

Company Report

GSX (GSX US)

Turbulence ahead after smooth lift-off

■ Chapter of short-seller attacks has passed, now facing a more challenging competitive outlook with profits not as certain as before

■ Strong 3Q20 revenue growth of +253% yoy, bottom-line hurt by marketing expenses as customer acquisition cost rises

■ Tricky valuation as sentiment swings between sales/enrollment growth and net losses/profit outlook. Initiate w/ NEUTRAL

Online large class enrollment tailwind continues...

1) Overall penetration of online K-12 tutoring market penetration remains low, and received giant boost from lockdowns; 2) We believe large class enables pricing segmentation penetrating into lower-tier markets; 3) GSX's use of high-quality teachers is a reliable way to gain brand awareness, ensure high service quality, and maximise students' retention; 4) Rapid growth has pushed GSX to significantly enlarge its pool of tutors and teachers, enabling dilution of its group of top teachers.

...near term profit certainty as competition intensifies

3Q20 revenue reached RMB1.97bn (+253% yoy). Non-GAAP operating loss was RMB921mn (vs. profit of RMB7mn last year), due to significant increase of marketing expenses. Non-GAAP net loss was RMB864mn, as a result of the decrease in non-op expenses. Total paid enrollment reached 1.26mn (+134% yoy) and gross billings was RMB2.1bn (+137% yoy). GSX recorded a negative OCF of RMB679mn for the first time since its IPO but total liquidity of RMB2.1bn is well-positioned for future business development. GSX guided 4Q20 revenue growth to be in a range of 122%-126% yoy, marking a 3 quarters' sequential revenue yoy growth deceleration.

NEUTRAL: Marketing cost disrupting growth story

GSX's stock has been volatile YTD stemming from short-seller reports/SEC investigation/earnings concerns, but super charged by lockdowns leading to a surge in online education penetration. On the compliance side, we believe GSX's proactive and candid communications and muted SEC comments so far gives us some confidence to move pass fraud concerns. We forecast 4Q20 revenue to reach RMB2.1bn (+125% yoy), FY20E/21E revenue to reach RMB7.0bn/RMB12.3bn (+232%/+75% yoy), despite our forecasted decelerating sales growth, absolute level remains strong and much faster than that of traditional offline tutoring. We forecast GSX FY20/21E Non-GAAP operating loss to reach RMB1.4bn/RMB687mn, impacted by heavy customer acquisition costs which we have yet to see a mitigation strategy by GSX or other key players. We initiate GSX with NEUTRAL, TP is set at USD63, 8x FY21E P/S (slight discount to 12-mo avg.) implying 6x FY22E P/S.

Financials

Year ended 31 Dec (RMB mn)	FY18	FY19	FY20E	FY21E	FY22E
Revenue	397	2,115	7,019	12,283	17,544
yoy	307%	432%	232%	75%	43%
Gross profit	255	1,579	5,347	9,245	13,291
yoy	251%	520%	239%	73%	44%
Non-GAAP OP	25	276	-1,430	-687	-60
yoy	n.a.	1001%	n.a.	n.a.	n.a.
Core net income	-13	237	-1,065	-575	27
yoy	n.a.	n.a.	n.a.	n.a.	n.a.
Core EPADS (RMB)	-0.10	1.13	-4.51	-2.41	0.11
P/E (x)	n.a.	412.8	n.a.	n.a.	n.m.
P/S (x)	246.2	46.3	13.9	8.0	5.6
ROE	-6%	10%	-38%	-25%	-10%

Sources: Company data, CMS (HK) estimates; share price as of Nov 25, 2020.

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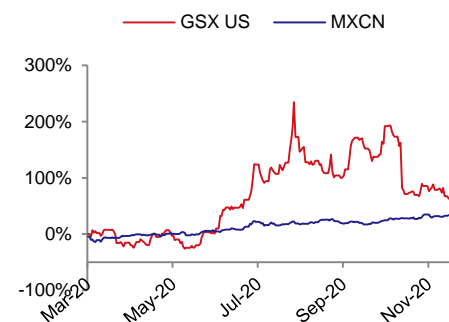
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Initiation

NEUTRAL

Price	USD62
12-month Target Price (Potential up/downside)	USD63 (+1.1 %)

Price Performance



Source: Bigdata; share price as of Nov 25, 2020

%	1m	6m	12m
GSX US	(8.8)	109.3	254.4
MXCN	2.7	33.6	32.3

Sector: Education

Hang Seng Index (Nov 25, 2020)	26,670
HSCEI (Nov 25, 2020)	10,558

Key Data

52-week range (USD)	17-142
Market cap (USD mn)	14,868
Avg. daily volume (mn)	5.6
BVPS (RMB)	0.47

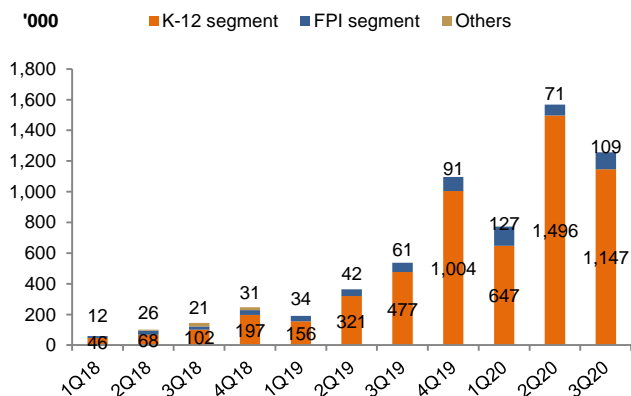
Shareholding Structure

Larry Xiangdong Chen	46.1%
Other shareholders	17.7%
No. of shares outstanding (mn)	158
% outstanding	36.2%

Sources: Company data, Bloomberg

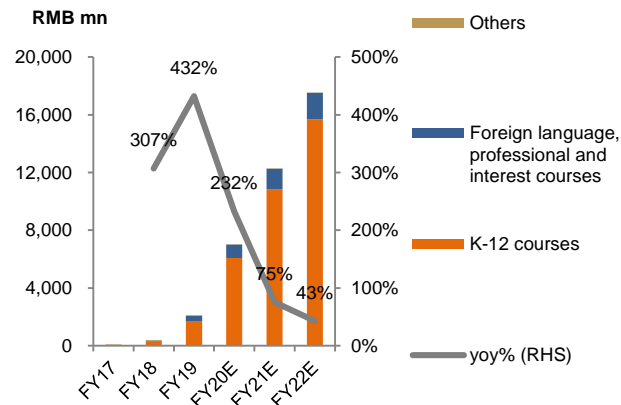
Focus charts

Figure 1: GSX's paid enrollment increased by 134% yoy to 1,256k in 3Q20



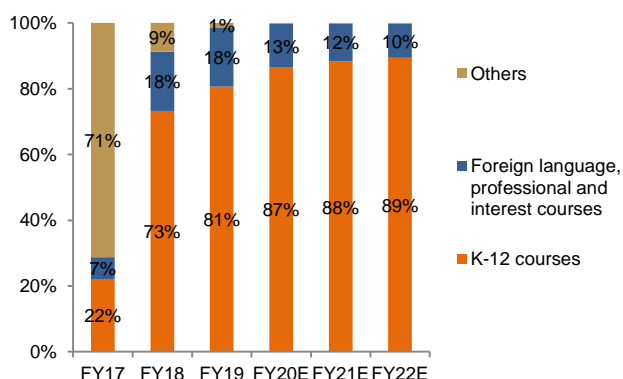
Sources: Company data, CMS (HK)

Figure 2: GSX's revenue to grow at 58% FY20-22E CAGR driven by K12 tutoring segments



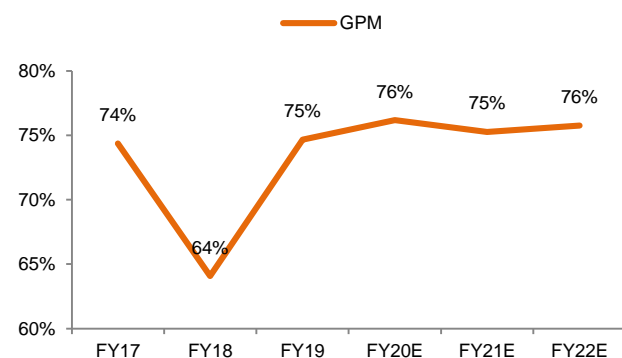
Sources: Company data, CMS (HK) estimates

Figure 3: We expect K-12 revenue contribution to further increase



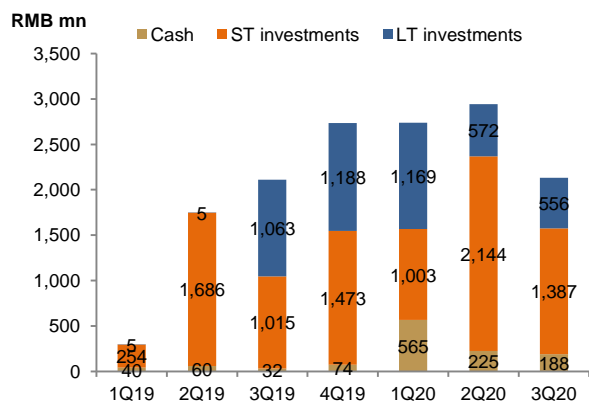
Sources: Company data, CMS (HK) estimates

Figure 4: Gross margin likely range-bound around 75-76% in our forecasted periods



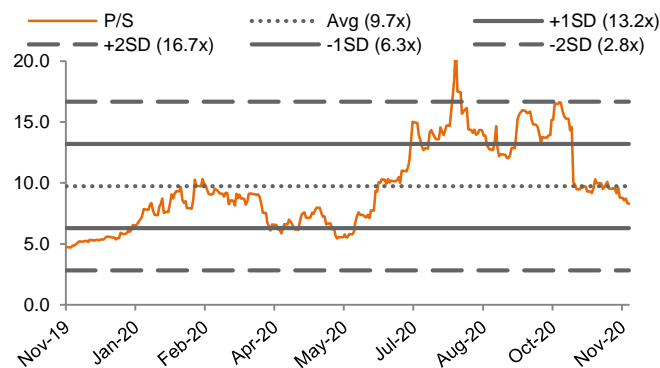
Sources: Company data, CMS (HK) estimates

