Jinxin Fertility (1951 HK)

To become a global leading ARS provider

BUY (Initiation)

Target Price	**HK$15.0**
Up/Downside	**+33.3%**
Current Price	**HK$11.26**

We initiate coverage on Jinxin Fertility (Jinxin) at BUY with TP of HK$15.0, given its leading position in assisted reproductive services (ARS) industry in China and the US, and promising growth outlook thanks to strong organic growth momentum and abundant acquisition opportunities. In 2018, Jinxin ranked the first among non-state-owned assisted reproductive technology (ART) medical institutions in China and ranked the first in the western US ARS market.

- **Well-positioned in fast-growing ARS market.** Infertility is becoming increasingly prevalent globally and global infertility rate has increased from 11.0% in 1997 to 15.4% in 2018, due to increasing average age of first birth, unhealthy lifestyle and environmental pollution. According to F&S, ARS penetration rate in China will increase from 7.1% in 2018 (vs. 30.2% in the US) to 9.2% in 2023E. Considering an increasing prevalence of infertility, the Two-child Policy, low ARS penetration, improving affordability, and evolving ARS technology, China ARS market is estimated to reach RMB49.6bn by 2023E, representing 14.5% CAGR in 2018-23E, based on F&S estimates.
- **Further strengthen its leading position through acquisitions**. ARS medical licenses in China are highly regulated with only 498 ARS certificates granted to medical institutions by end-2018 and 50 were owned by private hospitals. Jinxin had RMB3.1bn cash on hand as at 30 Jun 2019 which provides sufficient funding for acquisitions. We think Jinxin may acquire private ARS hospitals in tier 1/2 cities in China while the Company will prudently screen the acquisition targets based on valuation, management team, location of the targets and synergies with existing business.
- **Overseas expansion to bring synergies with domestic business.** Through the wholly-owned HRC Management located in the US, Jinxin provides diversified services for China and US patients, such as gender test, selling and purchasing gamete and surrogacy. We think Jinxin will further acquire surrogacy and egg donor agencies, or embryology laboratories in the US to extend services along the ARS value chain. Southeast Asia region is also the top destination for fertility tourism due to the relatively low service cost and loose regulatory environment. We believe Jinxin will acquire ARS institutions in Southeast Asia to meet the sophisticated demand for Chinese patients.
- **Initiate BUY with TP of HK$15.0.** We expect ARS/ management fees/ ancillary medical services to grow at 18%/119%/27% CAGR in FY18-21E, driven by strong medical demand and capacity expansion in China and US. We expect Jinxin to deliver 36% CAGR in revenue and 54% CAGR in adjusted attributable net profit in FY18-21E. We derive TP of HK$15.0 based on 8-year DCF model (WACC:9.5%, terminal growth rate: 4%).
- **Catalysts:** Acquisitions of quality assets; **Risks:** weak organic growth.

Earnings Summary

(YE 31 Dec)	FY17A	FY18A	FY19E	FY20E	FY21E
Revenue (RMB mn)	663	922	1,659	1,966	2,316
YoY growth (%)	91	39	80	19	18
Net profit (RMB mn)	99	167	420	596	729
EPS (RMB)	N/A	N/A	0.17	0.24	0.30
YoY growth (%)	N/A	N/A	N/A	42	22
P/E (x)	N/A	N/A	58.5	41.2	33.7
P/B (x)	N/A	N/A	3.2	3.0	2.8
Yield (%)	N/A	N/A	0.00	0.49	0.59
ROE (%)	7.3	3.7	7.0	7.6	8.5
Net gearing (%)	Net cash	Net cash	Net cash	Net cash	Net cash

Source: Bloomberg, CMBIS estimates

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Mkt. Cap. (HK$ mn)	27,411
Avg. 3mths t/o (HK$ mn)	94.84
52W High/Low (HK$)	15.30/ 8.18
Total Issued Shares (mn)	2,434

Source: Bloomberg

Shareholding Structure

Management	26.02%
Warburg Pincus	18.36%
HRC Physician	14.82%
Other institutional investors	22.58%
Employee holdings	1.35%
Public shareholders	16.87%

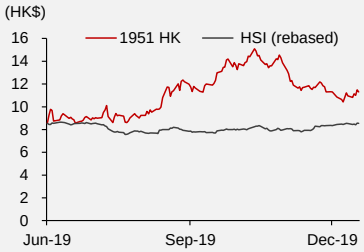
Source: HKEx, Bloomberg

Share performance

	Absolute	Relative
1-mth	-3.2%	-10.2%
3-mth	-4.8%	-14.4%
6-mth	26.6%	24.6%

Source: Bloomberg

12-mth price performance



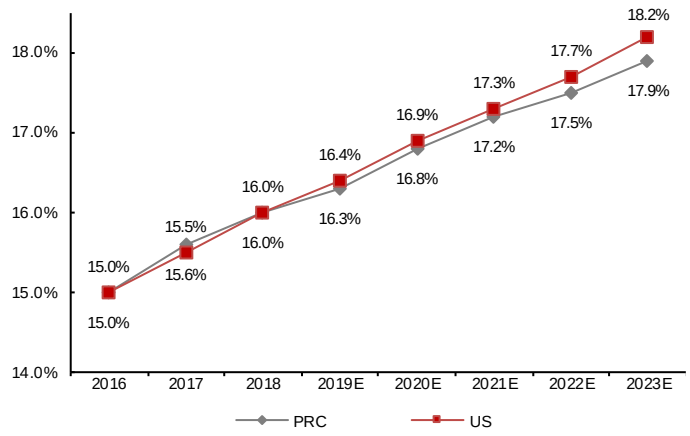
Source: Bloomberg

Auditor: Deloitte

Web-site: www.jxr-fertility.com

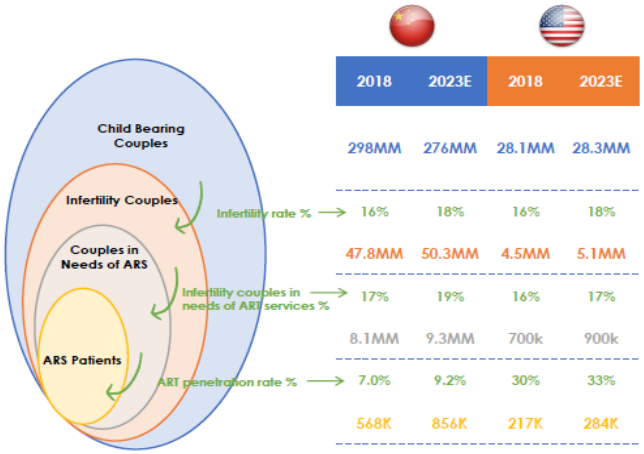
Focus Charts

Figure 1: Infertility rate in China and US (2016-23E)



Source: Frost & Sullivan, CMBIS

Figure 2: Penetration rate of ARS in China and US



Source: Frost & Sullivan, Company data, CMBIS

Figure 3: Top 5 players in China ARS market in 2018

Medical Group	Nature	# of IVF treatment cycles performed in China	Market share by IVF cycles	Market share by revenue
Reproductive and Genetic Hospital of Citic-Xiangya	State-owned, Private	40,000	5.80%	6.2%
Reproductive Hospital Affiliated to Shandong University	State-owned Public	28,000	4.10%	3.6%
Jinxin Fertility	**Non-state owned Private**	**20,958**	**3.10%**	**3.9%**
Peking University Third Hospital	State-owned, Public	19,000	2.80%	2.7%
Shanghai Ninth People's Hospital Affiliated to Shanghai Jiaotong University School of Medicine	State-owned, Public	17,900	2.60%	2.9%

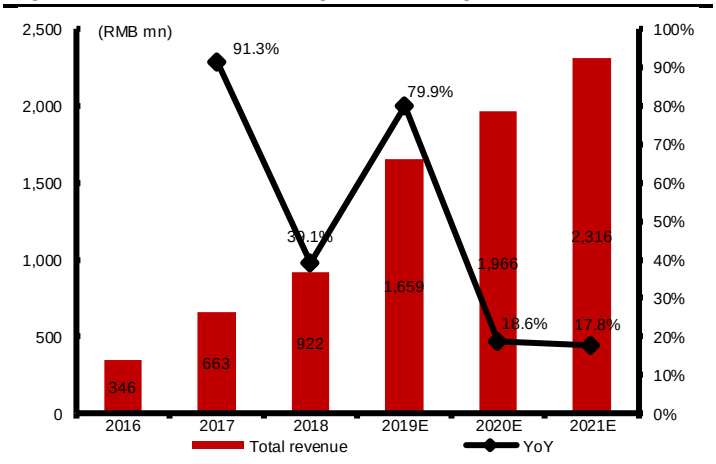
Source: Frost & Sullivan, Company data, CMBIS

Figure 4: Top 5 players in the US ARS market in 2018

Medical Group	Revenue from ARS clinics in the US (US$ mn)	Market share by revenue	# of IVF cycles	Market share by IVF cycles
Shady Grove Fertility	196	5.30%	11,300	4.80%
HRC Fertility	**94**	**2.50%**	**4,500**	**1.90%**
IVI-RMA Global	92	2.50%	6,800	2.90%
Boston IVF	89	2.40%	5,500	2.30%
Colorado Center for Reproductive Medicine	77	2.10%	5,100	2.20%

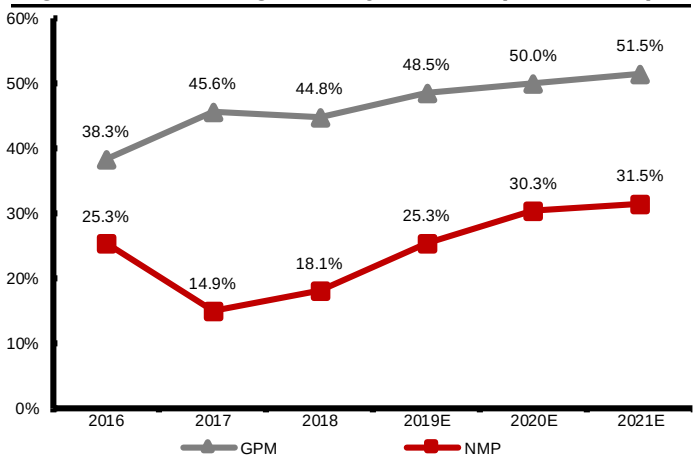
Source: Frost & Sullivan, Company data, CMBIS

Figure 5: Revenue trend (FY17A-21E)



Source: Company data, CMBIS estimates

Figure 6: Revenue growth by network (FY17A-21E)



Source: Company data, CMBIS estimates

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Investment Summary

Initiate Jinxin Fertility at BUY

We initiate coverage on Jinxin Fertility (Jinxin) at BUY with TP of HK$15.0, given the Company's leading position in assisted reproductive services (ARS) industry in China and the US, and promising growth outlook thanks to strong organic growth momentum and abundant acquisition opportunities.

Jinxin provides ARS, management services and ancillary medical services in Sichuan and Guangdong of China and in California of the US. In China, Jinxin operates two self-owned hospitals, Chengdu Xinan Hosipital (成都西囡妇科医院) and Shenzhen Zhongshan Hospital (深圳中山泌尿外科医院) and jointly-manages Jinjiang IVF Center (锦江区妇幼保健院生殖中心). In the US, Jinxin indirectly manages HRC Medical located in California. In 2018, Jinxin ranked the first among non-state-owned assisted reproductive technology (ART) medical institutions in China and ranked the first in the western US ARS market.

Well-positioned in fast-growing ARS market with large unmet need

Infertility is becoming increasingly prevalent globally and has increased globally from 11.0% in 1997 to 15.4% in 2018, due to increasing average age of first birth, unhealthy lifestyle and environmental pollution.

According to F&S, ARS penetration rate in China will increase from 7.1% in 2018 (vs. 30.2% in the US) to 9.2% in 2023E. Considering an increasing prevalence of infertility, the Two-child Policy, low ARS penetration, improving affordability, and evolving ARS technology, China ARS market is estimated to reach RMB49.6bn by 2023E, representing 14.5% CAGR in 2018-23E.

According to F&S, the US ARS market has grown at 6.6% CAGR in 2014-18, from US$2.87bn in 2014 to US$3.71bn in 2018, and is expected to grow at 5.9% CAGR in 2018-23E, driven by growing local demand for ARS, attractiveness to international patients, advancement of ART and evolving social acceptance of same-sex marriage.

Jinxin enjoys strong competitive edge in China

We see significant entry barriers in China's ARS industry due to 1) scarcity of IVF licenses, 2) limited resources of highly-qualified talent resources, 3) difficulties in building up brand reputation for new entrants, and 4) large initial capital investment to build or acquire Class III hospitals with IVF licenses.

According to National Health Commission (NHC), as of end-2018, 498 medical institutions were granted ARS licenses by Chinese government, while only 50 are private hospitals, accounting for 10% of the total number.

Jinxin enjoys strong competitive edge in China given 1) superior success rate compared with the national average level, 2) experienced and expanding physician team, 3) strong pricing power to customers thanks to its high-quality services.

Jinxin to further strengthen its leading position through acquisitions

Jinxin had RMB3.1bn cash on hand as at 30 Jun 2019 which provides sufficient funding for acquisitions. As the largest private ARS provider in China with strong presence in Sichuan and Guangdong, Jinxin targets to penetrate into new regions such as northern and eastern China and plans to further enhance its presence in central China.

We think Jinxin may acquire private ARS hospitals in tier 1 or tier 2 cities in China and the Company will prudently screen the acquisition targets based on valuation, management team, location of the targets and synergies with existing business. We concluded a list of 20 private ARS hospitals in tier 1 and large tier 2 cities which Jinxin may be interested to approach.

Overseas expansion brings synergies with domestic business

As an increasing number of Chinese patients are seeking a wider range of service options such as surrogacy, and egg and sperm cryopreservation, a significant number of Chinese people are going overseas for ARS. US has become a popular destination due to a higher standard of services, wider range of service options, and more personalized and customized services.

In 2018, approximately 18,000 Chinese people went overseas for ARS, of which 30% went to the US. 81% of Chinese patients going to US choose California as their destination. Through the wholly-owned HRC Management located in California, Jinxin provides diversified services for China and US patients, such as gender test, selling and purchasing gamete, surrogacy, etc. We think Jinxin may further acquire surrogacy and egg donor agencies and embryology laboratories in the US to extend services along the ARS value chain.

Southeast Asia region is also the top destination for fertility tourism due to the relatively low service cost and loose regulatory environment. We expect Jinxin to expand its footprint to Southeast Asia regions to cater the emerging demand of both Chinese patients and Southeast Asian patients. Given the favorable regulatory environment and convenient location of Laos, we think Jinxin may choose to acquire ARS medical institutions in Laos to meet the sophisticated medical demand of Chinese patients.

Expect revenue/ adjusted net profit to grow at 36%/54% CAGR in FY18-21E

We expect ARS/ management fees/ ancillary medical services to deliver 18%/ 119%/ 27% CAGR FY18-21E, driven mainly by strong demand and capacity expansion. We expect Jinxin to deliver 36% CAGR in revenue in FY18-21E and 54% CAGR in adjusted attributable net profit. We derive TP of HK$15.0 based on 8-year DCF model (WACC:9.5%, terminal growth rate: 4%).

Risks

1) Weaker-than-expected organic growth; 2) Lack of successful acquisitions.

Leading ARS provider in China and US

Successful operating history in China and US

Jinxin Fertility (Jinxin) is a leading assisted reproductive services (ARS) provider in China and US. It provides ARS, management services and ancillary medical services in Sichuan and Guangdong of China and in California of the US. In China, Jinxin operates two self-owned hospitals, Chengdu Xinan Hosipital (成都西囡妇科医院) and Shenzhen Zhongshan Hospital (深圳中山泌尿外科医院) and jointly-manages Jinjiang IVF Center (锦江区妇幼保健院生殖中心). In the US, Jinxin indirectly manages HRC Medical located in California.

Jinjiang IVF Center was established in 2003 in Chengdu by a team of experienced physicians and management. In 2010, some of these physicians and management established the Prior Chengdu Xinan Hospital. In 2016, as part of Jinxin Group's corporate restructuring, the Priore Chengdu Xinan Hospital (a non-profit medical institution) transferred its assets and liabilities to the current Chengdu Xinan Hospital (a for-profit medical institution).

