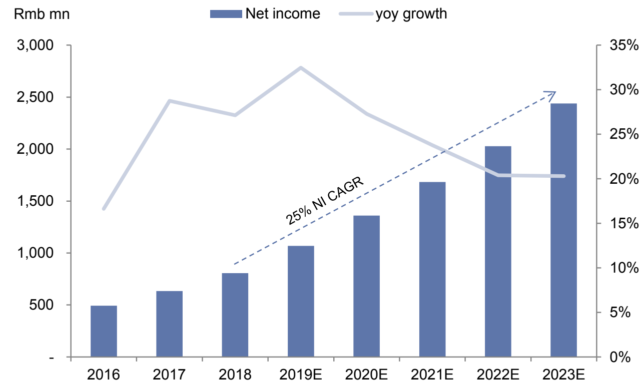
Since its establishment in 1997, Shanghai M&G has been focusing on stationery manufacturing and distribution. After discovering new opportunities in the to-B (i.e., to business) office supplies industry, it set up a specialized subsidiary Colipu in 2012 and achieved high growth in terms of both earnings and revenue by riding on the emerging trend of online centralized purchasing of office supplies for government units and SOEs. Shanghai M&G recorded 29% revenue CAGR and 24% net profit CAGR in 2014-2018 driven by its stationery business (20% revenue CAGR) and office supplies business (110% revenue CAGR). For the stationery business, we believe Shanghai M&G has built up several competitive advantages, such as strong product design capabilities and high-density sales channels, and will continue to gain market share. For the office supplies business, we expect Colipu to achieve rapid growth over the next five years, riding on rapid expansion of the to-B office supplies industry. Overall, we estimate 25% revenue and net income CAGR for Shanghai M&G in 2018-2023E.

Exhibit 5: We expect 25% revenue CAGR for Shanghai M&G in 2018-2023E



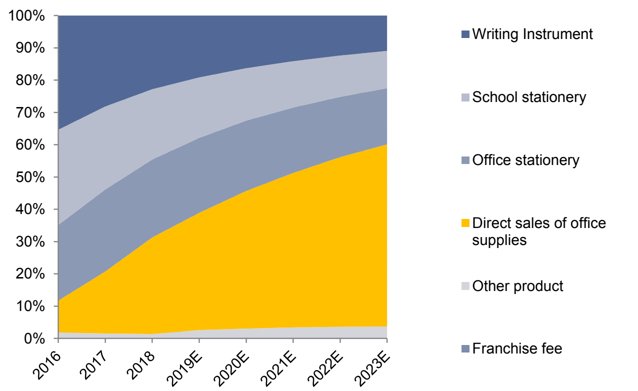
Source: Company data, Gao Hua Securities Research

Exhibit 6: We also expect 25% net income CAGR for Shanghai M&G in 2018-2023E



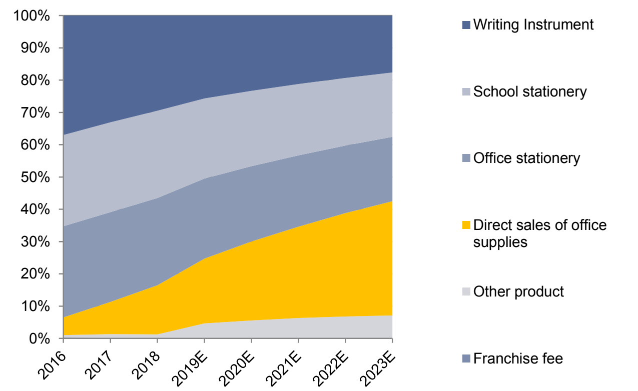
Source: Company data, Gao Hua Securities Research

Exhibit 7: Our projection of revenue structure for Shanghai M&G



Source: Company data, Gao Hua Securities Research

Exhibit 8: Our projection of gross profit structure for Shanghai M&G



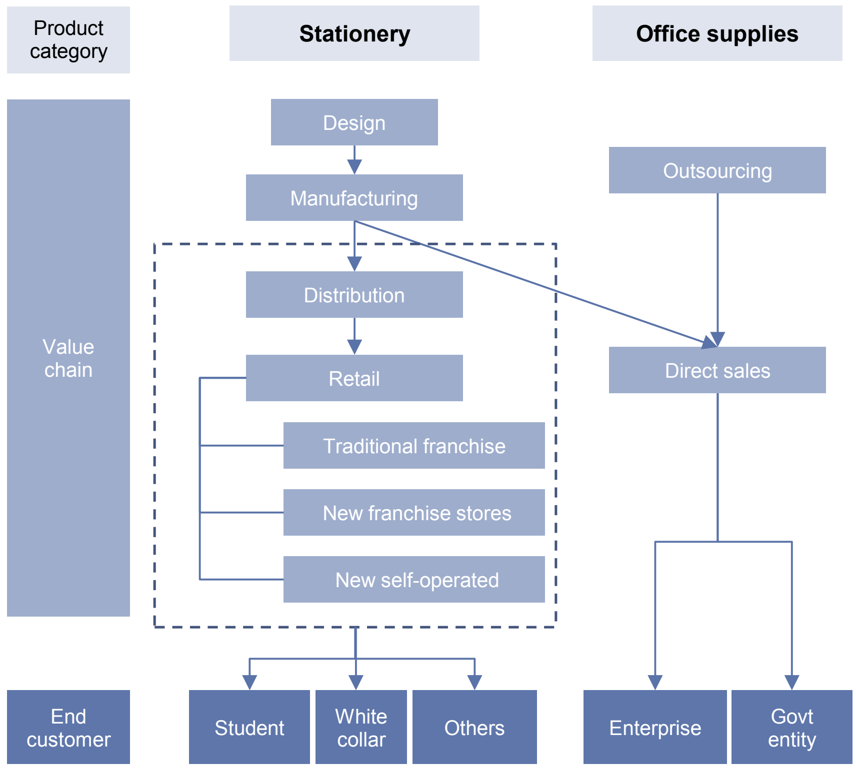
Source: Company data, Gao Hua securities Research

Customer profile and value propositions

Shanghai M&G is an integrated player across the entire value chain; we believe this acts as the foundation of its uniqueness and competitiveness. The company designs and produces most of its stationery products, allowing it to better control the product quality and pace of new product launches. The company has also built up a strong distribution network (i.e., 35 exclusive tier-1 distributors across the nation and 1,200+ tier-2/3 distributors as of 2018), enabling it to provide fast product delivery and high-quality offline services. Besides, the company has accumulated 78,000+ retail stores as of 1H19 through franchising, covering more than 80% of schools across China. According to Shanghai M&G, it is also building a new type of retail store that sells both stationery and other home products, aiming to catch up with the consumption upgrade trend and increase touch points to reach more potential customers. For the office supplies business, which has diversified product categories, Shanghai M&G does not have its own manufacturing capabilities. Instead, it partners with various office supplies product providers/manufacturers/brands and mainly sells through online platforms (direct sales). Compared with other global players, such as Staples (a US-based stationery retailer and office supplies provider) or Pilot (a Japan-based writing instrument manufacturer), Shanghai M&G has a relatively bigger scale (revenue size of Shanghai M&G was roughly

1.3x of Pilot's in 2018) and is the only company that operates across the entire value chain.

Exhibit 9: Integrated player across the value chain



Source: Company data, compiled by Gao Hua Securities Research

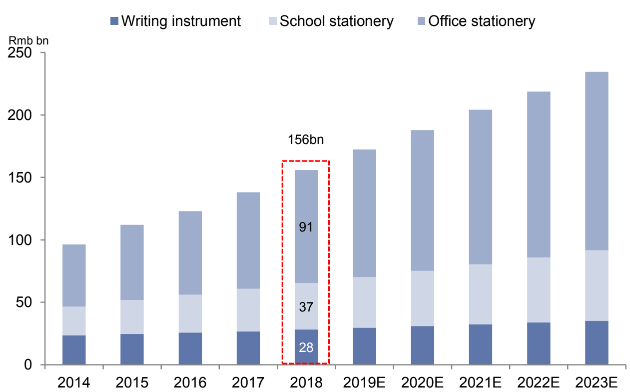
Within Shanghai M&G's stationery business, the writing instrument and school stationery segments adopt a to-C (i.e., to consumer) sales model, mainly selling to K-12 students and white collars who are the frequent users of stationery. The office stationery segment uses a hybrid model, which not only relies on offline shops to sell to individual customers and SMEs, but also leverages Colipu's platform to sell to enterprises and government entities. The office supplies business, which is operated by Colipu (a 70%-owned subsidiary of Shanghai M&G), offers one-stop services for corporate clients and government units. Different customer groups have different needs, and we believe that's where Shanghai M&G creates value by offering corresponding products. For the to-C business, customers pay for their own purchases; thus, they tend to place higher value on the product quality and design. Given stationery and writing instruments are generally sold at low unit prices and users are mainly K-12 students (though their parents may be buying on their behalf) and white collars who are less price sensitive, the company is able to incentivize more frequent purchases by offering high-quality products with attractive appearance and good user experience, and constantly update the products with innovative designs. For the to-B business, corporate clients usually sign medium-to-long-term contracts with service providers and tend to purchase diversified products in large quantities to lower the purchasing frequency and enjoy cost savings. Under this circumstance, we believe customer experiences, including customized purchase plans, convenience, fast delivery and after-sales services, are much more important than the product itself.

#2. Industry growth outlook

Market size and growth drivers

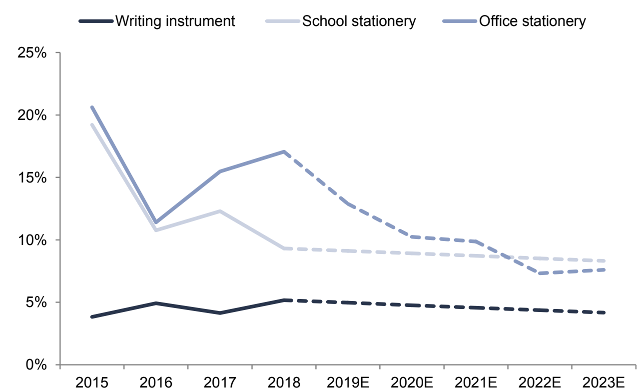
Consistent with Shanghai M&G's disclosure, we break down the stationery industry into three sub categories (writing instrument, school stationery and office stationery) and estimate the market size by using various sources (such as Euromonitor and China Writing Instrument Association). **According to our estimates, the size of China's stationery industry was around Rmb156bn in 2018 in terms of retail value, including Rmb28bn for writing instrument, Rmb37bn for school stationery and Rmb91bn for office stationery.**

Exhibit 10: We estimate the total size of China's stationery industry was Rmb156bn in 2018



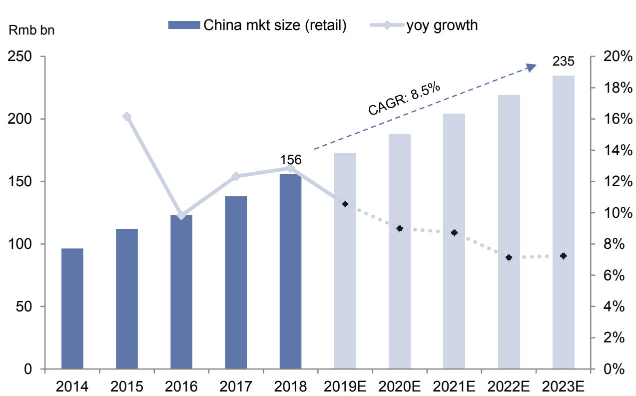
Source: Company data, Euromonitor, China Writing Instrument Association, Gao Hua Securities Research

Exhibit 11: Growth trends of sub-segments within China's stationery industry



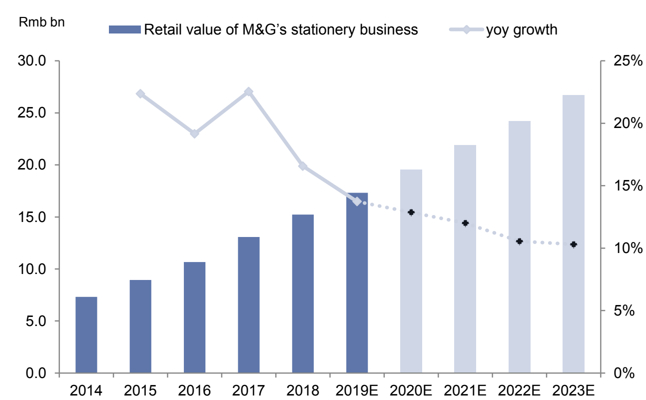
Source: Company data, Euromonitor, China Writing Instrument Association, Gao Hua Securities Research

Exhibit 12: We expect China's stationery market to grow at high single digit in the coming years



Source: Company data, Euromonitor, China Writing Instrument Association, Gao Hua Securities Research

Exhibit 13: We expect growth of Shanghai M&G's stationery business to outpace industry



Source: Company data, Gao Hua Securities Research

The biggest risk facing stationery is the move to electronics and digital equipment on the back of disruptive technology innovations. While we recognize this risk, we believe it would not materialize in the near future given technology constraints and long-existing writing habits.

