

MicroTech Medical (Hangzhou)

Bloomberg: 2235 HK Equity | Reuters: 2235.HK

Refer to important disclosures at the end of this report

DBS Group Research . Equity

23 Feb 2022

BUY (Initiating Coverage)

Last Traded Price (22 Feb 2022): HK\$14.82 (HSI : 23,520)

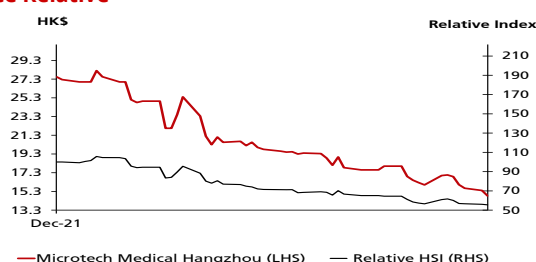
Price Target 12-mth: HK\$24.9 (68% upside)

Analyst

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Price Relative



Forecasts and Valuation

FY Dec (RMBm)	2020A	2021F	2022F	2023F
Turnover	75	137	291	677
EBITDA	(120)	(18)	(34)	25
Pre-tax Profit	(121)	(20)	(36)	24
Net Profit	(121)	(20)	(36)	20
Net Pft (Pre Ex) (core profit)	(121)	(20)	(36)	20
Net Profit Gth (Pre-ex) (%)	(53.9)	83.8	(81.4)	N/A
EPS (RMB)	(0.39)	(0.05)	(0.08)	0.05
EPS (HK\$)	(0.49)	(0.06)	(0.10)	0.06
EPS Gth (%)	(41.5)	88.3	(81.4)	N/A
Diluted EPS (HK\$)	(0.49)	(0.06)	(0.10)	0.06
DPS (HK\$)	0.00	0.00	0.00	0.00
BV Per Share (HK\$)	2.93	6.47	6.37	6.42
PE (X)	nm	nm	nm	255.7
P/S (X)	48.9	37.2	17.6	7.6
P/Cash Flow (X)	nm	nm	nm	nm
P/Free CF (X)	nm	nm	nm	nm
EV/EBITDA (X)	nm	nm	nm	131.4
Net Div Yield (%)	0.0	0.0	0.0	0.0
P/Book Value (X)	5.1	2.3	2.3	2.3
Net Debt/Equity (X)	CASH	CASH	CASH	CASH
ROAE (%)	(25.6)	(1.3)	(1.6)	0.9
Earnings Rev (%):		New	New	New
Consensus EPS (RMB)		(0.25)	(0.14)	n.a.
Other Broker Recs:		B:2	S:0	H:1

Source of all data on this page: Company, DBS Bank (Hong Kong) Limited ("DBS HK"), Thomson Reuters

Riding on diabetes devices revolution

- Winner in tubeless insulin pump and real-time blood sugar monitor market as the pump is >20% cheaper, longer sensor life, battery life >40% longer, and 11-36% smaller in size than global peers
- Current market cap is only 2.1-5.0% of comparable global peers; attractive entry point now
- With share price catalysts on the horizon - entry into U.S. market, breakeven in 2023 and launch of artificial pancreas - we initiate with BUY, TP HK\$24.9

Long-term winner in revolution of diabetes devices. MicroTech has developed a tubeless insulin pump and real-time blood sugar monitor. This is revolutionizing the way to inject insulin and monitor blood sugar as it operates automatically and eliminate risks like hyperglycemia. MicroTech's tubeless insulin pump is 11% smaller in size, battery life 11x longer, >20% cheaper than peer Insulet (PODD US). Its real-time blood sugar monitor has longer sensor life (14 vs 10 days) and 66% cheaper than peer Dexcom (DXCM US) which should enable it to gain market share in the long run. We expect its sales to grow at 104% CAGR in 2021-25F. Yet, MicroTech's market cap is just 2.1% to 5.0% of global peers. The stock offers an attractive entry point now.

Where we differ. Based on share price performance of global peers, we believe approval to launch tubeless insulin pump and real-time blood sugar monitor in the US, artificial pancreas in EU & China, breakeven in 2023 can drive share price in the next 24 months.

Valuation:

Our TP of HK\$24.9 is based on 1) net present value estimate of major products; 2) net cash.

Key Risks to Our View:

Limited track record of commercialization in EU & US.

At A Glance

Issued Capital (m shrs)	424
Mkt Cap (HK\$m/US\$m)	6,284 / 805
Major Shareholders (%)	
Invesco Advisers, Inc.	20.0
UBS Asset Management (Hong Kong) Limited	11.4
UBS Asset Management (Singapore) Ltd.	9.7
Fidelity Management & Research (Hong Kong) Limited	5.7
Lilly Asia Ventures	5.4
Free Float (%)	14.2
3m Avg. Daily Val. (US\$m)	0.16
ICS Industry: Health Care / Health Care Equipment & Service	



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MicroTech Medical (Hangzhou)

Investment Summary

MicroTech's products provide diabetes management through a tubeless insulin pump and a real-time blood sugar monitor which can both be stuck onto the skin and controlled wirelessly. MicroTech targets adults and children with type 1 diabetes and severe type 2 diabetes in China, EU and U.S. Total patient size in these regions was 14.9m in 2021. We expect MicroTech to grow sales at a CAGR of 104% from Rmb137m to Rmb2.4bn in 2021F-2025F, turning profitable in 2023, driven by: 1) remarkable advantages of its products compared to conventional ways of insulin injection and blood sugar monitoring; 2) superior product quality compared to other major tubeless insulin pump and real-time blood sugar monitors in the market. With market cap only 2.1% to 5.0% of comparable peers Insulet (PODD US) and Dexcom (DXCM US), MicroTech's valuation is very attractive. We estimate four catalysts will drive its share price in next 24 months. In 2022, the company should receive approval to launch its tubeless insulin pump and real-time blood sugar monitor in the U.S. In 2023, approval should be obtained to launch its artificial pancreas in the EU and China, and breakeven of earnings is expected.

Revolutionary advantages vs conventional ways of insulin injection and blood sugar monitoring. Conventional ways of insulin injection include insulin syringes and pens, tubed insulin pumps patched to patients. Compared to tubed insulin pump, tubeless insulin pump is c.35% smaller and it can prevent entanglement and reduces occlusion caused by progressive displacement of the cannula which lowers the risk of hyperglycemia. Insulin syringes and pens could cause hard lumps or fatty deposits near the injection area and there are usually many injection sites. The tubeless insulin pump only has one injection site and can be programmed to deliver different doses of insulin automatically at specific times. We expect the share of tubeless insulin pumps in global insulin injection devices market will surge from 7.6% to 18.4% in 2021 to 2031.

Conventional blood glucose monitoring systems requires 6 to 10 finger pricks a day and will not be able to detect the level when the patient is asleep. The real-time blood monitor can detect the blood sugar level every 5 minutes automatically without finger pricks, easier to alert the patients when the blood sugar level is abnormal. We expect the share of real-time blood monitor in global blood glucose monitoring system market will surge from 24.2% to 52.2% in 2021 to 2031.

Superior products' quality vs global peers. Relative to tubeless insulin pumps developed by major global peers, namely Insulet and Roche (ROG SW), MicroTech's product is 11% to 36% smaller in size, has longer battery life (4 years vs 3 days to 4 months), and is 20-56% cheaper. Among

calibration-free real-time blood sugar monitors which detect blood sugar level every 5 minutes, MicroTech's major competitor is Dexcom. MicroTech's product is better in terms of sensor life (14 vs 10 days) and is 66% cheaper.

Four catalysts to drive share price in next 24 months. Since its IPO in Oct 2021, MicroTech's share price has dropped by 51%. We attribute this to because it generates c.80% of sales from China and insulin is suffering from a huge price cut imposed by government. As MicroTech's products are related to insulin, the market is concerned they will suffer from price cuts too. Given the share price correction and deep discount vs global peers in terms of market cap, we believe these negatives are largely priced in.

Going forward, we believe four upcoming events will drive the share price as it implies MicroTech can enter into new markets which would dilute the risk in the China market.

Catalysts in 2022: In 1H, we expect U.S. FDA to grant approval for MicroTech to launch tubeless insulin pump ("Equil") and approval to launch real-time blood sugar monitor ("AiDEX") in 2H. This would mark its entry into the U.S.

Catalysts in 2023: 1) achieve breakeven financially; 2) approval to launch artificial pancreas in EU and China in 2023. An artificial pancreas includes a real-time blood sugar monitor which continuously measures blood glucose levels and relays them to an insulin pump instantly, essentially regulating blood glucose levels every 5-15 minutes. It can effectively extend the time the patient remains in a healthy blood sugar range (+2.2 hrs a day).

Referencing to the historical performance of comparable global peers (Insulet, Dexcom) and Chinese medical device makers listed on the Hong Kong Stock market, their share prices had moved up when the above events took place. In view of the potential share price rebound, we recommend to BUY MicroTech. Our TP of HK\$24.9 is based on the net present value estimate of MicroTech's products, added to net cash, divided by total number of shares after the IPO.

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SWOT Analysis

Strengths	Weaknesses
<ul style="list-style-type: none"> • Best-in-class tubeless insulin pump from a global perspective • One of the two real-time, calibration-free Continuous Glucose Monitoring System ("CGMS") apart from Dexcom G6 • Only company developing in-house tubeless closed-loop insulin delivery system ("artificial pancreas") • Sold or distributed to 787 hospitals in China, strong foundation for future sales ramp-up 	<ul style="list-style-type: none"> • Limited track record of product commercialisation in foreign markets • No strong evidence to prove capability to optimise artificial pancreas
Opportunities	Threats
<ul style="list-style-type: none"> • Tapping into global insulin delivery market, cheaper than both competitors that offer tubeless product • Tapping into global blood glucose monitoring market, cheaper than its sole real-time, calibration-free competitor • Listing on China A-share market to raise capital for business development 	<ul style="list-style-type: none"> • Possible price cut on products sold in China due to government focus on affordable diabetes management • Competition against strong foreign market leaders with over ten years of experience in foreign markets.

Source: DBS HK

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Competitive Edge

Equil: Superior insulin pump - tubeless, smaller, cheaper.

MicroTech's core product is a tubeless patch insulin pump enabling wireless diabetes management via delivery of insulin to lower blood sugar levels. Equil can be stuck onto the skin to provide subcutaneous insulin injection through a cannula for 3 days. The insulin cartridge is then replaced, while the battery and pump are reused. Equil is controlled wirelessly using a Portable Diabetes Assistant (PDA).