Figure 5: GSX maintains solid total liquidity of RMB2.1bn as of 3Q20



Sources: Company data, CMS (HK)

Figure 6: GSX's next 12-mo P/S range



Sources: Bloomberg, Company data, CMS (HK) estimates

Leading online large-class tutor

- GSX was founded in 2014 and listed on NYSE in Jun 2019. GSX's core business is K-12 online tutoring services with large-class format, which contributed 89% total revenue as of 3Q20. GSX also has foreign language, professional and interest courses (FPI segment), pre-k learnings apps, as well as offline business consulting courses. GSX revenue mix contribution from primary school and lower tier cities have been rising per company's market penetration strategy.
- **3Q20 results update:**
 - Total paid enrollment (ASP>RMB99) reached 1,256k (+134% yoy, vs. 538k in 3Q19). K-12 segment paid enrollment +141% yoy and FPI segment +79% yoy. GSX's enrollment is nearly evenly distributed between tier 1/2 (43%) and tier 3/4/5 cities (57%). Total gross billings reached RMB2.1bn (+137% yoy). GSX relies on top-quality teachers to deliver high-quality services, and top 10 teachers contributed 30% as of 3Q20, decreasing from 36.3% in FY19 and 46.6% in FY18.
 - Total revenue reached RMB1.97bn (+253% yoy). K-12 segment revenue +283% yoy and FPI segment +125% yoy. Non-GAAP operating loss was RMB921mn (vs. profit of RMB7mn last year), due to significant increase of marketing expenses. Non-GAAP net loss was RMB864mn, mainly due to the decrease of non-op expenses. GSX guides 4Q20 revenue growth to be in a range of 122%-126% yoy.
 - GSX boast a strong liquid balance sheet with total liquidity (cash + short-term investments + LT investments) of RMB2.1bn as of 3Q20 (flat vs. last year). GSX recorded operating cash outflow of RMB679mn for the first time since its IPO but management expects to turn positive OCF in 4Q20.
- **Forecast summary:**
 - We forecast GSX's revenue to grow at 58% FY20-22E CAGR, driven by K-12 segment's rapid growth of 61%, and supported by: 1) industry growth still at early stage with significant opportunities for GSX to expand in depth and breadth, and 2) wider acceptance for online education post COVID-19 to boost online education's penetration. We forecast GSX's GPM to maintain 75-76% during FY20-22E.
 - However, we estimate GSX to remain loss-making in F20/21E with Non-GAAP OP of -RMB1.4bn/-RMB687mn and Non-GAAP NP of -RMB1.1bn/-RMB575mn, due to significant marketing input driving intensifying competition.
- **Valuation:**
 - Target price for GSX is set at USD63, based 8x FY21E P/S, implying of 6x FY22E P/S. Our 8x P/S considers past 12 months' valuation range of 6x (-1SD) to 13x (+1SD), and an average of 9.7x. We also looked at internet peers' 2017 average peak of 12x P/S. Overall we are allocating a 8x P/S, slight discount to the 12-mo average of 9.7x in consideration of revenue/enrollment growth rate deceleration, plus structurally heightened operating cost from customer acquisition.

- **Key investment risks:**

- Upside risks

- Possible but unlikely widespread COVID-19 resurgence could again reverse our offline to online switch, benefitting GSX in terms of enrollment upside and share price catalyst.
 - Given our believe of continued elevated customer acquisition cost and financial loss among online education players, exit or scale down of any player could be positive for overall industry consolidation theme as well as GSX.

- Downside risks

- GSX is currently under investigation with SEC. GSX is cooperating with the investigation. Any negative finding and/or prosecution will clearly have significant adverse implication on company's operation and share price performance.
 - More intense competition among top players from pricing competition to bidding up of customer acquisition costs.
 - Reputation risk is a significant operation risk, as tutoring players are known to violate consumer rights with various tactics including over promising results, collecting more than 3 months of tuition prepayment, difficulties in obtaining refunds, among many consumer complaints in the sector. Overall top players like GSX have been laser focus on compliance given the significant reputation/brand risk it pose.

Figure 7: GSX's 3Q20 results vs. Bloomberg consensus

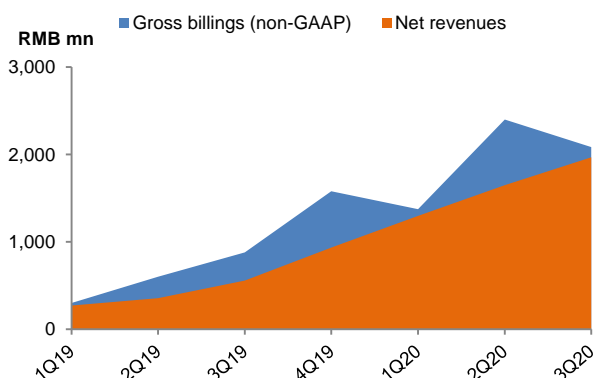
RMB mn	2Q19	3Q19	4Q19	1Q20	2Q20	3Q20	2Q20	3Q20	3Q20	Bloomberg Consensus	
As of	Jun-19	Sep-19	Dec-19	Mar-20	Jun-20	Sep-20	yoy	yoy	qoq	3Q20	diff
Net revenues	354	557	935	1,298	1,650	1,966	367%	253%	19%	1,912	2.8%
Gross profit	252	400	739	1,014	1,290	1,464	411%	266%	13%	1,462	0.1%
OP - as reported	16	-11	168	92	-161	-990	n.a.	n.a.	n.a.	-865	n.a.
NP - as reported	8	-5	168	148	19	-933	143%	n.a.	n.a.	-740	n.a.
Non-GAAP Op income	31	7	191	135	-107	-921	n.a.	n.a.	n.a.	-950	n.a.
Non-GAAP Net income	23	13	191	191	73	-864	223%	n.a.	n.a.	-690	n.a.
Margins											
GPM	71.4%	71.9%	79.0%	78.2%	78.1%	74.4%	6.8 ppt	2.6 ppt	-3.7 ppt	76.5%	-2.1 ppt
OPM	4.6%	-1.9%	17.9%	7.1%	-9.7%	-50.4%	n.a.	n.a.	n.a.	-45.2%	n.a.
NPM	2.2%	-0.9%	17.9%	11.4%	1.1%	-47.4%	-1 ppt	n.a.	n.a.	-38.7%	n.a.
Non-GAAP OPM	8.8%	1.3%	20.4%	10.4%	-6.5%	-46.9%	n.a.	n.a.	n.a.	-49.7%	n.a.
Non-GAAP NPM	6.4%	2.4%	20.4%	14.7%	4.4%	-43.9%	-2 ppt	n.a.	n.a.	-36.1%	n.a.
As of revenue											
Selling and marketing	47.8%	59.3%	47.3%	58.4%	73.0%	104.6%	25.2 ppt	45.3 ppt	31.6 ppt		
R&D	11.6%	10.3%	8.9%	7.7%	8.5%	11.2%	-3.2 ppt	1 ppt	2.7 ppt		
G&A	7.4%	4.2%	4.9%	5.1%	6.4%	9.0%	-1 ppt	4.8 ppt	2.6 ppt		
Gross billings	599	880	1,579	1,374	2,401	2,086	301%	137%	-13%		
Cash	60	32	74	565	225	188	275%	486%	-17%		
ST investments	1,686	1,015	1,473	1,003	2,144	1,387	27%	37%	-35%		
LT investments	5	1,063	1,188	1,169	572	556	10526%	-48%	-3%		
Total liquidity	1,752	2,110	2,736	2,737	2,942	2,131	68%	1%	-28%		
OCF	194	288	739	118	528	-679	172%	n.a.	n.a.		

Sources: Company data, Bloomberg, CMS (HK)

Solid balance sheet a testament to management execution

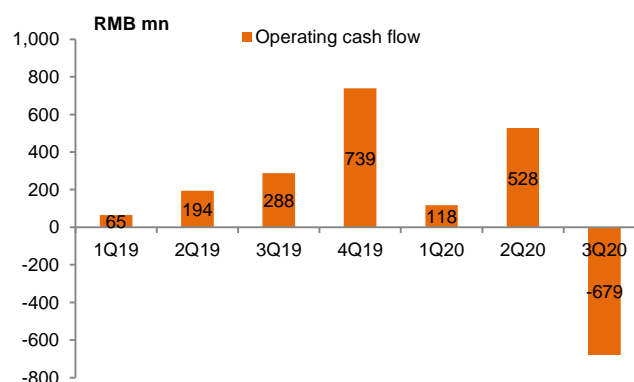
- Solid balance sheet well-positioned for future development:** GSX's total liquidity (cash + short-term investment + long-term investment) has been increasing from 4Q18 to 2Q20, and decreased in 3Q20 to RMB2.1bn (flat vs. last year) but still at a high level. GSX maintained a positive operating cash flow position since 1Q18 but recorded negative OCF of RMB679mn in 3Q20, mainly due to significant increase in marketing expenses. Management expects OCF to turn positive in 4Q20.
- Share buyback plan:** In 1Q20 results, GSX announced a share buyback program to repurchase up to USD150mn shares by May 2022, in order to enhance investors' confidence on GSX's future development.