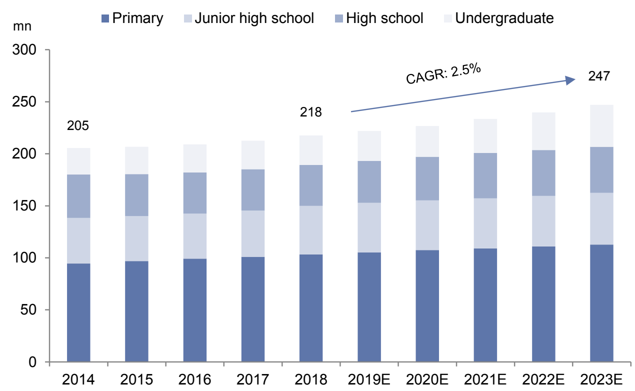
According to our estimates, we expect China's stationery industry to grow at 8.5% CAGR in 2018-2023E. **Comparatively, we expect the revenue of Shanghai M&G's stationery business to grow at 12% CAGR, outpacing the industry**, implying potential market share gains. We think there are two main drivers for stationery industry growth. The first driver is the increasing number of students, which drive the volume growth of stationery products. The second is the increasing GDP per capita, which drives disposable income of a family, the pocket money of students and SMEs' budget to purchase stationery. Considering the customer profile of frequent users of stationery, our definition of students ranges from primary school students to undergraduates.

According to our findings, the number of students in China started to rebound in 2014 when there were 206mn students. After four years, this figure increased to 218mn in 2018, implying an average annual growth rate of 1.4%. **We expect the total number of students to further increase to 247mn by 2023E (2.5% CAGR)** driven by the upward trend of new births from 2010 to 2017.

Apart from the rise in student number, the annual spending per student on school stationery is also increasing. Students spent an average Rmb112 on school stationery in 2014, while this figure increased to Rmb171 in 2018, implying 11% annual growth, higher than residents' disposable income growth or GDP per capita growth (8%-9%). **We think the fundamental reason is that the stationery upgrade demand is widely viewed as less important than the basic need to buy food and beverages, but more important than the need to upgrade other consumer products given its low unit price and education-related characteristics.**

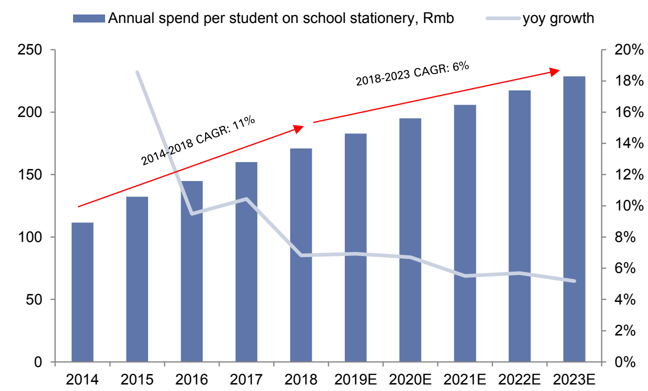
There are two common scenarios where students buy stationery: 1) their parents buy on their behalf before the start of each new semester; and 2) students do their own purchasing at stores near their schools. In the first scenario, Chinese parents especially young parents have a very high willingness to pay for their children's education and their related spending tends to increase more than their income growth. Stationery products generally benefit from this trend given their education-related angle. In the second scenario, students are generally less rationale than adults, and they can be easily stimulated by new stationery designs. In addition, when students receive more pocket money from their parents, they tend to increase their spending on stationery since they have already bought food and drinks, which won't cost much and have relatively stable consumption frequencies. **We expect the annual spending per student on school stationery to grow at 6% CAGR in 2018-2023E, in line with GDP per capita growth.**

Exhibit 14: We expect the number of students to increase at 2.5% CAGR in 2018-2023E



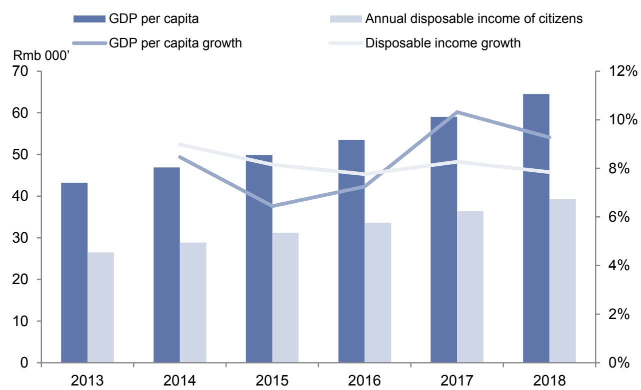
Source: National Bureau of Statistics, Ministry of Education of China, Gao Hua Securities Research

Exhibit 15: Annual spending per student has been increasing



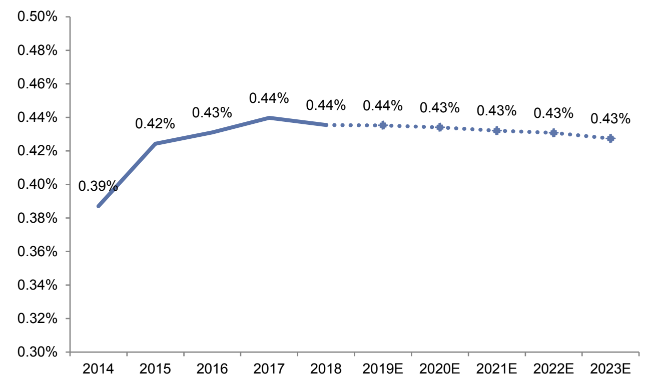
Source: Ministry of Education of China, Company data, Gao Hua Securities Research

Exhibit 16: GDP per capita growth and disposable income growth



Source: National Bureau of Statistics, Gao Hua Securities Research

Exhibit 17: We believe students' spending on stationery over citizens' disposable income will gradually stabilize



Source: National Bureau of Statistics, Gao Hua Securities Research

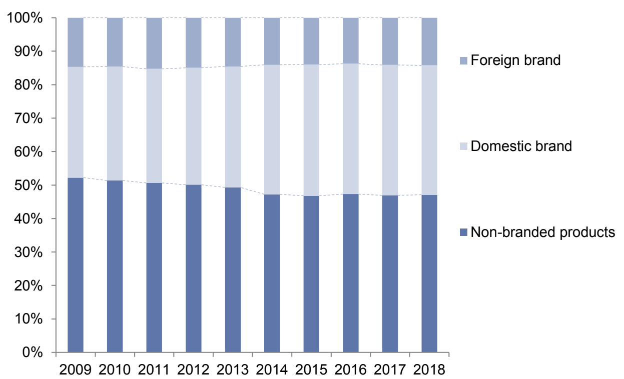
Competition landscape: writing instrument as an example

China's stationery industry is very fragmented, but is gradually being consolidated by leading players. Take writing instrument as an example. According to China Writing Instrument Association, in 2018, there were 229 enterprises in the writing instrument industry whose revenue scale were above Rmb2mn, vs. 249 enterprises in 2017. **Market share of the top 5 players (CR5) was c.30% in 2018, relatively low when we compare to 65% in Japan and 67% in the US.**

Domestic players are still dominant in the writing instrument market (86% market share), while the market share of foreign brands as a whole has been roughly stable at 14%. Foreign functional pen makers like Pilot and Mitsubishi Pencil are gradually gaining market share as their products are able to meet consumers' consumption upgrade needs (since their products generally have better quality, i.e., more durable, smooth writing without ink leakages), but their market share remains very small (Pilot: 1.5%; Mitsubishi: 2.2%). Luxury pen makers like Richemont SA (Montblanc) on the contrary are losing market share as luxury attributes of a pen appear to be fading on the back of digitalization. In general, we do not think foreign brands will pose a meaningful threat to domestic players given their weaknesses in sales channels and high product prices.

We have also noticed a recent trend whereby domestic brands are gaining market share from non-branded players. Non-branded players had a 52% market share in 2009 and 47% in 2018. Comparatively, the **market share of domestic brands increased from 33% in 2009 to 39% in 2018**. If we take a closer look at the market share breakdown among domestic brands, **we find that nearly all the market share gain has been grabbed by Shanghai M&G.** In 2009, Shanghai M&G's market share was 10.7%, 4.8ppt higher than the second largest player. In 2018, Shanghai M&G's market share expanded to 17.8%, surpassing the second largest player by 13.8ppt. Shanghai M&G has used nine years to expand its lead in the writing instrument industry, which we think is mainly a result of its solid competitive advantages.

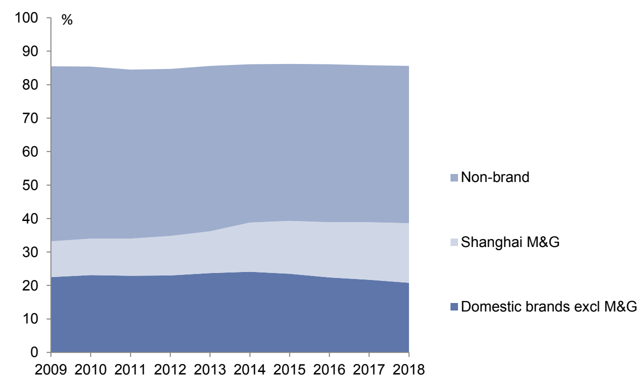
Exhibit 18: Market share of foreign brands has been stable while domestic brands are gaining share from non-branded players



Market share in terms of retail value.

Source: Euromonitor

Exhibit 19: Shanghai M&G has been taking market share from both non-brands and brands



Market share in terms of retail value.

Source: Euromonitor

Exhibit 20: Market share change of top 10 players in China's writing instrument industry

Company	Country of origin	Mkt share, % 2009	Mkt share, % 2018	Mkt share change, ppt
Shanghai M&G Stationery Inc	China	10.7	17.8 ▲	7.1
Deli Group	China	2.6	4.0 ▲	1.4
Lotus Stationery Co Ltd	China	5.9	3.3 ▼	-2.6
Richemont SA, Cie FinanciŁre	France	3.5	2.7 ▼	-0.8
Wenzhou Aihao Pen Co Ltd	China	2.5	2.7 ▲	0.2
Hallmark Cards Inc	US	1.5	2.2 ▲	0.7
Mitsubishi Pencil Co Ltd	Japan	1.5	2.2 ▲	0.7
Sunwood Holding Group Co Ltd	China	1.6	1.8 ▲	0.2
Guangdong Baoke Stationery Co Ltd	China	1.6	1.6 ▬	0.0
Pilot Corp	Japan	1.1	1.5 ▲	0.4
Top 10		32.5	39.8 ▲	7.3

Source: Euromonitor

The top 5 players in terms of market share in China's writing instrument industry are Shanghai M&G, Deli Group, Lotus Stationery, Richemont SA and Wenzhou Aihao. Deli is a private company, which mainly focuses on office stationery and office supplies. Lotus

Stationery submitted its IPO application in 2014 when it was then the #2 player in the market, but failed to receive SEC's approval due to its declining net profit trend in 2011-2013. One of the key differences between Lotus Stationery and Shanghai M&G is the pace of new SKU launch (Shanghai M&G has a much higher frequency of new product launches), which we think constitutes one of the competitive advantages of the latter.

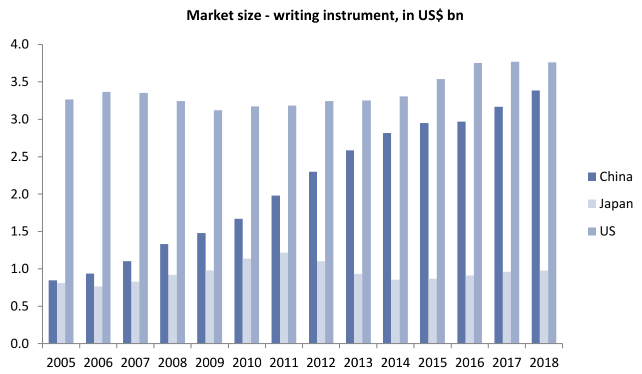
International comparison

Comparing to developed markets like the US and Japan, we believe there is still a significant gap, i.e., more than 10 years for the stationery industry to grow and consolidate, and Shanghai M&G will benefit as a dominant player.

The writing instrument industry has already entered the mature stage in the US and Japan, as evidenced by the stable market size and close-to-zero growth. The market size of writing instrument in the US was around US$3.8bn in 2018, vs. US$3.3bn in 2005. Comparatively, the market size of Japan/China was US$1bn/US$3.4bn in 2018. If we look at historical trends, the US/Japan market only grew by 1% p.a. on average from 2005-2018, while China achieved 11% CAGR during this period.