Potential customers are adults with Type 1 diabetes or severe Type 2 diabetes. Equil for use by children is expected in China in 2H22. We estimate the number of patients stood at 5.5m, 4.4m and 5.0m in China, Europe, and the US respectively in 2021, growing to 6.6m, 5.5m and 5.7m respectively in 2031. The product has been commercialised in China and the EU, and is expected to obtain approval from the US Food & Drug Administration (FDA) in 1H22, and enter the US market in 2H22.

Conventional methods for insulin delivery are insulin syringes, insulin pens, and insulin pumps.

Compared to insulin syringes and pens, Equil has several advantages as it 1) has one injection site - more injections near the same area may lead to hard lumps or fatty deposits; 2) is easier to use, as it can be programmed to deliver different doses of insulin automatically at specific times.

Compared to conventional insulin pumps, Equil also has several pluses as it is 1) tubeless, which prevents entanglement and reduces occlusion caused by progressive displacement of the cannula, therefore lowering the risk of hyperglycemia; 2) smaller, around 35% of the volume of traditional tubed insulin pumps, thus improving privacy and comfort of patients.

Compared to other tubeless insulin pumps, namely Omnipod developed by Insulet (PODD US) and Accu-Chek Solo developed by Roche (ROG SW), respectively, Equil is 11% to 36% smaller in size, has longer battery life (4 years vs 3 days vs 4 months), and is 20% to 56% cheaper. See the following table ("Insulin pump products by major manufacturers in the global market").

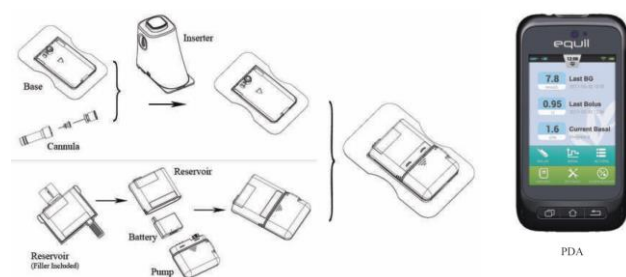
Insulin pump products by major manufacturers in the global market

Manufacturer	MicroTech	Insulet	Roche	Medtronic	Tandem
Stock Code	2235 HK	PODD US	ROG SW	MDT US	TNDM US
Product	Equil	Omnipod	Accu-Chek Solo	MiniMed	t:slim
Marketed regions	China, EU	US, EU	EU	China, US, EU	US, EU
Type	Patch pump	Patch pump	Patch pump	Tubed pump	Tubed pump
Weight with battery and insulin	28g	27g	29g	>=85g	116g
Insulin reservoir capacity	200U	200U	200U	300U	300U
Size (mm ³)	59.5x40x11 =26,180	52x39x14.5 =29,406	68x40x15 =40,800	96x53x24 =122,112	80x51x15 =61,200
Battery life	4 years	3 days	4 months	4 years	4 years
CGMS compatibility	AiDEX G7 (2H23)	Dexcom G6	Dexcom G6 (TBC)	Guardian Sensor 3	Dexcom G6
Daily cost* in US (USD)	Not approved	10	Not approved	Info unavailable	Info unavailable
Daily cost* in EU (USD)	<10	10 - 15	20 - 25	Info unavailable	Info unavailable
Pump body cost in China (RMB)	30,000	Not approved	Not approved	40,000	Not approved
Global market share	<1%	20%	<5%	55%	15%

*Daily cost of insulin pump = price of pump body/ duration of pump body (day) + price of consumables/ duration of consumables (day)

Source: MicroTech prospectus, DBS HK

Equil components and Wireless Portable Diabetes Assistant (PDA)



Source: MicroTech prospectus

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AiDEX: The only real-time, calibration-free Continuous Glucose Monitoring System (CGMS) apart from Dexcom G6.

MicroTech's AiDEX is a CGMS which measures and sends glucose levels every 5 minutes to a Portable Diabetes Assistant (PDA). AiDEX is stuck onto the skin, and relays data from a sensor which gathers subcutaneous glucose readings continuously for 14 days.

Type 1 diabetics and severe Type 2 diabetics rely on glucose readings to address their blood sugar levels to avoid hypo- or hyperglycemia. The product has been commercialised in China and EU, and is expected to obtain FDA approval in 2H22 and enter US market in 1H23.

Two main methods for measuring blood sugar levels: blood glucose monitoring systems (BGMS) and CGMS.

Relative to traditional BGMS which require routine finger prick blood glucose measurements, AiDEX is better because 1) there is real-time monitoring of blood sugar

levels, hence detecting the blind area of conventional BGMS when patients are asleep; 2) easier to use, as CGMS requires one insertion site for 14 days, while BGMS requires around 6 to 10 finger pricks a day.

Compared to other CGMS, AiDEX is the only other real-time, calibration-free CGMS other than Dexcom's G6. It is clinically similar to Dexcom's G6 yet better in terms of sensor life (14 vs 10 days) and is cheaper by 66%. See the following table ("CGMS products by major manufacturers in the global market").

Real-time CGMS take measurements every 5 minutes, whereas others such as Abbott take readings every 15 minutes. A higher frequency ensures that a patient's blood sugar level stays in the normal range for a longer duration, as proven in a head-to-head clinical trial comparing Dexcom and Abbott (59.6% vs 51.9% time-in-range). Calibration-free CGMS are easier to use without any need for routine finger pricking.

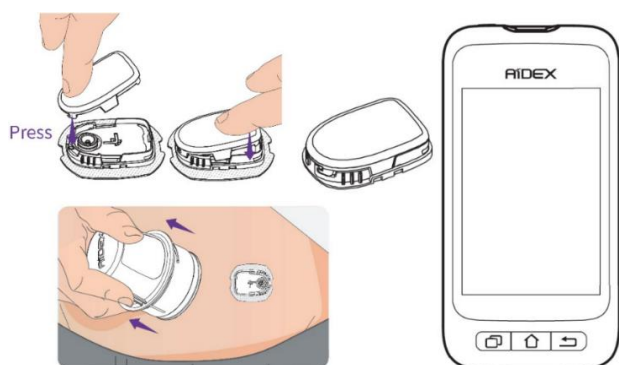
CGMS products by major manufacturers in the global market

Manufacturer	MicroTech	Dexcom	Abbott	Medtronic
Stock Code	2235 HK	DXCM US	ABT US	MDT US
Product	AiDEX G7	Dexcom G6	Freestyle Libre	Guardian Sensor 3
Marketed regions	China, EU	US, EU	China, US, EU	China, US, EU
Calibration	Calibration-free	Calibration-free	Calibration-free	twice per day
Frequency of readings	5 mins ("real-time")	5 mins ("real-time")	15 mins	5 mins ("real-time")
Alarm function	Yes	Yes	No	Yes
Accuracy (MARD)* (the lower, the more accurate)	9.1%	9.0%	12.1%	9.1-10.6%
Sensor life	14 days	10 days	14 days	7 days
Monthly cost in US (USD)	Not approved	300	150	300
Monthly cost in EU (GBP)	55	160	90	200
Monthly cost in China (RMB)	675	Not approved	1,000	3,100
Global market share	<1%	>30%	>50%	<10%

*MARD is the mean absolute relative difference between CGMS and referenced value. The lower the value, the higher the accuracy.

Source: MicroTech prospectus, DBS HK

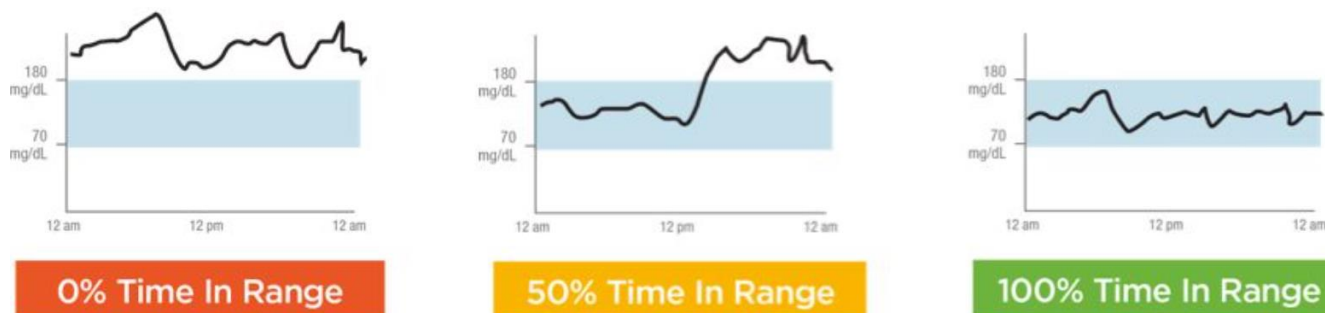
AiDEX components and Wireless Portable Diabetes Assistant (PDA)



Source: MicroTech prospectus, AiDEX User Guide, AiDEX Quick Guide

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Time-in-range graphical illustration



Source: <https://www.freestyle.abbott/in-en/discover/time-in-range.html>

Potential penetration into global artificial pancreas market in 2H23. The “artificial pancreas” includes a CGMS which continuously measures the patients’ blood glucose levels and communicates such information to an insulin pump which pumps out a calculated amount of insulin to counteract the glycemic environment within the patient. This process is done automatically, with measurements taken every 5-15 mins.

Artificial pancreases are highly anticipated, as the clinical trials of the artificial pancreas by competitor Insulet’s insulin pump Omnipod 5 matched with Dexcom’s CGMS G6 compared their performance with standard therapy which consisted of both pump therapy and multiple daily injections, and showed longer time with normal blood sugar levels (+2.2 hrs a day), and less time at low blood sugar levels (-15 mins a day).

MicroTech is developing such a system, targeted for launch in China and Europe in 2H23. There are currently no artificial pancreas devices marketed in China.

Globally, the direct competitor is Insulet. It has plans to tie up with Dexcom and Abbott to release an artificial pancreas through collaboration using their patch insulin pump technology and their partners’ CGMS pending launch in the US. MicroTech is set to be the only company capable of producing an artificial pancreas with both patch insulin pump and CGMS products without collaboration. This would bring about many advantages, including:

- One-stop service, simplifying the sales and service procedures for both devices;
- Unified data platform, enabling users to receive and share data on a unified data platform rather than separate glucose monitoring and insulin delivery platforms from different companies;
- Faster improvements, as user feedback collected can be directly communicated to a single group of decision-makers, speeding up the optimization of the design and development of the system.