Through M&As, Jinxin has successfully expanded its footprint from Sichuan Province to Guangzhou Province in China and California in the US. In Jan 2017, Jinxin acquired 73.98% stake in Shenzhen Zhongshan Hospital. As of 2018, Shenzhen Zhongshan Hospital ranked third in Guangdong ARS market by IVF cycles with market share of 4.9%. Jinxin further expanded its footprint to the US through the 100% share acquisition of HRC Management in Dec 2018. Through the Management Services Agreement (MSA), HRC Management directly manages HRC Medical. HRC Medical ranked the first in the western US ARS market in 2018 with 4,500 IVF cycles and also ranked first among all ARS providers in the US by IVF treatment cycles provided to patients traveling from China in 2017.

Figure 7: Hospitals operated by Jinxin

Hospital	Location	Nature	Operating history	Status	IVF cycles performed in 2018
Self-owned					
Chengdu Xinan Hospital (成都西囡妇科医院)	Chengdu, PRC	For-profit specialty hospital	Since Mar 2010	In operation	11,005
Gaoxin Xinan Hospital (成都高新西囡妇科医院)	Chengdu, PRC	For-profit specialty hospital	Since May 2013	Operation ended in Jan 2019 and taken up by Chengdu Xinan Hospital	
Shenzhen Zhongshan Hospital (深圳中山泌尿外科医院)	Shenzhen, PRC	For-profit specialty hospital	Since May 2004	Acquired in Jan 2017	5,352
RSA Centers	California, US	Surgical centers	Since Jan 2008	Acquired in Dec 2018	
NexGenomics	California, US	PGS laboratory	Since Feb 2015	Acquired in Dec 2018	
Jointly-managed					
Jinjiang IVF Center (成都市锦江区妇幼保健院生殖中心)	Chengdu, PRC	IVF center of a non-profit maternity and child healthcare hospital	Since Jan 2003	Jointly managed since Sep 2016	4,601
Jinxin Fertility Center (四川锦欣妇女儿童医院生殖健康与不孕症门诊)	Chengdu, PRC	Fertility center of a for-profit women and children hospital	Since Apr 2016	Jointly managed from Sep 2016 to Mar 2018	
Managed					
HRC Medical	California, US	Fertility clinics	Since May 1988	Managed by HRC Management through MSA	5,352

Source: Company data, CMBIS; Note: Gaoxin Xinan Hospital serviced as VIP center and did not provide IVF treatment and its business was taken up by Chengdu Xinan Hospital upon the relocation to new building

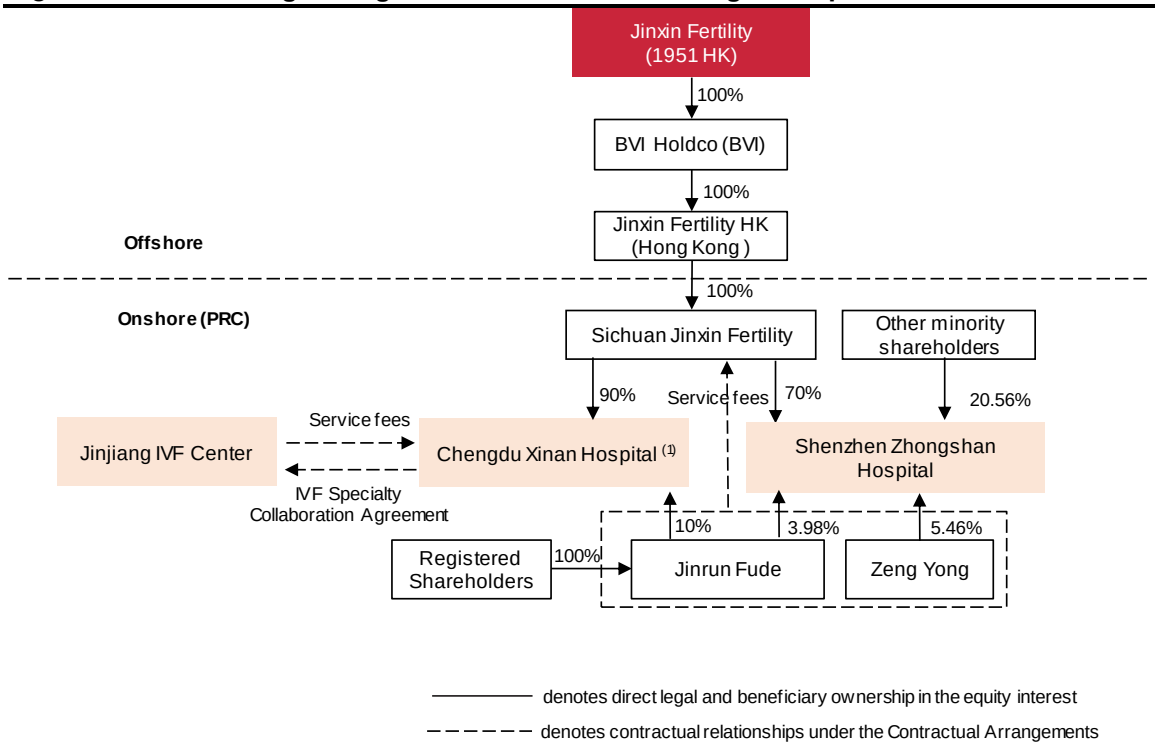
According to Chinese government's Negative List, medical institutions fall within the "restricted" investment category and may not be held 100% by foreign investments. As a result, Chengdu Xinan Hospital is currently 90% owned by Sichuan Jinxin Fertility and 10% owned by Jinrun Fude. Shenzhen Zhongshan Hospital is currently held by Sichuan Jinxin Fertility as to 70%, Mr. Mei Hua as to 15%, Mr. Zeng Yong as to 10.92%, Jinrun Fude as to 3.98% and Ms. Qian Minhui as to 0.10%.

Meanwhile, Sichuan Jinxin Fertility, Shenzhen Zhongshan Hospital and Chengdu Xinan Hospital have entered into a Contractual Arrangements with the Registered Shareholders, Jinrun Fude, Zeng Yong and other minority shareholders of Shenzhen Zhongshan Hospital.

Through shareholdings and the Contractual Arrangements, Sichuan Jinxin Fertility has acquired a) effective control over the financial and operational policies of Chengdu Xinan Hospital and has become entitled to all the economic benefits from its operations; and b) effective control over the financial and operational policies of Shenzhen Zhongshan Hospital and has become entitled to 79.44% of the economic benefits from its operations.

In addition, from Sep 2016, Chengdu Xinan Hospital entered into an IVF specialty collaboration agreement with Jinjiang IVF Center. According to the agreement, Chengdu Xinan Hospital provides joint management services to Jinjiang IVF Center in return for management service fees.

Figure 8: Shareholding and agreements of Jinxin's managed hospitals in China

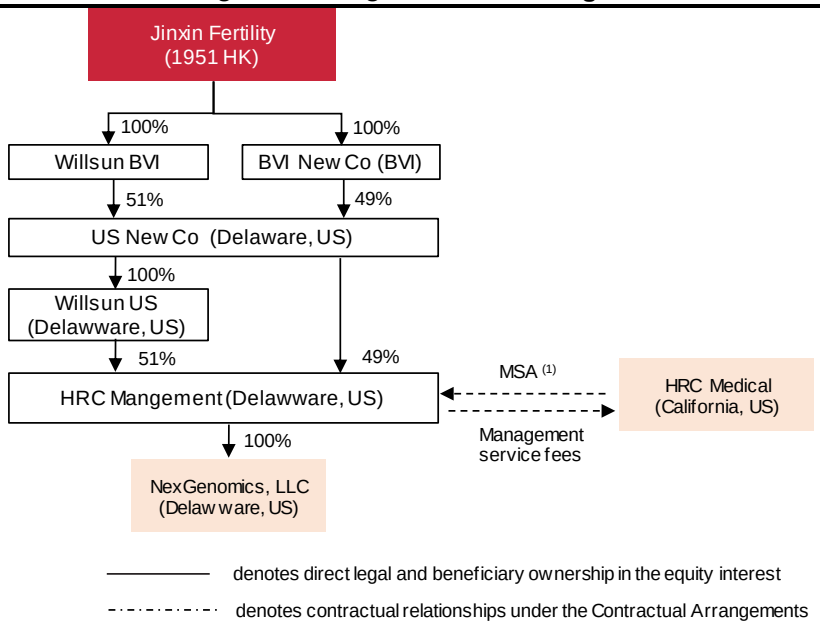


(1) Chengdu Xinan Hospital entered into IVF specialty collaboration agreement with Jinjiang IVF Center, pursuant to which, Chengdu Xinan Hospital provides joint management services to Jinjiang IVF Center in return for management service fees.

Source: Company data, CMBIS, as at 30 Jun 2019

Under California's corporate practice of medicine doctrine, medical corporations can only be owned and operated by physicians. As a result, the Company cannot own HRC Medical but provides management services through its wholly-owned HRC Management to HRC Medical, which is a common practice in the US. The management service agreement (MSA) has been effective from Jan 2019 for an initial 20 years and will be automatically extended for one additional year upon each anniversary.

Figure 9: Shareholding and management service agreements of Jinxin's managed hospitals in US



(1) HRC Management entered into MSA with HRC Medical, pursuant to which HRC Management will provide certain management services to HRC Medical, in return for a payment of service fees paid by HRC Medical;

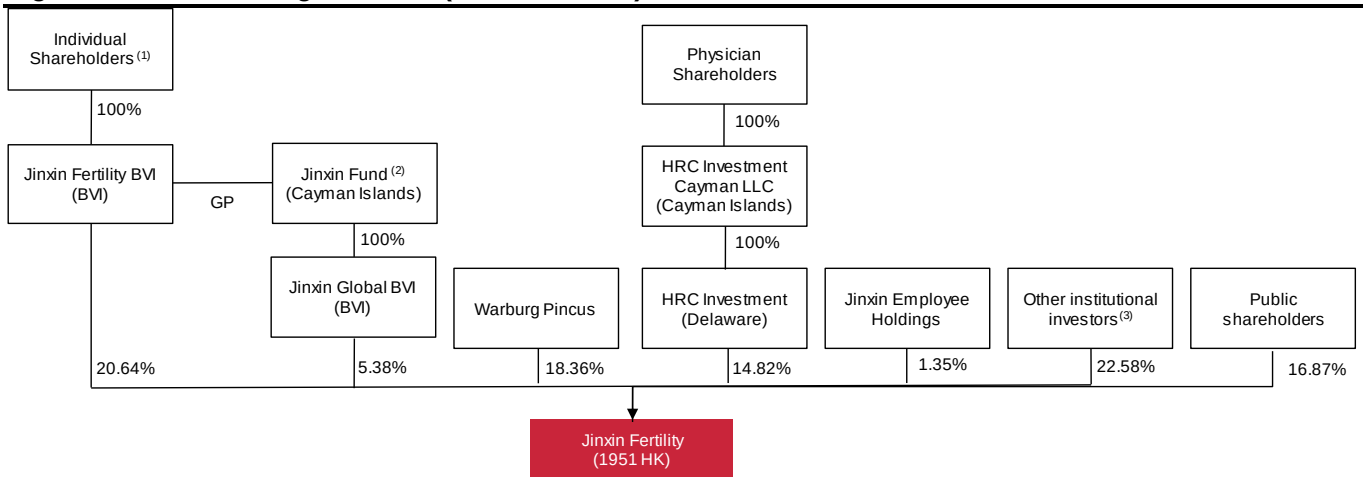
Source: Company data, CMBIS, as at 30 Jun 2019

Shareholding structure

As of Jan 2020, the management held a combined 26.02% stake in the Company. Physicians from HRC medical institutions held a total of 14.82% stake as a result of the HRC management acquisition, which was conducted by share swaps. Key physicians in China are also granted stock awards, which amounts to 1.35% of outstanding shares with three to five years' lock-up and KPI commitments.

Warburg Pincus owned 18.36% stake, other pre-IPO institutional invests owned a combined 22.58% stake while the remaining 16.87% shares were held by public investors. Pre-IPO investors included CNCB Investment, Sequoia Capital, Sichuan Fund for the Elderly, Shanghai Kuokun, Wuxi AppTec, Ever Excelling, LionRock Capital, etc.

Figure 10: Shareholding structure (as of Jan 2020)



(1) Individual shareholders consist of 196 former or current employees of Jinxin Group;
(2) Jinxin Fund is ultimately controlled by the Individual Shareholders;
(3) Other institutional investors are Pre-IPO investors including CNCB Investment, Sequoia Capital, Sichuan Fund for the Elderly, Shanghai Kuokun, Wuxi AppTec, Ever Excelling, LionRock Capital, etc.

Source: Company data, HKEX, CMBIS

Jinxin is the Top 1 non-state-owned player in China ARS industry

China ARS market is relatively fragmented, as the top 10 and 20 players accounted for only 26% and 36%, respectively, of total market share by 2018 IVF treatment cycles. In 2018, only approximately 23 ARS providers in China conducted over 5,000 IVF treatment cycles, of which only two are non-state-owned medical groups. State-owned hospitals dominated the ARS market.

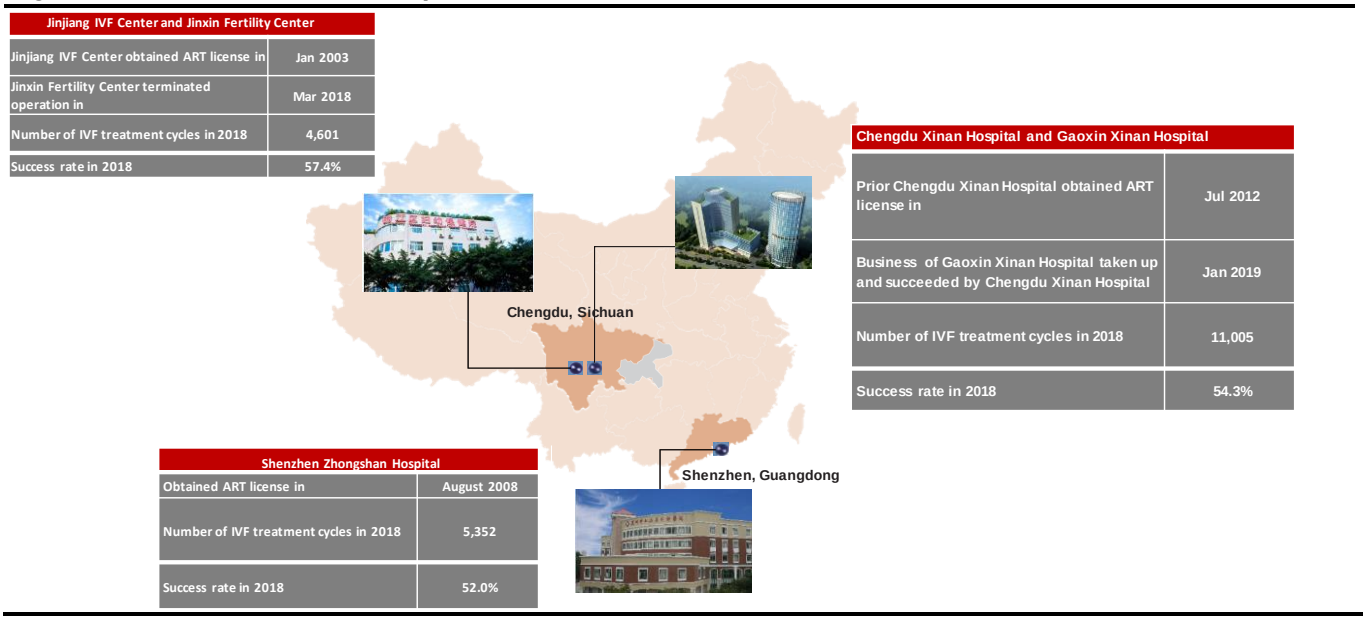
Figure 11: China ARS market share in 2018 by IVF cycles and revenue

Medical Group	Nature	# of IVF treatment cycles performed in China in 2018	Market share by 2018 IVF cycles	Market share by 2018 revenue
Reproductive and Genetic Hospital of Citic-Xiangya	State-owned, Private	40,000	5.8%	6.2%
Reproductive Hospital Affiliated to Shandong University	State-owned Public	28,000	4.1%	3.6%
Jinxin Fertility	Non-state owned Private	20,958	3.1%	3.9%
Peking University Third Hospital	State-owned, Public	19,000	2.8%	2.7%
Shanghai Ninth People's Hospital Affiliated to Shanghai Jiaotong University School of Medicine	State-owned, Public	17,900	2.6%	2.9%

Source: Frost & Sullivan, Company data, CMBIS

Jinxin's network in China (including Chengdu Xinan Hospital, Shenzhen Zhongshan Hospital and Jinjiang IVF Center) ranked third by IVF cycles and second by revenue with a market share of 3.1% and 3.9%, respectively, and ranked first among all non-state-owned ARS institutions.