Figure 8: GSX's cash gross billings is well hoarded to support future revenue growth



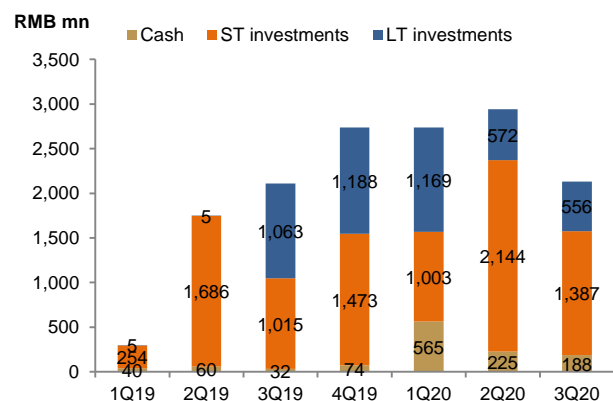
Sources: Company data, CMS (HK)

Figure 9: GSX recorded operating cash outflow for the first time since its IPO



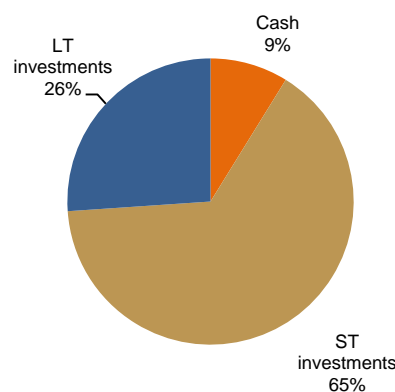
Sources: Company data, CMS (HK)

Figure 10: GSX maintains solid total liquidity of RMB2.1bn as of 3Q20



Sources: Company data, CMS (HK)

Figure 11: GSX's total liquidity structure as of 3Q20

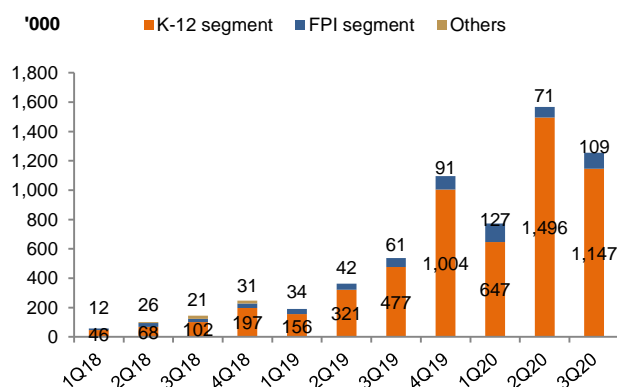


Sources: Company data, CMS (HK)

GSX fast enrollment growth mainly driven by K12 segment

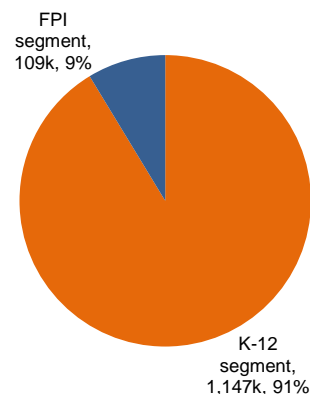
- Enrollment:** In 3Q20, GSX's paid enrollment (ASP>RMB99) reached 1.26mn (+134% yoy), in which 91% comes from K-12 segment. In terms of student's age, roughly 40% of GSX's students come from primary school, 30% from junior high school and 30% from senior high school. Moreover, GSX's enrollment distributed nearly evenly between tier 1/2 cities (+43%) and tier 3/4/5 cities (+57%).
- Recapping the COVID-19 episode, GSX launched free online classes for K-12 students. Management disclosed more than 15mn enrollment has been attracted from free courses. A small portion of these free-class enrollment could be converted to long-term paid enrollment, but we are generally more positive about the nationwide experience of online education rather than just the conversion rate from this single event. We expect GSX's enrollment to have a solid growth in FY20-22E mainly driven by the mass experience implying a significant market penetration as an industry.

Figure 12: GSX's paid enrollment increased by 134% yoy and reach 1.26mn in 3Q20



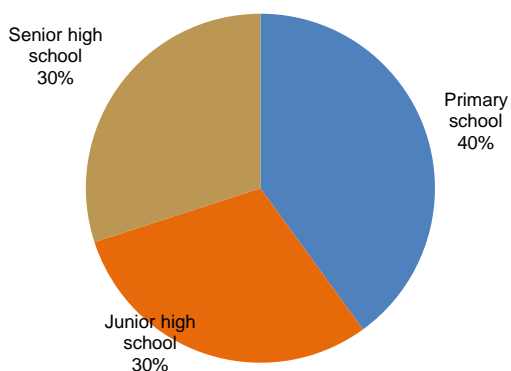
Sources: Company data, CMS (HK)

Figure 13: GSX's 91% paid enrollment contributed by K-12 segment in 3Q20



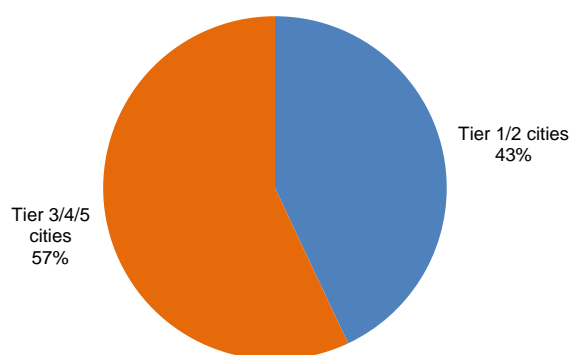
Sources: Company data, CMS (HK)

Figure 14: GSX's enrollment distribution by ages in 3Q20



Sources: Company data, CMS (HK)

Figure 15: GSX's enrollment distribution by city level in 3Q20



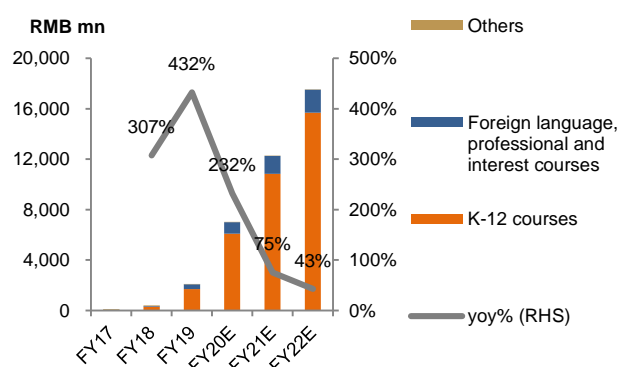
Sources: Company data, CMS (HK)

- **Revenue growth likely to experience some deceleration after a great 2020:** GSX's revenue grew at 366% CAGR in FY17-19, thanks to K-12 online tutoring business' rapid growth of 788%, which has been GSX's core business since FY18. We estimate GSX's revenue to grow at 58% FY20-22E CAGR driven by K-12 business' growth of 61%.
 - **K-12 segment:** GSX's K-12 business mainly offers online courses with large class format. The average enrollment per class has increased to 2,800 in 3Q20 from 2,000 in 2Q20 and 1,400 in 3Q19. K-12 segment applies dual-teacher mode and relies on top quality instructors to deliver high-quality courses offerings. GSX recruits highly experienced instructors with less than 2% admission rate to sure teachers' excellence. GSX's top 10 instructors contributed 30% revenue in 3Q20, decreasing from 36.3% in FY19 and 46.6% in FY18.

K-12 segment's revenue grew at 788% FY17-19 CAGR and reached RMB1.7bn as of FY19, contributing 81% of total revenue. In 3Q20, K-12 segment's revenue reached RMB1.76bn (+283% yoy), contributing 89% total revenue. We estimate K-12 segment's revenue to increase by 256% yoy in FY20E, 79% yoy in FY21E and 45% yoy in FY22E. We assume the growth rate of K-12 revenue should slow down in next three years due to: 1) market share limitation as enrollment scale gets much larger; 2) ASP has limited upside given intensive competition in online education market and penetrating to lower-tier cities.

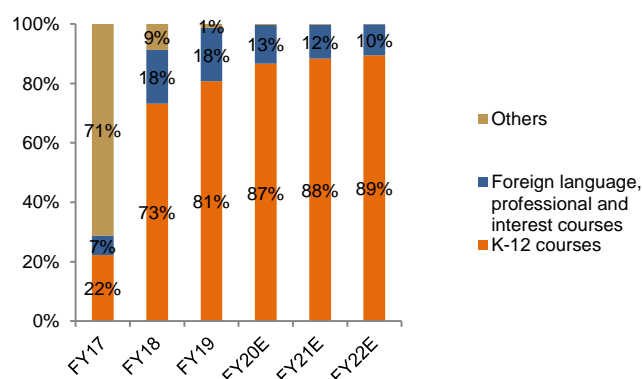
- **Foreign language, professional and interest courses (FPI segment):** this segment provides tutoring services for all ages. The FPI segment grew at 670% FY17-19 CAGR and the revenue scale has reached RMB381mn as of FY19. In 3Q20, FPI segment's revenue reached RMB203mn (+125% yoy) and contributed 10% of total revenue. The FPI segment has a slower growth compared to K-12 business due to much smaller market, plus overseas business gets impacted during lockdown. We estimate the FPI segment's revenue to increase 142% yoy in FY20E, 54% yoy in FY21E and 30% yoy in FY22E.
- **Other business:** including membership-based services, pre-k apps and offline business consulting business. GSX eliminated part of the membership-based services in FY18 so that the other business' revenue has a decrease. The offline business consulting courses segment's revenue has been quite stable in FY17-18. Therefore, we conservatively estimate GSX's other business' revenue to remain flat for next 3 years.