Artificial pancreas devices by major manufacturers in the global market

Manufacturer	Insulet + Dexcom	Medtronic	Tandem + Dexcom
Stock Code	PODD + DXCM	MDT US	TNDM + DXCM
Product	Omnipod 5	MiniMed 770G	Control-IQ hybrid closed loop
FDA approve date	Jan-2022	Sep-2020	Dec-2019
Components	Patch pump + Calibration-free CGMS	Tubed pump + Calibration required CGMS	Tubed pump + Calibration-free CGMS
Price in US	Info unavailable	USD\$8,000	USD\$4,000 (pump only)

Source: MicroTech prospectus, DBS HK

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An all-rounded diabetes management pipeline: Other than innovative diabetes management systems, MicroTech also

has a portfolio of conventional Blood Glucose Monitoring Systems (BGMS).

BGMS products

Product	BGMS and test strips	Exactive Pro	Ivocare Multifunctional POCT
Launch	Launched	1H2022	Launched
Marketed regions	China, US, EU	TBC	China
Measurement metric	Blood glucose	Blood glucose, ketone, uric acid	HbA1C, MAU, hs-CRP+CRP
Measurement range	10-600 mg/dL	10-600 mg/dL (Blood glucose) 0.0-8.0 mmol/L (Beta-Ketone) 150-1200umol/L (Uric acid)	TBC
Reaction time	5s	5s (Blood glucose) 5s (Beta-Ketone) 10s (Uric acid)	4.0 minutes (HbA1C) 3.5 minutes (MAU) 3.5 minutes (hs-CRP+CRP)
Sample size	0.5 uL	0.5 uL (Blood glucose) 0.8 uL (Beta-Ketone) 1.0 uL (Uric acid)	75 uL (HbA1C) 50 uL (MAU) 75 uL (hs-CRP+CRP)

Source: MicroTech prospectus, DBS HK

BGMS components



Left: BGMS; Middle: Exactive Pro and test strips; Right: Ivocare Multifunctional POCT

Source: MicroTech prospectus, MicroTech website

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Growth Factors

Revenue drivers

Revenue drivers (Rmb mn)	2021F	2022F	2023F	2024F	2025F	CAGR
Equil (China)	22	32	45	62	47	21%
Equil (Europe)	39	90	159	312	481	88%
Equil (US)	-	10	127	390	695	310%
AiDEX (China)	11	24	48	93	97	74%
AiDEX (Europe)	22	87	178	349	567	124%
AiDEX (US)	-	-	59	206	394	158%
Artificial pancreas (China)	-	-	2	5	4	45%
Artificial pancreas (Europe)	-	-	6	22	33	146%
BGMS	43	48	53	58	65	11%
Total revenue	137	291	677	1,498	2,382	104%

Source: MicroTech prospectus, DBS HK

MicroTech's revenue in 2021F-25F should mainly be driven by sales ramp-up of its major products in China, Europe and the US (see the table above). Equil is a tubeless insulin pump, AiDEX is a continuous glucose monitoring system, artificial pancreas is a closed-loop system combining Equil and AiDEX, and BGMS is the conventional finger pricking method to monitor blood sugar levels.

Potential customers of MicroTech's products are adults with Type 1 diabetes or severe Type 2 diabetes. Indication for use by children with diabetes is expected in 2H22 in China. We estimate the number of potential users of MicroTech's products stood at 5.5m, 4.4m and 5.0m in China, Europe, and the US respectively in 2021, growing to 6.6m, 5.5m and 5.7m respectively in 2031.

Equil (China) revenue CAGR in 2021F-25F: 21%. Equil was launched in China in 2018 and clinched 3.3% market share in 2020 within 3 years of launch. We expect it to continue to deepen its market penetration and dominate the market due to lack of tubeless insulin pump competitors. As discussed above, tubeless insulin pumps are preferred to tubed insulin pumps. As of Oct 2021 in China, there were no tubeless insulin pumps on the market other than Equil, and no known clinical trials for similar products. Assuming foreign competitors plan to enter the market, it would take c.3 years to go through all trials and gain approval, and another year to ramp up as it builds up its local network. This implies Equil will likely have no strong competitor before 2025 in China, hence, we forecast Equil can maintain its penetration rate into the market.

MicroTech is being sold or distributed by 787 hospitals in China. We expect market penetration of Equil to increase from 4.0% in 2021 to 8.3% in 2025, or in terms of users from 1,300 to 5,000.

Equil (Europe) revenue CAGR in 2021F-25F: 88%. Equil was launched in Europe in 2018 and is sold in the UK, Italy, Czech, Poland, Holland etc mainly via distributors.

Expansion into more European nations is pending medical reimbursement inclusion. Thanks to its cheaper yet clinically superior product, MicroTech expects to capture 3-5% of the local market by 2024-2026. We expect penetration to accelerate following launch of their artificial pancreas in 2H23. We estimate market share in terms of users to increase from 0.4% in 2021 to 3.8% in 2025, or from 2,000 to 24,000 in terms of number of patients.

Equil (US) revenue CAGR in 2022F-25F: 310%. Equil is expected to obtain FDA approval in 1H22 and start generating revenue in 2H22. Market penetration would rely on medical reimbursement inclusion. With superior clinical capabilities and cheaper price, we believe Equil will be able to successfully penetrate the US market, however initially at a discounted rate as market leader Insulet due to uncertainties stemming from MicroTech's entry into a foreign market. We expect penetration to be similar to Insulet from 2024 due to sales channel stabilisation. We estimate Equil to gain a market share of 0.1% in 2022, rising to 4.2% in 2025, or expand its user base from 500 to 34,000.

AiDEX (China) revenue CAGR in 2021F-25F: 74%. AiDEX obtained NMPA approval in 2H21 and is the first CGMS in China capable of serving T1D patients which makes up >50% of potential CGMS users, due to their real-time and calibration-free capability. Assuming foreign competitors plan to enter the market, it would take c.3 years to go through all trials and gain approval, and another year to ramp up as it builds up its local network. This implies AiDEX will likely have no strong competitor before 2025 in China. We expect market penetration of AiDEX will be rapid due to lack of competitors and established sales network of Equil. We estimate market penetration of AiDEX to increase from 0.6% in 2021 to 3.0% in 2025, as it expands its user base from 1,300 to 21,000.

AiDEX (Europe) revenue CAGR in 2021F-25F: 124%. AiDEX was launched in Europe in 1H21. With similar clinical capabilities as market leader Dexcom yet 66% cheaper, we believe AiDEX will be able to penetrate the European market, however initially at a discounted rate as Dexcom due to uncertainties following AiDEX's entry into a foreign market. We expect penetration to be like Dexcom from 2024 due to sales channel stabilisation and marketing of artificial pancreas. We estimate AiDEX to gain market share of 0.5% in 2021 to 6.1% in 2025, as its expands its user base from 4,000 to 100,000.

AiDEX (US) revenue CAGR in 2023F-25F: 158%. AiDEX is expected to obtain FDA approval in 2H22 and generate revenue in 1H23. We believe AiDEX will be able to penetrate the US market, however initially at a discounted rate as Dexcom due to uncertainties stemming from AiDEX's entry into a foreign market. We expect penetration to be similar to Dexcom from 2024 due to sales channel

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stabilisation. We estimate AiDEX to gain market share of 0.5% in 2023 to 2.7% in 2025, with its user base expanding from 7,500 to 50,000.

Artificial pancreas (China) revenue CAGR in 2023F-25F: 45%. We believe MicroTech will be able to successfully develop and implement the closed-loop control algorithm combining Equil and AiDEX, expected to be launched in 2H23 and to generate revenue immediately due to its established network. We assume the software will be subscription based paid in the form of an annual fee. We estimate artificial pancreas to gain market share of 20.7% in 2023 to 22.2% in 2025, on an expanding user base from 1,300 to 5,000.

Artificial pancreas (Europe) revenue CAGR in 2023F-25F: 146%. Expected to be launched in 2H23 and generate revenue immediately due to established network, we assume the software to be subscription based paid through an annual fee. We estimate the artificial pancreas to gain a market share of 2.8% in 2023 to 12.7% in 2025, on an expanding user base from 4,000 to 24,000.

BGMS revenue CAGR in 2021F-25F: 11%. We expect MicroTech's BGMS product segment to grow at the same pace as global diabetes monitoring medical devices market as estimated by Frost & Sullivan, as the company focuses on its major products.

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Critical Factors

FDA approval of Equil in 1H22. Market clearance to enter a new foreign market has been shown to boost share price performance, as seen during April 2018 with competitor Tandem's first major product to receive CE mark. See the following table ("Tandem (TNDM US) - share price and event chart"). This was also seen in another medical device manufacturer Venus Medtech, as they received CE mark and UK marketing approval for products in March 2020 and March 2021 respectively, boosting the share price.

MicroTech's tubeless insulin pump Equil has been commercialised in China and EU, and is pending FDA approval. This would enable Equil to tap into the US market and generate revenue, and will be crucial to MicroTech's share price performance.

Chinese medical device companies have been shown to successfully gain market share in foreign markets due to their cheaper alternatives, as shown from the sales ramp-up of Mindray (300760 CH) and Micro-Tech Nanjing (688029 CH). Mindray generated 47% of their revenue from outside China in 2020. From 2015 to 2020, their sales in Europe grew from Rmb815m to Rmb2.3bn, sales in North America grew from Rmb1.3bn to Rmb1.7bn, and their sales in Latin America grew from Rmb592m to Rmb1.5bn. Micro-Tech Nanjing generated 39% of their revenue from outside China in 2020. From 2015 to 2018, their sales in Europe grew from Rmb65m to Rmb196m, and their sales in America grew from Rmb21m to Rmb150m.

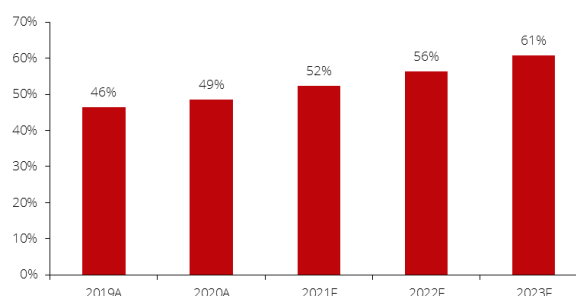
FDA approval of AiDEX in 2H22. Following FDA approval of Equil, obtaining FDA approval for AiDEX would raise market interest in AiDEX's ability to penetrate the US market. MicroTech would also benefit from the high market acceptance of CGMS in US.