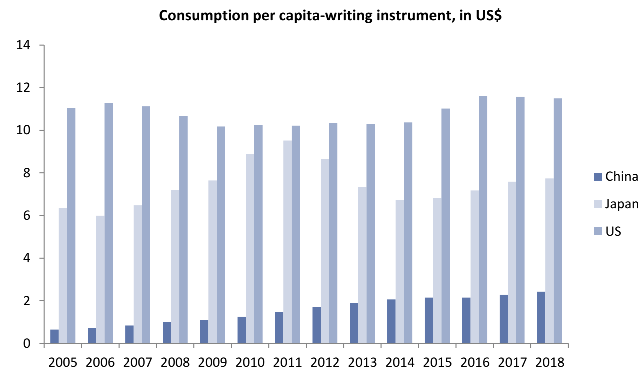
To figure out where we are in this long-term growth cycle, we compare the writing instrument spending per capita in China with conditions in the US and Japan. **In 2018, the writing instrument spending per capita was US$11.5 for the US and US$7.4 for Japan, both of which were much higher than China's US$2.4.** We think consumers' spending on writing instrument has a high correlation with GDP or disposable income, which is evidenced by the converging share of the US/Japan writing instrument industry with GDP (which can also be interpreted as converging percentage of writing instrument spending per capita over GDP per capita). As shown in Exhibit 24, the writing instrument industry accounted for 0.02% of GDP in the US/Japan in 2005-2018, and has stabilized at this level. Comparatively, the writing instrument industry accounted for 0.025% of GDP in China as of 2018, showing a continuous declining trend. We believe the stationery industry including the writing instrument segment will grow faster than GDP in China over the next several years, and bring its contribution to GDP in line with levels in the US/Japan.

Exhibit 21: Market size of China's writing instrument industry is catching up with the US



Source: Euromonitor, Gao Hua Securities Research

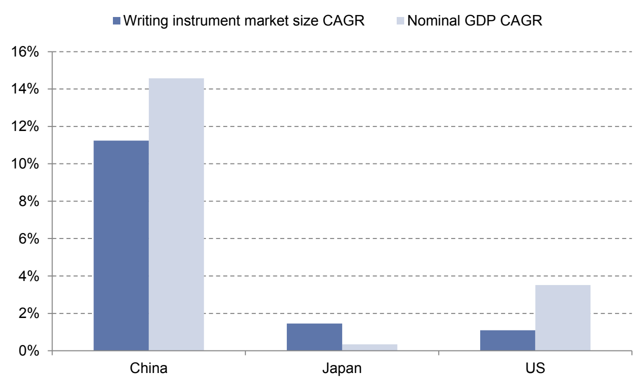
Exhibit 22: Writing instrument consumption per capita is still low compared to the US/Japan



Fluctuations in the Japanese market were largely due to exchange rate movements.

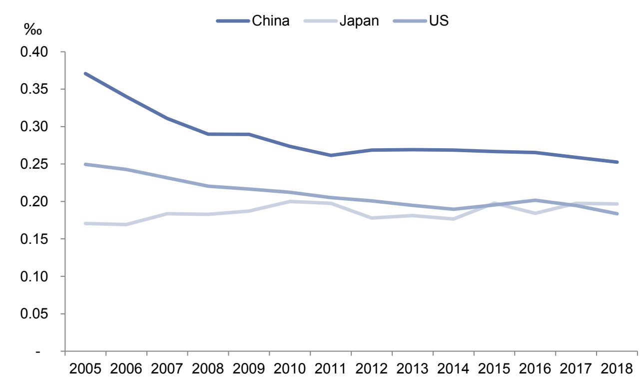
Source: Euromonitor, Gao Hua Securities Research

Exhibit 23: Growth comparison between writing instrument industry and GDP globally



Source: Euromonitor, World Bank

Exhibit 24: Percentage of writing instrument market size over GDP has been converging across countries

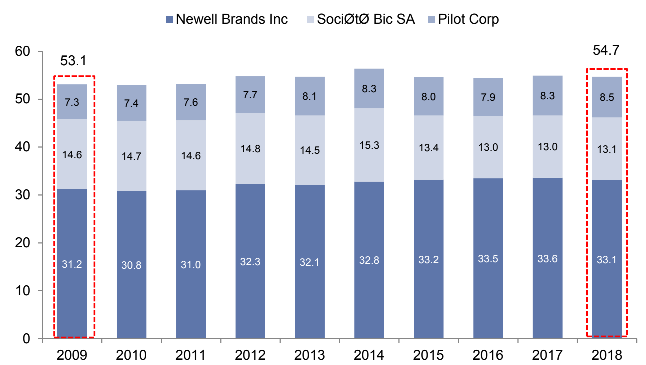


Source: Euromonitor, World Bank

We are confident of Shanghai M&G's market share expansion potential after analyzing the competitive landscape in the US and Japan. **Top 3 players in the US/Japan had more than 50% share in the writing instrument industry as of 2018.** More importantly, leading players continue to gain share even though the market has matured. In the US, the structure is more stable in terms of market share whereby the top 10 players already had c.75% market share in 2018, but smaller players firmly held on to the remaining 25% share. In Japan, the top 10 players had a 70% market share in 2018, but the top 3 players have been taking market share from their competitors. Based on the US/Japan experience, **we believe there is still room for Shanghai M&G to consolidate the market given that the top 3 players in China only had a combined 25% market share in 2018.**

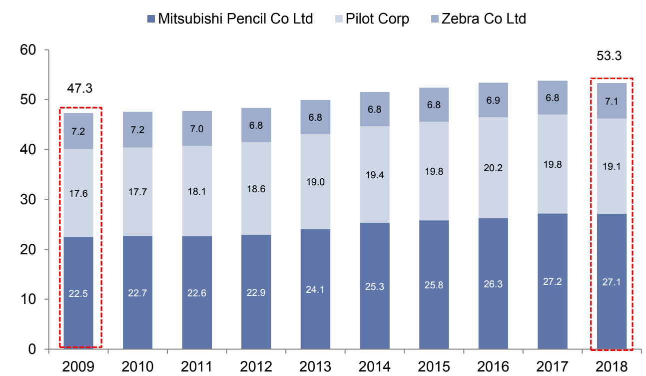
In addition, we believe the competitive landscape in China is even more favorable for top performers (in terms of market share or revenue size) like Shanghai M&G as the revenue gap has been widening between leaders and followers, implying that scale-related competitive factors like bargaining power, sales channels and R&D capabilities have been amplified. In Japan, there are two leading brand manufacturers in the industry, #1 player Mitsubishi Pencil and #2 player Pilot. They are similar in scale (Mitsubishi Pencil's domestic sales were 36bn yen in 2018; Pilot's domestic sales were 33bn yen) thus making it more difficult for them to differentiate from each other and may weaken their pricing power. In the US, Newell Brands enjoyed a market share of 33% in 2018, which was much higher than the 13% market share of the second largest player Société Bic SA. Notably, Newell Brands has been grabbing market share from Société Bic SA over the past five years. We believe the situation in China is more comparable to the US, and that Shanghai M&G will benefit from the industry growth and market consolidation by leveraging its strengths.

Exhibit 25: Top 3 players accounted for 54.7% share in the US writing instrument industry



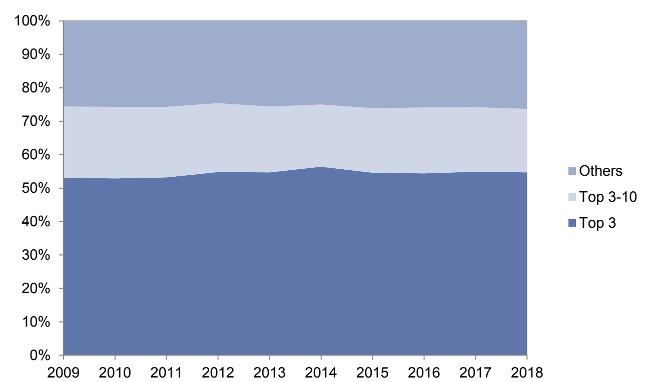
Source: Euromonitor

Exhibit 26: Top 3 players had 53.3% share in Japan's writing instrument industry



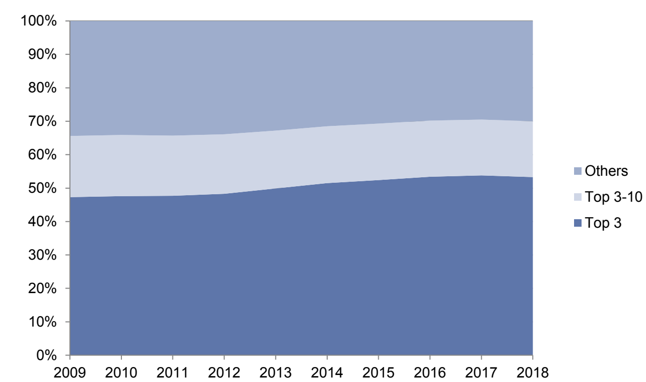
Source: Euromonitor

Exhibit 27: Top 10 players in the US had 3/4 market share while small players can still survive



Source: Euromonitor

Exhibit 28: Top 3 players in Japan have been taking market share from their competitors



Source: Euromonitor

#3. Competitive advantages

For the stationery business, Shanghai M&G is the leading player in China with very strong brand awareness and dominant market share. As we mentioned previously, Shanghai M&G is the key stationery market share gainer in China over the past 10 years. The company's market share in the writing instrument sector expanded from 10.7% in 2009 to 17.8% in 2018, and its leading edge has further widened. The second (Deli Group) and third largest player (Lotus Stationery) only accounted for a combined market share of 7.3% in 2018. We think the market share/revenue outperformance of Shanghai M&G is not a coincidence, but a result of its competitive advantages. Lotus Stationery used to be the main competitor of Shanghai M&G and the market shares of both companies were similar 20 years ago. However, their market shares or growth trajectories have diverged significantly over the past couple of years. In 2014, Lotus Stationery submitted an IPO application to China SEC. However, the application was declined due to its downward profit trend (net profit dropped by 22%/6% yoy in 2012/2013). Following two years of not getting the approval, Lotus withdrew its IPO application in 2016. We believe the key differences between Shanghai M&G and Lotus include product innovation capabilities, leading to differences in new product release frequency, and density of retail network. These two factors also constitute the key competitive advantages of Shanghai M&G, in our view.

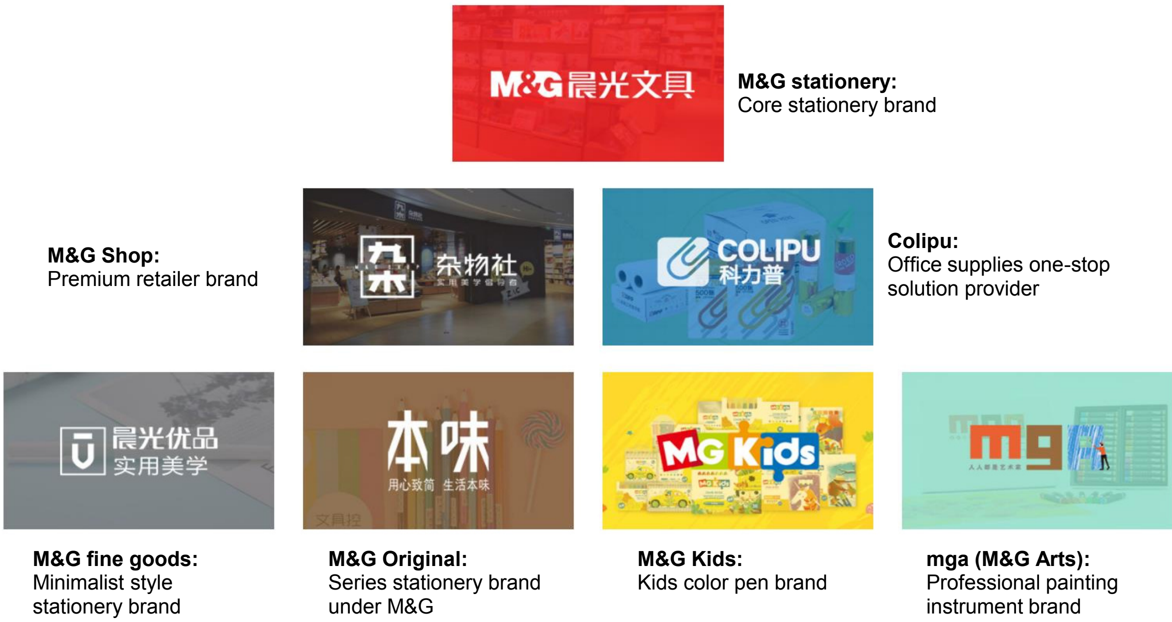
We see the following as Shanghai M&G's major competitive advantages: 1) strong brands; 2) advanced R&D capabilities; and 3) high-density and well diversified sales channels.

Strong brand awareness

We believe one of the most important assets for a consumer company is its brand name, given the fact that consumer products are largely homogeneous and are lacking in advanced technology. Stationery are widely viewed as consumer products even though they are more functional driven and have low unit prices. We think consumers do care about the brand of stationery in China to a certain extent, mainly because: 1) students, who are the key consumers of stationery, care about their writing experience given their frequent usage in schools; and 2) products with strong brand names are generally perceived as reliable and having high quality. These products can thus reduce consumers' negative experiences (e.g., ink leakages when writing a test paper).