Figure 16: GSX's total revenue to grow at 58% FY20-22E CAGR driven by K12 tutoring segments



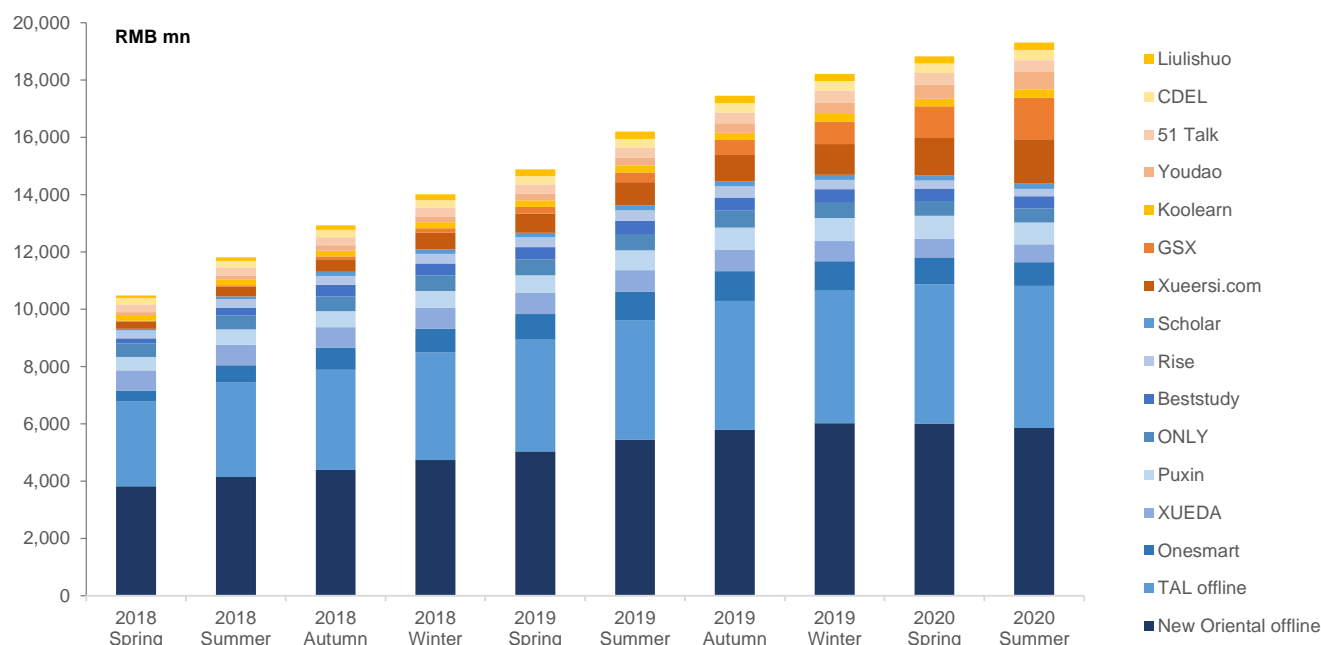
Sources: Company data, CMS (HK) estimates

Figure 17: We expect K-12 revenue contribution to further increase



Sources: Company data, CMS (HK) estimates

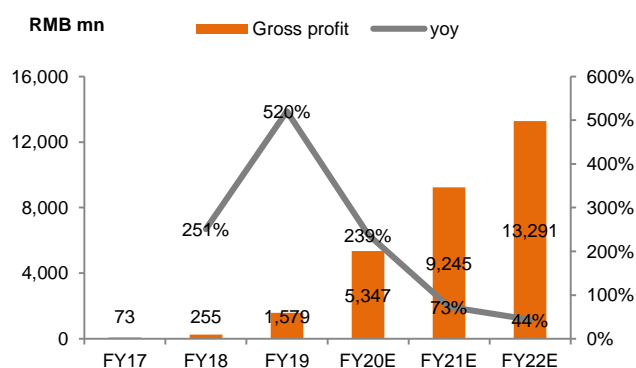
Figure 18: Accumulated revenue (moving-4Q-average) data for online and offline tutoring listed companies: Online education from listed entities is growing quickly but remains small compared to offline tutoring companies. We believe both segments will continue to enjoy growth rather than online cannibalizing offline segment



Sources: Company data, CMS (HK) estimates; Note: the quarterly data for companies listed in HK were estimated by CMS (HK)

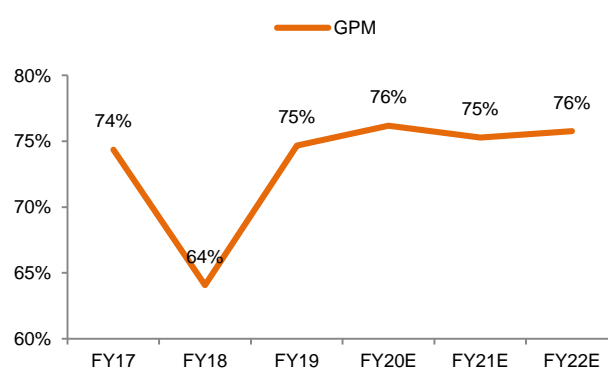
- **Cost of revenue:** GSX's cost of revenue mainly consists of salaries to instructors and tutors, rental expenses for office space, depreciation and amortization of properties and equipment, teaching materials and bandwidth costs.
- **Gross profit margin to be stable:** GSX's gross margin has narrowed from 74% in FY17 to 64% in FY18, but returned to 75% in FY19, mainly benefitting from 4Q19 high GPM of 79% because GSX delivered normal-priced courses in 4Q19 while maintaining low marketing input. In 3Q20, GSX's gross margin decreased to 74% (vs. 78% in both 1Q20 and 2Q20), mainly due to more aggressive summer promotion activities, increased recruitment of tutors, and expansion in offline operating centres in 15 cities. We estimate the gross profit margin to maintain at 75-76% in FY20-22E.

Figure 19: GSX gross profit to grow at 58% FY20-22E CAGR



Sources: Company data, CMS (HK) estimates

Figure 20: Gross margin likely range-bound around 75-76% in our forecasted periods



Sources: Company data, CMS (HK) estimates

- Operating loss-making likely to continue in FY20-21E:** In 3Q20, GSX recorded Non-GAAP OP (exclude share based compensation expenses) of -RMB921mn (vs. -RMB107mn in 2Q20 and RMB7mn in 3Q19), mainly due to the significant marketing input given intensifying online competition. We forecast GSX's Non-GAAP operating loss to reach -RMB1.4bn in FY20E and -RMB687mn in FY21E, and -RMB60mn in FY22E.
 - Selling expenses:** GSX's selling and marketing expenses primarily consist of compensation to staff cost involved in sales and marketing, traffic acquisition expenses, expenses relating to marketing and brand promotion activities, and certain rental expenses for office space.
 - GSX's selling expenses as of revenue has increased from 31% in FY18 to 49% in FY19, and 105% in 3Q20, due to intense competition in online market leading uptrend acquisition cost for customers. In near term, we expect GSX to continuously input marketing expenses given competitors have raised massive funds in recent months. In this summer, GSX mainly focused on RMB9 promotion class instead of RMB49 in last summer, and also began to invest in TV shows' sponsorship to expand its brand awareness.
 - GSX enlarged its recruitment of tutors to ensure higher quality services through the whole process from pre-sale (i.e. introduction and to enrol students to promotion class), in-sale (i.e. learning assistant/monitor), and to after-sale (checking homework, providing feedback and communicating with parents and students). GSX currently has c.15,000 tutors and the average student per tutor has decreased from 400 to 200 in 3Q20.
 - On Sep 2020, GSX integrated Gaotu Classes (高途课堂) and GSX K-12 businesses under the brand of Gaotu. Previously GSX was spending ad-dollar for both platforms, such integration should be able to ease marketing expenses ratio.
 - We estimate the selling expense as of revenue to slightly decrease to 84% in 4Q20, making overall 82% in FY20E, and further decrease to 67-69% in FY21-22E thanks to the increasing trend of conversion rate /retention rate.

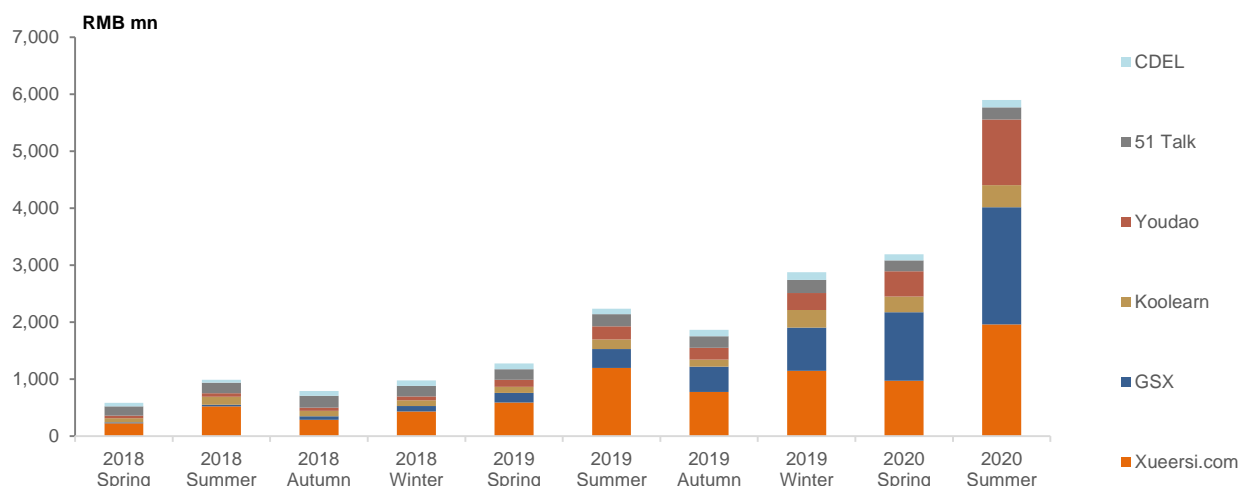
Figure 21: GSX mainly focused on RMB9 promotion class in 2020 summer

Sources: Company data, Sina.com, CMS (HK)

Figure 22: GSX's TV shows' sponsorship in 2020 summer

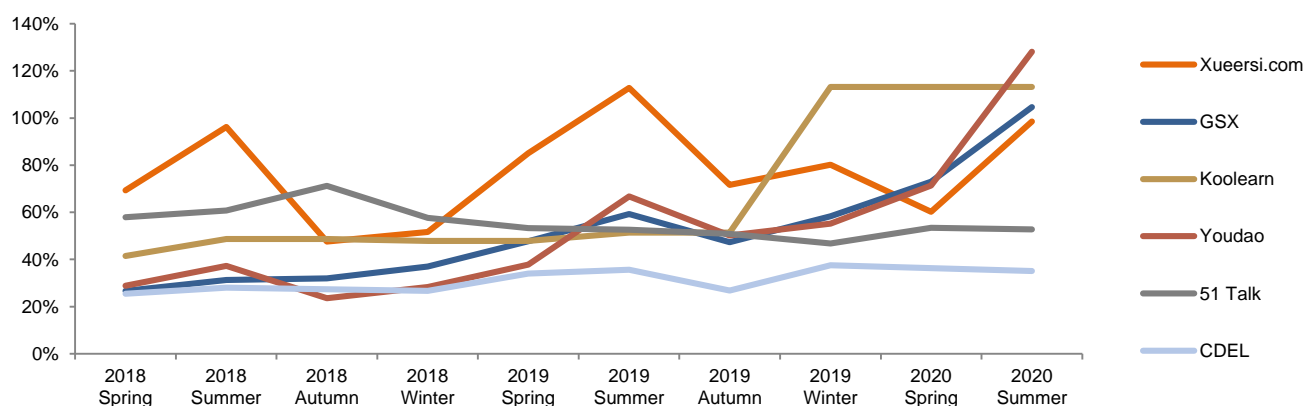
Sources: Company data, CMS (HK)