Figure 12: Jinxin's business footprints in China



Source: Company data, CMBIS

Jinxin's medical network in Chengdu was the largest in the ARS market in Sichuan Province in terms of IVF treatment cycles performed, with a market share of 50.1% in Sichuan in 2018. The medical facility network in Chengdu was also one of only two ARS providers in Sichuan that conducted over 5,000 IVF treatment cycles in 2018.

As of 2018, Jinxin's Shenzhen Zhongshan Hospital was the third largest player in Guangdong ARS market in terms of IVF treatment cycles performed, with a market share

of 4.9%. In that same year, Shenzhen Zhongshan Hospital was also one of five medical institutions (including three public and one other private medical institutions) that conducted more than 5,000 IVF treatment cycles. In 2018, out of the 56 assisted reproductive institutions possessing IVF licenses in Guangdong, Shenzhen Zhongshan Hospital was one of ten private medical institutions.

Jinxin is the Top 2 player in the US ARS market

Thanks to the acquisition of HRC Management in Dec 2018, Jinxin has established a strong presence in the US ARS market. HRC Medical, which is managed by HRC Management, has a long and successful operation history in the US. HRC Medical could be traced back to May 1988 and specializes in reproductive endocrinology and reproductive medicine. It provides ARS such as conventional IVF-ET, IVF with ICSI, as well as pre-IVF treatment for fertility problems such as endometriosis, fibroids and blocked fallopian tubes.

HRC Medical owns three core clinics (in Pasadena, Encino and Newport Beach) and six satellite clinics (Rancho Cucamonga, Oceanside, West Los Angeles, West Lake Village, Fullerton and Laguna Hills). Each core clinic is equipped with an onsite IVF and andrology laboratory and staffed with board-certified fertility specialists.

Figure 13: Jinxin's business footprints in the US

HRC Medical	
Commenced operation in	May 1988
Number of IVF treatment cycles in 2018	4,500
Overall success rate in 2018	54.5%

Source: Company data, CMBIS

The US ARS market is relatively fragmented and primarily consists of private medical institutions. HRC Fertility (HRC Medical together with HRC Management, collectively referred to as "HRC Fertility") was the second largest player in the US market by revenue and the fifth largest by IVF treatment cycles in 2018.

Figure 14: The US ARS market share

Medical Group	Revenue from ARS clinics in the US in 2018 (US$ mn)	Market share by 2018 revenue	# of IVF cycles in 2018	Market share by IVF cycles in 2018
Shady Grove Fertility	196	5.3%	11,300	4.8%
HRC Fertility	94	2.5%	4,500	1.9%
IVI-RMA Global	92	2.5%	6,800	2.9%
Boston IVF	89	2.4%	5,500	2.3%
Colorado Center for Reproductive Medicine	77	2.1%	5,100	2.2%

Source: Frost & Sullivan, Company data, CMBIS

HRC Fertility ranked first in the Western US in terms of both revenue and IVF treatment cycles in 2018. In the California ARS market, HRC Fertility also ranked first in terms of both revenue and IVF cycles in 2018, with a market share of 13.9% by revenue and 11.9% by IVF cycles.

Furthermore, HRC Fertility ranked first among all ARS providers in the US, by IVF treatment cycles provided to ARS patients travelling from China to the US in 2017. HRC Fertility is well-positioned to benefit from the accelerated growth in Chinese ARS patients going to the US for treatment.

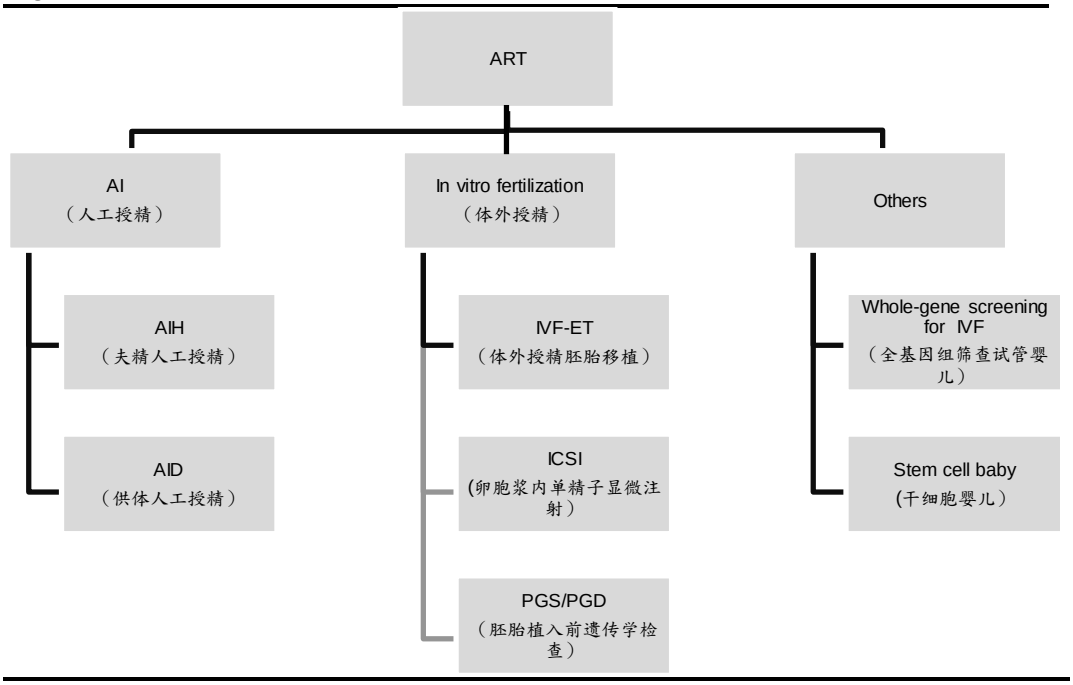
Well-positioned in a fast-growing ARS market

IVF is widely used for treatment of infertility

Treatments for infertility include medication, surgery and assisted reproductive technologies (ARTs). Infertile couples with mild indications firstly explore conservative treatments of medications, such as ovulatory induction drugs and traditional Chinese medicines. Couples will be treated with surgeries if woman or man has organic abnormalities, such as the male varicocele (精索静脉曲张), or the female intrauterine adhesion (宫腔粘连).

For patients not indicated for medication or surgery, they may be treated with ARTs. According to WHO, ARTs refer to infertility treatments where both eggs and sperm are handled to achieve a live birth. According to National Health Commission, around 20% of infertile couples need ART treatments. ARTs consist of treatments of artificial insemination (AI), IVF-embryo transfer (IVF-ET), intracytoplasmic sperm injection (ICSI), preimplantation genetic diagnosis (PGD)/ preimplantation genetic screening (PGS) and etc.

Figure 15: ART treatments



Source: Company data, CMBIS

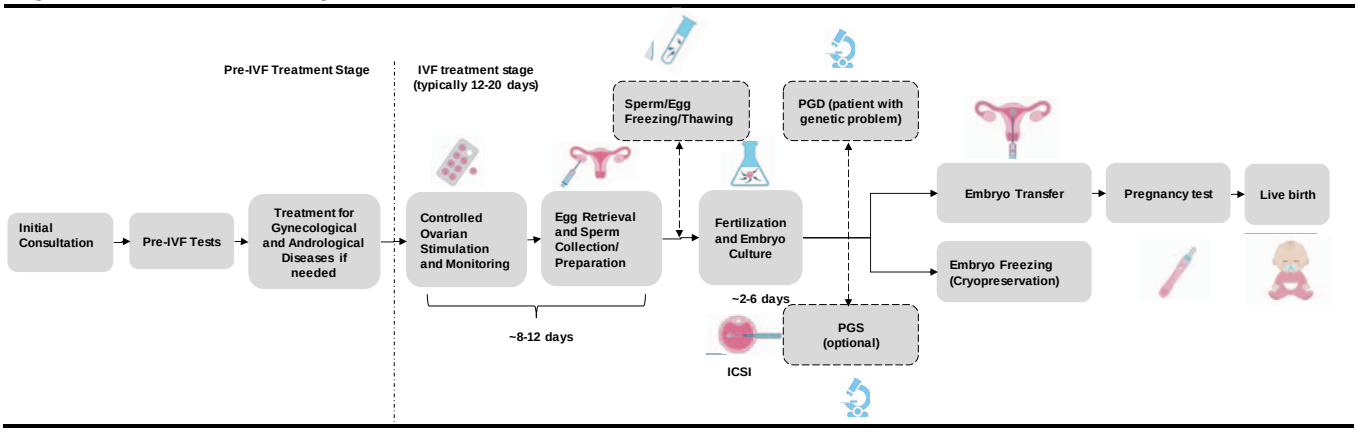
Artificial insemination (AI) places sperm directly into the uterus and is less expensive, less invasive procedure compared to IVF. AI can be performed with either the husband's sperm (AIH) or a donor sperm (AID). The successful clinical pregnant rate of AI was around 15-20%, significantly lower than IVF success rate of 45%.

Intro vitro fertilization (IVF) means that mature eggs are collected (retrieved) from ovaries and fertilized by sperm in a laboratory and then embryos are transferred to a uterus. IVF delivers higher success rate than AI. Compared to AI, IVF is significantly more widely used and held around 95% market share in both China and the US ARS markets by revenue in 2018.

IVF technology has evolved from IVF-ET to IVF-ICSI and PGD/PGS, etc. For conventional in vitro fertilization and embryo transfer (IVF-ET), eggs and sperm are incubated together in a laboratory to develop an embryo. For IVF with intracytoplasmic sperm injection (ICSI), a single sperm is injected into each egg to assist fertilization using micromanipulation equipment and can be used when male infertility is a cause. Preimplantation genetic diagnosis (PGD) are used when biological parents carry a gene mutation or a balanced chromosomal rearrangement. Preimplantation genetic screening (PGS) is a technique used to detect the presence of an abnormal number of chromosomes (aneuploidy) in an embryo in order to select and implant embryos that are chromosomally normal.

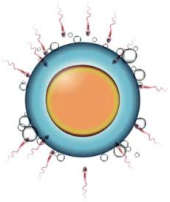
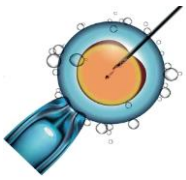
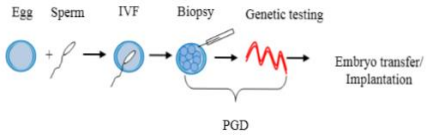
IVF treatment process mainly includes two stages, the pre-IVF treatment stage and IVF treatment stage. At the pre-IVF treatment stage, patients attend an initial consultation, undergo pre-IVF tests, and undergo treatment for gynecological (妇科) or andrological (男科) diseases (if needed). The IVF treatment stage usually lasts for 12 to 20 days and starts when female patient begins controlled ovarian stimulation. After controlled ovarian stimulation ends, egg retrieval, sperm collection and preparation, embryo culture, embryo transfer or cryopreservation and other procedures are conducted.

Figure 16: IVF treatment process



Source: Company data, CMBIS; Note: dash line boxes denote services steps which are optional

Figure 17: Comparison of three types of IVF technologies

		Conventional IVF-ET	IVF-ICSI	PGD/PGS
				
Main Indications		Women with ovulation problems, egg delivery disorder and endometriosis (子宫内膜异位), and men with oligospermia (少精症)and asthenozoospermia (弱精症)	Men with irreversible obstructive azoospermia, severe oligospermia and asthenozoospermia	Patients with an abnormal number of chromosomes (染色体) or other structural abnormalities and couples who are carriers of inherited diseases
Treatment		During IVF-ET, egg and sperm from the couple are incubated together in a laboratory to produce an embryo, which is then placed into the woman's uterus, where it may implant and result in a successful pregnancy	ICSI is performed as an additional step of an IVF treatment cycle, where a single sperm is injected into each egg, facilitating fertilization with micromanipulation equipment	PGD is the genetic profiling of embryos or blastocysts to identify gene defects or genetic diseases before transfer the uterus. PGS refers to the use of genetic techniques to test whether the embryos have a normal number of chromosomes before implantation
Cost per cycle		RMB30,000-50,000	RMB35,000-55,000	RMB85,000-105,000
Clinical pregnant rate		40%-60%	40%-60%	>60%
# of license holders in 2018	US	There are no specific license requirements for different types of ARS in the US. PGD and PGS are widely adopted.		
	PRC	375 (75% of total institutions)	375 (75% of total institutions)	56 (11.2% of total institutions)
Introduction time (birth of first baby)	US	1981	1993	1993
	PRC	1988	1996	2000

Source: Company data, ARS industry website, and CMBIS

Increasing prevalence of infertility drives ARS demand

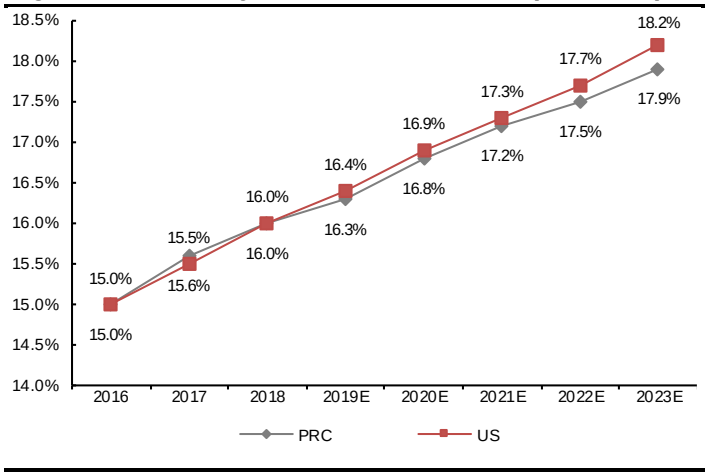
Infertility refers to a disease of failing to achieve clinical pregnancy after 12 months or more of unprotected and regular sexual intercourse. Female infertility causes include ovulation problems, damage to fallopian tubes or uterus, and cervix abnormalities. Male infertility causes include low sperm production, abnormal sperm function, and blockages that prevent the delivery of sperm.

The prevalence of infertility is calculated as the number of infertile couples divided by the number of couples of reproductive ages, which is defined for women as between the ages of 15 and 49. Infertility is becoming increasingly prevalent globally and has increased globally from 11.0% in 1997 to 15.4% in 2018, driven by increasing average age of first birth, as well as unhealthy lifestyle and environmental factors.

In 2018, there were approximately 47.8mn infertile couples in China. According to F&S estimates, the total number of couples at reproductive age level in China was around 298mn as of 2018. F&S forecasts the prevalence of infertility in China to rise from 16.0% in 2018 to 18.2% by 2023E, due to environmental pollution and unhealthy lifestyle.

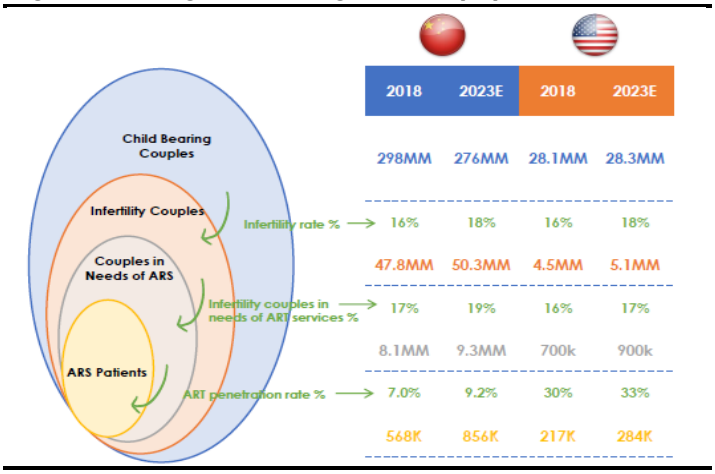
According to F&S, in 2018, there were approximately 4.5mn infertile couples in the US. The prevalence of infertility in the US is expected to increase steadily from 16.0% in 2018 to 17.9% by 2023E, due to an increase in the average age of first birth, rise of obesity rates, and unhealthy lifestyle.