Commercialisation of artificial pancreas in 2H23. Progress of the seamless integration of both insulin pump and CGMS would affect market expectations of the company's sales prospects and influence share price performance. MicroTech expects to launch the artificial pancreas in 2H23 in China and EU. As seen from share price movements of competitors Dexcom, Insulet, and Tandem, their share prices had increased as they progressed towards launching their artificial pancreas, but share prices fell when delays in the expected launch dates was announced. There is high expectations for artificial pancreas as they can maintain a healthy blood sugar range (+2.2 hrs a day) for longer, and lowers the risk of hypoglycemia (-15 mins a day) due to ability to regulate blood sugar levels every 5 minutes. See the following tables ("Dexcom (DXCM US) - share price and event chart", "Insulet (PODD US) - share price and event chart", "Tandem (TNDM US) - share price and event chart").

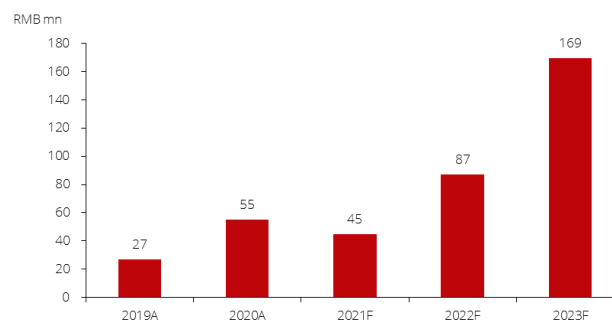
Breakeven in 2023. MicroTech is expected to achieve breakeven in 2023 and deliver earnings of Rmb20m. This

would provide confidence in its ability to generate earnings in the future, and is expected to boost share price performance as seen from competitor Dexcom's share price increase in Nov 2019 due to them breaking even. See the following table ("Dexcom (DXCM US) - share price and event chart").

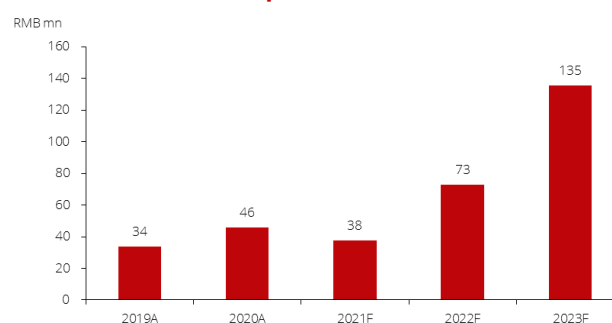
Gross margin %



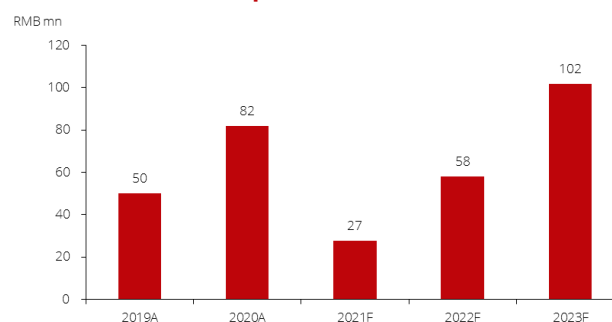
Sales & distribution expenses (Rmb m)



Admin expenses (Rmb m)



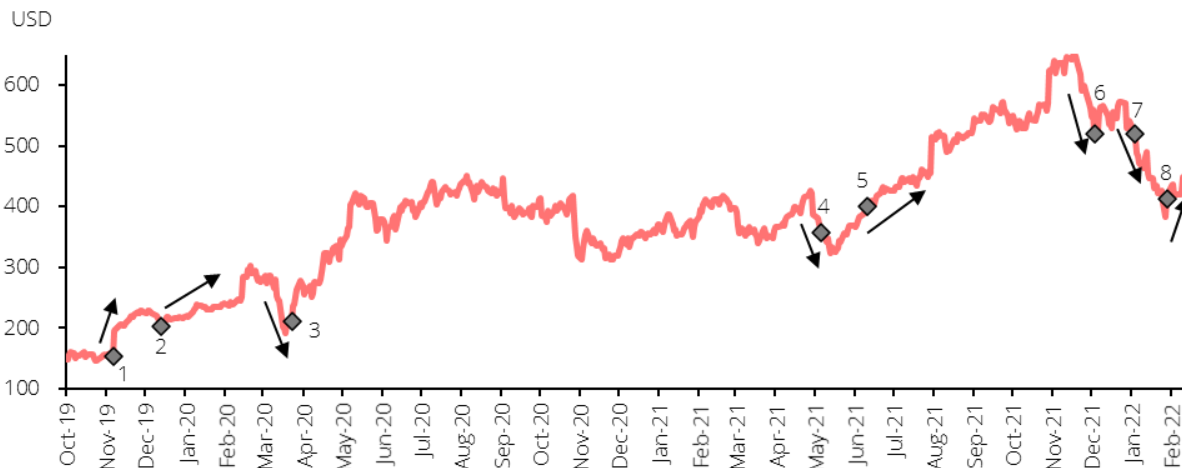
R&D expenses (Rmb m)



Source: Company, DBS HK

MicroTech Medical (Hangzhou)

Dexcom (DXCM US) - share price and event chart

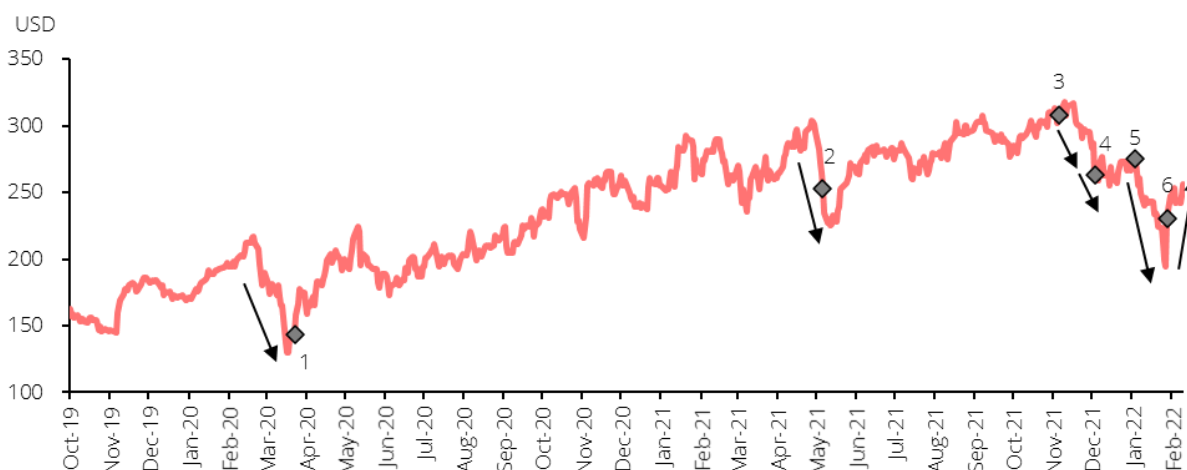


Events

- 1 Dexcom breakeven.
- 2 FDA clearance of artificial pancreas Tandem t:slim X2 + Dexcom G6 with Control-IQ
- 3 FDA implemented policy controlling insulin prices, triggering market pessimism in diabetes management players
- 4 Delay of FDA approval of artificial pancreas Insulet Omnipod 5 + Dexcom G6
- 5 Clinical data showed reduced diabetes burden and improved sleep quality for patients using t:slim X2 + Dexcom G6 with Control-IQ, with overall median Time-In-Range of 73.6%
- 6 Delay of FDA approval of artificial pancreas Insulet Omnipod 5 + Dexcom G6 from 4Q21 to 1Q22
- 7 Market upset due to potential interest rate hike
- 8 FDA clearance of artificial pancreas Omnipod 5 + Dexcom G6, first tubeless system with smartphone control

Source: Thomson Reuters, DBS HK

Insulet (PODD US) - share price and event chart



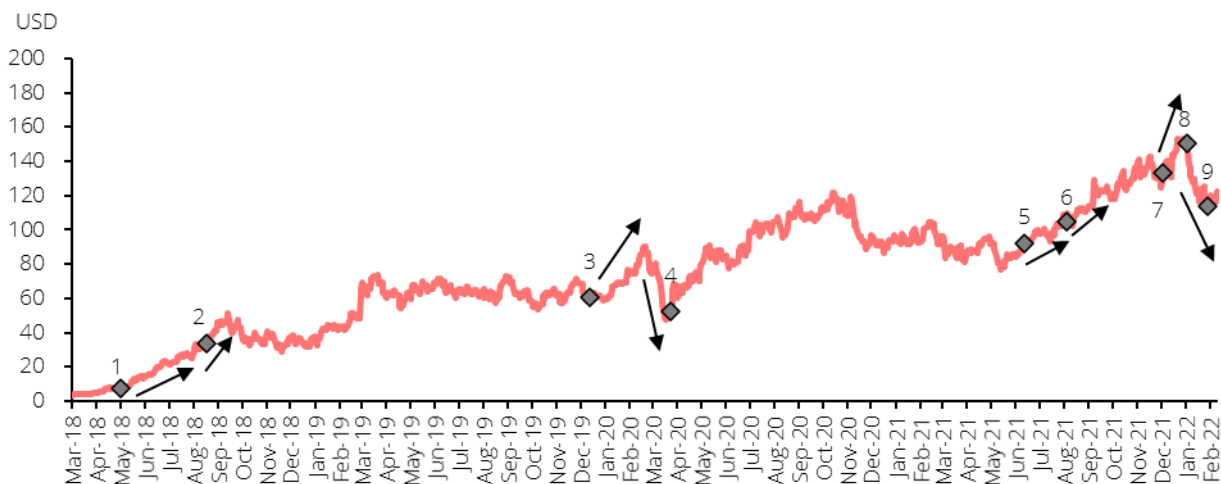
Events

- 1 FDA implemented policy controlling insulin prices, triggering market pessimism in diabetes management players
- 2 Delay of FDA approval of artificial pancreas Insulet Omnipod 5 + Dexcom G6
- 3 Insulet misses Q3 Earnings Estimates for 4 quarters in a row, but revenue target was met
- 4 Delay of FDA approval of artificial pancreas Insulet Omnipod 5 + Dexcom G6 from 4Q21 to 1Q22
- 5 Market upset due to potential interest rate hike
- 6 FDA clearance of artificial pancreas Omnipod 5 + Dexcom G6, first tubeless system with smartphone control