Figure 23: Online education quarterly marketing spending surges in 2020 summer



Sources: Company data, CMS (HK) estimates; Note: Koolearn's quarterly data and Xueersi.com's data were based on CMS (HK)'s estimation

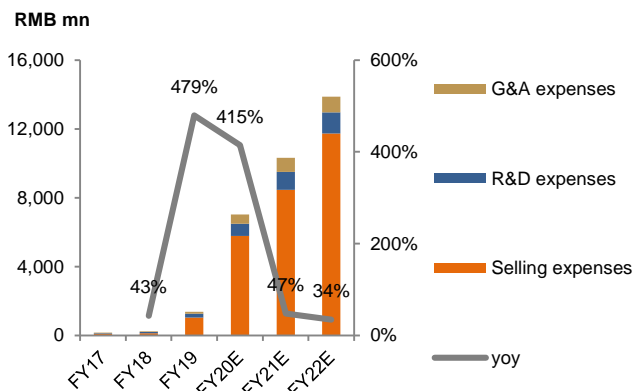
Figure 24: Koolearn (1797 HK, NEUTRAL), Youdao (DAO US, NR), Xueersi.com and GSX's quarterly marketing spending / revenue rising rapidly



Sources: Company data, CMS (HK) estimates; Note: Koolearn's quarterly data and Xueersi.com's data were based on CMS (HK)'s estimation

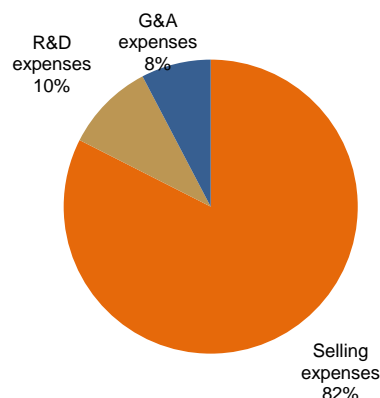
- **R&D expense:** GSX's R&D expenses mainly include compensation to education content development personnel, technology development personnel, and rental expenses for office space and server and bandwidth costs. The R&D expenses have decreased from 54% as of revenue in FY17 to 10% as of FY19, thanks to scale advantage. We estimate R&D expenses as of revenue to maintain 7-10%, a relatively reasonable level in FY20-22E.
- **G&A expense:** GSX's G&A expenses consist primarily of payroll and related expenses for employees involved in general corporate functions and administrative personnel. The G&A expenses have decreased from 38% as of revenue in FY17 to 5% as of FY19, due to scale advantage. We forecast the G&A expenses as of revenue to increase to 8% in FY20E due to the expansion of offline training centres and increasing recruitment of tutors, then gradually decrease to 5-7% in FY21-22E.

Figure 25: Total operating expenses to grow at 41% FY20-22E CAGR



Sources: Company data, CMS (HK) estimates

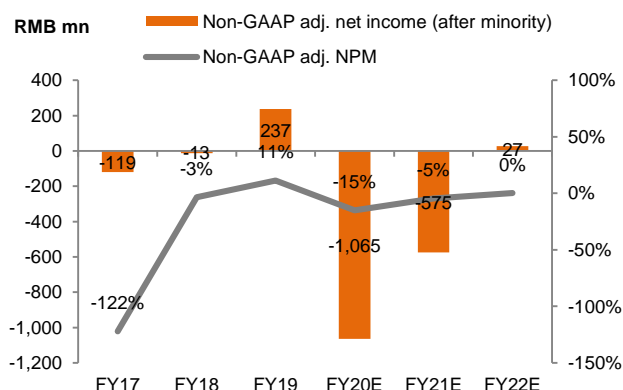
Figure 26: GSX's OPEX structure in FY20E



Sources: Company data, CMS (HK) estimates

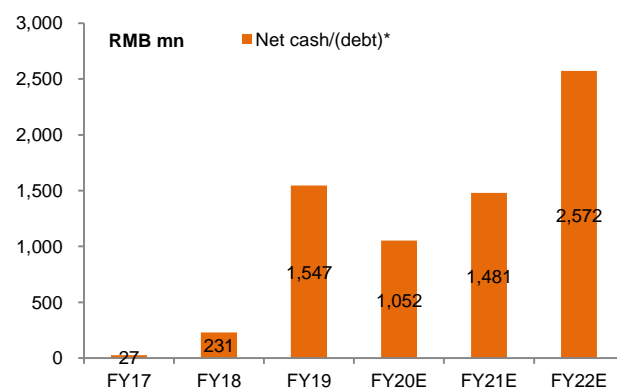
- Core net income:** core net income excludes non-recurring items such as impairment loss, investment gains and share-based compensation expenses etc. We estimate share-based compensation expenses to maintain at 3%-3.5% of revenue in FY20-22E. GSX achieved breakeven in Non-GAAP net income attributable since 4Q18 but turned loss-making recently in 3Q20, mainly due to selling expenses. We estimate GSX's core net loss to continue in FY20-21E (-RMB1.1bn in FY20E and -RMB575mn in FY21E) and may see slight profit in FY22E.
- Strong liquidity with net cash balance sheet:** as of 3Q20, GSX's total quality (including cash, short-term investment and long-term investment) reached RMB2.1bn (flat vs. last year) with no debt outstanding. We estimate GSX to maintain no debt status with a net cash (cash + short-term investments) of RMB1.1bn in FY20E, RMB1.5bn in FY21E and RMB2.6bn in FY22E.

Figure 27: GSX's Non-GAAP net loss to continue in FY20-21E



Sources: Company data, CMS (HK) estimates

Figure 28: GSX is expected to maintain net cash position with no debt outstanding in FY20-22E



Sources: Company data, CMS (HK) estimates; *Net cash includes bank balance and short-term investments

Figure 29: GSX's quarterly financial forecast summary

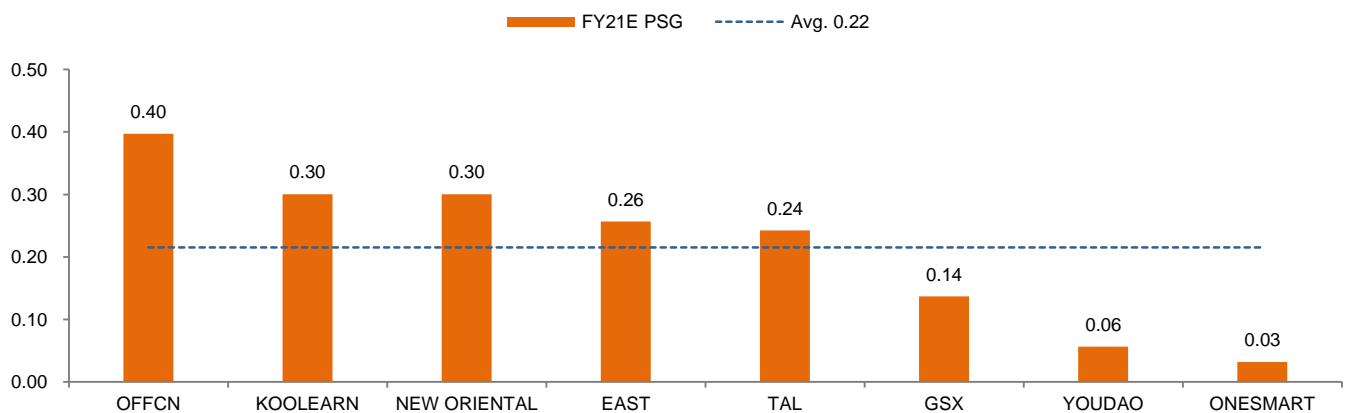
RMB mn	Actual number				Forecasted number					
	4Q19	1Q20	2Q20	3Q20	4Q20E	1Q21E	2Q21E	3Q21E	4Q21E	1Q22E
Revenue	935	1,298	1,650	1,966	2,105	2,763	2,915	3,298	3,308	4,113
Gross profit	739	1,014	1,290	1,464	1,579	2,072	2,186	2,473	2,514	3,105
Selling and marketing	-442	-757	-1,205	-2,056	-1,769	-1,796	-2,040	-2,638	-1,985	-2,591
R&D expenses	-83	-99	-140	-220	-232	-249	-262	-264	-265	-288
G&A expenses	-46	-66	-106	-177	-189	-193	-204	-214	-215	-226
Non-GAAP GP	745	1,028	1,305	1,481	1,598	2,095	2,210	2,501	2,542	3,137
Non-GAAP OP	191	135	-107	-921	-537	-77	-227	-538	155	123
Non-GAAP NP	191	191	73	-864	-465	-54	-197	-490	167	139
yoy										
Revenue	413%	382%	367%	253%	125%	113%	77%	68%	57%	49%
Non-GAAP GP	499%	448%	408%	265%	114%	104%	69%	69%	59%	50%
Non-GAAP OP	572%	189%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Non-GAAP NP	1246%	786%	223%	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Margin										
GPM - as reported	79.0%	78.2%	78.1%	74.4%	75.0%	75.0%	75.0%	75.0%	76.0%	75.5%
Non-GAAP GPM	79.7%	79.2%	79.1%	75.4%	75.9%	75.8%	75.8%	75.8%	76.8%	76.3%
Non-GAAP OPM	20.4%	10.4%	-6.5%	-46.9%	-25.5%	-2.8%	-7.8%	-16.3%	4.7%	3.0%
Non-GAAP NPM	20.4%	14.7%	4.4%	-43.9%	-22.1%	-2.0%	-6.8%	-14.9%	5.0%	3.4%
Revenue by segment										
K-12 courses	773	1,120	1,385	1,757	1,816	2,463	2,493	2,987	2,906	3,695
FPI	153	174	260	203	282	296	417	305	395	414
Others	9	4	5	5	7	4	5	5	7	4
yoy										
K-12 courses	468%	448%	412%	283%	135%	120%	80%	70%	60%	50%
FPI	317%	187%	238%	125%	85%	70%	60%	50%	40%	40%
Others	-1%	-6%	-23%	-30%	-30%	0%	0%	0%	0%	0%