Figure 18: Infertility rate in China and US (2016-23E)



Source: Frost & Sullivan, CMBIS

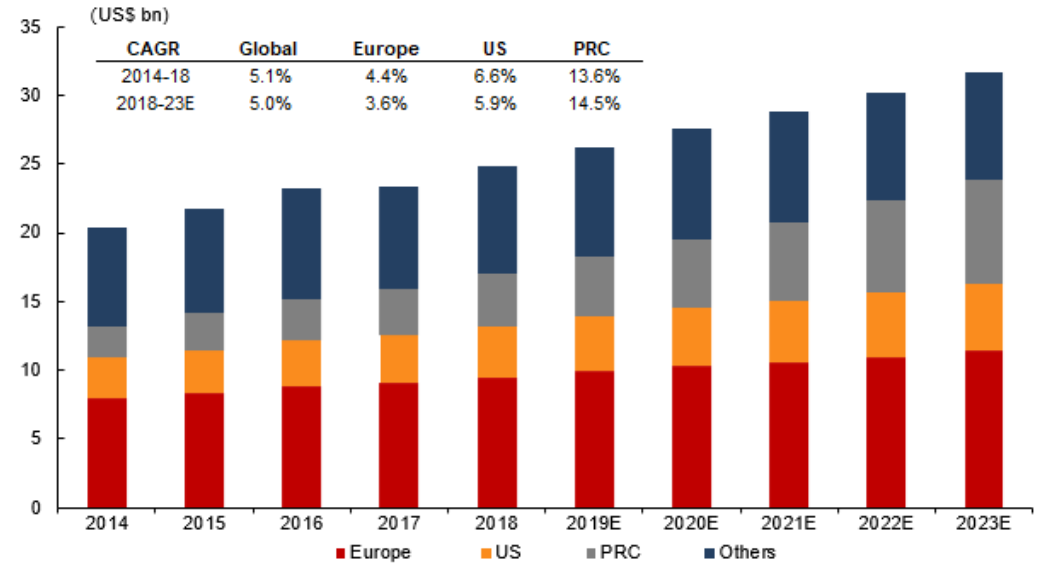
Figure 19: Large and rising infertile population



Source: Frost & Sullivan, CMBIS

According to F&S, driven by an increased infertility rate and growing demand for better quality of life, resulting from improving living standards and increasing awareness about birth defects and prevention, the global ARS market grew from US$20.4bn in 2014 to US$24.8bn in 2018, representing a CAGR of 5.1%, and is expected to increase further to US$31.7bn in 2023E, representing a CAGR of 5.0% from 2018. F&S estimates that China's share of global ARS market will increase from 15% in 2018 to 24% in 2023E.

Figure 20: Global ARS market breakdown by regions



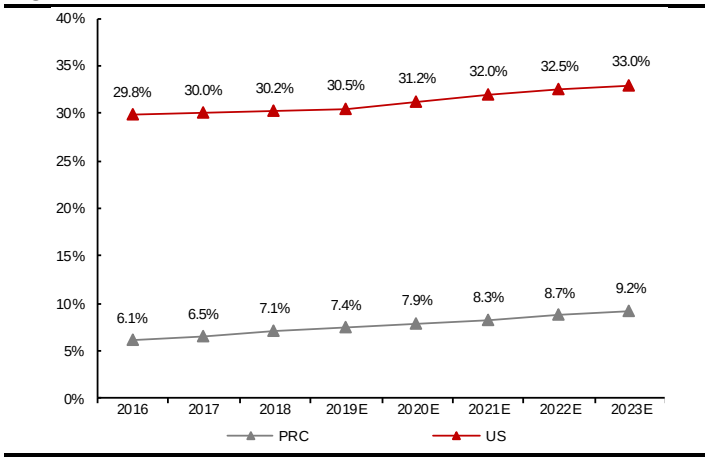
Source: F&S, CMBIS

China has large infertile population yet low penetration of ARS

According to F&S, as of 2018, there were approximately 47.8mn infertile couples in China while around 20% of infertile couples, or 8.1mn couples, need ART treatments. However, only 568,000 Chinese couples received ARS in 2018. According to F&S, China's ARS penetration rate which is calculated as the number of couples who received ARS divided by the number of infertile couples in need of ARS, was low at 7.1% in 2018 (vs. 30.2% in the US) and the penetration rate in China is forecasted to grow to 9.2% in 2023E with around 855,000 Chinese couples receiving ARS in 2023E, representing 14.2% CAGR. The average duration of IVF treatment per couple was 1.0~1.5 cycles.

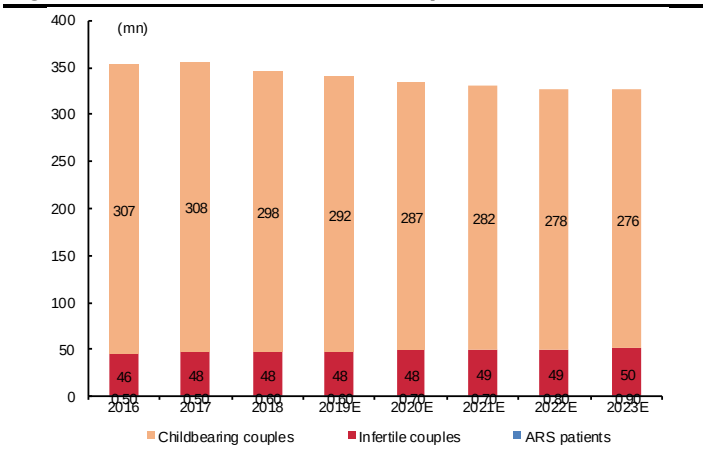
According to the research article "A global perspective on assisted reproductive technology fertility treatment: an 8-country fertility specialist survey" published at Reproductive Biology and Endocrinology in 2015, 50 fertility specialists from China joined this survey. The results showed that approximately 38% of Chinese infertile patients received ART, 22% received drug treatment, 14% received AIH/AID while 9% of Chinese patients underwent surgeries.

Figure 21: Penetration of ARS: China vs US



Source: Frost & Sullivan, CMBIS

Figure 22: Number of infertile couples in China



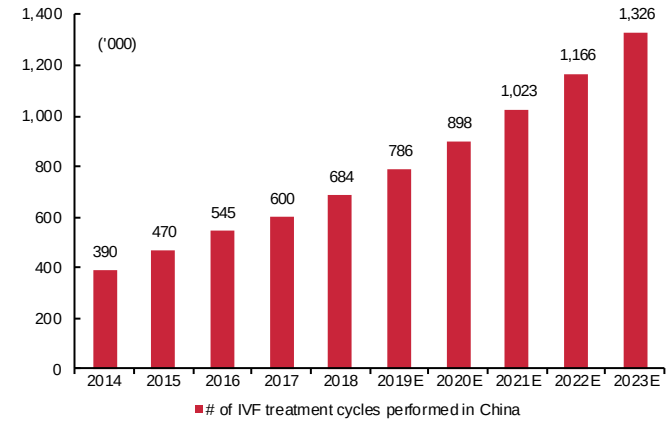
Source: Frost & Sullivan, CMBIS

China ARS market has experienced rapid growth, from RMB14.0bn in 2014 to RMB25.2bn in 2018, representing 15.8% CAGR, due to an increasing prevalence of infertility and recent government incentive policies, such as the Two-child Policy in 2015. Thanks to the Two-child Policy, low ARS penetration, improving affordability, and evolving ARS technology, the total number of IVF cycles performed in China may grow from 684,000 in 2018 to 1,326,000 in 2023E, indicating 14.2% CAGR from 2018. Meanwhile, F&S forecasts China ARS market size may reach RMB49.6bn by 2023E, representing 14.5% CAGR in 2018-23E.

According to F&S, the Sichuan ARS market reached RMB1.2bn in 2018 and is expected to grow to RMB2.5bn in 2023E, representing 15.4% CAGR in 2018-23E. The growth was driven by large population in Sichuan Province, rapid economic development, and fast increase in ARS penetration rate. The ARS penetration rate in Sichuan was 6.7% in 2018, lower than the nationwide average. Total number of IVF treatment cycles performed in Sichuan was around 31,000 in 2018 and may grow to 63,000 in 2023E, based on F&S estimates.

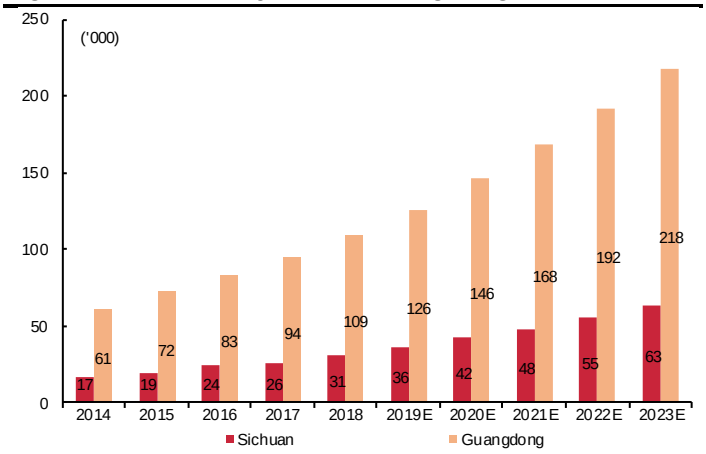
According to F&S, Guangdong ARS market was around RMB4.3bn in 2018 and is expected to further grow to RMB8.8bn in 2023E, representing 15.2% CAGR in 2018-23E. The ARS penetration rate in Guangdong was 10.7% in 2018, higher than nationwide average. Meanwhile, the total number of IVF treatment cycles performed in Guangdong was approximately 109,000 in 2018 and is estimated to reach 218,000 in 2023E, representing 15.0% CAGR from 2018.

Figure 23: # of IVF cycles in China



Source: Frost & Sullivan, CMBIS

Figure 24: # of IVF cycles in Guangdong and Sichuan



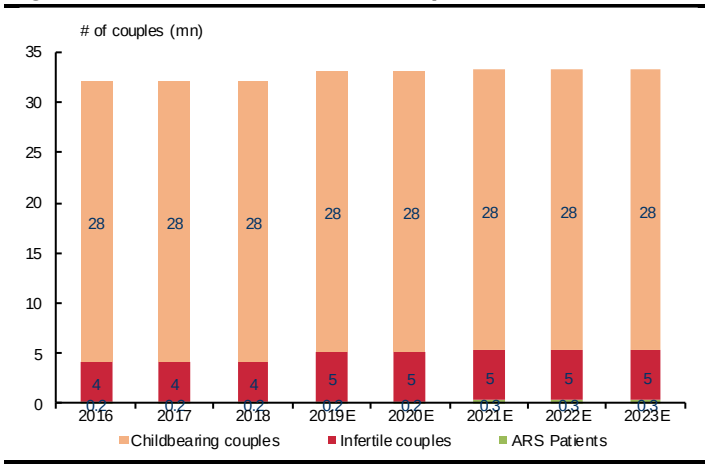
Source: Frost & Sullivan, CMBIS

US has a sizable ARS market with solid growth

According to F&S, the US ARS market has grown at 6.6% CAGR in 2014-18, from US$2.87bn in 2014 to US$3.71bn in 2018, and is expected to grow at 5.9% CAGR in 2018-23E, driven by growing local demand for ARS, attractiveness to international patients, advancement of ART and evolving social acceptance of same-sex marriage.

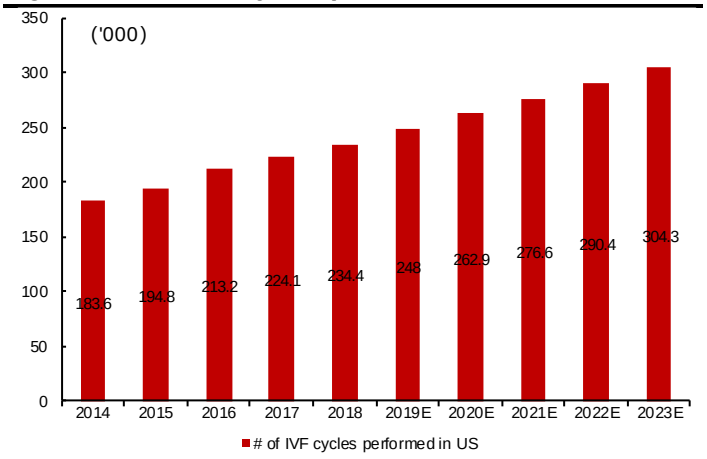
In 2018, there were approximately 4.5mn infertile couples in the US, while 0.7mn couples need ARS and 217,100 patients received ARS in the US. The US had a relatively higher ARS penetration rate of 30.2% (vs. 7.1% of China). According to F&S, the total numbers of IVF cycles in the US increased from 183,600 in 2014 to 234,400 in 2018, representing 6.3% CAGR and is expected to reach 304,300 by 2023E, representing 5.7% CAGR. The average treatment cycles per couple in the US is approximately 1.2 cycles.

Figure 25: Number of infertile couples in the US



Source: Frost & Sullivan, CMBIS

Figure 26: # of IVF cycles performed in the US



Source: Frost & Sullivan, CMBIS

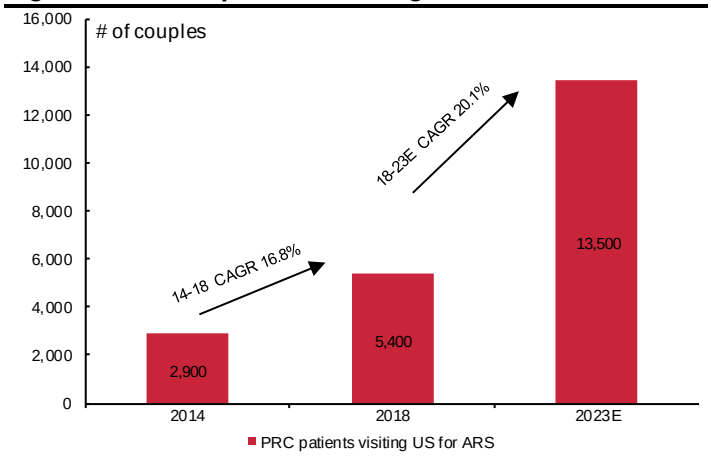
California becomes a hot destination for Chinese patients

A significant number of Chinese people are going overseas for ARS. US has become a popular destination for Chinese patients due to advanced technology, broader service scope and higher success rate. In 2018, approximately 18,000 Chinese people went overseas for ARS, of which 30%, or 5,400 went to the US.

Due to factors such as favorable regulatory policies towards ARS, as well as ample top-quality ARS talent and institutions, California has become one of the top three states for ARS. As compared to other states in the US, California has the following features: 1) surrogacy is legal and regulated; 2) there are more ARS clinics in California than any other states in the US, along with approximately 230 reproductive endocrinologists out of 1,500 nationwide, providing patients with access to a broad range of services, such as surrogacy, egg and sperm cryopreservation, and PGD/PGS; 3) the weather conditions and geographical location are favorable.

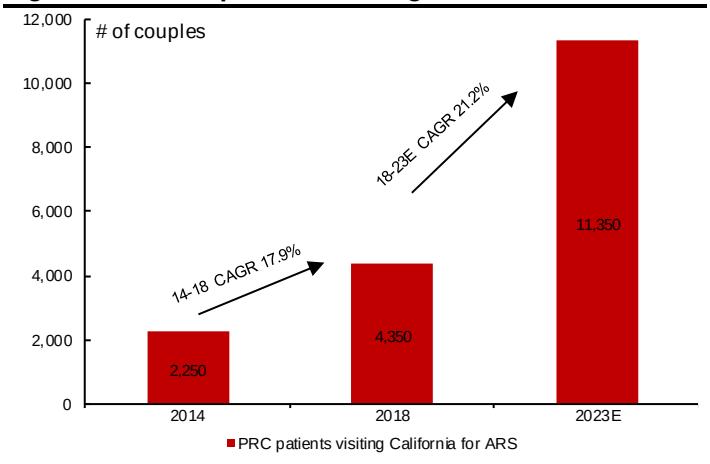
In 2018, among the approximately 6,200 international patients that came to California, 70% were from China, or 4,350. Thai said, 81% of the Chinese patients visiting US for ARS went to California in 2018 and the number may further increase to 11,350 by 2023E, according to F&S.