With a history of over 20 years, Shanghai M&G has been focusing on the manufacturing and distribution of stationery products since its establishment. Throughout the years, the company has gradually built a strong brand name on the back of its high product quality and innovative designs. **It has been ranked first in the "Top Ten Enterprises in China's Pen Production Industry" for 10 consecutive years (2008-2018)** by China Light Industry Council and China Writing Instrument Association, illustrating its strong brand power and strong production capabilities. Under its core M&G brand, the company owns a variety of brands covering the stationery, premium retailer and office supplies segments. They engage in the cross selling of products and help to increase customer loyalty by expanding the user period and customer base. For example, back when Shanghai M&G only had the stationery product line, consumers would typically start to use its products only when they enter primary school, and they would stop using after graduating from college. At present, the company also has products for kids and professional painters, thus expanding its consumer base. Shanghai M&G is also increasing its interactions with customers (especially students) through offline activities like campus events and new forms of online marketing activities, which are beneficial to the company in terms of boosting its brand name.

Exhibit 29: Brand matrix under M&G



Source: Company website, compiled by Gao Hua Securities Research

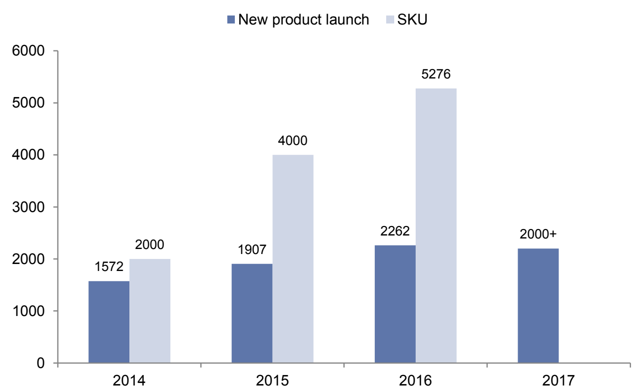
Advanced R&D capabilities

As mentioned earlier, students are the major consumers of stationery; as such, we find it helpful to understand their consumption behavior. According to a survey conducted by China Culture and Education Sporting Goods Association and Guangzhou Stationery Industry Association in 2006 (covering 4 primary schools, 8 middle schools and 6 colleges, including 788 samples in total), the top two reasons why students would buy new stationery were for writing needs and new product launch/new design. Although the survey was conducted some time back, we think it still sheds light on consumers' purchase motivation and helps us understand students' behavior. According to the survery, impulsive consumption or accidental consumption was the key reason why students would buy new stationery, therefore new product launches can help to stimulate stationery purchase.

Shanghai M&G has strong product design capabilities illustrated by large quantities of new SKU launch each year. According to the company, it can launch over 2,000 new products each year vs. over 5,000 SKU storage, implying 30%-40% SKU turnover each year. Highly frequent product launches are crucial for a stationery designer/producer as it increases customer stickiness and drives sales. To support the frequent release of new products, Shanghai M&G spends a considerable amount on

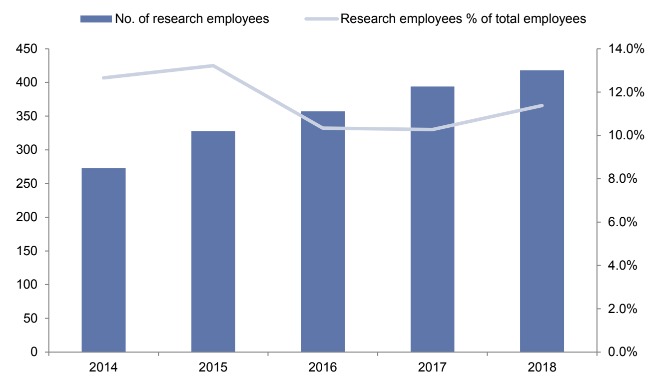
R&D including product design. It had more than 400 R&D employees as of 2018, accounting for 11% of total employees. The company has maintained its R&D expenditure at around Rmb100mn for the past five years, already surpassing Pilot (#1 pen maker in Japan)'s R&D expenditure both in terms of absolute spending and as percentage of stationery revenue, demonstrating the company's focus on innovation.

Exhibit 30: Over 2,000 new products were launched each year



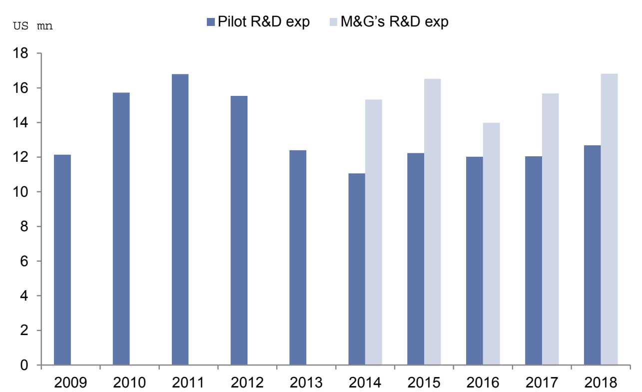
Source: Company data

Exhibit 31: Research employees accounted for over 10% of total employees and have been growing year over year



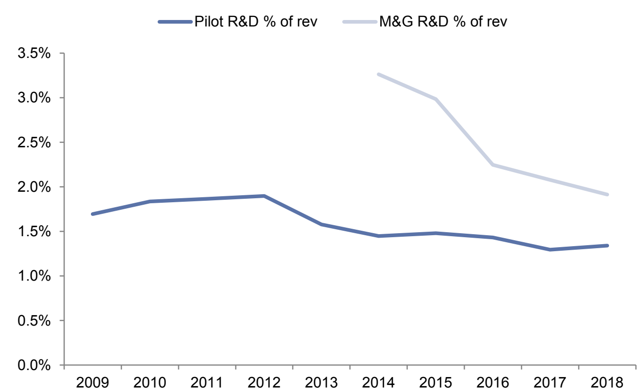
Source: Company data

Exhibit 32: Shanghai M&G's R&D expenditure has surpassed that of Pilot



Source: Company data

Exhibit 33: Shanghai M&G incurs higher R&D expenses than Pilot



Source: Company data

We categorize Shanghai M&G's products into three categories: classic products, innovative products and IP products. Classic products (e.g., GP 1390 gel ink pen) are long-lasting products, which have been well-received by the market and earned a good reputation among users. Good quality and long life cycle are some of their typical characteristics. For innovative products (e.g., pressure-sensitive gel ink pen), the company usually comes up with new designs to improve users' experience. Post release, if these products are well-received by consumers, they could be re-categorized as classic products. If market response is poor, they will be eliminated from the market. The company also develops IP products, which are embedded with popular elements like cartoon/movie characters to arouse students' interest and stimulate their consumption. IP products usually have a shorter life cycle as trends tend to change quickly. We believe Shanghai M&G's product development capabilities enable the company to satisfy consumers' varying/changing needs.

Exhibit 34: Shanghai M&G's product portfolio

Product portfolio

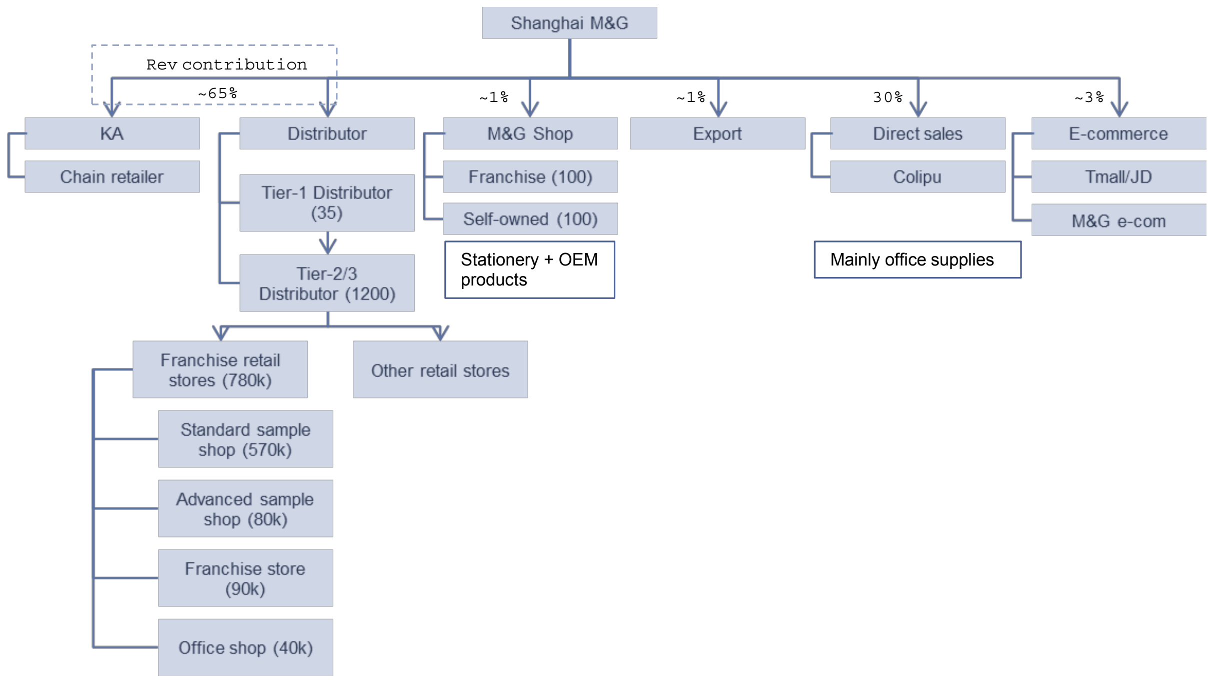
Classic products	Innovative products	IP products
Long-lasting products with iconic designs and good reputation	Embedded with creative designs and aesthetic appearance	Integrated with hot IPs among students, usually have relative short life

Source: Company website, compiled by Gao Hua Securities Research

Well diversified sales channels

Most of the stationery consumption in China happens offline, given the impulsive consumption behavior of students and low unit prices. To increase customer touch points, Shanghai M&G has developed various channels including KAs (supermarkets and chain retailers), distributors, M&G shops, e-commerce and direct sales. KAs and distributors are the dominant sales channels, contributing 90%+ stationery sales per our estimate. The company has 35 tier-1 distributors and around 1,200 tier-2/3 distributors across the nation. Under an agreement signed by Shanghai M&G and its distributors, tier-1 distributors can only sell M&G products. Tier-2/3 distributors can only sell M&G products in the writing instrument category, but are allowed to sell other brands in other product categories. We estimate that each tier-2/3 distributor can sell Rmb3-4mn (in terms of wholesale value) of writing instrument and Rmb9-10mn of M&G's stationery products (in terms of wholesale value) per year on average. The exclusive arrangement has enhanced Shanghai M&G's distribution network and set hurdles for competitors. The direct sales channel under Colipu is a to-B channel, mainly for office supplies sales but also includes a small portion of office stationery. We will discuss this in the 'New growth driver' section.

Exhibit 35: Shanghai M&G's channel structure



Source: Company data, compiled by Gao Hua Securities Research

Shanghai M&G also has strong control over its retail network. Adopting the franchising strategy, the company has expanded its retail network across the country, covering over 80% of schools in China. As of 1H19, its franchised retail stores amounted to over 78,000. **The company offers three types of arrangement for store owners to choose from: M&G standard sample shop, M&G advanced sample shop and M&G franchise outlet.** Shanghai M&G allows all three types of franchised stores to use the M&G logo on their signboards for free, which is attractive to many self-employed small stationery retail store owners and incentivizes them to transfer their private store to a franchise store under M&G. **For standard sample shops**, in-store presented SKUs of M&G products are generally no less than 265 and there is no exclusive clause from M&G. **Advanced sample shops** usually present at least 370 M&G SKUs and can only sell M&G products for designated categories. Shanghai M&G in turn will offer more support including free furniture such as display shelves and more product rebates or greater discounts. **An M&G franchise outlet** typically has over 1,000 M&G SKUs in store and can only sell M&G's products from all of M&G's categories.

Exhibit 36: Three types of M&G franchised store

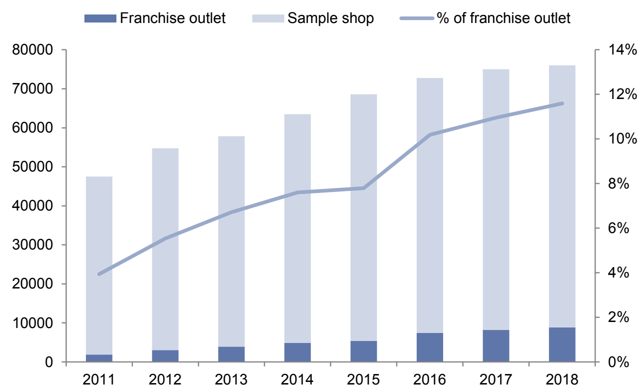
Organization	Standard sample shop	Advanced sample shop	Franchise outlet
Brand authorization	Allow shops to use M&G logo on their signboard for free		
Presented SKU of M&G	>265	>370	>1000
Exclusive clause	no	Exclusive for designated categories	Exclusive for categories M&G has
Supports offered by M&G	Training, product display	Training, product display, furnituers such as display shelves	Training, unified decoration and full support
Store image	 	 	 

Source: Company data, compiled by Gao Hua Securities Research

As retail stores near schools are the key places where students tend to buy stationery, Shanghai M&G has been trying to move its franchised stores from the standard sample shop arrangement to the M&G franchise outlet arrangement, aiming to enhance control over its retail network and reduce sales channels of competitors. The total franchised stores of Shanghai M&G continue to increase year over year on the back of the company's efforts to expand its retail network, and the percentage of franchise outlets vs. franchised stores has been increasing, indicating that the exclusiveness of M&G products is also increasing. Due to the attractiveness of franchise outlets to store owners, we believe Shanghai M&G will have increasingly strong controlling power over its retail network and may achieve near monopoly if the exclusiveness of its products were to reach a certain level. We believe this will become one of the company's most solid competitive advantages as time goes by.