Source: Thomson Reuters, DBS HK

MicroTech Medical (Hangzhou)

Tandem (TNDM US) - share price and event chart

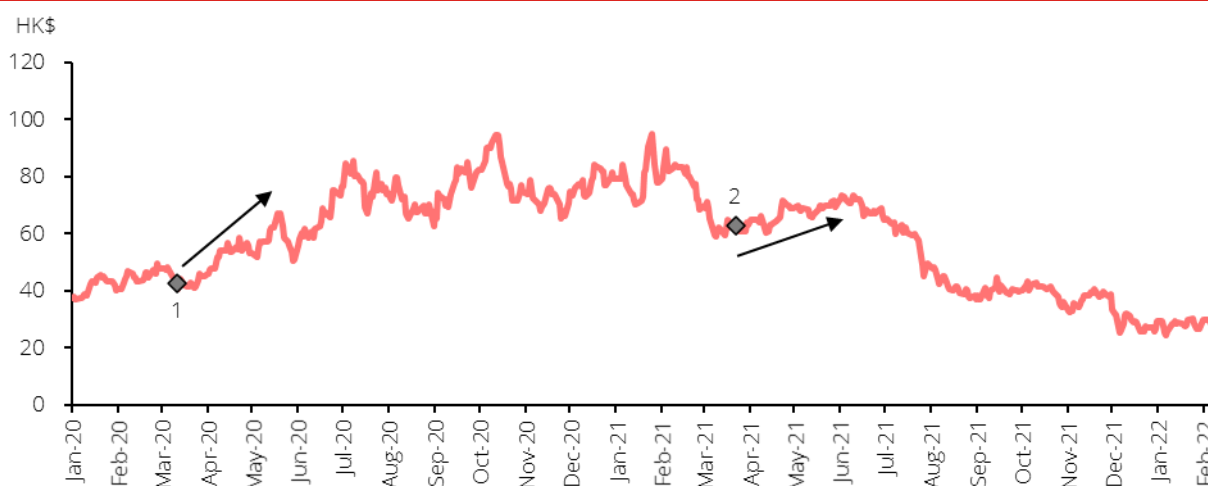


Events

- 1 CE mark for artificial pancreas Tandem t:slim X2 + Dexcom G5
- 2 US Launch of artificial pancreas Tandem t:slim X2 + Dexcom G5
- 3 FDA clearance of artificial pancreas Tandem t:slim X2 + Dexcom G6 with Control-IQ
- 4 FDA implemented policy controlling insulin prices, triggering market pessimism in diabetes management players
- 5 Clinical data showed reduced diabetes burden and improved sleep quality for patients using t:slim X2 + Dexcom G6 with Control-IQ, with overall median Time-In-Range of 73.6%
- 6 First Q2 to breakeven.
- 7 Delay of FDA approval of competitor Insulet Omnipod 5 + Dexcom G6 from 4Q21 to 1Q22
- 8 Market upset due to potential interest rate hike
- 9 FDA clearance of competitor artificial pancreas Omnipod 5 + Dexcom G6, first tubeless system with smartphone control

Source: Thomson Reuters, DBS HK

Venus Medtech (2500 HK) - share price and event chart



Events

- 1 CE mark for TriGuard 3
- 2 Medicines and Healthcare products Regulatory Agency (UK MHRA) approval for VenusP-Valve

Source: Thomson Reuters, DBS HK

MicroTech Medical (Hangzhou)**Key Risks**

Uncertainty in commercialisation of products in foreign markets. Although MicroTech has delivered huge growth in China, track record of its sales of MicroTech's products in foreign markets is limited, with US yet to be penetrated. Without a proven record of sales ramp-up in Europe and US, the company's ability to commercialise their products in foreign markets is uncertain.

Failure in R&D of artificial pancreas. The artificial pancreas is one of MicroTech's major products, but it is still in development stage and yet to enter clinical trials. Concerns may arise due to lack of strong evidence to prove its capability to optimise the artificial pancreas algorithm.

Competition against strong foreign market leaders. Competitors have a head start of more than ten years in foreign markets, thus MicroTech will face strong competition. The company may need to offer their products at a lower price and ramp-up distribution channels to gain market share.

Potential A-share listing leading to share dilution. The company disclosed in its prospectus a possible listing of A shares. This could potentially dilute shareholdings due to issuance of new shares.

MicroTech Medical (Hangzhou)

Valuation & Peers Comparison

Target price: HK\$24.9. Our target price is derived by adding the net cash (Rmb2.2bn) and net present value estimates of MicroTech's products (Rmb6.5bn), and then dividing it by the total number of shares after the IPO. The net present value was derived by adding the sum of the discounted

cash flows from 2022-36 (Rmb5.2bn) to the discounted terminal value (Rmb1.2bn).

Equil, AiDEX, Artificial pancreas, and BGMS make up 45%, 52%, 1%, and 2% of the net present value estimate, respectively. The forecast breakdown as well as major assumptions are shown in the table below ("Major assumptions behind our net present value estimate of MicroTech Medical's major products").

Major assumptions behind our net present value estimates of MicroTech's major products

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Potential customers (mn)											
China	5.5	5.6	5.8	5.9	6.0	6.1	6.2	6.3	6.4	6.5	6.6
Europe	4.4	4.4	4.8	4.9	5.0	5.1	5.2	5.2	5.3	5.4	5.5
US	5.0	5.0	5.3	5.3	5.4	5.4	5.5	5.5	5.6	5.6	5.7
Users ('000)											
Insulin pump (China)	33	39	46	53	60	67	75	82	90	98	106
Insulin pump (Europe)	460	487	556	590	625	661	697	734	772	811	850
Insulin pump (US)	549	602	687	747	808	870	933	997	1,062	1,128	1,195
CGMS (China)	238	347	462	583	710	845	985	1,132	1,285	1,444	1,610
CGMS (Europe)	746	962	1,186	1,416	1,652	1,896	2,147	2,404	2,668	2,940	3,217
CGMS (US)	956	1,180	1,408	1,640	1,876	2,116	2,360	2,608	2,860	3,116	3,375
Artificial pancreas (China)	-	-	6	15	22	30	36	41	44	47	61
Artificial pancreas (Europe)	106	139	139	164	188	210	251	288	314	338	388
Market share among users											
Equil (China)	4.0%	4.8%	5.7%	6.9%	8.3%	10.0%	12.0%	14.4%	17.4%	20.9%	25.1%
Equil (Europe)	0.4%	0.9%	1.4%	2.6%	3.8%	5.0%	6.2%	7.4%	8.6%	9.8%	11.0%
Equil (US)	0.0%	0.1%	0.9%	2.6%	4.2%	5.9%	7.6%	9.2%	10.9%	12.6%	14.2%
AiDEX (China)	0.6%	0.8%	1.3%	2.0%	3.0%	4.6%	7.0%	10.7%	16.4%	25.0%	26.0%
AiDEX (Europe)	0.5%	1.6%	2.7%	4.4%	6.1%	7.8%	9.5%	11.3%	13.0%	14.7%	16.4%
AiDEX (US)	0.0%	0.0%	0.5%	1.6%	2.7%	3.8%	4.8%	5.9%	7.0%	8.0%	9.1%
Artificial pancreas (China)	0.0%	0.0%	20.7%	25.1%	22.2%	22.6%	25.0%	29.2%	35.6%	43.6%	43.6%
Artificial pancreas (Europe)	0.0%	0.0%	2.8%	9.4%	12.7%	15.7%	17.2%	18.8%	21.1%	23.5%	24.0%
Price change %											
Equil (China)	0%	0%	0%	0%	-44%	0%	0%	0%	0%	0%	0%
Equil (Europe)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Equil (US)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AiDEX (China)	0%	0%	0%	0%	-44%	0%	0%	0%	0%	0%	0%
AiDEX (Europe)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
AiDEX (US)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Artificial pancreas (China)	0%	0%	0%	0%	-44%	0%	0%	0%	0%	0%	0%
Artificial pancreas (Europe)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Source: MicroTech prospectus, International Diabetes Foundation, Health Action International, US CDC, World Bank, DBS HK

MicroTech Medical (Hangzhou)

Major assumptions behind our net present value estimates of MicroTech's major products (continued)

	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031
Success rate %											
Artificial pancreas (China)	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Artificial pancreas (Europe)	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%	70%
Net margin	-14%	-12%	3%	7%	9%	10%	10%	11%	11%	12%	12%
Discount rate	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%	12.52%
Discounted cash flow (Rmb m)	-20	-32	16	78	136	199	253	310	370	438	484
Sum of discounted cash flow (2022-2036) (Rmb bn)			5.2								
Terminal growth rate			3%								
Terminal value (Rmb bn)			7.1								
Discounted terminal value (Rmb bn)			1.2								
Net Present Value (Rmb bn)			6.5								
Net Cash (Rmb bn)			2.2								
Total Value (Rmb bn)			8.6								

Source: MicroTech prospectus, International Diabetes Foundation, Health Action International, US CDC, World Bank, DBS HK

MicroTech Medical (Hangzhou)