Figure 27: China patients visiting US for ARS



Source: Frost & Sullivan, Company data

Figure 28: China patients visiting California for ARS



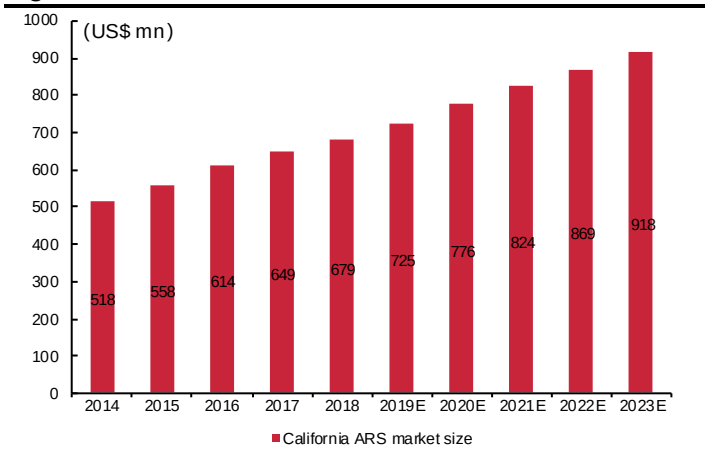
Source: Frost & Sullivan, Company data

In Dec 2018, Jinxin acquired 100% share in HRC management which directly manages HRC Medical. HRC Medical is located in California and ranked the first in the western US ARS market with 4,500 IVF treatment cycles in 2018 and also ranked first among all ARS providers in the US by IVF treatment cycles provided to patients traveling from China in 2017.

In California, the ARS market has grown faster than the national market, increasing from US$518mn in 2014 to US$679mn in 2018, representing 7.0% CAGR and may grow to US$918mn by 2023E, representing 6.2% CAGR in 2018-23E, based on F&S estimates.

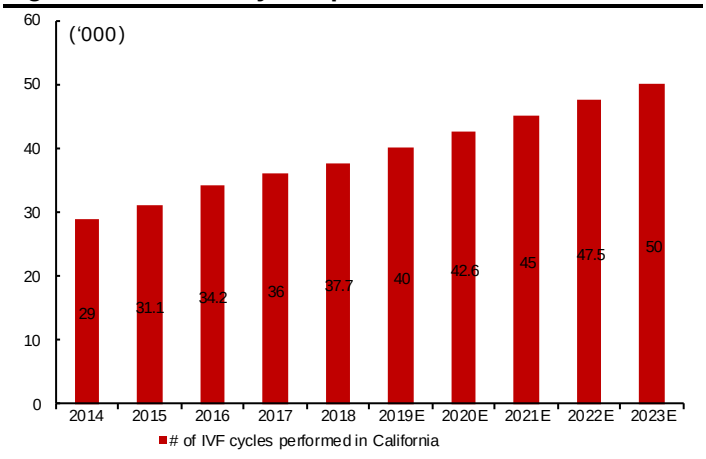
The number of IVF cycles performed in California was 37,700 in 2018, representing 16% market share of the total US market. F&S estimates the number of IVE cycles performed in California to grow to 50,000 by 2023E, implying 5.8% CAGR in 2018-23E.

Figure 29: California ARS market size



Source: Frost & Sullivan, CMBIS

Figure 30: # of IVF cycles performed in California



Source: Frost & Sullivan, CMBIS

Large ARS players will become larger

Limited ARS licenses restrict the industry supply

The significant entry barriers in China's ARS industry will continue to constrain supply in the industry. The industry is heavily regulated and a significant number of high threshold requirements must be satisfied in order to obtain a license to conduct IVF procedures, including attaining and maintaining the status of a Class III hospital or Class III maternal and child care service center, which requires significant capital outlays and ongoing resource commitments. Furthermore, given ongoing review of the qualifications of license holders, license holders are expected to maintain their quality of medical services and performance in order to continue to qualify for license renewal.

China's regulations on ARS industry has changed over time and has become very strict from 2015. In 2001, China government issued "Management Measures on Human Assisted Reproductive Technology", which required that human assisted reproductive procedures should only be carried out in approved and registered medical institutions.

In 2007, Chinese government issued the policy on "Strengthening the Allocation Planning and Supervision and Management of Human Assisted Reproductive Technology and Human Sperm Bank", which allowed ART license being authorized by provincial Health and Family Planning Commission. Riding this policy tailwind, total number of ARS institutions increased dramatically, from 88 institutions in 2006 to 451 in 2016.

In 2015, NHFPC issued "Guiding Principles of Human Assisted Reproductive Technology Allocation Planning (2015)" (人类辅助生殖技术配置规划指导原则（2015 版）), which largely tightened the regulations on ART. According to this policy, the number of issued licenses will be approximately "one ARS institution for every three million people" in each province or municipality and new ARS licenses can only be issued to Class III Hospitals (general, ob-gyn) and Class III maternal and child care service centers.

Figure 31: China's regulatory policies on ART industry

Time	Regulatory policies	Details
2001	Management Measures on Human Assisted Reproductive Technology	Stipulate ART should be carried out in approved or registered medical institutions, which must obtain ART licenses and subject to regular examinations by approval authority.
2001	Management Measures on Human Sperm Bank	Stipulate the principles of the planning and layout of human sperm bank.
2003	Amending the Relevant Technical Regulations, Basic Standards and Ethical Principles Relating to Human Assisted Reproductive Technology and Human Sperm Bank	Stipulate the basic requirement, management, indications and contraindications, quality standards and quality control and code of conduct for IVF, IVF-ET, and AI and set technical norms and ethical principles to medical institutions.
2007	Strengthening the Allocation Planning and Supervision and Management of Human Assisted Reproductive Technology and Human Sperm Bank	Require the provincial health administrative departments to be responsible for allocation planning of the human assisted reproductive technology institutions.
2013	Special Rectification on the Management of Human Assisted Reproductive Technology	Verify all the ART institutions, and delay all the license applications.
2015	The Guiding Principles of Human Assisted Reproductive Technology Allocation Planning (2015)	Unify the layout and supervision of ARS medical institutions and forecast the maximum number of planned ART medical institutions in each province as reference for relevant health administrative departments.
2015	The Guiding Opinions of the NHFPC Regarding Management on Human Assisted Reproductive Technology and Sperm Banks	Stipulate the administrative departments of health and family planning at each province shall formulate its own ART allocation plans. Institutions applying to carry out IVF-ET, IVF-ICSI must have conducted AI for 1 year and applying for PGS/PGD must have conducted IV-ET, ICSI for 5 years.

Source: The Ministry of Health of China (MOH), NHFPC, CMBIS

According to the "Guiding Principles of Human Assisted Reproductive Technology Allocation Planning (2015)", the number cap of ART institutions is subject to "one ARS institution for every three million people". Our calculation shows that the total cap number of ARS institutions by end 2020 is approximately 520 while there are already 498 existing licensed ARS institutions by end 2018, indicating limited room for increase in number of ARS institutions going forward.

The application of ARS license is difficult and time-consuming. ARS institutions can obtain five types of approval certificates, which are AID, AIH, conventional IVF-ET, IVF with ICSI, and PGD/PGS. These certificates are typically issued sequentially, starting with certificates such as AIH before more complex certificates like IVF with ICSI can be obtained after a number of years in operation. These certificates may be withdrawn if institutions cannot pass the periodic verification process conducted by the government.

Hospitals applied for ART licenses are subject to 1) being Class III hospital, 2) leaders of the laboratory and clinical surgery should be professionals with senior positions, 3) hospitals have to fulfill certain number of IVF treatment cycles and reach specified clinical pregnant rate, 4) laboratories will be verified every two years and licenses may be withdrawn if institutions fail in the verifications.

New ARS licenses can only be issued to Class III Hospitals (general, ob-gyn) and Class III maternal and child care service centers, which requires significant initial capital. Currently, it is difficult for private ARS institution to seek cooperation with public Class III hospitals. Private ARS institutions to apply for new ARS licenses have to build its own Class III hospital, which typically needs an initial capital of RMB300mn-500mn and takes 2-3 years.

According to National Health Commission (NHC), as of end-2018, only 498 medical institutions were granted ARS licenses by Chinese government. Most of the ARS licenses are held by public hospitals. Among the total 498 ARS medical institutions, only 50 are private hospitals, accounting for 10% of the total number.

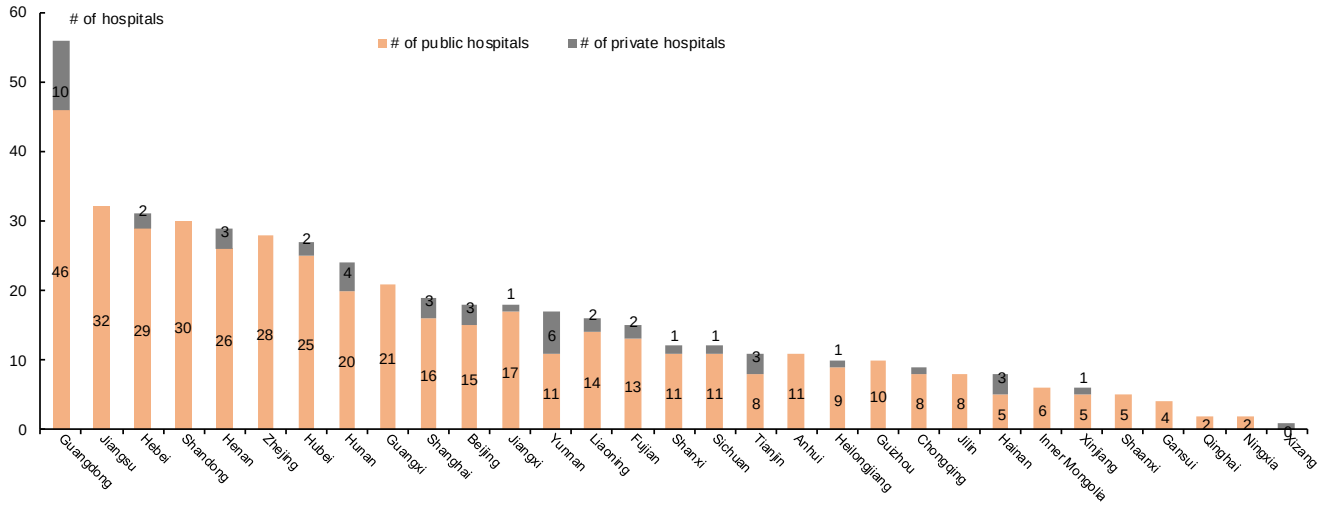
Among the 498 existing licensed ARS institutions in China, all the ARS institutions can perform AI, 375 of them have IVF-ET and IVF-ICSI licenses and only 56 institutions have PGD/PGS licenses. Chinese government implements the strictest regulations on PGS/PGD licenses to prevent illegal gender tests. By contrast, ARS in the US is less regulated and PGD/PGS is widely adopted in the US.

Figure 32: Number of licensed ARS institutions in China (as of end-2018)

Type of license	# of private hospitals	# of public hospitals	Total
AIH	50	448	**498**
IVF-ET / IVF-ICSI	43	332	**375**
PGS/PGD	3	53	**56**

Source: NHC, CMBIS

Figure 33: Overview of public and private ARS institutions in each province/ municipality



Source: NHFPC, CMBIS

Higher entry barriers benefits leading ARS players

We see significant entry barriers in China's ARS industry due to 1) scarcity of IVF licenses, 2) limited resources of highly-qualified talent resources, 3) difficulties in building up brand reputation for new entrants, and 4) large initial capital investment to build or acquire Class III hospitals with IVF licenses.

Figure 34: China ARS market has high entry barriers

Entry barriers	Details
Scarce IVF licenses	ARS medical licenses in China are highly regulated. ARS providers can sequentially obtain five types of approval certificates, which are AID, AIH, conventional IVF-ET, IVF with ICSI, and PGD/PGS. These certificates may be withdrawn if service providers cannot pass the periodic verification process conducted by the government. As of Dec 31, 2018, there were a total of 498 licensed assisted reproductive institutions, of which 375 institutions possessed IVF licenses.
Highly-qualified talent resources	China patients prefer to receive treatment from renowned physicians. Seasoned physicians in this field are scarce in China and are often hesitant to work for private ARS providers, due to concerns related to team structure and operations. ART treatment process needs a team of medical professionals, well-trained physicians and embryologists.
Brand reputation	In China, patients tend to choose ARS institutions with a strong reputation, usually defined by having experienced physicians, well-managed laboratories, high success rate, and, most importantly, a proven track record and competitive successful rate.
Access to capital	New entrants typically require abundant initial capital to acquire and operate the facilities, and to purchase medical equipment and products necessary to perform IVF treatment up to the standards required to obtain requisite medical licenses. According to the Guidelines for the Planning of Human Assisted Reproductive Technology, issued by the NHFPC in 2015, new ARS licenses can only be issued to Class III Hospitals (general, ob-gyn) and Class III maternal and child care service centers, which requires significant initial capital investment.

Source: Company, CMBIS

Patients tend to choose ARS institutions with a strong reputation, usually defined by having experienced physicians, well-managed laboratories, a proven track record of having performed a significant number of IVF treatment cycles and competitive successful rate.

With a long track record of successful operations and a large base of treated patients, Jinxin has accumulated strong reputation and good brand awareness, which will further attract more patients and strengthen the Company's industry leading position.

Figure 35: "Snow Ball Effect" favors large players

Source: Company data, CMBIS

We compared ARS business with ophthalmology and aesthetic medical services, all of which are consumption-oriented medical services and not reimbursed by China's basic medical insurance. ARS industry enjoys much higher entry barriers than ophthalmology and aesthetic medical services thanks to strict regulations on licenses and importance of reputation. Private hospitals only account for around 10% of China's total ARS medical institutions while ophthalmology and aesthetic medical services market are mostly occupied by private institutions. Moreover, large ARS players recorded better profitability thanks to less marketing expenses.

Figure 36: Comparison of ARS, ophthalmology and aesthetic medical institutions

	ARS	Ophthalmology	Aesthetic medical services
Entry barrier	High	High	Low
License regulation	Strictly limited with a cap number	Loose	Loose
# of institutions	498 in 2018 (448 public, 50 private)	641 (51 public and 590 private) in 2017	5,600 (650 public hospitals, 4,500 private hospitals and 500 private clinics) in 2016
Market landscape	Fragmented and public hospital dominated the market with top 20 players accounted for 36% market share in 2018	Relatively concentrated and market dominated by private hospitals	Fragmented and private hospitals dominated the market with 80% share with top 5 players accounted for 7.2% market share in 2017
Market size	RMB25.2bn in 2018	RMB86.7bn in 2017	RMB99.3bn in 2017
Penetration rate	7%	1%	7%
Industry growth in 2018-23E	14.5% CAGR	13%-15% CAGR	24% CAGR
Net profit margin	30%-40% for large players	13-15% for large players	~10% for large players
Degree of homogeneity	Relatively low and success rate varies from institution to institution	High	High
Customer acquisition	Spread word of mouth	Rely heavily on advertisement	Rely heavily on advertisement

Source: NHC, 2018 China Health Statistical Year-book, Frost & Sullivan, CMBIS

Jinxin enjoys strong competitive edge in China

Jinxin delivered outstanding success rates in its network hospitals

Success rates are important benchmarks in the ARS industry. Jinxin has consistently delivered ARS with superior success rates, thanks to the Company's decades of experience and know-how, investment in upgrading laboratory facilities and recruitment and retention of a group of renowned physicians.

In 2018, Jinxin's medical facilities in China achieved a success rate of 54%, higher than the national average success rate of 45%. Jinxin has consistently improved its success rate in past years. The average success rate of Chengdu Xinan Hospital has increased from 53.6% in 2016 to 55.1% in 1H19 while the number for Shenzhen Zhongshan Hospital has improved from 52.6% in 2017 to 55.2% in 1H19.

Figure 37: Jinxin's improving success rates in China

	2016	2017	2018	1H19
Chengdu Xinan Hospital	53.6%	52.8%	54.3%	55.1%
Shenzhen Zhongshan Hospital	N/A	52.6%	52.0%	55.2%
Jinjiang IVF Center and Jinxin Fertility Center	49.2%	55.1%	57.4%	58.5%

Source: Company data, CMBIS

HRC Fertility has achieved a success rate of 62% in 2016, much higher than the US national average of 53%. The overall higher success rate in the US compared to China was partly because that most ARS clinics in the US conduct PGS/PGD, which rule out the unhealthy embryos at the very beginning.