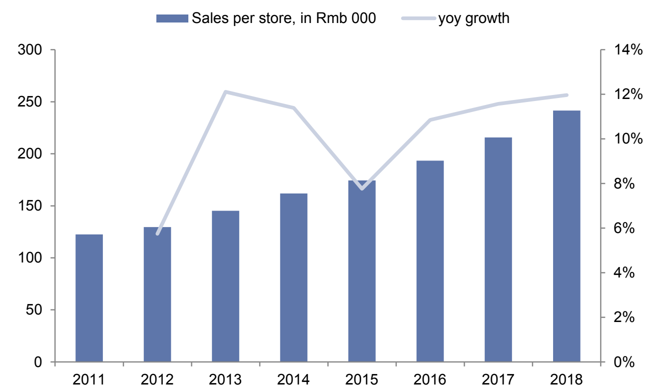
Over the past seven years, revenue per M&G franchised store has more than doubled, demonstrating the company's continuous efforts to gain shelf share inside the M&G franchised stores, and the relatively attractiveness of M&G's stationery products compared with peers.

Exhibit 37: Shanghai M&G's retail network is expanding, and its franchise outlets have increased in number



Source: Company data

Exhibit 38: Revenue scale of M&G franchised stores is increasing



Source: Company data

The company also had 300 new-type retail stores as of 1H19, including 171 M&G Shops (九木杂物社, 114 self-owned stores and 57 franchised stores as of 2018) and 129 M&G Life Stores (晨光生活馆). An M&G Shop is generally located in shopping centers that sell household and consumer goods, while a Life Store is usually opened next to Xinhua Bookstore, which is one of the largest bookstore chains in China, aiming to benefit from the traffic of Xinhua Bookstore and sell quality stationery to students. Besides traditional offline retail channels, the company also has multiple online sales channels including Tmall and JD. Shanghai M&G Information Technology Co., Ltd., a 55%-owned subsidiary of Shanghai M&G, is responsible for developing online channels.

In addition to the three key competitive advantages mentioned above, Shanghai M&G has a well organized 3-layer distributing system and implements a standard and strict management system, ensuring a healthy distributing environment with stable wholesale and retail prices. In 2013, the company also set up a high-tech warehouse, adopting WMS, and achieved management automation based on its real time information system. We believe this enhances Shanghai M&G's logistics accuracy and increases inventory management efficiency through standardized product inflows and outflows. Notably, the company is able to deliver its products from the factory to any retail store within seven days.

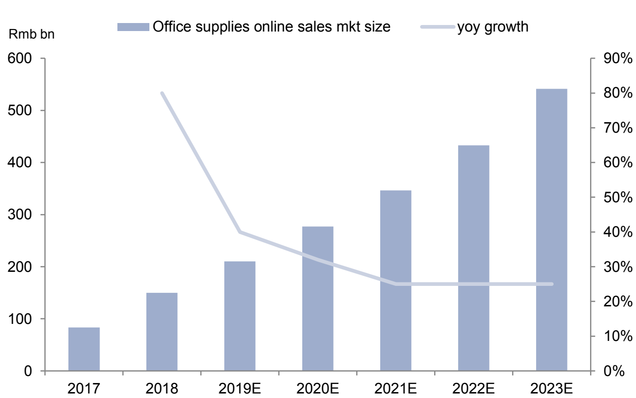
#4. New growth driver: office supplies business

Definition and market size of office supplies industry

Since its incorporation in 2012, Colipu (a 70%-owned subsidiary of Shanghai M&G) has been engaged in the office supplies business. Different from the stationery business, customers of the office supplies business mainly include enterprises and government entities. Here, we define the office supplies business as the sale of products that people may use in an office (such as stationery, office consumables, office devices and other consumer goods) excluding raw production materials and specialized equipment. The office supplies industry has long existed in China, but is transforming from offline to online as e-commerce goes nationwide and the penetration of online purchases continue rising. In addition, the government has shifted its preference towards centralized purchasing with increased transparency, thus creating new opportunities in recent years.

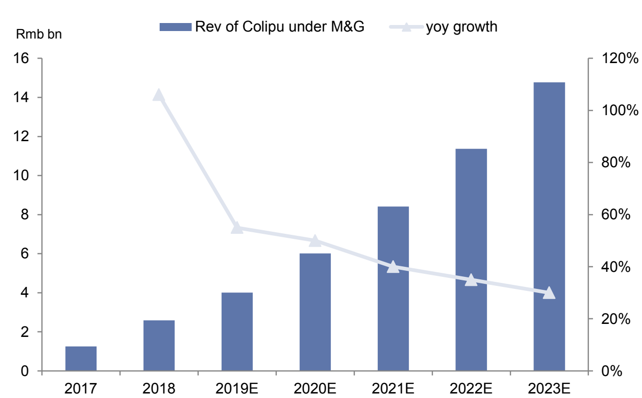
In the beginning, Colipu had three sales models: online sales through self-operated e-commerce platforms, contract sales and commission sales. Now, the online sales model is the focus of Colipu as offline-to-online purchase is the ongoing trend for enterprises and government entities. According to the National Enterprise E-commerce Purchasing Report (published in December 2018), the overall enterprise online purchasing market is booming, growing by 80% yoy in 2018. Among all goods purchased online by enterprises, **the general consumer product value reached Rmb150bn in 2018, which serves as a reference for the online office supplies market size, in our view. We expect the online office supplies market to more than triple over the next five years, reaching Rmb540bn in 2023E. Colipu's revenue was Rmb2.6bn in 2018, accounting for c.2.0% market share. We expect its revenue to increase by 55% to Rmb4.0bn in 2019, with its market share expanding to c.2.2%.**

Exhibit 39: We expect online sales of office supplies to increase rapidly



Source: National Enterprise E-commerce Purchasing Report, Gao Hua Securities Research

Exhibit 40: We expect Colipu to benefit from market expansion



Source: Company data, Gao Hua Securities Research

Competitive landscape

Similar to the stationery business, the office supplies industry is highly fragmented, which is due to its business nature. When enterprises buy office supplies offline, it's difficult for them to buy all the products they need at one time given the wide range of product categories, so they usually buy from several suppliers. In addition, enterprises generally prefer local suppliers due to their faster response and better services. As a consequence, many regional small businesses exist. However, we notice that market concentration has been rapidly increasing as online penetration increases in the enterprise space and all government entities and larger SOEs are required by the Chinese government to use the centralized online purchasing platform for office supplies over the past couple of years. We think China will not experience the offline consolidation process, which happened in the US and Japan in the 1990s, and will directly go to the online stage.

We categorize current market players into two types: 1) comprehensive e-commerce platforms (i.e., e-commerce platforms with a comprehensive product portfolio), which have accumulated abundant experience in the to-C e-commerce space, and now wants to penetrate into the to-B industry, such as JD VSP and B.Tmall; and 2) professional office supplies providers, which have their origins in the traditional to-B industry and have experiences in conducting the offline office supplies business, such as Comix, Deli and Colipu. **Currently, the top 3 comprehensive e-commerce platforms have a combined market share of 70%-80% and professional office supplies providers own c.10% in total, according to our estimates.**

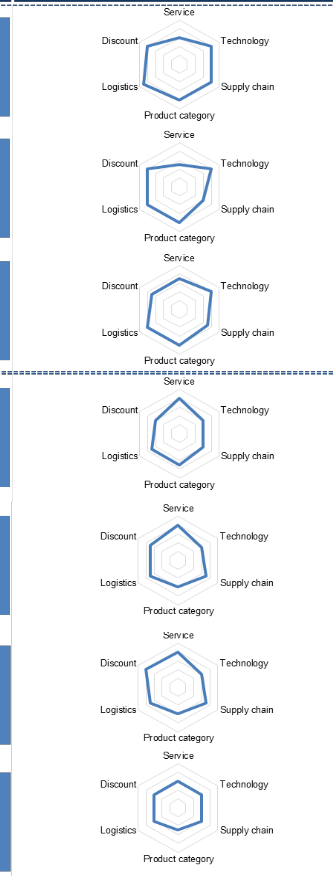
Their business models differ slightly. B.Tmall is a pure B2B e-commerce platform (3P), which means it does not hold any inventory and only matches demand with supply and charges commissions. JD VSP is a 1P e-commerce platform, which sells products directly to customers, but takes on the inventory and reputational risks. Suning.com is a hybrid e-commerce platform, with both 1P and 3P businesses. For professional office supplies providers, nearly all of them adopt the direct sales business model to control product quality.

From a customer's perspective, we list six important factors (service, discount, logistics, product category, supply chain and technology) that could affect customer experience and accordingly differentiate players in the industry. Comprehensive e-commerce platforms typically have strengths in product category, logistics and technology, while professional suppliers usually do well in services. Different customers assign different levels of importance to these factors and large customers (such as SOEs or government entities) generally place greater value on the wholistic experience during the purchase process.

Exhibit 41: Competitive landscape in online office supplies

	Company	Origination	Business model	Mkt share est
Comprehensive E-commerce platform	JD VSP (京东企业购 – 购·见未来 –)	JD consumer e-commerce platform	Direct sales	70%-80%
	B.Tmall (天猫企业购 B.TMALL.COM)	Tmall consumer e-commerce platform	B2B	
	Suning (苏宁易购 suning.com)	Suning consumer online/offline retailer	Direct sales + B2B	
Professional office supplies provider	Comix (Comix 齐心办公)	Specialized 2B office supplies producer	Direct sales	10%
	Deli (deli 得力办公)	Wellkown office supplies producer	Direct sales	
	Colipu (COLIPU 科力普 晨光文具办公直销平台)	Wellknown Stationery manufacturer	Direct sales	
	Office Mate (OfficeMate 办公伙伴)	Leading manufacturer of office products	Online direct sales	

Strength



Source: Gao Hua Securities Research

Colipu has been providing high-quality services to large business customers and government divisions (see Exhibit 42). It offers customized pre-purchase plans and responsive after-sale services. Therefore, it has accumulated many large customers including government entities (e.g., State Taxation Administration), SOEs (e.g., National Grid, China Mobile, ICBC), private companies (e.g., Vanke Services) and multi-national companies(e.g., TCL, Simens). We think JD, Tmall and Suning have competitive advantages in acquiring SME clients that place less value on offline services. However, we believe they may find it challenging to consolidate the market shares of big corporates, which have big budgets and do not typically allocate their entire budget to one service provider.

Exhibit 42: Colipu's customer group

Government entity	SOE	Private company	MNC
Chinese Central government	State Grid corporation	Jinke Real Estate	Nike
State Taxation Administration	Sinopec	Vanke Service	TCL
Shenzhen government	Shanghai Airlines	New Hope Group	Siemens
Shanghai government	China Unicom		Johnson & Johnson
Tianjin government	China Mobile		Royal Dutch Shell
…	…	…	…

Source: Company announcements

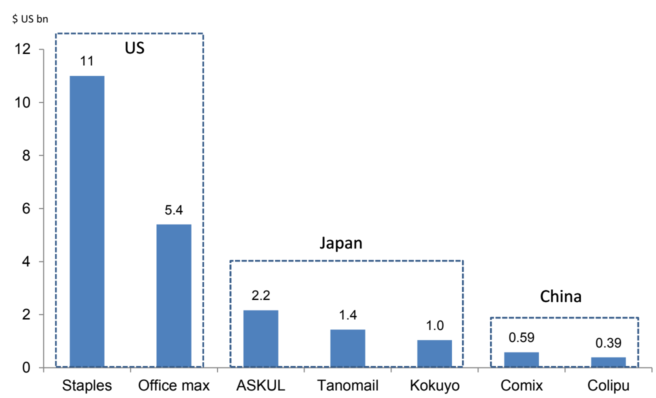
In the medium term, we believe Colipu will sustain its rapid growth on the back of increased online penetration in enterprise purchasing. In the long run, we think the market share of each player will get stabilized, with comprehensive e-commerce platforms enjoying majority shares in the SME segment and Colipu maintaining a stable share in the government/SOE segment.

Global comparison

To understand the growth potential for Colipu, we compare it with global leaders. In the US, the top 2 players in the industry are Staples and Office Max. Staples' revenue was around US$11.0bn (28x of Colipu's 2018 revenue) in 2016 while Office Max's revenue was US$5.4bn (14x of Colipu's 2018 revenue) in 2018. In Japan, the top 3 players account for 70%-80% of the total market share. ASKUL is the largest player with a revenue of US$2.2bn in 2018, 5.6x of Colipu's revenue in the same period.