Sources: Company data, CMS (HK) estimates

GSX valuation

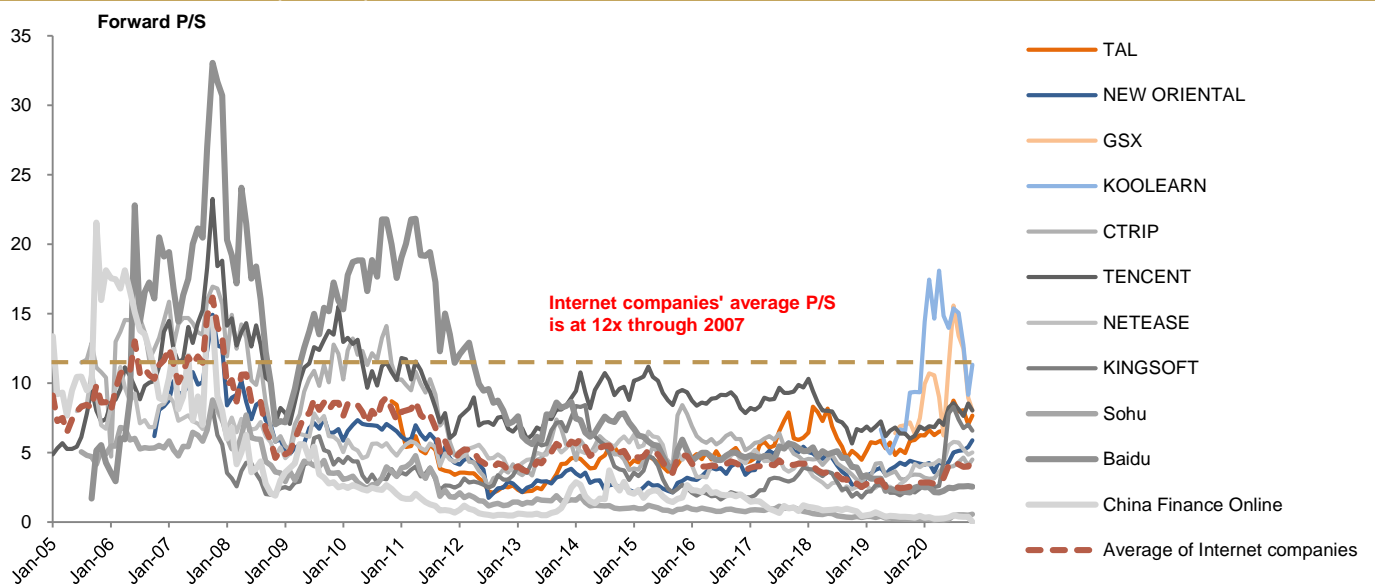
- We estimate GSX's revenue to grow at 58% FY20-22E CAGR, and FY20E/21E/22E sales per share to reach RMB29.4, RMB51.5, and RMB73.5. Our estimates are 2%/3%/4% lower than Bloomberg consensus.
- Our target price is set at USD63, based FY21E 8x P/S, implying of 6x FY22E P/S.
- Our 8x P/S considers past 12 months' valuation range of 6x (-1SD) to 13x (+1SD), and an average of 9.7x. We also looked at internet peers' 2017 average peak of 12x P/S. Overall we are allocating a 8x P/S, slight discount to the 12-mo average of 9.7x in consideration of revenue/enrollment growth rate deceleration, plus structurally heightened operating cost from customer acquisition.

Figure 30: Tutoring companies' FY21E PSG* ratio comparison: GSX's FY21E PSG was 0.14, lower than peers' average of 0.22



Sources: Company data, Bloomberg, CMS (HK) estimates; *FY21E PSG is calculated by FY21E P/S divided by FY20-22E sales CAGR

Figure 31: Selected internet related companies' monthly forward P/S (since Jan 2005 to present): the average peak valuation for internet companies prior 2008 financial crisis is 12x forward P/S



Sources: Company data, Bloomberg, CMS (HK)

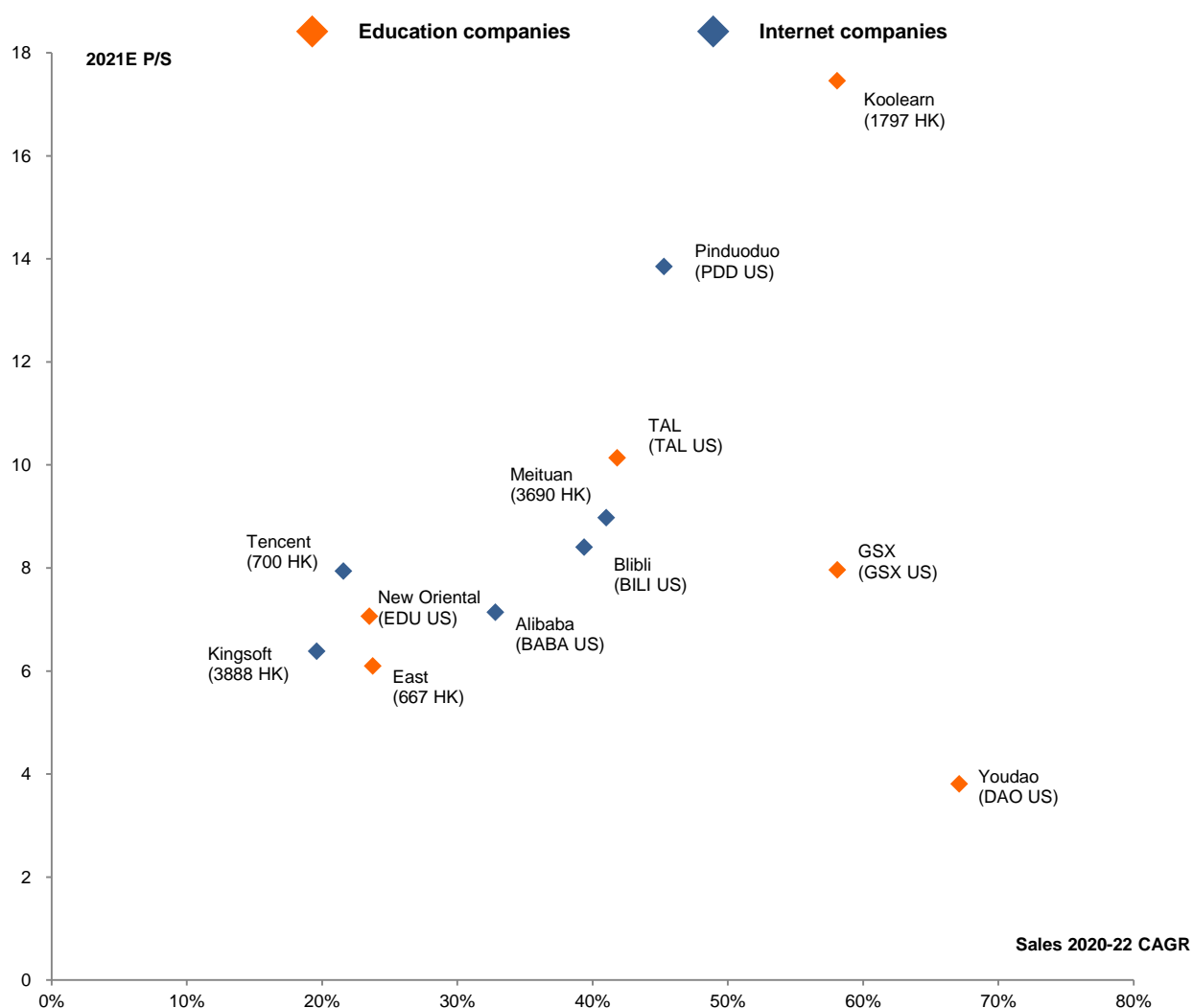
Figure 32: GSX's sales per share estimation vs. Bloomberg consensus

	FY20E	FY21E	FY22E
Sales per share (RMB)	29.4	51.5	73.5
yoy	232%	75%	43%
Difference to consensus	-1.5%	-3.3%	-4.4%