Figure 38: Success rates in the US (2016)

	Age Group	US	Western US	California	HRC Fertility
	<35	56.8%	60.9%	60.8%	66.8%
	35 -37	53.0%	58.1%	57.8%	64.4%
	38- 40	47.9%	54.8%	53.8%	56.6%
Non-donor	41- 42	38.4%	45.9%	44.1%	45.4%
	>42	27.2%	38.2%	35.5%	44.6%
	Overall (Nondonor)	51.7%	56.6%	55.3%	61.3%
Overall (Non-donor and donor)		**52.5%**	**57.7%**	**56.5%**	**62.0%**

Source: CDC, Company data, CMBIS;
Note: Clinical outcomes for donor and non-donor vary from institution to institution depending on patient conditions. In general, the success rate of donor eggs and embryos is higher than non-donor since donor eggs usually are typically of higher quality.

Jinxin has an expierenced and expanding physicians team

ART treatment process needs a team of medical professionals, well-trained physicians and embryologists. Seasoned physicians in this field are scarce and the supply is limited due to the length of study and training required, including years of academic study and clinical training.

As of Jun 2019, Jinxin had a total of 58 fertility physicians and 32 embryologists in China, 13 fertility physicians and 21 embryologists in the US. Thanks to the experienced professional team, Jinxin has delivered higher-than-average productivity.

For Jinxin's network hospitals in China, the average IVF cycles performed by each fertility physician was 437 in 2018, much higher than the national average of 220 cycles. Likewise, the average number of IVF treatment cycles performed by HRC Fertility's physicians was

346 in 2018, significantly higher than the US national average of 155 cycles. Jinxin has maintained high operating efficiencies thanks to its experienced physicians and embryologists team and abundant industry knowhow.

Figure 39: Experienced professional medical team (as of Jun 2019)

	Fertility physicians	Embryologists	Nurses	Medical support staff
Xinan Hospital Group	22	13	158	125
Shenzhen Zhongshan Hospital	15	12	92	118
Jinjiang IVF Center	21	7	23	9
China total	**58**	**32**	**273**	**252**
	Fertility physicians	**Embryologists**	**Laboratory support staff**	**IVF coordinators**
HRC Management	13	21	23	60

Source: Company data, CMBIS

Jinxin enjoys strong pricing power by providing high-quality services

ARS is a kind of consumption-oriented medical services with flexible demand. In China, ARS related treatment cost is not reimbursed by the basic medical insurance. Therefore, pricing of ARS is not restricted by the Chinese government.

The cost of standardized IVF treatment consists of physical examination, ovulation induction drugs, oocyte retrieval operation, lab procedures and embryo transfer. The standardized IVF treatment charges RMB30,000-RMB50,000 per cycle. VIP services usually charge additional RMB10,000 to RMB50,000 per patient on top of standardized services.

Jinxin has consistently improved its average selling price in past years thanks to its high-quality services, and increased proportion of income from VIP services. Jinxin provides VIP patients with a private and convenient treatment experience. VIP patients are given more opportunities to consult physicians, and are given a customized treatment plan that is tailored to the patients' diagnosis and physical condition.

Before Jan 2019, Chengdu Gaoxin Xinan Hospital served as the VIP center of Xinan Hospital Group. In Feb 2019, Chengdu Xinan Hospital relocated to a new hospital building, which is well-equipped building with a total gross floor area of 42,659 sqm which is more than seven times the previous floor area in Chengdu Xinan Hospital. After the relocation of Chengdu Xinan Hospital, business of Gaoxin Xinan Hospital was taken up and succeeded by Chengdu Xinan Hospital in Jan 2019. Renovation of the VIP area in the New Hospital Building was completed in Jun 2019. We expect the expanded VIP capacity will drive the VIP service income growth and lift the profitability of the Company.

We believe Jinxin will consistently increase its average selling price by approximately 5-10% every year thanks to 1) strong bargaining power to customers given Jinxin's high-quality services, 2) increasing proportion of income from VIP services.

Figure 40: Average spending per IVF treatment cycle trended increasing

IVF treatment cost (RMB)	2016	2017	2018	1H19
Chengdu Xinan Hospital	37,982	33,400	41,935	55,263
YoY	*N/A*	*-12.1%*	*25.6%*	*16.4%*
Shenzhen Zhongshan Hospital	41,027	43,588	48,983	50,283
YoY	*N/A*	*6.2%*	*12.4%*	*4.2%*
Jinjiang IVF Center and Jinxin Fertility Center	29,268	29,725	34,616	N/A
YoY	*N/A*	*1.6%*	*16.5%*	*N/A*
HRC Medical	118,776	132,031	144,569	142,880
YoY	*N/A*	*11.2%*	*9.5%*	*N/A*

Source: Company data, CMBIS

Jinxin to strengthen its leading position by acquisitions

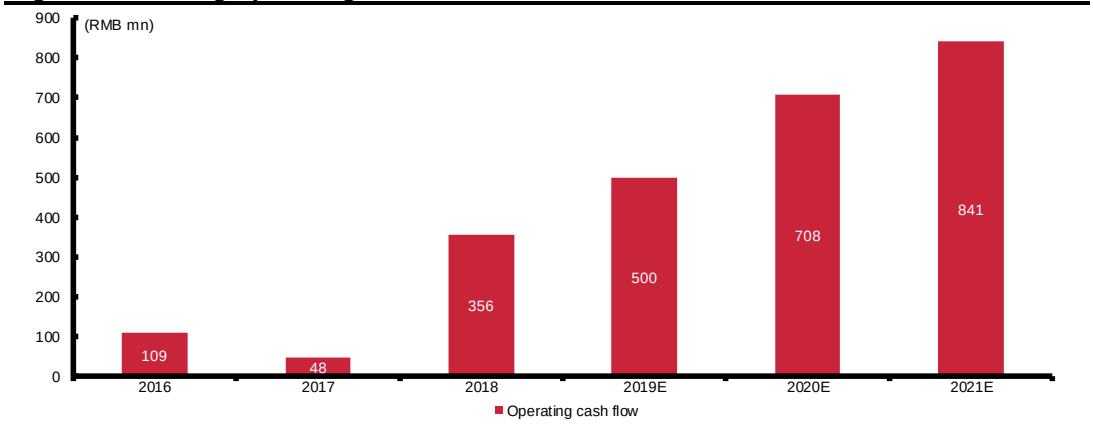
Proven track record in acquisitions

In past years, Jinxin has proven track record in acquisitions given its successful experiences in acquisitions of Shenzhen Zhongshan Hospital and HRC Medical. After acquisitions, Jinxin has successfully managed the acquired targets and lifted the operating efficiency of acquired targets.

For instance, Jinxin acquired Shenzhen Zhongshan Hospital in Jan 2017. After the acquisition, Jinxin completed the upgrade and expansion of the facilities in May 2018. Jinxin also provided Shenzhen Zhongshan Hospital with advanced management experiences, systematic trainings for professionals and recruitment of sales and marketing team, etc. As a result, Shenzhen Zhongshan Hospital's number of IVF treatment cycles increased from 5,128 in 2016 to 5,352 in 2018 and ASP increased by 19.4% from 2016 to 2018.

Post IPO, Jinxin had RMB3.1bn on hand as of 30 Jun 2019. Meanwhile, we expect Jinxin to consistently generate strong operating cash flows, forecasting operating cash flows of RMB500mn/708mn in FY19E/20E. Given the Company's strong operating cash flows, we estimate Jinxin will have RMB3.6bn cash on hand by end-19E. With sufficient in-house capital, we believe Jinxin is well prepared for acquisitions.

Figure 41: Strong operating cash flows of Jinxin



Source: Company data, CMBIS

Prudent selection of acquisition targets in China

As the largest private ARS provider in China with strong presence in Sichuan and Guangdong, Jinxin targets to penetrate into new regions such as northern and eastern China and plans to further enhance its presence in central China. We believe Jinxin will acquire ARS Hospitals with an established business in tier 1 cities or large tier 2 cities with potential synergies with Jinxin's existing business.

Figure 42: Expansion of business landscape in China

Source: Company data, CMBIS; Notes: (1) The ARS penetration rate as of 2017 according to the F&S report

We concluded a list of 20 private ARS hospitals in tier 1 and large tier 2 cities which Jinxin may be interested to approach.

Figure 43: List of potential acquisition targets

Location	# of ARS institutions in corresponding province/city (as of end-2018)	# of potential acquisition targets	Potential target hospitals		Type of license
Tier 1 cities					
Beijing	18	3	Beijing Jiaendeyun Hospital	北京家恩德运医院	AIH, IVF-ET, IVF-ICSI
			Beijing Jiayuan Hospital	北京家圓医院	AIH, IVF-ET, IVF-ICSI
			Beijing Baodao Hospital	北京宝岛妇产医院	AIH, IVF-ET, IVF-ICSI
Shanghai	19	3	Shanghai Ji'ai Hospital	上海集爱遗传与不育诊疗中心	AIH, AID, IVF-ET, IVF-ICSI, PGS/PGD
			Shanghai Yongyuanxing Women Hospital	上海永远幸妇科医院	AIH, IVF-ET, IVF-ICSI
			Shanghai International Medical Center	上海国际医学中心	AIH, IVF-ET, IVF-ICSI
Tier 2 cities					
Chongqing	9	1	Chongqing Beibu Maternity Hospital	重庆北部妇产医院	AIH
Wuhan	27	2	Wuhan Kangjian Women&Children Hospital	武汉康健妇婴医院	AIH, IVF-ET, IVF-ICSI
			Wuhan Huangpu Obsterics and Gynecology Hospital	武汉黄浦中西医结合妇产医院	AIH, IVF-ET, IVF-ICSI
Xiamen	15	1	Xiamen Anbao Hospital	厦门安宝医院	AIH, IVF-ET, IVF-ICSI
Changsha	24	1	Changsha Fertility Hospital	长沙生殖医学医院	AIH, IVF-ET, IVF-ICSI
Zhengzhou	29	1	Zhengzhou Longhai Hospital	郑州陇海医院	AIH
Dongguan	56	2	Donguan Guangji Hospital	东莞广济医院	AIH, IVF-ET, IVF-ICSI
			Dongguan Donghua Hospital	东莞东华医院	AIH, IVF-ET, IVF-ICSI
Shenyang	16	2	Shenyang Dongfangjinghua Hospital	沈阳东方菁华医院有限公司	AIH, AID, IVF-ET, IVF-ICSI
			Shenyang Jiuzhoujia Hospital	沈阳九州家圓医院	AIH, AID, IVF-ET, IVF-ICSI
Kunming	17	4	Yunnan Jiuzhou Hospital	云南九洲医院	AIH, IVF-ET, IVF-ICSI
			Ganmei International Hospital	甘美国际医院	AIH, IVF-ET, IVF-ICSI
			Kunming Angel Women & Children Hospital	昆明安琪儿妇产医院	AIH, IVF-ET, IVF-ICSI
			Kunming Hewanjia Women & Children Hospital	昆明和万家妇产医院	AIH, IVF-ET, IVF-ICSI

Source: National Health Commission, CMBIS, as at 31 Dec 2018

From historical four acquisition deals in China ARS industry since 2017, we noticed that the acquisition valuation multiple was approximately 2.5-4.5x 1-year trailing P/S. Valuation varies due to different situations of acquired targets such as location, business scale, financial status, etc.

Figure 44: M&A cases of ARS hospitals

Time	Company	Acquisition details	Valuation multiple
2017.11	Fosun Pharma (600196 CH)	Acquired 60% stake in Shenzhen Hengshen Hospital (深圳恒生医院) at RMB909mn	4.5x FY16 P/S
2018.06	Honz Pharma (300086 CH)	Acquired 51% stake in Yunnan Jiuzhou Hospital (云南九洲医院), and acquired 51% stake in Kunming Hewanjia Women & Children Hospital (昆明和万家妇产医院) at RMB320mn	3.2x FY17 P/S
2018.09	We Doctor Group, Maochen Group and Aldworth Management	Jointly acquired 89.5% stake in Genea (Australia ART medical institutions) at the consideration of US$510mn	NA
2019.09	Medical System (603990 CH)	Proposed to acquire 51% stake in Haikou Mary Hospital (海口玛丽医院) at RMB39mn	2.5x FY18 P/S

Source: Company announcements, CMBIS

Overseas expansion to bring synergies with domestic business

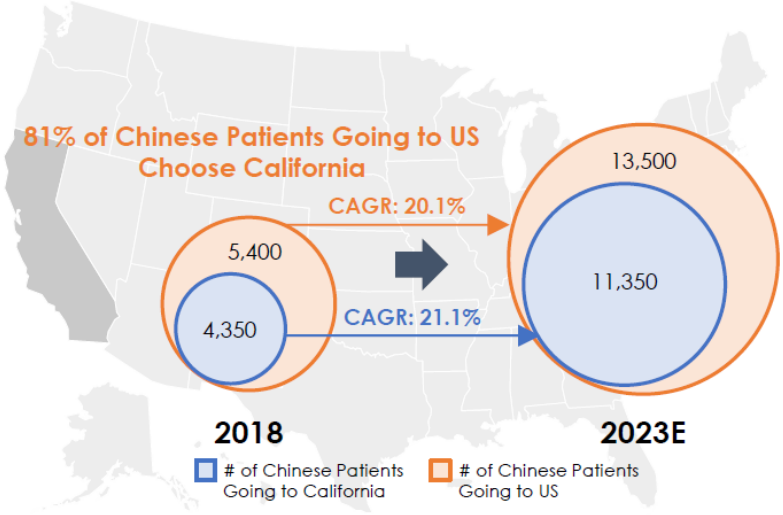
Increasing Chinese patients going overseas for ARS

Regulations on ARS in China is much stricter than in the US. In China, many activities are prohibited, such as surrogacy, gender test for non-medical purpose, using sperm provided by unauthorized human sperm bank, selling and purchasing of gamete, zygote or embryo, etc. By contrast, regulations in the US are much looser. Gender test is allowed in all states in the US, while surrogacy is allowed in three states, California, Illinois and Nevada. Besides, ART license is less regulated in the US and no specific license required for different types of ARS. PGD/PGS is widely adopted in the US. US ARS institutions have high success rate of over 60%, mainly because PGS/PGD is widely used.

As an increasing number of Chinese patients are seeking a wider range of service options such as surrogacy, and egg and sperm cryopreservation, a significant number of Chinese people are going overseas for ARS. US has become a popular destination due to a higher standard of services, wider range of service options, and more personalized and customized services.

In 2018, approximately 18,000 Chinese people went overseas for ARS, of which 30% went to the US. 81% of Chinese patients going to US choose California as their destination because, in California, 1) surrogacy is legal and regulated; 2) there are more ARS clinics in California than any other states in the US, along with approximately 230 reproductive endocrinologists out of 1,500 nationwide, providing patients with access to a broad range of services, such as surrogacy, egg and sperm cryopreservation, PGD/PGS; 3) the weather conditions and geographical location are favorable. F&S forecasts that the number of Chinese patients going to US will increase significantly from 5,400 in 2018 to 13,500 in 2023E.

Figure 45: Outbound Chinese patients drive significant growth

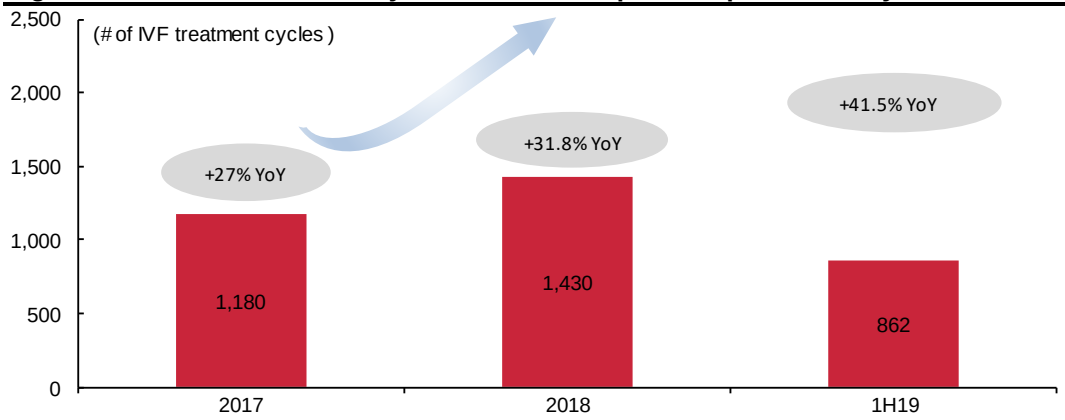


Source: Company data, CMBIS

Jinxin's networks covered both China and the US, where the two regions have different regulations on ARS and could provide diversified services to meet demands of China and US patients. We see significant synergies between Jinxin's China and US business. In

1H19, HRC Medical has performed 862 IVF treatment cycles for Chinese patients, up 41.5% YoY.