Exhibit 43: Still ample room to grow for Colipu compared to global peers

Revenue comparison



2016 data for Staples; 2018 data for the other companies.

Source: Company data

Experiences of global peers suggest that there is still ample room for professional office supplies providers to grow, even if they were to face intense competition from comprehensive e-commerce platforms, such as Amazon or Yahoo Japan. This is because the customized and extensive services provided to larger corporate clients or government entities continue to be very important, and these are the competitive advantages generally associated with the professional office supplies providers. Therefore, we believe Colipu's market share will continue to increase gradually as the centralized purchasing initiative for government entities and corporates gains traction.

Exhibit 44: Comparison of office supplies companies across the world

Country	USA		Japan			China	
Company	Staples	Office depot	Askul	Tanomail (under OTSUKA CORP)	Kokuyo	Colipu	Comix
Sales channel	Off-line stores; Catalog sales; Contract sales; e-com (<10%)		Catalog sales; Contract sales	Mail order	Catalog sales; Contract sales	e-com (>80%), contract sales	e-com, contract sales
Key prodcuct category	Office furniture;IT equipment;stationary, office supply;etc		14% stationery, 7% furniture, 33% living supplies, 30% IT products	Na	Furniture(c.50%); stationery(c.20%); other office supplies	Office consumables (38%), IT equipment (36%), stationery (5%)	Office supplies (60%) office equipment (40%)
Sales contribution of self-produced products	15%	10%	36%	Na	28%	<5%	<5%
Market share	40%	20%	36%	24%	17%	2.5%	3%
Client structure	Top 500 companies and SMEs		Top 500 companies and SMEs			Government entities, SOEs and large private companies	
Revenue (US bn)	11	5.4	2.2	1.4	1	0.4	0.6
OP margin	7%	5%	2%	4.90%	3%	3%	2%
Establishment of 2-B business	1994	1986	1963	1999	1960	2012	2000

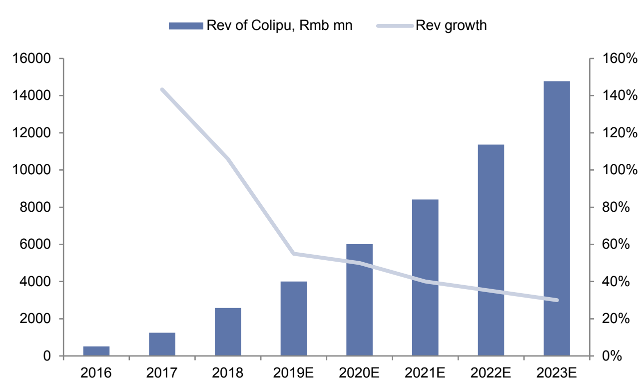
For Staples, financial numbers were as of 2016. For other companies, financial numbers were as of 2018. Market share data are our estimates.

Source: Company filings, Gao Hua Securities Research

We expect Colipu's revenue to reach Rmb14.8bn in 2023E, implying 3.1% market share and 42% CAGR in 2018-2023E. Meanwhile, we also expect its net profit margin to gradually improve from the current level of 1.2% to 4% in 2023E, close to the average 4%-5% level of global peers (such as Staples, Office Max, ASKUL and Tanomail), mainly driven by increasing scale effect and more rebates from suppliers. Accordingly, Colipu's net profit contribution will rise from 3% in 2018 to 17% in 2023E, becoming an important growth engine of Shanghai M&G.

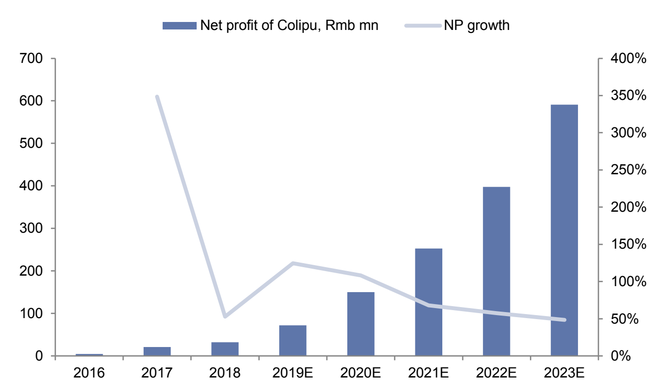
More importantly, though Colipu has much lower margins than Shanghai M&G's traditional stationery business, its ROE (18%-27% in 2018-2019E) has been similar to the stationery business, largely owing to its asset light business model, efficient supply chain and fast asset turnover rate. For example, its net asset turnover over the past two years averaged at around 12x-13x. We believe the business nature of Colipu will largely ease the concerns of some investors over diluting margins and capital returns of M&G as a whole.

Exhibit 45: Revenue and growth of Colipu



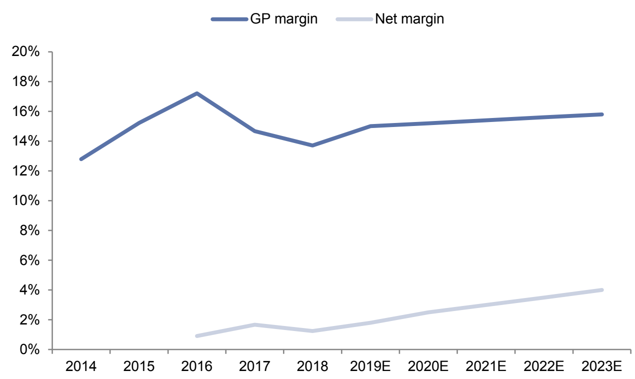
Source: Company data, Gao Hua Securities Research

Exhibit 46: Net profit and growth of Colipu



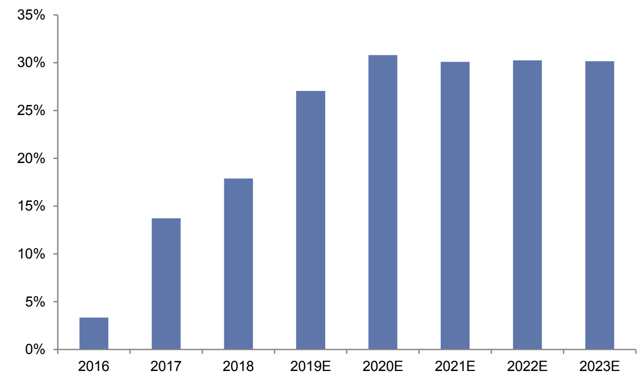
Source: Company data, Gao Hua Securities Research

Exhibit 47: We expect Colipu's margins to improve



Source: Company data, Gao Hua Securities Research

Exhibit 48: Colipu's ROE is high despite low margins



Source: Company data, Gao Hua Securities Research

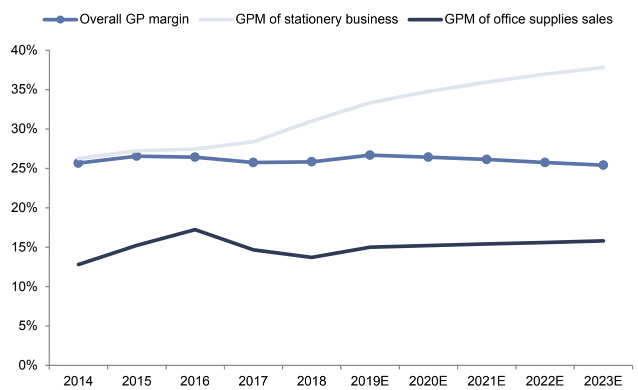
#5. Financials and valuation

Fast topline growth and stable margins

We expect revenue of Shanghai M&G to increase from Rmb8.5bn in 2018 to Rmb26.0bn in 2023E, implying 25% CAGR. **The office supplies business will become the key growth engine over the next five years, in our view, with revenue growing from Rmb2.6bn to Rmb14.7bn, contributing 68% of incremental revenue over the next five years.**

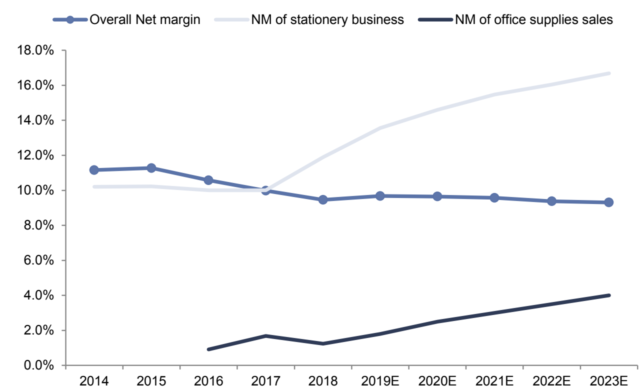
The relatively faster revenue growth and lower margins of the office supplies business will inevitably lead to lower overall margins for the company. Nonetheless, we expect rising margins from the traditional stationery business to largely offset the above. As such, we forecast the net profit margin of Shanghai M&G will decline from 9.5% in 2018 to 9.3% in 2023E.

Exhibit 49: Overall GP margin will fall slightly due to fast growth of office supplies business



Source: Company data, Gao Hua Securities Research

Exhibit 50: Overall net margin will also decline



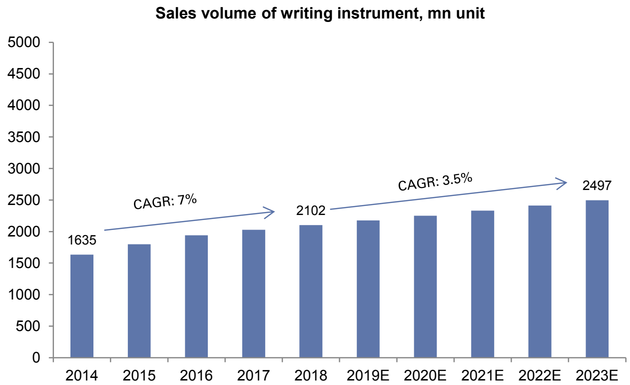
Source: Company data, Gao Hua Securities Research

We expect the company's traditional stationery business to maintain stable growth and remain the main profit contributor over the next five years. We expect revenue from the stationery business (including the new retail store business) to increase from Rmb6.0bn to Rmb11.4bn, implying 14% CAGR. Accordingly, the net profit contribution will increase from Rmb711.0mn to Rmb1.9bn, implying 22% CAGR over the next five years. We believe net profit margins of the stationery business will gradually improve from 12% in 2018 to 16% in 2023E, thanks to ASP increase and lower SG&A ratio.

Balance sheet and cash flow analysis

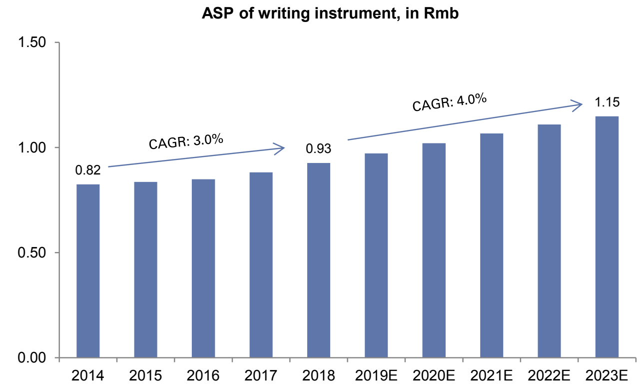
Long-term assets accounted for 28% of total assets as of 2018. Asset turnover (sales over long-term assets) was 53% in 2018, implying high efficiency in asset use. Cash and equivalents and other highly-liquid current assets (mainly WMP) amounted to Rmb2.1bn in 2018, or 38% of total assets. In addition, the company does not have any debt burden, indicating its strong cash generation ability. ROIC was 54% in 2018, and we estimate it to further increase in the coming years on the back of improved operating efficiencies. Cash flow from operations has been consistently greater than net income over the past five years, implying high earnings quality and healthy cash flow conditions. Shanghai M&G's dividend payout ratio was 34% in 2018, and we expect the ratio to rise as the company accumulates more cash on its balance sheet. We expect Shanghai M&G's capex to increase due to its continued investment in Colipu, but we see limited impact on free cash flow in the near term, considering its abundant cash balance.