Rationale behind our major assumptions of our net present value estimates

Potential customers (mn)	Sum of diagnosed 1) adults with T1D; 2) adults with T2D using insulin; 3) Children with T1D
China	2021 and 2030 estimates of China diagnosed diabetics from IDF (International Diabetes Foundation), %T1D from MicroTech prospectus, %T2D needing insulin from HAI (Health Action International), %T1D children from IDF. Straight line method to estimate yoy growth.
Europe	2021 and 2030 estimates of Europe diagnosed diabetics from IDF (International Diabetes Foundation), %T1D from IDF, %T2D needing insulin from HAI (Health Action International), %T1D children from IDF. Straight line method to estimate yoy growth.
US	2021 and 2030 estimates of US diagnosed diabetics from IDF (International Diabetes Foundation), %T1D from Centers for Disease Control and Prevention (US CDC), %T2D needing insulin from HAI (Health Action International), %T1D children from US CDC. Straight line method to estimate yoy growth.
Users ('000)	(potential customers) x (% that use such therapy method)
Insulin pump (China)	Potential customers from table above. 2020 and 2030 estimates of % that use insulin pump in each region from MicroTech prospectus, straight line method to estimate yoy growth.
Insulin pump (Europe)	
Insulin pump (US)	
CGMS (China)	(T1D adult and children)*(% of T1D adult and children that use CGMS) + (T2D needing insulin)*(% of T2D needing insulin that use CGMS).
CGMS (Europe)	
CGMS (US)	Potential customers from table above. 2020 and 2030 estimates of % of T1D, T2D that use CGMS in each region from MicroTech prospectus, straight line method to estimate yoy growth.
Artificial pancreas (China)	Potential customers are the smaller amongst insulin pumps and CGMS. % that use artificial pancreas estimated by % of market size of artificial pancreas to that of insulin pump or CGMS, whichever has fewer potential customers.
Artificial pancreas (Europe)	2020 to 2030 estimates of insulin pump, CGMS, artificial pancreas market size from MicroTech prospectus, constant CAGR to estimate 2031 market size.
Market share by users	Market share among users of relative products
Equil (China)	Equil obtained 3.3% market share in 2020 within 3 years of launch. Frost & Sullivan estimates patch pumps will make up 23.2% of insulin pump market by 2030. We believe Equil has the ability to dominate and secure 90% of this, i.e. 20.9%.
Equil (Europe)	Announced in 2021, expected to obtain 3-5% of market in 3-5 years. We expect sluggish growth in FY21-FY23 due to entry into foreign market, hence 0.5%/year, and expanding to market share of 5% in 2026 and continue growing at that rate thereon due to artificial pancreas launch.
Equil (US)	Tubeless insulin pump leader Insulet obtained 25% global market share in 2020 within 15 years of launch, i.e. c.1.67%/year. North America makes up c.50% of global insulin pump market. We assign discount of 50% for MicroTech due to entry into foreign market, change to 0% discount starting from 2024 after sales channels stabilize. Equil expected to be launched in 1H22, expect it to generate revenue in 2H22.
AiDEX (China)	AiDEX is the first CGMS in China capable of serving T1D patients, which makes up >50% potential CGMS patients. AiDEX was launched in 2H21, revenue generated immediately due to shared network with Equil, as Equil patients expected to use AiDEX in 2H21. We expect market share to capture half of the T1D market, or 25% of CGMS market in 10 years.
AiDEX (Europe)	T1D CGMS leader Dexcom obtained 30% global market share in 2020 within 14 years of launch, i.e. c.2.1%/year. We assign discount of 50% for MicroTech due to entry into foreign market, change to 0% discount starting from 2024 after sales channel stabilization and marketing of artificial pancreas commences. AiDEX launched in 1H21, we expect it to generate revenue in 2H21.
AiDEX (US)	T1D CGMS leader Dexcom obtained 30% global market share in 2020 within 14 years of launch, i.e. c.2.1%/year. We assign discount of 50% for MicroTech due to entry into foreign market, change to 0% discount starting from 2024 after sales channel stabilization. AiDEX will launch in 1H23, we expect it to generate revenue in 2H23.
Artificial pancreas (China)	(Equil users) / (total artificial pancreas users). This can only grow as fast as their penetration of insulin pumps and CGMS.
Artificial pancreas (Europe)	(Equil users) / (total artificial pancreas users). This can only grow as fast as their penetration of insulin pumps and CGMS.

Source: MicroTech prospectus, DBS HK

MicroTech Medical (Hangzhou)

Rationale behind our major assumptions of our net present value estimates (continued)

Price change %	
Equil (China)	China government has cut prices of insulin by avg 48% in their 6th Volume-Based Procurement (VBP) for drugs in Nov 2021. We believe China government will continue to be critical on diabetes-related products. VBP will happen when more competitors are in the market. Assuming another company wants to enter this space, it would take c.3 years to launch a new product, i.e. VBP may occur in 2024 and be implemented in 2025. Previous medical device VBP cut ASP by avg 87.5%, we estimate insulin pumps and CGMS to be cut by at least half of this, hence 44%.
AiDEX (China)	
Artificial pancreas (China)	
Success rate %	
Success rate of launching products under development	
Artificial pancreas (China)	2 out of 3 components have already been developed, the only risk is the closed-loop control algorithm under development. Hence success rate is slightly above 67%, around 70%.
Artificial pancreas (Europe)	2 out of 3 components have already been developed, the only risk is the closed-loop control algorithm under development. Hence success rate is slightly above 67%, around 70%.
Net margin	Owing to rapid growth and penetration into foreign market with stable gross margin, we expect MicroTech to turn profitable in 2023.
Discount rate	This is the cost of equity. From Bloomberg, cost of equity of Dexcom DXCM US was 11.32%, MicroTech should be slightly higher as it has just been listed and is more risky. MicroTech's WACC is around 2.4% higher than DXCM. We expect added risk to be half this level, thus we use $11.32\% + (2.4\%/2) = 12.52\%$.
Terminal growth rate	We estimate this to be 3% to be conservative.

Source: MicroTech prospectus, DBS HK

Peer comparison of companies involved in insulin pump and CGMS

Company Name	Code	Currency	Price Local \$	Mkt Cap US\$m	Fiscal Yr	PS	PS	PE	PE	Yield	Yield	P/Bk	P/Bk	EV/	EV/	ROE	ROE	FY21-23 Earnings CAGR %
						22F x	23F x	22F x	23F x	22F %	23F %	x	x	22F x	23F x	22F %	23F %	
Insulet	PODD US	USD	234.5	16,176	Dec	12.7	10.5	180.8	115.7	n.a.	n.a.	21.1	15.8	70.6	56.4	12.1	14.4	19%
Tandem Diabetes Care	TNDM US	USD	106.2	6,744	Dec	8.1	6.6	142.4	78.1	n.a.	n.a.	8.7	6.6	54.5	37.3	7.5	10.8	20%
Roche	ROG SW	CHF	345.1	308,504	Dec	4.5	4.4	16.7	15.8	2.8	2.9	7.5	6.8	12.0	11.4	52.4	41.8	2%
Medtronic	MDT US	USD	103.7	139,458	Apr	4.4	4.2	18.3	17.4	2.4	2.6	2.6	2.6	15.3	14.9	13.8	14.5	6%
Dexcom	DXCM US	USD	391.0	37,949	Dec	13.0	10.8	113.4	81.7	n.a.	n.a.	14.0	11.9	51.9	40.4	13.8	16.2	21%
Abbott Laboratories	ABT US	USD	117.5	207,227	Dec	5.1	5.0	24.2	22.8	1.5	1.7	6.2	6.4	18.4	17.3	21.2	21.5	0%

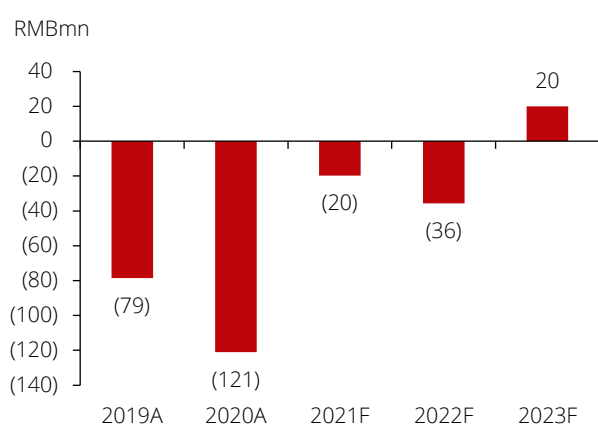
Source: MicroTech prospectus, Bloomberg Finance L.P., Thomson Reuters, DBS HK

MicroTech Medical (Hangzhou)

Financials

Net profit. We expect MicroTech to turn around and be profitable by 2023 due to strong revenue growth (21F/22F/23F: 83%/111%/133%), along with stable to-rising gross margin (21F/22F/23F: 52%/56%/61%), and due to better control of sales & distribution, admin, and R&D expenses. With 2 major products launched in China and EU and pending entry into US, it would take time to ramp-up. We believe MicroTech will gradually reap what it sowed in 2023.

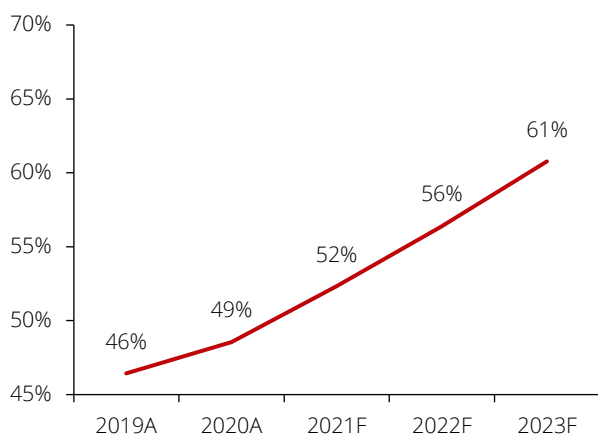
Net profit (Rmb mn)



Source: MicroTech prospectus, DBS HK

Gross margin. We believe gross margin will gradually improve as MicroTech advances into foreign markets and optimises its manufacturing scale to lower cost of goods. As competitors Dexcom and Insulet took 3 and 4 years respectively to stabilize their gross margin at >65% from similar levels as MicroTech currently, we believe MicroTech can achieve similar results.

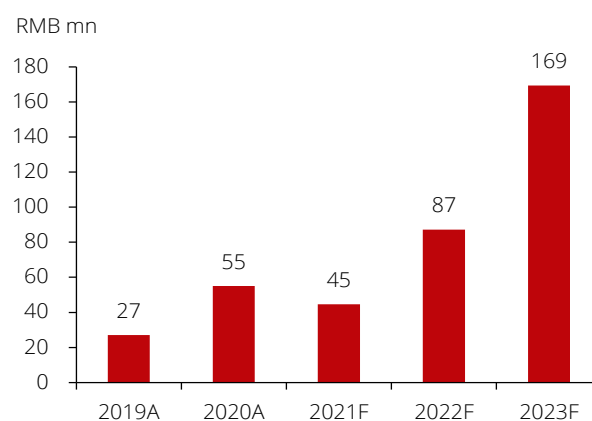
Gross margin %



Source: MicroTech prospectus, DBS HK

Sales & distribution expenses. The increase in 2020 was mainly due to a one-off equity-settled share award expense awarded to sales and marketing personnel, amounting to Rmb20m. We expect sales & distribution expenses to increase gradually due to entry into new foreign markets which would require more manpower and therefore lead to higher staff salary expense. Equil entered Europe in 2021 and will enter the US in 2H22, AiDEX entered China and Europe in 2021 and will enter the US in 1H23. By 2023, we expect sales & distribution expenses as a % of sales to stabilise at 25%, in line with industry average.