Consensus (RMB)	29.9	53.2	76.9
yoy	237%	78%	44%

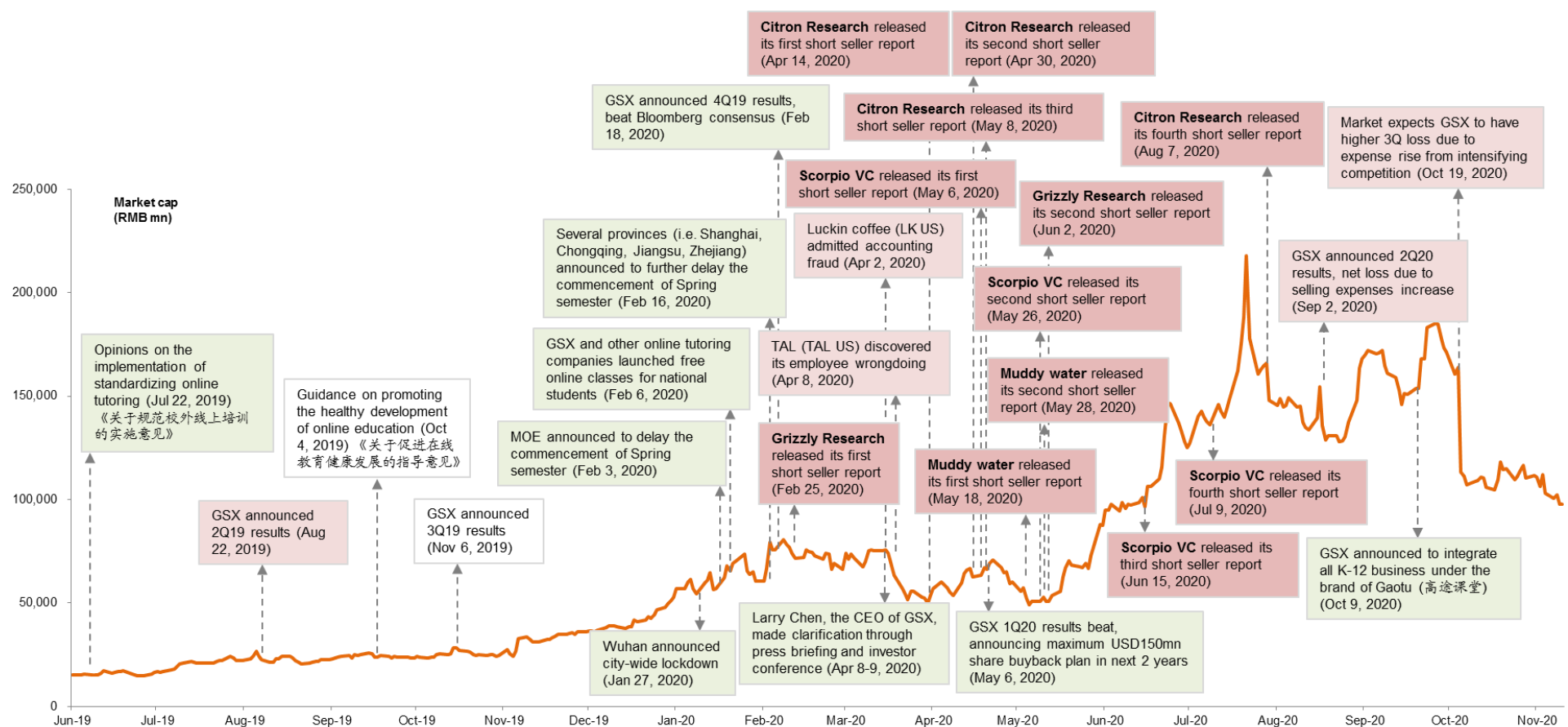
Sources: Company data, Bloomberg, CMS (HK) estimates

Figure 33: Tutoring companies and internet companies' FY21E PSG* ratio comparison



Sources: Company data, Bloomberg, CMS (HK) estimates; *FY21E PSG is calculated by FY21E P/S divided by FY20-22E sales CAGR

Figure 34: Key events that have impacts on GSX's market cap



Sources: Company data, Bloomberg, CMS (HK)

Figure 35: Tutoring sector peers comparison

Company	CN name	Ticker	Price (local currency)	CMS			Mkt cap (USDm)	3-mth avg t/o (USDm)	P/E (x)			PEG*	P/S (x)			PSG*	Sales CAGR (%)	EPS CAGR (%)
				Rating	TP(Local currency)	Up/(Dn) side (%)			FY20E	FY21E	FY22E		FY21E	FY21E	FY22E		FY21E	2020-2022 CAGR
HSI			26,670						n.a.	13.6	11.4	n.a.	1.7	1.5	n.a.	n.a.	n.a.	
HSCEI			10,558						n.a.	9.9	8.8	n.a.	1.2	1.1	n.a.	n.a.	n.a.	
Offline tutoring - China																		
NEW ORIENTAL	新东方	EDU US	168.8	BUY	209.0	23.8	28,509	157.8	57.7	50.7	34.2	1.6	7.1	5.2	0.3	23.5	31.3	
NEW ORIENTAL	新东方	9901 HK	1,341.0	BUY	1,660.4	23.8		15.3										
TAL	好未来	TAL US	73.9	NEUTRAL	70.0	-5.2	44,334	195.2	155.0	217.4	47.2	2.8	10.1	6.7	0.2	41.8	76.6	
OFFCN	中公教育	002607 CH	36.6	NR	n.a.	n.a.	34,437	55.5	89.5	65.2	48.8	1.8	13.0	10.0	0.4	32.8	35.4	
EAST	东方	667 HK	16.3	NR	n.a.	n.a.	4,709	4.8	36.9	25.5	20.6	0.7	6.1	5.1	0.3	23.8	34.4	
SCHOLAR	思考乐	1769 HK	16.0	NR	n.a.	n.a.	1,150	3.1	46.0	32.3	22.1	0.8	5.8	4.2	0.1	39.7	41.8	
PUXIN	朴新	NEW US	7.5	NR	n.a.	n.a.	657	3.1	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	98.3	
ONLY	昂立	600661 CH	15.0	NR	n.a.	n.a.	656	1.9	142.4	32.2	22.5	0.2	1.6	1.3	0.1	29.6	146.8	
ONESMART	精锐	ONE US	4.0	NR	n.a.	n.a.	644	0.6	n.a.	19.7	10.6	n.a.	0.9	0.8	0.0	28.1	n.a.	
RISE	瑞思英语	REDU US	6.3	NR	n.a.	n.a.	357	0.4	n.a.	13.0	9.8	n.a.	1.5	1.2	0.0	42.8	n.a.	
BESTSTUDY	卓越	3978 HK	3.0	NR	n.a.	n.a.	323	0.3	17.2	10.4	7.7	0.2	0.9	0.8	0.0	24.9	50.4	
Online tutoring - China																		
GSX	跟谁学	GSX US	62.3	NEUTRAL	63.0	1.1	14,868	341.6	n.a.	n.a.	n.m.	n.a.	8.0	5.6	0.1	58.1	n.a.	
KOOLEARN	新东方在线	1797 HK	31.7	NEUTRAL	25.0	-21.0	3,893	20.0	n.a.	n.a.	n.a.	n.a.	17.5	10.2	0.3	58.1	n.a.	
YOU DAO	有道	DAO US	30.0	NR	n.a.	n.a.	3,351	16.7	n.a.	n.a.	n.a.	n.a.	3.8	2.5	0.1	67.1	n.a.	
51 TALK	51 Talk	COE US	27.5	NR	n.a.	n.a.	589	0.4	25.0	19.5	n.a.	n.a.	1.6	n.a.	n.a.	n.a.	n.a.	
CDEL	正保远程教育	DL US	8.4	NR	n.a.	n.a.	285	0.2	21.0	18.5	8.4	0.3	1.2	1.1	0.1	12.5	57.0	
LIULISHUO	流利说	LAIX US	1.9	NR	n.a.	n.a.	93	0.2	n.a.	n.a.	n.a.	n.a.	0.5	0.5	0.0	12.8	n.a.	
Education (US listed Non-China)																		
PEARSON		PSO US	8.7	NR	n.a.	n.a.	6,573	2.2	23.5	17.2	15.8	0.7	1.4	1.4	0.3	4.1	23.7	
GRAND		LOPE US	85.5	NR	n.a.	n.a.	4,004	24.0	15.5	14.0	12.9	1.5	4.3	4.0	0.5	8.7	9.5	
LAUREATE		LAUR US	14.8	NR	n.a.	n.a.	3,107	11.6	n.a.	32.9	311.0	n.a.	1.7	1.6	n.a.	(7.5)	n.a.	
GRAHAM		GHC US	462.0	NR	n.a.	n.a.	2,313	10.9	15.0	17.0	11.9	1.0	0.8	0.7	0.1	5.2	16.7	
STRATEGIC		STRA US	91.4	NR	n.a.	n.a.	2,230	19.5	16.7	16.4	12.5	4.3	1.9	1.8	0.2	10.7	3.8	
ADTALEM		ATGE US	29.3	NR	n.a.	n.a.	1,524	12.2	n.a.	10.4	10.1	1.1	1.4	1.1	0.2	9.1	9.4	
K12		LRN US	23.0	NR	n.a.	n.a.	957	42.4	36.5	18.0	20.5	0.4	0.6	0.7	0.0	14.8	41.5	
HOUGHTON		HMHC US	3.0	NR	n.a.	n.a.	379	5.8	n.a.	n.a.	n.a.	n.a.	0.3	0.3	0.1	5.4	n.a.	
Average - Offline tutoring - China									68.1	46.6	22.4	1.0	4.7	3.5	0.2	28.7	57.2	
Average - Online tutoring - China									23.0	19.0	8.4	0.3	5.4	4.0	0.1	41.7	57.0	
Average - Tutoring - Non-China									21.4	18.0	56.4	1.5	1.5	1.4	0.2	6.3	17.4	
Average (all)									46.5	33.2	34.8	1.2	3.8	2.9	0.2	23.7	42.3	

Sources: Company data, CMS (HK) estimates; share price as of Nov 25, 2020. Note: All information of Non-rated stocks was sourced from Bloomberg.

GSX business overview

GSX's core business is online K-12 courses across all primary and secondary grades. It also provides foreign language, professional and interest courses for post-secondary students and adults. GSX applies large class format.

K-12 education: Through **GSX platform (跟谁学教育平台)** and **Gaotu Classes (高途课堂)** launched in 2014, GSX provides online K-12 all-subjects after-school tutoring courses for primary and secondary students, as well as English courses for children in kindergarten. GSX's K-12 courses are offered throughout the year at the beginning of each semester. It typically offers K-12 classes during weekends for the two school semesters in spring and fall and on a daily basis, generally for a consecutive period of eight to ten days, during the two holiday semesters in summer and winter. GSX also applies dual-teacher system for online K-12 courses, breaking each large-class into multiple smaller groups, and assign a tutor into each group to closely follow up with each student before, during and after each lesson.

Pre-k education: GSX has learnings apps named **Xiaozao Qimeng (小早启蒙)** for children aged 3-8, offering math, English and Chinese classes.

Foreign language: GSX provides foreign language courses, including English, Japanese and Korean to students who intend to learn or improve a foreign language through GSX platform.

Professional courses: GSX provides professional courses through GSX platform and **Jinyou Xuetao (金圆学堂)**. The professional courses primarily consist of courses designed for working adults preparing for professional qualification exams, including teacher's qualification, the Chartered Financial Analyst designation, fund qualification, and securities qualification exams.

Business consulting courses: GSX provides offline business consulting courses with the brand of **Chengxi Business School (成蹊商学院)**. The offline business consulting courses target principals and other officers of private education institutions who want to improve their management skills.

Learning platform: GSX operates **Weishi (微师)**, an interactive learning platform on Wechat for users that follow GSX enterprise account.