Exhibit 51: Sales volume growth of writing instrument



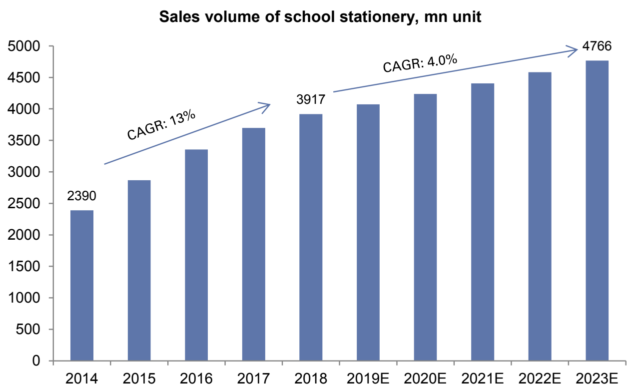
Source: Company data, Gao Hua Securities Research

Exhibit 52: ASP growth of writing instrument



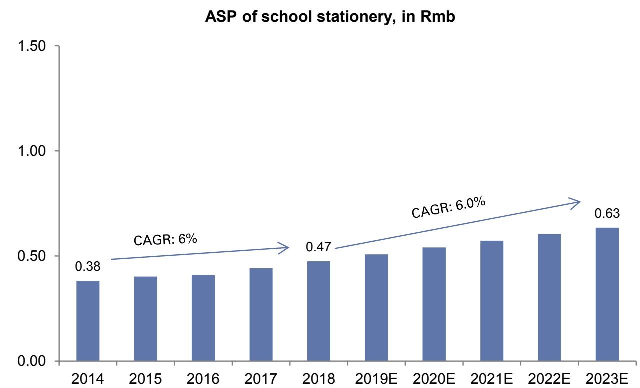
Source: Company data, Gao Hua Securities Research

Exhibit 53: Sales volume growth of school stationery



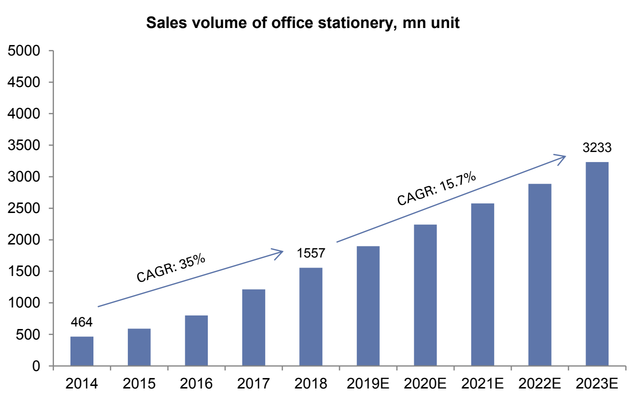
Source: Company data, Gao Hua Securities Research

Exhibit 54: ASP growth of school stationery



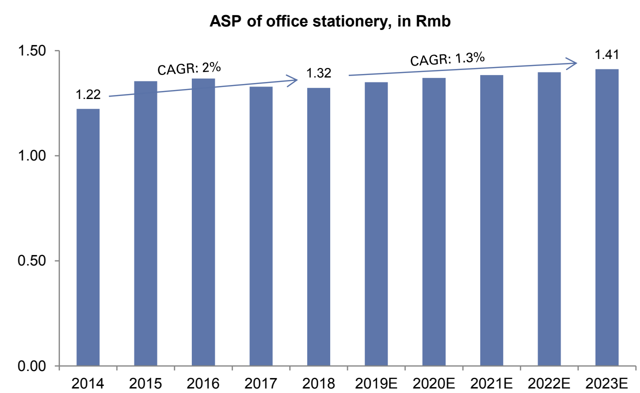
Source: Company data, Gao Hua Securities Research

Exhibit 55: Sales volume growth of office stationery



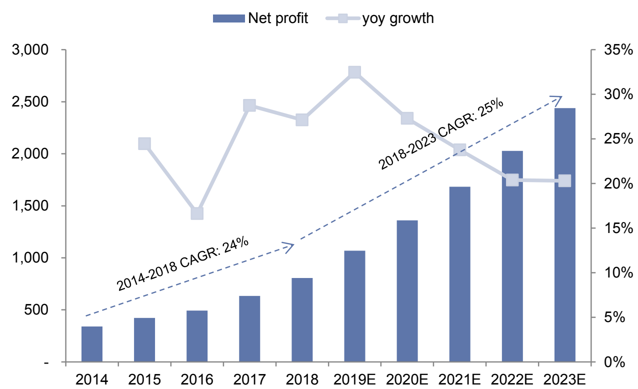
Source: Company data, Gao Hua Securities Research

Exhibit 56: ASP growth of office stationery



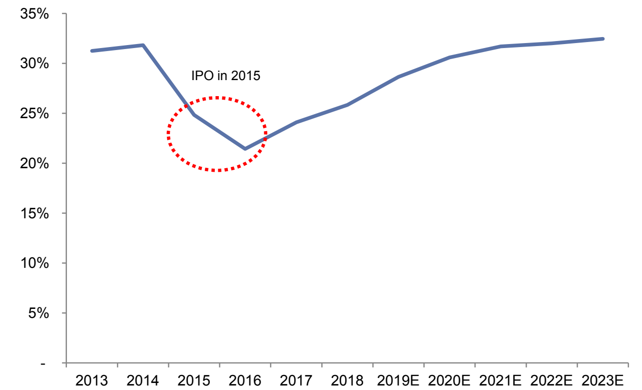
Source: Company data, Gao Hua Securities Research

Exhibit 57: We expect 25% net profit CAGR for M&G in 2018-2023E



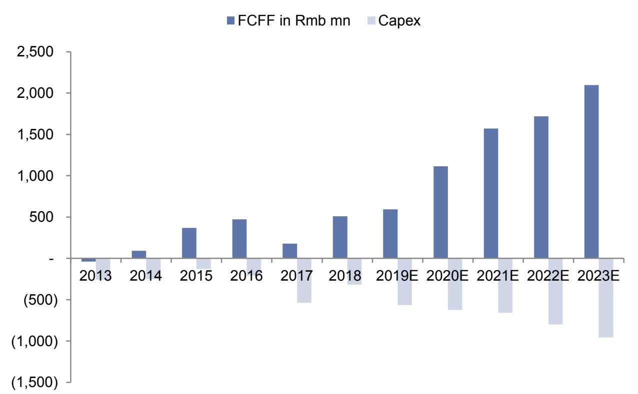
Source: Company data, Gao Hua Securities Research

Exhibit 58: We expect Shanghai M&G to sustain its high ROE going forward



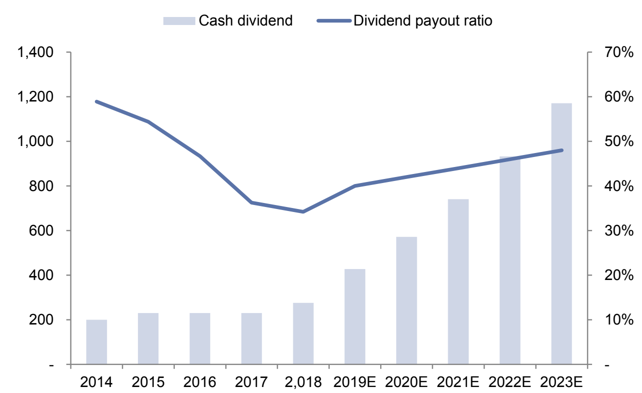
Source: Company data, Gao Hua Securities Research

Exhibit 59: FCFF and capex



Source: Company data, Gao Hua Securities Research

Exhibit 60: We expect dividend to rise as the company gradually steps into a more mature state



Source: Company data, Gao Hua Securities Research

Exhibit 61: Financial highlights of Shanghai M&G

Rmb mn	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Total revenue	**3,043**	**3,749**	**4,662**	**6,357**	**8,535**	**11,043**	**14,102**	**17,596**	**21,625**	**26,203**
yoy growth		*23%*	*24%*	*36%*	*34%*	*29%*	*28%*	*25%*	*23%*	*21%*
Revenue from main business	**3,043**	**3,746**	**4,659**	**6,352**	**8,534**	**11,042**	**14,101**	**17,595**	**21,624**	**26,202**
Writing Instrument	1,347	1,503	1,647	1,788	1,946	2,115	2,298	2,486	2,676	2,866
School stationery	911	1,153	1,374	1,633	1,858	2,068	2,290	2,525	2,770	3,025
Office stationery	567	798	1,092	1,613	2,060	2,563	3,070	3,566	4,034	4,563
Other product	75	79	83	95	114	285	428	599	778	973
Direct sales of office supplies	131	202	459	1,220	2,553	4,008	6,012	8,417	11,363	14,772
Franchise fee	12	11	4	3	3	3	3	3	3	3
COGS	**2,263**	**2,754**	**3,431**	**4,721**	**6,330**	**8,098**	**10,376**	**13,000**	**16,060**	**19,546**
Gross profit	**781**	**995**	**1,232**	**1,636**	**2,205**	**2,946**	**3,726**	**4,596**	**5,565**	**6,657**
GP margin	*26%*	*27%*	*26%*	*26%*	*26%*	*27%*	*26%*	*26%*	*26%*	*25%*
Writing Instrument	427	477	533	593	678	770	871	972	1,070	1,162
School stationery	234	330	407	499	622	744	872	1,013	1,158	1,315
Office stationery	81	134	195	336	525	691	860	1,025	1,188	1,375
Other product	9	10	11	21	26	137	205	287	373	467
Direct sales of office supplies	17	31	79	179	350	601	914	1,296	1,773	2,334
Franchise fee	12	11	4	3	3	3	3	3	3	3
GP margin	26%	27%	26%	26%	26%	27%	26%	26%	26%	25%
Writing Instrument	32%	32%	32%	33%	35%	36%	38%	39%	40%	41%
School stationery	26%	29%	30%	31%	33%	36%	38%	40%	42%	43%
Office stationery	14%	17%	18%	21%	25%	27%	28%	29%	29%	30%
Other product	12%	12%	13%	22%	23%	48%	48%	48%	48%	48%
Direct sales of office supplies	13%	15%	17%	15%	14%	15%	15%	15%	16%	16%
Franchise fee	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
SG&A	**418**	**555**	**722**	**980**	**1,318**	**1,704**	**2,113**	**2,568**	**3,084**	**3,627**
Sales tax and add-on	9	14	17	26	35	39	49	62	76	92
Sales expense	207	282	405	570	789	988	1,245	1,543	1,875	2,235
Admin expense	202	260	300	384	494	677	818	963	1,134	1,300
Impairment loss	**2**	**3**	**7**	**21**	**3**	**-**	**1**	**2**	**3**	**4**
EBIT	**360**	**436**	**503**	**635**	**883**	**1,241**	**1,612**	**2,027**	**2,478**	**3,026**
yoy growth		*21%*	*15%*	*26%*	*39%*	*41%*	*30%*	*26%*	*22%*	*22%*
EBIT margin	*11.8%*	*11.6%*	*10.8%*	*10.0%*	*10.3%*	*11.2%*	*11.4%*	*11.5%*	*11.5%*	*11.5%*
Net interest income (+)	2	8	5	3	8	10	14	21	31	42
Investment gain (+)	1	15	29	38	35	45	54	65	78	93
Other income (+)	36	30	32	71	34	25	28	31	34	37
Profit before tax	**399**	**490**	**570**	**747**	**960**	**1,322**	**1,708**	**2,144**	**2,621**	**3,198**
Tax expense (-)	70	83	88	119	152	231	302	384	474	582
Minority interest (-)	(10)	(16)	(12)	(7)	1	22	45	76	119	177
Net profit	**340**	**423**	**493**	**635**	**807**	**1,069**	**1,361**	**1,684**	**2,028**	**2,439**
yoy growth		*24%*	*17%*	*29%*	*27%*	*32%*	*27%*	*24%*	*20%*	*20%*
Net margin	*11.2%*	*11.3%*	*10.6%*	*10.0%*	*9.5%*	*9.7%*	*9.6%*	*9.6%*	*9.4%*	*9.3%*