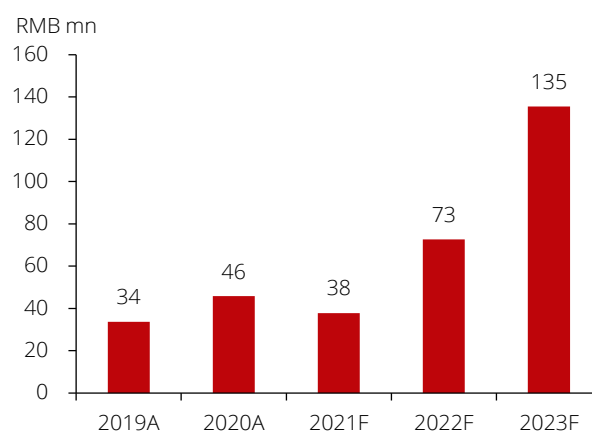
Sales & distribution expenses (Rmb mn)



Source: MicroTech prospectus, DBS HK

Admin expenses. In 2019 and 2020, equity-settled share award expense was awarded to management and administrative staff, amounting to Rmb28m and Rmb34m. This large expense amount is not expected to repeat. We expect admin expenses to follow a similar trend as sales & distribution expenses due to advancement into new foreign markets. By 2023, we expect admin expenses as a % of sales to stabilise at around 20% and decrease gradually, in line with industry average.

Admin expenses (Rmb mn)

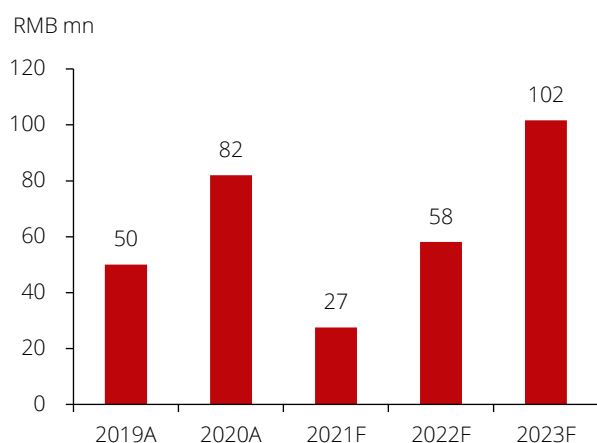


Source: MicroTech prospectus, DBS HK

MicroTech Medical (Hangzhou)

R&D expenses. In 2019 and 2020, equity-settled share award expense was awarded to R&D staff, amounting to Rmb29m and Rmb57m. This large expense amount is not expected to repeat. MicroTech targets to commercialise its artificial pancreas in China and Europe by 2H23, therefore R&D expenses are expected to be significant to achieve this. After launch, R&D expenses as a % of sales are expected to stabilise at 20% and decrease gradually, in line with industry average.

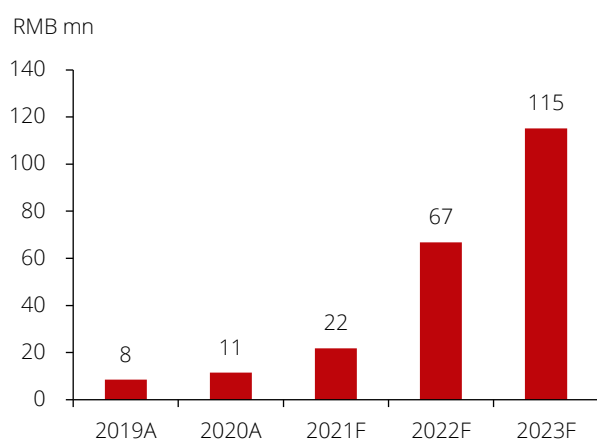
R&D expenses (Rmb mn)



Source: MicroTech prospectus, DBS HK

Accounts receivables. We expect a huge increase in 2022 due to entry into new foreign markets. MicroTech's account receivable turnover days was 48 in 2020 and is expected to stay at similar levels or creep even higher versus industry average of around 45 days. This is due to MicroTech generating significant sales from China, and Chinese hospitals are less punctual in making payments.

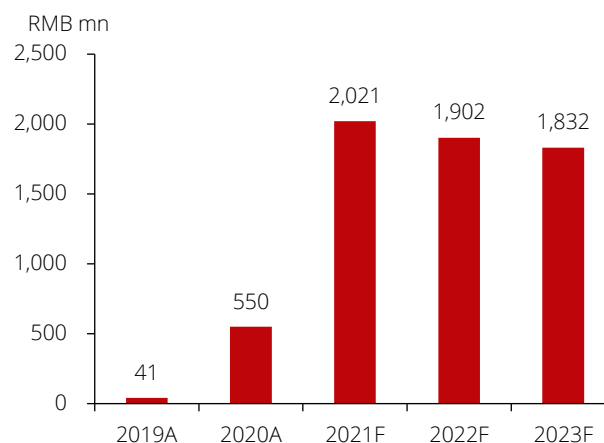
Accounts receivables (Rmb mn)



Source: MicroTech prospectus, DBS HK

Cash & bank balances. The increase in 2021 is mainly due to the net proceeds raised in IPO. MicroTech is expected to turn profitable by 2023.

Cash & bank balances (Rmb mn)



Source: MicroTech prospectus, DBS HK

MicroTech Medical (Hangzhou)

Environment, Social & Governance (ESG)

Environmental. MicroTech values environmental protection and contracts qualified third-party sanitation or recycling companies for special treatment of hazardous waste. In 2020, MicroTech spent Rmb89,900 to maintain compliance with applicable environmental rules and regulations.

Social responsibility. We believe that MicroTech is committed to contributing to the well-being of communities and societies. The company recognises the high prevalence of diabetes and aims to improve the monitoring, treatment, and management of diabetes.

MicroTech has actively collaborated with major research-oriented hospitals and diabetes research institutions to receive first-hand feedback on unmet clinical needs, product development and upgrades for better treatment.

Governance. Whilst developing their products, MicroTech emphasises on the importance of complying with regulatory guidelines. Upon listing, the company has developed an ESG oversight committee to meet any targets stipulated in applicable laws, regulations, and industry standards. MicroTech has been in good compliance with PRC environmental and occupational health and safety laws and regulation without any violation records since 2019.

MicroTech Medical (Hangzhou)

Company Background

Established in 2011, MicroTech Medical (Hangzhou) Co., Ltd ("MicroTech") focuses on diabetes monitoring and treatment medical devices, to improve diabetes management globally. Their core product Equil, a tubeless insulin pump for insulin injection, is the only patch insulin

pump approved by the National Medical Products Administration (NMPA), and received CE marking in 2017. Their other product AiDEX G7, a continuous glucose monitoring system (CGMS) which is real-time and calibration-free, helps monitor blood glucose levels. This device has received NMPA and CE approval. The company is developing a closed-loop artificial pancreas, which is in the design stage.

Key company information

Business	Diabetes monitoring and treatment		
2020 R&D costs	Rmb82m		
Year of establishment	2011		
Auditor	Ernst & Young		
Major shareholders	20.0%	- Invesco Advisers, Inc.	
	11.4%	- UBS Asset Management (Hong Kong) Limited	
	9.7%	- UBS Asset Management (Singapore) Ltd.	
	5.7%	- Fidelity Management & Research (Hong Kong) Limited	
	5.4%	- Lilly Asia Ventures	
Headquarters	Hangzhou, China		
Production plants	15,000 sq.m. in Hangzhou, China		
Number of staff	Total	446	
	Manufacturing	148	
	Sales & marketing	134	
	Product Development	93	
	General and Administrative	43	
	Quality Control	28	

*Unlisted Foreign Shares

Source: MicroTech prospectus

MicroTech Medical (Hangzhou)**Company milestones**

Year	Milestones
2011	Formation of the company.
2013	Obtained medical device registration certificate for Blood Glucose Monitoring System.
2014	Designated as the Key Diabetes Research Center in Zhejiang Province, China. Initiated clinical trial for Equil.
2015	Recognized as a National High and New Tech Enterprise
2017	Obtained NMPA approval and CE marking for Equil
2018	Initiated clinical trial for AiDEX G7
2020	Obtained CE marking for AiDEX G7 Moved into new plant facilities with an aggregate area of c.20,000 sq.m.
2021	Submitted a 510(k) premarket notification for Equil to the FDA Obtained NMPA approval for AiDEX G7 and also successfully launched AiDEX G7 in Europe IPO on Hong Kong Stock Exchange

Source: MicroTech prospectus

MicroTech Medical (Hangzhou)

Management & Strategy

Key Management Team

Name	Age	Title	Previous Experience
Dr. Zheng Pan	51	Chairman of the Board, Executive Director, Chief Executive Officer	<ul style="list-style-type: none"> • Dr Zheng founded MicroTech in 2011 • 20 years of experience in the healthcare industry • Manager at Flextronics San Jose Medical Products Center from 2006 to 2010
Dr. Yu Fei	40	Executive Director	<ul style="list-style-type: none"> • Dr Yu served as a senior biomedical engineer in the Diabetes Division of Medtronic PLC from 2013 to 2016.
Dr. Shi Yonghui	42	Executive Director, Chief Strategy & Development Officer, Senior Vice President	<ul style="list-style-type: none"> • Dr Shi concurrently served as senior director of Medtronic (Shanghai) Management Co., Ltd, head of corporate development, venture capital and innovation incubation department of Medtronic Greater China, chairman and general manager of Suzhou Meizhong Venture Capital Management Co., Ltd, director of Suzhou Medtronic Sequoia Venture Capital Management Co., Ltd, and general manager of Shanghai Meiji Entrepreneurship Incubator Management Co., Ltd from 2013 to 2021.
Ms. Liu Xiu	42	Executive Director, Financial Controller, Secretary to the Board	<ul style="list-style-type: none"> • Ms Liu has over 17 years of experience in financial and investment areas • Served concurrently as risk control director of Investment Department of Wanma United Holding Group Co., Ltd and the partner of Hangzhou Silicon Valley True Stone Asset Management Co., Ltd from 2017 to 2020. • Independent director of Konfoong Materials Int'l. (300666 CH) since 2020.
Mr. Hu Xubo	46	Non-executive Director	<ul style="list-style-type: none"> • Mr Hu joined Qiming Weichuang Venture Capital Management (Shanghai) Co., Ltd in 2006 and is currently a managing partner of the firm. • He is director of Shanghai Sanyou Medical Co., Ltd (688085 CH), APT Medical Inc (688617 CH), and Amoy Diagnostics Co., Ltd (300685 CH) • He was director of BBI Life Sciences Corporation (previously 1035 HK, now delisted) • He was non-executive director of Antengene Co., Ltd (6996 HK) from 2018 to 2021.
Ms. Gao Yun	35	Non-executive Director	<ul style="list-style-type: none"> • Ms Gao is Vice President at Lilly Asia Ventures. • She worked at SBCVC (HK) Ltd as investment manager.