Figure 46: # of IVF treatment cycles for Chinese patients performed by HRC Medical



Source: Company data, CMBIS

Southeast Asian countries have become popular due to the relatively low service cost. Thailand was one of top ARS medical tourism destinations for Chinese patients. However, from 2015, Thailand government has banned commercial donor gametes and surrogacy. Laos, where surrogacy is allowed, could become an emerging region to meet Chinese patients' ARS medical tourism demand.

Figure 47: Comparison of ARS industry in different regions

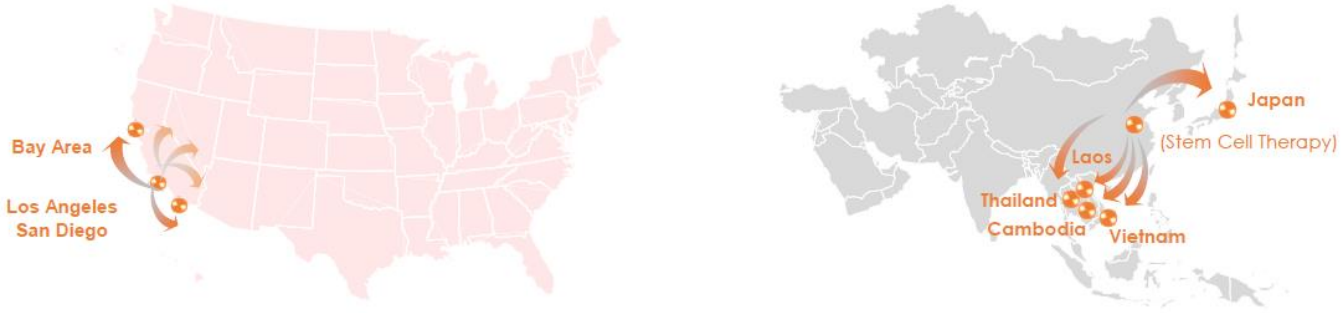
	PRC	Hong Kong (China)	US	Thailand
Popular technology	IVF-ET, IVF-ICSI	IVF-ET, IVF-ICSI, PGS/PGD	IVF-ET, IVF-ICSI, PGS/PGD	IVF-ET, IVF-ICSI, PGS/PGD
Gender test for non-medical purpose	Not allowed	Not allowed	Not allowed	Not allowed
Surrogacy	Not allowed	Not allowed	Allowed in certain states	Not allowed for foreigners
Clinical pregnant rate	45%	>60%	>60%	50-60%
IVF treatment cost	RMB30,000 - 50,000	RMB120,000-200,000	US$20,000-33,000 for IVF treatment; Additional US$100,000 for surrogacy	RMB100,000-150,000
# of IVF cycles performed	684,000 in 2018	14,133 in 2018	284,385 in 2017	30,863 in 2016
# of ARS institutions	498	28	448	75

Source: NHFPC, HK Council on Human Reproductive Technology, CDC, Global Reproductive Health, CMBIS

We expect Jinxin to expand its footprint to Southeast Asia regions to cater the emerging demand of both Chinese patients and Southeast Asian patients. Given the favorable regulatory environment and convenient location of Laos, we think Jinxin may choose to acquire ARS medical institutions in Laos to meet the sophisticated medical demand of Chinese patients.

In the US, Jinxin intends to further expand the footprint through acquiring fertility clinics in California, particularly in the Bay Area, Los Angeles, and San Diego, which are preferred medical tourism destinations for Chinese patients.

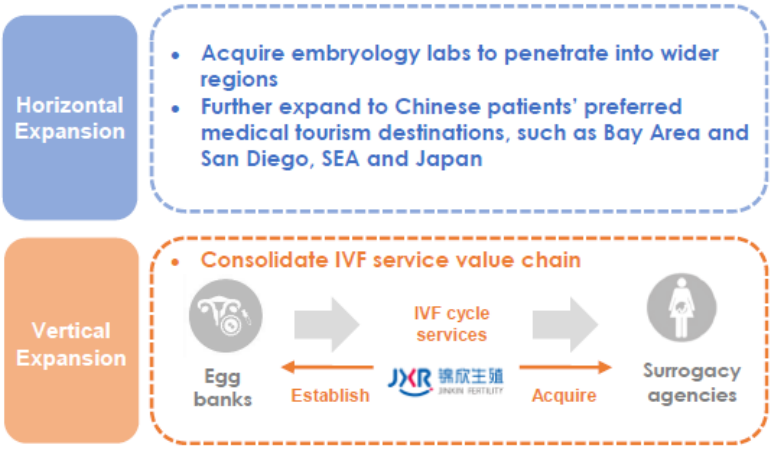
Figure 48: Jinxin's global expansion outlook



Source: Company data, CMBIS

In addition, Jinxin plans to extend its services in the US along the ARS value chain, for example, by acquiring established surrogacy and egg donor agencies, particularly those which are located in the Greater Los Angeles area, and establishing egg banks, all of which would complement and strengthen HRC Fertility's core IVF services by offering one-stop-shop services to attract more potential patients. Jinxin also plans to set up or acquire embryology laboratories that provide standardized services which can help expand the Company's service offering and capabilities into wider geographical regions, attract qualified physicians to join the Company, and further enhance efficiency.

Figure 49: Jinxin to further strengthen the US business



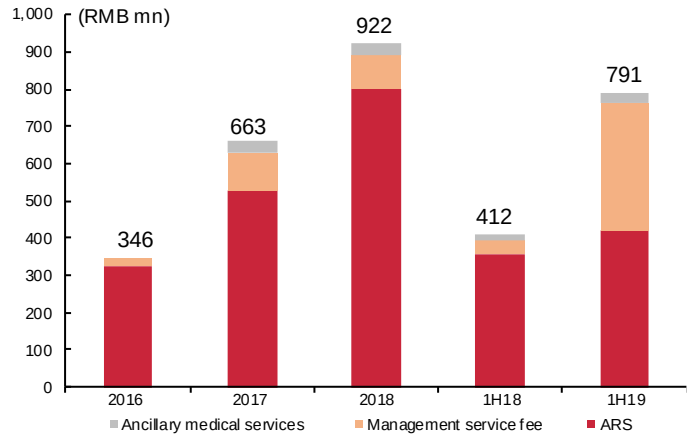
Source: Company data, CMBIS

Financial Analysis

Strong earnings growth track record

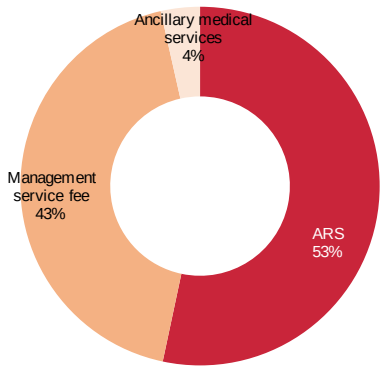
Jinxin recorded 63% revenue CAGR in FY16-18A, mainly driven by strong growth of IVF treatment cycles performed by Chengdu Xian Hospital and Shenzhen Zhongshan Hospital. In 1H19, the Company's revenue grew 92% YoY and net profit increased 65% YoY thanks to 23% YoY organic revenue growth and the consolidation of HRC Management from Jan 2019.

Figure 50: Jinxin delivered solid revenue growth



Source: Company data, CMBIS

Figure 51: 1H19 revenue breakdown



Source: Company data, CMBIS

Future growth driven by capacity expansion, innovation in online marketing and potential acquisitions

Jinxin is actively expanding capacity of existing network hospitals. In Feb 2019, Chengdu Xinan Hospital relocated its operations to the New Hospital Building, which is a modern highrise building well-equipped with an extensive IVF lab, gym facilities, increased parking spaces and seven times larger than its previous location with a total gross floor area of 42,659 sqm.

Most importantly, Chengdu Xinan Hospital has completed the renovation of the VIP area in the New Hospital Building in Nov 2019, which significantly enhances the hospital's capacity to serve VIP patients. ASP from VIP patients is about 85% higher than that of common patients (RMB65,000 vs RMB35,000). Hence, with increasing income from VIP patients from 2020E, we expect accelerated revenue and ASP growth from Chengdu Xinan Hospital.

Further, towards the end of Jun 2019, renovations were completed to significantly enlarge the outpatient area of Jinjiang IVF Center from approximately 300 sqm to 1,674 sqm.

In the US, Jinxin plans to expand capacity at Pasadena by relocating to a new location in 1H20, which will double its existing capacity at Pasadena. The Company also plans to recruit additional physicians in the US to solve the bottleneck in physicians capacity.

Jinxin has actively utilize social medial tools and online platforms to improve the brand awareness and attract new patients. Jinxin has cooperated with Dayima and Haoyunbang, two leading online platforms, for brand promotion.

Figure 52: Jinxin cooperates with online platform for brand promotion

Source: Company data, CMBIS

Expect revenue/ adjusted net profit to grow at 36%/54% CAGR in FY18-21E

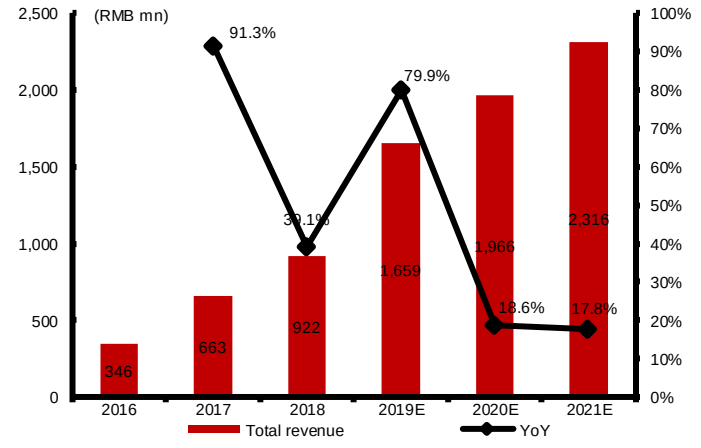
We conservatively didn't figure in potential contribution from acquisitions. We expect Jinxin's revenue to grow at 36% CAGR in FY18-21E, thanks to 18%/ 119%/ 27% CAGR in ARS services/ management services/ ancillary medical services. We think the solid organic growth will be driven by 1) capacity expansion and facility upgrade in Chengdu Xinan Hospital, Shenzhen Zhongshan Hospital and HRC Medical, 2) ASP increase thanks to quality services and higher income from VIP patients.

Figure 53: Revenue forecasts for Jinxin

(RMB mn)	2016	2017	2018	2019E	2020E	2021E
ARS revenue	**322**	**529**	**801**	**874**	**1,079**	**1,315**
YoY		*63.9%*	*51.6%*	*9.1%*	*23.5%*	*21.8%*
Xinan Hospital Group	322	322	539	557	697	857
YoY		*0.0%*	*67.2%*	*3.4%*	*25.1%*	*23.0%*
Shenzhen Zhongshan Hospital	0	206	262	317	382	458
YoY		*0.0%*	*27.2%*	*20.8%*	*20.8%*	*19.7%*
Management services	**24**	**101**	**90**	**726**	**826**	**938**
YoY		*319.8%*	*-11.0%*	*709.3%*	*13.8%*	*13.6%*
Jinjiang IVF Center and Jinxin Fertility Center	24	101	90	123	142	162
YoY		*320%*	*-11%*	*37%*	*16%*	*14%*
HRC Medical	0	0	0	604	685	776
YoY					*13.4%*	*13.4%*
Ancillary medical services	**0**	**33**	**31**	**59**	**61**	**63**
YoY		*0.0%*	*-7.4%*	*88.9%*	*4.1%*	*4.1%*
Shenzhen Zhongshan Hospital	0	33	31	33	34	36
HRC Management	0	0	0	26	27	28
Total revenue	**346**	**663**	**922**	**1,659**	**1,966**	**2,316**
YoY		*91.3%*	*39.1%*	*79.9%*	*18.6%*	*17.8%*

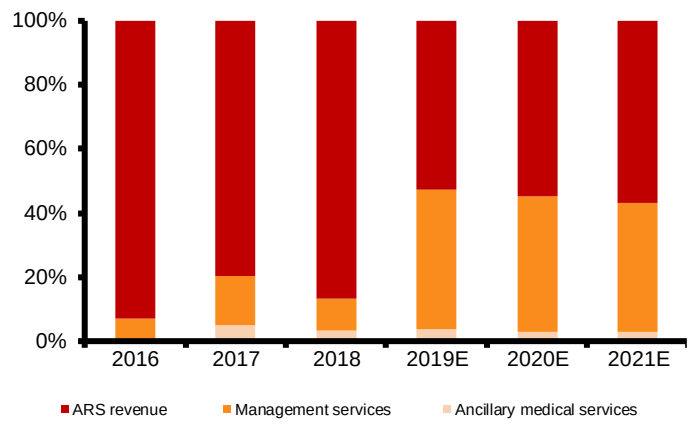
Source: Company data, CMBIS estimates

Figure 54: Revenue growth trend (FY17A-21E)



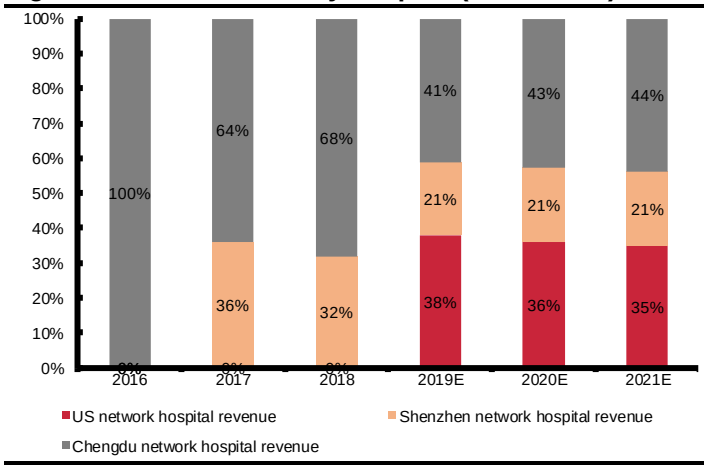
Source: Company data, CMBIS estimates

Figure 55: Revenue mix by services (FY17A-21E)



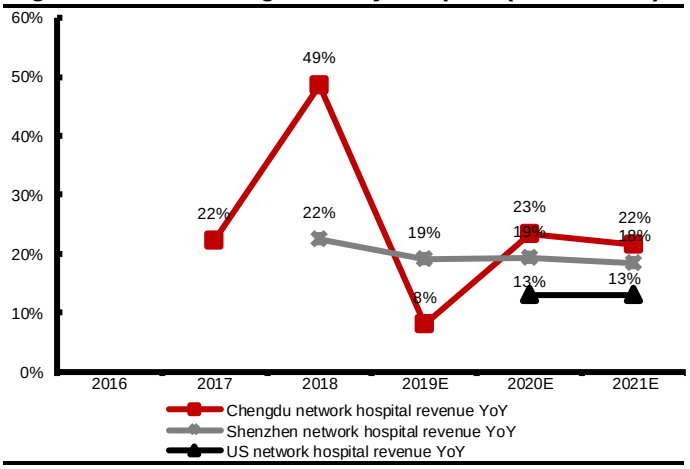
Source: Company data, CMBIS estimates

Figure 56: Revenue mix by hospital (FY17A-21E)



Source: Company data, CMBIS estimates

Figure 57: Revenue growth by hospital (FY17A-21E)



Source: Company data, CMBIS estimates

We expect Jinxin's blended GPM to gradually improve from 44.8% in 2018 to 51.5% in 2021E thanks to 1) significant operating leverage from existing network hospitals, and 2) consolidation of HRC Management since Jan 2019.

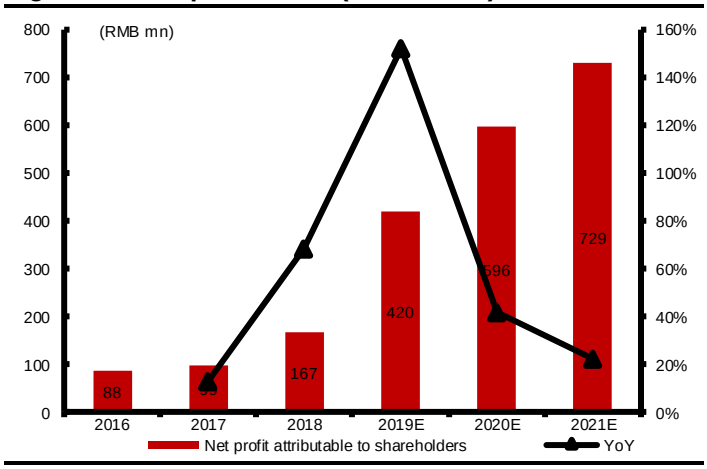
We forecast Jinxin's attributable net profit to increase 152%/41%/22% YoY in FY19/20/21E while adjusted attributable net profit (adding back listing expenses, share incentive expenses, etc.) to grow by 153%/20%/21% YoY in FY19/20/21E.