Source: Company data, Gao Hua Securities Research

Exhibit 62: Balance sheet

Balance sheets	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Cash and equivalents	200	514	564	436	1,047	1,141	1,621	2,283	2,959	3,744
Net receivables	88	142	279	603	921	1,452	1,970	2,603	3,377	4,307
Inventory/stocks	556	650	734	872	1,043	1,220	1,478	1,781	2,200	2,677
Other current assets	12	658	826	1,063	1,089	1,189	1,209	1,229	1,249	1,269
Current assets	**857**	**1,964**	**2,403**	**2,975**	**4,100**	**5,003**	**6,279**	**7,896**	**9,785**	**11,998**
Gross PP&E/Fixed assets	870	982	1,160	1,345	1,466	1,893	2,368	2,872	3,492	4,243
Less accumulated depreciation	(165)	(243)	(341)	(447)	(565)	(711)	(901)	(1,137)	(1,425)	(1,774)
Less fixed asset impairment	-	-	-	-	-	-	-	-	-	-
Net PP&E/Fixed assets	**705**	**739**	**819**	**898**	**901**	**1,182**	**1,467**	**1,734**	**2,067**	**2,469**
Gross intangibles	150	160	167	238	235	285	335	385	435	485
Accumulated amortization	(21)	(28)	(32)	(41)	(47)	(59)	(73)	(90)	(109)	(131)
Net intantigibles	**130**	**131**	**135**	**197**	**188**	**226**	**262**	**295**	**326**	**354**
Prepaid long-term expenses	**52**	**56**	**54**	**89**	**118**	**141**	**157**	**164**	**185**	**219**
Total investments	-	-	-	-	34	34	34	34	34	34
Other long-term assets	7	12	16	230	337	387	437	487	537	587
Total assets	**1,752**	**2,902**	**3,427**	**4,388**	**5,678**	**6,972**	**8,635**	**10,611**	**12,934**	**15,661**
Accounts payable	423	565	752	1,275	1,960	2,440	3,127	3,918	4,840	5,890
Short-term debt and current portion of long-term debt	-	-	-	-	-	-	-	-	-	-
Other current liabilities	30	77	121	119	148	299	442	611	801	1,038
Current liabilities	**453**	**642**	**873**	**1,395**	**2,108**	**2,740**	**3,569**	**4,529**	**5,641**	**6,928**
Long-term debt	1	-	-	-	-	-	-	-	-	-
Other long-term liabilities/creditors	21	28	37	80	73	73	73	73	73	73
Total long-term liabilities	**22**	**28**	**37**	**80**	**73**	**73**	**73**	**73**	**73**	**73**
Total liabilities	**475**	**670**	**910**	**1,474**	**2,181**	**2,813**	**3,642**	**4,602**	**5,714**	**7,001**
Preferred shares	-	-	-	-	-	-	-	-	-	-
Common stock (Share capital)	400	460	920	920	920	920	920	920	920	920
Capital surplus (additional paid in capital)	54	732	272	272	272	272	272	272	272	272
Treasury stock	-	-	-	-	-	-	-	-	-	-
Retained earnings and undistributed profit	782	975	1,238	1,642	2,218	2,860	3,648	4,589	5,680	6,943
Other common equity	-	-	-	-	-	-	-	-	-	-
Total common equity	**1,236**	**2,167**	**2,430**	**2,834**	**3,411**	**4,052**	**4,840**	**5,781**	**6,872**	**8,135**
Minority interest (balance sheet)	40	65	87	80	86	108	153	228	348	525
Total shareholders funds/equity	**1,277**	**2,232**	**2,517**	**2,914**	**3,497**	**4,160**	**4,993**	**6,009**	**7,220**	**8,660**
Total liabilities and equity	**1,752**	**2,902**	**3,427**	**4,388**	**5,678**	**6,972**	**8,635**	**10,611**	**12,934**	**15,661**

Source: Company data, Gao Hua Securities Research

Exhibit 63: Cash flow statement

Cash flow statements	2014	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
Income pre-preferred share dividends	**340**	**423**	**493**	**634**	**807**	**1,069**	**1,359**	**1,680**	**2,021**	**2,429**
Minority interest add-back	(10)	(16)	(12)	(7)	1	22	45	76	119	177
Depreciation and amortization add-back	84	111	141	159	198	224	286	351	416	494
Net income from associates and jointly controlled entit	-	-	-	-	0	-	-	-	-	-
Net loss/(gain) on asset sales	(1)	(14)	(29)	(36)	(27)	-	-	-	-	-
(Increase)/decrease in working capital :	(37)	(6)	(34)	61	197	(229)	(90)	(145)	(271)	(357)
Accounts receivable	(4)	(54)	(136)	(325)	(318)	(531)	(518)	(633)	(774)	(930)
Inventory	(162)	(94)	(84)	(138)	(171)	(177)	(258)	(303)	(419)	(478)
Accounts payable	129	142	187	524	685	480	687	791	922	1,051
Other operating cash flow items	(32)	(1)	122	(94)	(348)	(150)	(70)	(70)	(70)	(70)
Cash flow from operations	**343**	**497**	**682**	**717**	**828**	**936**	**1,531**	**1,893**	**2,215**	**2,673**
Capital expenditure	(250)	(129)	(209)	(539)	(318)	(565)	(623)	(660)	(800)	(958)
(Acquisitions)/divestitures	2	0	2	3	1	-	-	-	-	-
Investments	2	(620)	(309)	(210)	(14)	-	-	-	-	-
Other investment cash flow items	1	15	80	128	36	-	-	-	-	-
Cash flow from investing	**(246)**	**(734)**	**(436)**	**(617)**	**(296)**	**(565)**	**(623)**	**(660)**	**(800)**	**(958)**
Dividends paid (common and preferred)	(25)	(230)	(230)	(230)	(230)	(276)	(428)	(571)	(739)	(929)
Share repurchase/issue (change In common stock)	15	794	32	-	5	-	-	-	-	-
Increase/(decrease) in short-term debt	-	-	-	-	-	-	-	-	-	-
Increase/(decrease) in long-term debt	1	(1)	-	-	-	-	-	-	-	-
Increase/(decrease) in preferred shares	-	-	-	-	-	-	-	-	-	-
Change in minority interest	-	-	-	-	-	-	-	-	-	-
Other financing cash flow items	-	(16)	-	-	-	-	-	-	-	-
Cash flow from financing	**(9)**	**548**	**(198)**	**(230)**	**(225)**	**(276)**	**(428)**	**(571)**	**(739)**	**(929)**
Effect of foreign exchange rate changes	**(1)**	**2**	**2**	**(1)**	**3**	**-**	**-**	**-**	**-**	**-**
Total cash flow	**87**	**314**	**49**	**(131)**	**309**	**94**	**480**	**662**	**676**	**785**
FCFF	92	369	472	179	510	370	907	1,233	1,415	1,715

Source: Company data, Gao Hua Securities Research

Valuation

We value Shanghai M&G based on 30x 2023E P/E discounted back to 2020E using 8.1% COE. We believe the discounted P/E methodology is appropriate, given the company's net profit growth after 2023E may be lower than its net profit CAGR over the past five years as the industry becomes more mature. Since its listing in 2015, the company has traded at 35x 12-month forward P/E on average, thanks to its stable and fast net profit growth (2016-2019E CAGR of 29%) and strong ROE (averaging 26% in 2017-2019E). As we expect the net profit growth rate in 2023E to trend down to c.20% yoy (lower than the high growth period over the past three years), with ROE staying at the 32% level in 2023E (higher than the past three years' average), we apply c.15% discount to the forward P/E level over the past five years and derive a 2023E target multiple of 30x.

Exhibit 64: Derivation of our 12-month target price for Shanghai M&G

Long term PE discount valuation	2015	2016	2017	2018	2019E	2020E	2021E	2022E	2023E
EPS	0.92	0.54	0.69	0.88	1.16	1.48	1.83	2.20	2.64
yoy				27%	32%	27%	24%	20%	20%
Target PE multiple									30.0x
2023E stock price									79
COE									8.1%
Target price (12-M, Rmb)						**62.66**			
Implied PE						42.4x	34.3x	28.5x	23.7x
Current Price (Rmb)						45.78			
Upside/downside						37%			

Source: Bloomberg, Company data, Gao Hua Securities Research

Exhibit 65: The stock has traded at 35x 12m fwd P/E on average since listing

Source: Wind

Our 2020-2021 EPS estimates are 3%-6% higher than Wind consensus, mainly because we are more optimistic on the margin expansion potential of its traditional stationery business, based on its pricing power and business moat.

We think the continuous strong growth and improving profitability of its office supplies business, and the sustainable strong growth of its stationery business could be solid drivers for the stock in the near term.

M&A framework

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 an M&A rank as a means of scoring companies under our rated coverage from 1 to 3, with 1 representing high probability (30%-50%) of the company becoming an acquisition target, 2 representing medium probability (15%-30%) and 3 representing low probability (0%-15%). For companies ranked 1 or 2, in line with our standard departmental guidelines, we incorporate an M&A component into our target price. An M&A rank of 3 is considered immaterial and therefore does not factor into our target price, and may or may not be discussed in research.

"Can": Our "Can" assessment measures the possibility of executing an acquisition if there is a bidder. We believe Shanghai M&G's likelihood of becoming an M&A target is relatively low given the founder and CEO, Mr. Huxiong Chen together with his brother and sister owned c.67% of the listco as of June 2019, and they do not have any incentive to sell the company, in our view. Thus, we assign a score of 3 for this category.

"Should": Our "Should" assessment takes a fundamental view in justifying whether a company is an attractive M&A target for potential bidders. We see the business of Shanghai M&G as attractive given its top-ranked market position and strong earnings growth. However, we think the business itself may not generate meaningful synergies for potential acquirers given that the company operates across the entire value chain. Thus, we assign a score of 2 for this category.

"Would": In the "Would" section, we measure the strategic attractiveness of the assets and management stance against being acquired. We think management is unlikely to accept takeovers given their strong control of the company and expertise in the industry. Thus, we assign a score of 3 for this category.

Accordingly, we assign an overall M&A rank of 3 to Shanghai M&G.

Exhibit 66: Based on our M&A framework, we assign an overall M&A rank of 3 to Shanghai M&G

Can					
Size (mkt cap $mn)	% Free Float	Comment	Mgmt voting power	Regulatory risk	Overall Score
6300	100%	Family owns 70%	70%	Low	3

Should				
Growth (NI 19-22E CAGR)	Industry positioning	Cost synergies	Valuation 2020E PE	Overall Score
25%	Leader	Low	31	2

Would		
Strategic Appeal	Mgmt Stance	Overall Score
Medium	Low	3

Final Score
Rank (1-3)
3

Source: Gao Hua Securities Research

Key risks to our investment thesis and target price

The biggest risk facing stationery is the move to electronics and digital equipment on the back of disruptive technology innovations. While we recognize this risk, we believe it would not materialize in the near future given technology constraints and long-existing writing habits. Other key risks include:

1) Intensified competition in the office supplies industry. If industry growth slows down significantly, players will shift their focus from new customer acquisition to market share competition, and this could result in revenue slowdown or profit loss for Colipu.

2) Over-reliance on major customers for the office supplies business. We estimate that the top five customers contributed over 30% of Colipu's sales in 2018. If these major customers were to source their products from competitors, Colipu's revenue will be negatively affected significantly.

3) Uncertainties of new retail business. Shanghai M&G has plans to open more premium retail stores (mainly M&G shops) in the coming years, and this business may incur losses in the early stage of operation and could drag the company's profit growth.

4) Lower-than-expected gross margin trend. We expect GP margins of the stationery business and office supplies business to improve on the back of increased bargaining power and improved operating efficiencies, which may not materialize if the company fails to reduce production-related costs or has difficulties to increase product ASPs.

Prices in this report are as of the market close of December 2, 2019, unless otherwise stated.

Disclosure Appendix

Reg AC

I, Xufa Liao, 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.

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.

Disclosures

Other disclosures

Third party brands used in this report are the property of their respective owners, and are used here for informational purposes only. The use of such brands should not be viewed as an endorsement, affiliation or sponsorship by or for Goldman Sachs or any of its products/services.

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

Xufa Liao, CFA: A-share Consumer Staples, A-share Media.

A-share Consumer Staples: Anhui Gujing Distillery Co., Jiangsu King's Luck Brewery, Jiangsu Yanghe, Kweichow Moutai, Luzhou Laojiao, Qinghai Huzhu Barley Wine Co., Shanghai M&G, Shanxi Xinghuacun Fen Wine, Sichuan Swellfun Co., Wuliangye Yibin.

A-share Media: Alpha Group, Beijing Enlight Media Co., Beijing Gehua CATV, Beijing Hualubaina Film & TV Co., BlueFocus Communication, China South Publishing & Media, Focus Media Information Tech, Guangdong Advertising, Huayi Brothers Media, IMAX China Holding, Jiangsu Phoenix, Oriental Pearl, Ourpalm Co., Wanda Film, Zhejiang Huace Film & TV.

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: Shanghai M&G (Rmb45.78)

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	43%	42%	15%	64%	56%	50%

As of October 1, 2019, Goldman Sachs Global Investment Research had investment ratings on 2,987 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 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 https://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. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests and a copy of Goldman Sachs' Australian Sell-Side Research Independence Policy Statement are available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. **Brazil:** Disclosure information in relation to CVM Instruction 598 is available at https://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 20 of CVM Instruction 598, 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 on request 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:** This research, and any access to it, is intended only for "professional investors" within the meaning of the Financial Services and Capital Markets Act, unless otherwise agreed by Goldman Sachs. 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. A copy of certain Goldman Sachs Australia and New Zealand disclosure of interests is available at: https://www.goldmansachs.com/disclosures/australia-new-zealand/index.html. **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. Research reports do not constitute a personalized investment recommendation as defined in Russian laws and regulations, are not addressed to a specific client, and are prepared without analyzing the financial circumstances, investment profiles or risk profiles of clients. Goldman Sachs assumes no responsibility for any investment decisions that may be taken by a client or any other person based on this research report. **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 6 (2) of the European Commission Delegated Regulation (EU) (2016/958) supplementing Regulation (EU) No 596/2014 of the European Parliament and of the Council with regard to regulatory technical standards for the technical arrangements for objective presentation of investment recommendations or other information recommending or suggesting an investment strategy and for disclosure of particular interests or indications of conflicts of interest is available at https://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 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 region's 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: A list of all stocks in each coverage group is available by primary analyst, stock and coverage group at https://www.gs.com/research/hedge.html.

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 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.

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 (https://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 and futures disclosure documents which are available from Goldman Sachs sales representatives or at https://www.theocc.com/about/publications/character-risks.jsp and https://www.fiadocumentation.org/fia/regulatory-disclosures_1/fia-uniform-futures-and-options-on-futures-risk-disclosures-booklet-pdf-version-2018. 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