Source: MicroTech prospectus

MicroTech Medical (Hangzhou)

Balance Sheet:

Net proceeds of HK1.9bn was raised in the IPO in 2021. By the end of 2021, we expect the company to have net cash of Rmb2.2bn to support their operations until at least 2023.

Share Price Drivers:

- 1) FDA approval of Equil in 1H22;
- 2) FDA approval of AiDEX in 2H22;
- 3) Launch of artificial pancreas in 2H23;
- 4) Breakeven in 2023.

Key Risks:

- 1) limited track record of commercialization in EU & US

Environmental, Social, Governance:

Environmental. MicroTech values environmental protection and contracted qualified third-party sanitation or recycling companies for special treatment of hazardous waste. In 2020, MicroTech spent Rmb89,900 to maintain compliance with applicable environmental rules and regulations.

Social responsibility. We believe that MicroTech is committed to contributing to the well-being of communities and societies. The company has actively collaborated with major research-oriented hospitals and diabetes research institutions to receive first-hand feedback on unmet clinical needs, product development and upgrades for better treatment.

Governance. Whilst developing their products, MicroTech emphasises on the importance of complying with regulatory guidelines. Upon listing, the company has developed an ESG oversight committee to meet any targets stipulated in applicable laws, regulations, and industry standards.

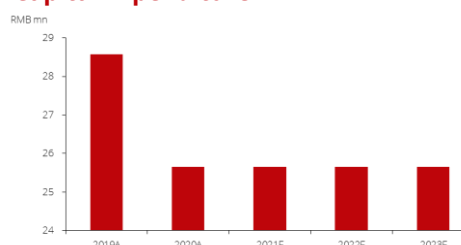
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Asset Turnover (x)



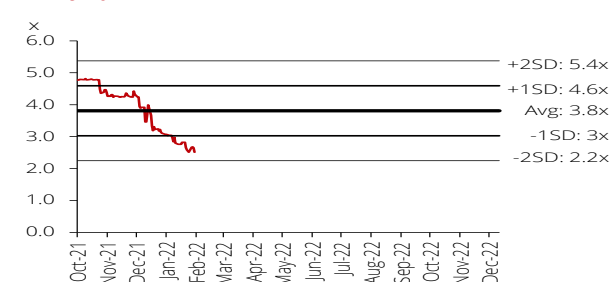
Capital Expenditure



ROE



PB Band



Source: Company, DBS HK

MicroTech Medical (Hangzhou)

Key Assumptions

FY Dec	2019A	2020A	2021F	2022F	2023F
Gross margin %	46.4	48.5	52.3	56.4	60.8
Sales & distribution expenses (Rmb m)	27.0	55.1	44.7	87.2	169.4
Admin expenses (Rmb m)	33.6	45.8	37.8	72.6	135.5
R&D expenses (Rmb m)	50.1	82.0	27.5	58.1	101.6

Source: Company, DBS HK

Segmental Breakdown (RMB m)

FY Dec	2019A	2020A	2021F	2022F	2023F
Revenues (RMB m)					
Equil	25	35	61	132	332
AiDEX	0	0	33	111	286
Artificial Pancreas	0	0	0	0	7
BGMS	27	41	43	48	53
Total	52	75	137	291	677
Gross profit (RMB m)					
Equil	18	25	32	75	202
AiDEX	0	0	17	62	174
Artificial Pancreas	0	0	0	0	4
BGMS	6	11	23	27	32
Total	24	37	72	164	412
Gross profit Margins (%)					
Equil	71.8	72.5	52.3	56.4	60.8
AiDEX	0.0	0.0	52.3	56.4	60.8
Artificial Pancreas	0.0	0.0	0.0	0.0	60.8
BGMS	23.4	28.0	52.3	56.4	60.8
Total	46.4	48.5	52.3	56.4	60.8

Source: Company, DBS HK

MicroTech Medical (Hangzhou)

Income Statement (RMB m)

FY Dec	2019A	2020A	2021F	2022F	2023F
Revenue	52	75	137	291	677
Cost of Goods Sold	(28)	(39)	(66)	(127)	(266)
Gross Profit	24	37	72	164	412
Other Opg (Exp)/Inc	(111)	(185)	(110)	(218)	(406)
Operating Profit	(87)	(148)	(38)	(54)	5
Other Non Opg (Exp)/Inc	7	25	16	16	16
Associates & JV Inc	0	0	0	0	0
Net Interest (Exp)/Inc	1	2	2	2	2
Dividend Income	0	0	0	0	0
Exceptional Gain/(Loss)	0	0	0	0	0
Pre-tax Profit	(79)	(121)	(20)	(36)	24
Tax	0	0	0	0	(4)
Minority Interest	0	0	0	0	0
Preference Dividend	0	0	0	0	0
Net Profit	(79)	(121)	(20)	(36)	20
Net Profit before Except.	(79)	(121)	(20)	(36)	20
EBITDA	(77)	(120)	(18)	(34)	25
Growth					
Revenue Gth (%)	N/A	45.1	82.6	111.4	133.2
EBITDA Gth (%)	N/A	(54.7)	84.7	(87.6)	N/A
Opg Profit Gth (%)	N/A	71.4	(74.4)	42.1	(109.7)
Net Profit Gth (%)	N/A	(53.9)	83.8	(81.4)	N/A
Margins & Ratio					
Gross Margins (%)	46.4	48.5	52.3	56.4	60.8
Opg Profit Margin (%)	(167.0)	(197.2)	(27.7)	(18.6)	0.8
Net Profit Margin (%)	(151.6)	(160.8)	(14.3)	(12.3)	3.0
ROAE (%)	N/A	(25.6)	(1.3)	(1.6)	0.9
ROA (%)	N/A	N/A	N/A	N/A	N/A
ROCE (%)	N/A	N/A	N/A	N/A	N/A
Div Payout Ratio (%)	N/A	N/A	N/A	N/A	0.0
Net Interest Cover (x)	NM	NM	NM	NM	NM

Source: Company, DBS HK

MicroTech Medical (Hangzhou)

Balance Sheet (RMB m)

FY Dec	2019A	2020A	2021F	2022F	2023F
Net Fixed Assets	43	66	88	110	132
Invt in Associates & JVs	0	0	0	0	0
Other LT Assets	26	23	21	20	18
Cash & ST Invt	41	550	2,021	1,902	1,832
Inventory	9	18	28	73	115
Debtors	8	11	22	67	115
Other Current Assets	137	109	109	109	109
Total Assets	265	777	2,289	2,280	2,320
ST Debt	10	0	0	0	0
Creditors	5	8	14	41	61
Other Current Liab	33	41	41	41	41
LT Debt	0	0	0	0	0
Other LT Liabilities	0	0	0	0	0
Shareholder's Equity	217	729	2,234	2,198	2,218
Minority Interests	0	0	0	0	0
Total Cap. & Liab.	265	777	2,289	2,280	2,320
Non-Cash Wkg. Capital	116	90	104	166	237
Net Cash/(Debt)	31	550	2,021	1,902	1,832
Debtors Turn (avg days)	N/A	48.4	44.1	55.6	49.0
Creditors Turn (avg days)	N/A	67.1	63.5	81.0	70.8
Inventory Turn (avg days)	N/A	141.3	138.0	149.8	130.8
Asset Turnover (x)	NM	0.1	0.1	0.1	0.3
Current Ratio (x)	4.1	14.1	39.6	26.3	21.3
Quick Ratio (x)	1.0	11.5	37.1	24.1	19.1
Net Debt/Equity (X)	CASH	CASH	CASH	CASH	CASH
Net Debt/Equity ex MI (X)	CASH	CASH	CASH	CASH	CASH
Capex to Debt (%)	285.4	N/A	N/A	N/A	N/A
Z-Score (X)	NA	NA	NA	NA	NA

Source: Company, DBS HK

Cash Flow Statement (RMB m)

FY Dec	2019A	2020A	2021F	2022F	2023F
Pre-Tax Profit	(79)	(121)	(20)	(36)	24
Dep. & Amort.	3	5	5	5	5
Tax Paid	0	0	0	0	(4)
Assoc. & JV Inc/(loss)	0	0	0	0	0
(Pft)/ Loss on disposal of FAs	0	0	0	0	0
Chg in Wkg.Cap.	1	(7)	(14)	(63)	(71)
Other Operating CF	56	114	(2)	(2)	(2)
Net Operating CF	(18)	(10)	(30)	(95)	(47)
Capital Exp.(net)	(29)	(26)	(26)	(26)	(26)
Other Invt.(net)	(60)	16	0	0	0
Invt in Assoc. & JV	0	0	0	0	0
Div from Assoc & JV	0	0	0	0	0
Other Investing CF	(7)	19	2	2	2
Net Investing CF	(95)	9	(23)	(23)	(23)
Div Paid	0	0	0	0	0
Chg in Gross Debt	0	(10)	0	0	0
Capital Issues	92	513	1,525	0	0
Other Financing CF	9	8	0	0	0
Net Financing CF	101	511	1,525	0	0
Currency Adjustments	0	(2)	0	0	0
Chg in Cash	(12)	508	1,471	(119)	(71)
Opg CFPS (RMB)	(0.07)	(0.01)	(0.04)	(0.08)	0.05
Free CFPS (RMB)	(0.17)	(0.11)	(0.13)	(0.28)	(0.17)

Source: Company, DBS HK

MicroTech Medical (Hangzhou)

DBS HK recommendations are based on an Absolute Total Return* Rating system, defined as follows:

STRONG BUY (>20% total return over the next 3 months, with identifiable share price catalysts within this time frame)

BUY (>15% total return over the next 12 months for small caps, >10% for large caps)

HOLD (-10% to +15% total return over the next 12 months for small caps, -10% to +10% for large caps)

FULLY VALUED (negative total return, i.e., > -10% over the next 12 months)

SELL (negative total return of > -20% over the next 3 months, with identifiable share price catalysts within this time frame)

*Share price appreciation + dividends

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Sources for all charts and tables are DBS HK unless otherwise specified.

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