GSX history: young but growing fast

GSX was founded in 2014 by Mr Chen Xiangdong, a formal senior management of New Oriental. The managements of GSX were mainly from famous education institutions such as New Oriental and internet companies like Baidu, Alibaba and Tencent. GSX was young with only 6-year history, but has a very fast growth with experienced management and high-quality teaching.

In 2014, **Genshuixue (跟谁学)** APP and website were launched and the Genshuixue APP was upgraded to version 3.0 in 2015.

On Mar 2015, GSX completed the A-round financing with a total funding of USD50mn. In Nov 2015, GSX was awarded as one of "the technology company with fastest growth in China in 2015" by Forbes (福布斯2015中国成长最快科技公司). In Dec 2015, the **Chengxi Business School (成蹊商学院)** was founded to provide offline business consulting services.

On 2016, GSX launched **Baijiayun (百家云)**, an educational and **Jinyou Xuetao (金圆学堂)**. On Mar 2018, GSX launched **Weishi (微师)**.

On Jun 2019, GSX listed on NYSE.

On Sep 2020, GSX folded its GSX K-12 businesses into its more famous K-12 brand **Gaotu Classes (高途课堂)**, in an effort to reduce marketing expenses.

Financial Summary

Balance Sheet

(RMB mn)	FY18	FY19	FY20E	FY21E	FY22E
Year end	Dec 31	Dec 31	Dec 31	Dec 31	Dec 31
Cash and cash equivalents	33	74	168	376	914
Short-term investments	198	1,473	884	1,105	1,658
Other current assets	50	261	392	510	586
Total current assets	281	1,809	1,444	1,991	3,158
Property, equipment and software, net	17	82	636	747	733
Intangible assets & Goodwill	1	0	0	1	1
Long-term investments	5	1,188	600	600	600
Other non-current assets	35	315	846	931	1,024
Total non-current assets	57	1,586	2,082	2,278	2,357
Total assets	338	3,395	3,526	4,269	5,516
Deferred revenue	263	1,332	2,005	3,509	5,012
Other current liabilities	93	305	819	956	1,121
Total current liabilities	356	1,637	2,825	4,466	6,134
Deferred revenue	9	6	6	7	8
Other non-current liabilities	0	194	586	654	732
Total non-current liabilities	9	200	592	661	739
Total liabilities	365	1,837	3,416	5,127	6,873
MEZZANINE EQUITY	466	0	0	0	0
Total shareholders' equity	-493	1,557	110	-858	-1,357
Total liabilities, mezzanine equity and shareholders' equity	338	3,395	3,526	4,269	5,516
Net cash/(debt)*	231	1,547	1,052	1,481	2,572

Profit & Loss Statement

(RMB mn)	FY18	FY19	FY20E	FY21E	FY22E
Year end	Dec 31	Dec 31	Dec 31	Dec 31	Dec 31
Net revenues	397	2,115	7,019	12,283	17,544
Cost of revenue	-143	-536	-1,673	-3,038	-4,253
Gross profit	255	1,579	5,347	9,245	13,291
Selling expenses	-122	-1,041	-5,786	-8,459	-11,724
R&D expenses	-74	-212	-691	-1,039	-1,237
G&A expenses	-40	-110	-538	-827	-916
Operating income	19	216	-1,670	-1,080	-586
Interest income	2	9	4	9	11
Net other income	0	6	242	52	49
Realized gains from investments	0	11	53	0	0
Impairment loss on equity method investment	0	0	0	0	0
Pre-tax income	21	242	-1,371	-1,019	-525
Income tax benefits (expenses)	-3	-17	68	51	26
(Loss) income from equity method investments	1	1	-2	0	0
Net (loss) income	20	227	-1,304	-968	-499
Net (loss) income after minority	-19	188	-1,304	-968	-499
SBC	6	60	240	393	526
Non-GAAP items:					
Non-GAAP gross profit	255	1,595	5,413	9,348	13,428
Non-GAAP operating income	25	276	-1,430	-687	-60
Non-GAAP net income after minority	-13	248	-1,065	-575	27
Non-GAAP adj. net income after minority	-13	237	-1,065	-575	27
EPADS	-0.14	0.90	-5.53	-4.06	-2.09
Non-GAAP EPADS	-0.10	1.19	-4.51	-2.41	0.11
Non-GAAP adj. EPADS	-0.10	1.13	-4.51	-2.41	0.11

Cashflow Statement

(RMB mn)	FY18	FY19	FY20E	FY21E	FY22E
Year end	Dec 31	Dec 31	Dec 31	Dec 31	Dec 31
Net (loss) income	20	227	-1,304	-968	-499
Non-cash Adjustments	9	59	26	29	29
Changes in net operating assets	213	999	1,027	1,530	1,600
CFO	242	1,285	-251	591	1,130
Investments	-187	-2,444	1,069	-243	-576
CAPEX	-12	-61	-580	-140	-15
Others	0	0	0	0	0
CFI	-199	-2,505	489	-383	-591
Amounts borrowed from related parties	1	0	0	0	0
Repayment to related parties	-30	-34	0	0	0
Share issuance	0	1,280	-143	0	0
CFF	-29	1,246	-144	0	0
Effect of exchange rate changes	0	14	0	0	0
Net increase in cash	14	41	94	208	538
Beginning cash	19	33	74	168	376
Ending cash	33	74	168	376	914

Financial ratios

	FY18	FY19	FY20E	FY21E	FY22E
Year end	Dec 31	Dec 31	Dec 31	Dec 31	Dec 31
yoy					
Net revenues	307%	432%	232%	75%	43%
Gross profit	251%	520%	239%	73%	44%
Operating income	n.a.	1026%	n.a.	n.a.	n.a.
Net (loss) income	n.a.	1053%	n.a.	n.a.	n.a.
Net (loss) income after minority	n.a.	n.a.	n.a.	n.a.	n.a.
Non-GAAP items					
Non-GAAP gross profit	251%	526%	239%	73%	44%
Non-GAAP operating income	n.a.	1001%	n.a.	n.a.	n.a.
Non-GAAP net income after minority	n.a.	n.a.	n.a.	n.a.	n.a.
Non-GAAP adj. net income after minority	n.a.	n.a.	n.a.	n.a.	n.a.
Margins					
Gross profit	64%	75%	76%	75%	76%
Operating income	5%	10%	-24%	-9%	-3%
Net (loss) income	5%	11%	-19%	-8%	-3%
Net (loss) income after minority	-5%	9%	-19%	-8%	-3%
Non-GAAP items					
Non-GAAP gross profit	64%	75%	77%	76%	77%
Non-GAAP operating income	6%	13%	-20%	-6%	0%
Non-GAAP net income after minority	-3%	12%	-15%	-5%	0%
Non-GAAP adj. net income after minority	-3%	11%	-15%	-5%	0%
Effective tax rate	12%	7%	5%	5%	5%
Current ratio (x)	79%	110%	51%	45%	51%
Net cash/equity	-47%	99%	958%	-173%	-190%
ROE	-6%	10%	-38%	-25%	-10%
P/E (x)	n.a.	412.8	n.a.	n.a.	n.m.
P/B (x)	n.a.	62.8	n.m.	n.a.	n.a.
P/S (x)	246.2	46.3	13.9	8.0	5.6

Sources: Company data, CMS (HK) estimates; *Net cash includes bank balance and ST investments

Appendix 1: GSX's app/website screenshots

Figure 36: Screenshots from GSX's app/website

Common Geometry External Sphere Formula
 In a triangular pyramid $A-BCD$, $AB=CD=6$, $AC=BD=AD=BC=5$, then the surface area of the circumscribed sphere of this triangular pyramid is _____.

Handwritten Solution:
 $2R = \sqrt{43}$
 $R = \frac{\sqrt{43}}{2}$
 $S_{\text{球}} = 4\pi R^2 = 4\pi \cdot \frac{43}{4} = 43\pi$

Handwritten Equations:
 $\begin{cases} b^2 + c^2 = 36 \\ a^2 + b^2 = 25 \\ a^2 + c^2 = 25 \end{cases} \Rightarrow \begin{cases} 2(a^2 + b^2 + c^2) = 86 \\ a^2 + b^2 + c^2 = 43 \end{cases}$

Volume **Microphone and camera** **Course settings** **Raise hands (to speak with instructor directly)** **Course material presentation** **Instructor** **In-class discussions** **IT support**

Genshuixue App Main Interface

Different course categories

Trial courses promotion

21,136 students have applied

Online courses **My courses** **My account**

Genshuixue App "My Courses" Interface

My courses

Course I: Grade-7 Mathematics
3 classes in total

Course II: English Grammar
5 classes in total

Course III: Morning Yoga
1 class in total

Sources: Company data, CMS (HK)

Appendix 2: GSX conference call summary of management official rebuttal to short seller report ([link](#))

- On the call, GSX management disclosed details regarding its strong cash position and where the deposits located highlighting its strong cash generation ability.
- Management addressed the report use of small sample and clawed collection of data. For example, the report used Alexa data that has small sample problem as the device is not popular in China.
- The use of APP download data as a statement of GSX' overstatement of user data is also flawed as company highlighted that more than half of their students are using HTML or PC based, bypassing the need to download their mobile APP.
- On April 14, Citron Research also published a short seller report on GSX. Per management, the report's arguments largely mirror that of previous report published by Grizzly Research. In our view, the arguments set forth are circumstantial and does not carry sufficient evidence that points to fraudulent financial reporting.
- In our view, GSX Chairman's address of the issues were helpful in alleviating the equity market concerns regarding account fraud in general stemming from the Luckin Coffee incident.
- We also agree that GSX' strong cash generation resulting in its strong balance sheet is the best testament to its solid business/financial model, setting it completely apart from Luckin Coffee's financial issues.

Figure 37: GSX's official rebuttal to short seller report



Sources: Company data, CMS (HK)

Investment Ratings

Industry Rating	Definition
OVERWEIGHT	Expect sector to outperform the market over the next 12 months
NEUTRAL	Expect sector to perform in-line with the market over the next 12 months
UNDERWEIGHT	Expect sector to underperform the market over the next 12 months

Company Rating	Definition
BUY	Expect stock to generate 10%+ return over the next 12 months
NEUTRAL	Expect stock to generate +10% to -10% over the next 12 months
SELL	Expect stock to generate loss of 10%+ over the next 12 months

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