Figure 58: P&L forecasts

(RMB mn)	2016	2017	2018	2019E	2020E	2021E
Revenue	**346**	**663**	**922**	**1,659**	**1,966**	**2,316**
YoY		*91.3%*	*39.1%*	*79.9%*	*18.6%*	*17.8%*
Cost of services	-214	-361	-509	-854	-983	-1,123
% of revenue	*-61.7%*	*-54.4%*	*-55.2%*	*-51.5%*	*-50.0%*	*-48.5%*
Gross profit	**133**	**302**	**413**	**804**	**983**	**1,193**
GPM	*38.3%*	*45.6%*	*44.8%*	*48.5%*	*50.0%*	*51.5%*
Other income & losses	21	11	21	49	88	102
% of revenue	*5.9%*	*1.7%*	*2.3%*	*2.9%*	*4.5%*	*4.4%*
Other expenses	0	-1	-4	8	0	0
% of revenue	*0.0%*	*-0.1%*	*-0.5%*	*0.5%*	*0.0%*	*0.0%*
R&D expenses	0	-10	-12	-12	-12	-14
% of revenue	*0%*	*-2%*	*-1%*	*-1%*	*-1%*	*-1%*
Administrative expenses	-27	-61	-103	-182	-208	-243
% of revenue	*-7.7%*	*-9.1%*	*-11.2%*	*-11.0%*	*-10.6%*	*-10.5%*
Listing expenses	0	0	-38	-65	0	0
% of revenue	*0.0%*	*0.0%*	*-4.1%*	*-3.9%*	*0.0%*	*0.0%*
Finance cost	-17	0	0	-8	-8	-8
% of revenue	*-5.0%*	*0.0%*	*0.0%*	*-0.5%*	*-0.4%*	*-0.3%*
Profit before tax	**109**	**242**	**277**	**594**	**843**	**1,030**
PBT	*31.6%*	*36.5%*	*30.0%*	*35.8%*	*42.9%*	*44.5%*
Income tax expense	-6	-43	-64	-154	-219	-268
% tax rate	*5.2%*	*17.8%*	*23.3%*	*26.0%*	*26.0%*	*26.0%*
Total net profit	104	199	212	440	624	762
Minority Interests	*-16*	*-100*	*-46*	*-19*	*-27*	*-33*
Net profit attributable to shareholders	**88**	**99**	**167**	**420**	**596**	**729**
NMP	*25.3%*	*14.9%*	*18.1%*	*25.3%*	*30.3%*	*31.5%*
YoY		*12.8%*	*68.7%*	*152.4%*	*41.8%*	*22.2%*
Adjusted net profit attributable to shareholders	**88**	**99**	**205**	**518**	**621**	**754**
Adjusted NMP	*25.3%*	*14.9%*	*22.2%*	*31.2%*	*31.6%*	*32.5%*
YoY		*12.8%*	*107.3%*	*153.0%*	*20.0%*	*21.3%*

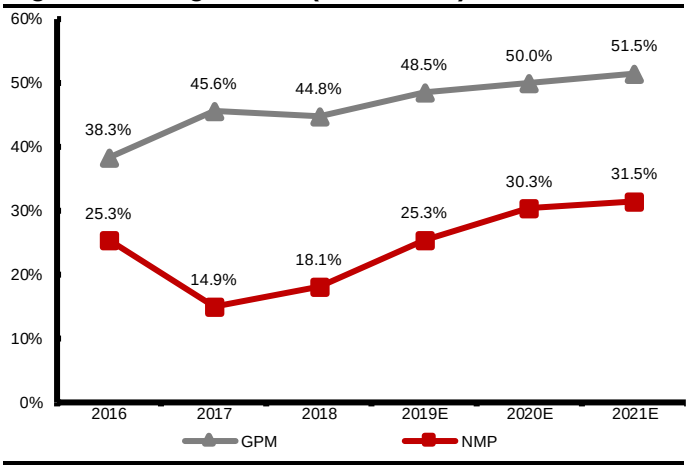
Source: Company data, CMBIS estimates

Figure 59: Net profit trend (FY17A-21E)



Source: Company data, CMBIS estimates

Figure 60: Margin trend (FY17A-21E)



Source: Company data, CMBIS estimates

Strong operating cash flows

Jinxin has enjoyed very strong cash flows with negative cash conversion cycle in past years. In 2018, Jinxin has 4 days of receivable days, 12 days of inventory days and 103 days of payable days. It was because the Company had strong bargaining power to suppliers while it also requested direct cash payments from patients.

Jinxin recorded strong operating cash flow of RMB109mn/48mn/356mn in FY16A/17A/18A, vs. corresponding attributable net profit of RMB88mn/99mn/167mn during the same period. We expect Jinxin to consistently generate strong operating cash flows, forecasting operating cash flows of RMB500mn/708mn/841mn in FY19E/20E/21E.

Valuation

Intiate at BUY with TP HK$15.0 (33% upside)

Given the strong cash flow of Jinxin's business, we believe DCF model is a reasonable method to value the Company. We derive our 12m TP of HK$ 15.0 with a terminal growth rate of 4% and WACC of 9.5%. Our TP represents 55x/45x FY20E/21E P/E.

Figure 61: DCF model for Jinxin

DCF Valuation (Rmb mn)		2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E
EBIT		767	940	1,145	1,375	1,643	1,955	2,316	2,733
Tax rate		26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%	26.0%
EBIT*(1-tax rate)		568	695	848	1,017	1,216	1,447	1,714	2,023
+ D&A		118	123	128	154	184	218	259	305
- Change in working capital		50	54	58	70	84	99	118	139
- Capx		(100)	(80)	(80)	(80)	(80)	(80)	(80)	(80)
FCFF		**636**	**792**	**954**	**1,161**	**1,403**	**1,684**	**2,011**	**2,387**
Terminal value									**45,057**
Terminal growth rate	**4.0%**								
WACC	**9.5%**								
Cost of Equity	12.0%								
Cost of Debt	5.0%								
Equity Beta	0.9								
Risk Free Rate	3.0%								
Market Risk Premium	10.0%								
Target Debt to Asset ratio	30.0%								
Effective Corporate Tax Rate	26.0%								
Terminal value	21,784								
Total PV	28,644								
Net debt	(4,310)								
Minority interest	183								
Equity value	32,771								
# of shares (mn)	2,434								
Price per share (in Rmb)	13.46								
Price per share (in HK$)	**15.0**								

Source: Company data, CMBIS estimates

Figure 62: Sensitivity analysis (HK$)

	WACC				
Beta	3.0%	3.5%	4.0%	4.5%	5.0%
0.80	15.0	16.0	17.2	18.6	20.5
0.85	14.1	15.0	16.0	17.2	18.8
0.90	13.4	14.1	**15.0**	16.1	17.3
0.95	12.7	13.4	14.1	15.0	16.1
1.00	12.1	12.7	13.3	14.1	15.1

Source: Company data, CMBIS estimates

Figure 63: Peers' valuation

Company	Ticker	Mkt cap US$ mn	PER(x) FY19	PER(x) FY20	PBR(x) FY19	PBR(x) FY20	EV/EBITDA (x) FY19	EV/EBITDA (x) FY20	ROE(%) FY19	ROE(%) FY20
H share										
JINXIN FERTILITY	1951 HK	3,529	58.5	41.2	3.2	3.0	31.6	22.9	7.0	7.6
CR Medical	1515 HK	760	12.5	11.4	0.9	0.8	7.0	5.9	6.6	6.8
C-MER EYE	3309 HK	663	54.4	40.8	N/A	N/A	N/A	N/A	10.0	13.0
UMH	2138 HK	660	14.4	12.1	N/A	5.0	N/A	7.7	33.6	35.4
		Average	**35.0**	**26.4**	**2.1**	**2.9**	**19.3**	**12.2**	**14.3**	**15.7**
A share										
AIER EYE HOSPITAL	300015 CH	18,676	94.7	71.4	18.5	14.8	52.6	40.3	20.1	22.3
TOPCHOICE MEDICAL	600763 CH	4,732	69.5	54.8	18.5	14.1	46.0	35.3	27.5	26.9
INTERNATIONAL MEDICAL	000516 CH	1,457	113.8	42.7	N/A	N/A	N/A	N/A	0.6	2.1
		Average	**92.7**	**56.3**	**18.5**	**14.5**	**49.3**	**37.8**	**16.1**	**17.1**
Southeast Asian hospitals										
BANGKOK DUSIT MD	BDMS TB	13,398	37.1	36.4	4.9	4.7	23.5	21.7	17.5	13.1
IHH HEALTHCARE B	IHH MK	12,024	53.8	43.1	2.0	2.0	18.5	16.5	3.9	4.7
BUMRUNGRAD HOSPI	BH TB	3,398	26.6	26.5	5.0	4.6	16.0	15.5	19.6	18.7
APOLLO HOSPITALS	APHS IN	2,913	77.7	58.3	5.8	5.9	23.3	16.5	8.1	10.2
FORTIS HEALTHCAR	FORH IN	1,460	N/A	54.8	1.5	1.6	29.6	17.1	2.9	3.0
RAFFLES MEDICAL	RFMD SP	1,354	31.3	30.3	2.2	2.1	19.3	18.2	7.4	7.4
KPJ HEALTHCARE	KPJ MK	996	23.2	21.1	2.1	2.0	10.7	10.0	9.2	9.7
CHULARAT HOSPITA	CHG TB	909	39.4	34.5	7.2	6.5	23.7	20.7	19.1	20.0
		Average	**41.3**	**38.1**	**3.9**	**3.7**	**20.6**	**17.0**	**11.0**	**10.8**
US hospitals										
HCA HEALTHCARE I	HCA US	50,002	14.0	12.7	N/A	N/A	8.8	8.2	-91.0	-193.8
UNIVERSAL HLTH-B	UHS US	12,641	14.7	13.4	2.3	2.1	9.2	8.8	15.8	16.1
TENET HEALTHCARE	THC US	3,768	13.6	12.1	N/A	78.7	7.6	7.2	-153.5	-109.9
		Average	**14.1**	**12.7**	**2.3**	**40.4**	**8.5**	**8.1**	**-76.2**	**-95.9**

Source: Bloomberg, CMBIS estimates (As at 13 Jan 2020)

Financial Summary

Income statement

YE 31 Dec (RMB mn)	FY17A	FY18A	FY19E	FY20E	FY21E
Revenue	**663**	**922**	**1,659**	**1,966**	**2,316**
ARS	529	801	874	1,079	1,315
Management service fee	101	90	726	826	938
Ancillary medical services	33	31	59	61	63
Cost of sales	(361)	(509)	(854)	(983)	(1,123)
Gross profit	**302**	**413**	**804**	**983**	**1,193**
Other income	12	22	56	88	102
Other expenses	(1)	(4)	8	0	0
Other losses	(1)	(1)	(8)	0	0
R&D expenses	(10)	(12)	(12)	(12)	(14)
Administrative expenses	(61)	(103)	(182)	(208)	(243)
Listing expenses	0	(38)	(65)	0	0
Finance cost	0	0	(8)	(8)	(8)
Profit before tax	**242**	**277**	**594**	**843**	**1,030**
Income tax expense	(43)	(64)	(154)	(219)	(268)
Total net profit	**199**	**212**	**440**	**624**	**762**
Minority Interests	(100)	(46)	(19)	(27)	(33)
Attributable net profit	**99**	**167**	**420**	**596**	**729**

Cash flow summary

YE 31 Dec (RMB mn)	FY17A	FY18A	FY19E	FY20E	FY21E
Profit before tax	**242**	**277**	**594**	**843**	**1,030**
Depreciation	23	29	70	75	80
Change in working capital	(208)	82	(1)	50	54
Others	12	4	(9)	(41)	(55)
Tax paid	(22)	(35)	(154)	(219)	(268)
Operating cash flow	**48**	**356**	**500**	**708**	**841**
Capex	(32)	(21)	(800)	(100)	(80)
Acquisition of subsidiaries	0	0	0	0	0
Other investing activities	(220)	(367)	(48)	84	98
Investing cash flow	**(252)**	**(388)**	**(848)**	**(16)**	**18**
Net proceeds from shares issued	0	1,129	2,951	0	0
Bank borrowing	0	0	0	0	0
Advance from related parties	0	104	0	0	0
Other financing activities	463	(466)	(144)	0	(119)
Financing cash flow	**463**	**767**	**2,807**	**0**	**(119)**
Net change in cash	259	736	2,459	692	740
Cash at the beginning	191	449	1,184	3,643	4,335
Cash at the end	**449**	**1,184**	**3,643**	**4,335**	**5,074**

Balance sheet

YE 31 Dec (RMB mn)	FY17A	FY18A	FY19E	FY20E	FY21E
Non-current assets	**1,203**	**5,123**	**5,860**	**5,842**	**5,799**
Plant and equipment	119	138	868	893	893
Goodwill	197	802	802	802	802
License	414	401	388	375	362
Contractual right to provide management services	0	1,939	1,939	1,939	1,939
Trademarks	247	1,292	1,292	1,292	1,292
Others	226	550	570	540	510
Current assets	**535**	**1,436**	**3,898**	**4,607**	**5,366**
Inventories	19	17	30	34	39
Accounts and other receivables	67	77	68	81	95
Amounts due from related parties	0	71	21	21	21
Bank balances and cash	449	1,184	3,643	4,335	5,074
Others	**0**	**87**	**137**	**137**	**137**
Current liabilities	**204**	**1,377**	**1,330**	**1,398**	**1,471**
Accounts and other payables	164	391	445	512	585
Capital contribution deposits	0	0	0	0	0
Amounts due to related parties	4	917	817	817	817
Tax payables	36	69	69	69	69
Non-current liabilities	**172**	**682**	**842**	**842**	**842**
Deferred rent	0	5	5	5	5
Deferred tax liabilities	172	677	677	677	677
Total net assets	**1,362**	**4,500**	**7,586**	**8,210**	**8,853**
Minority interest	**434**	**137**	**156**	**183**	**217**
Shareholders' equity	**928**	**4,363**	**7,430**	**8,027**	**8,636**

Key ratios

YE 31 Dec	FY17A	FY18A	FY19E	FY20E	FY21E
Sales mix (%)					
ARS	79.7	86.9	52.7	54.9	56.8
Management service fee	15.2	9.7	43.8	42.0	40.5
Ancillary medical services	5.1	3.4	3.5	3.1	2.7
Total	100	100	100	100	100
Profit & loss ratios (%)					
Gross margin	46	45	49	50	52
EBITDA margin	42	34	40	45	46
Pre-tax margin	36	30	36	43	44
Net margin	15	18	25	30	31
Effective tax rate	18	23	26	26	26
Balance sheet ratios					
Current ratio (x)	3	1	3	3	4
Trade receivables days	19	28	15	15	15
Trade payables days	115	199	190	190	190
Net debt to total equity ratio (%)	Net cash	Net cash	Net cash	Net cash	Net cash
Returns (%)					
ROE	7.3	3.7	7.0	7.6	8.5
ROA	5.7	2.5	5.2	5.9	6.7
Per share value					
EPS (RMB)	N/A	N/A	0.17	0.24	0.30
DPS (RMB)	N/A	N/A	0.00	0.05	0.06
BVP (RMB)	N/A	N/A	3.12	3.37	3.64

Source: Company data, CMBIS estimates

Risks

Slower-than-expected organic earnings growth

Given the growing demand for ARS in China and worldwide, Jinxin's network hospitals should deliver solid income growth.

Failure to acquire quality ARS medical institutions in China or overseas

Jinxin plans to aggressively expand business network in both China, US and Southeast Asia regions. If the Company fails to acquire quality assets within the next 1-2 years, it may have negative impact to the long-term sustainable growth in the Company's business.

Appendix 1: Company profile

Figure 64: Key milestones

Year	Event
Jan 2003	Jinjiang IVF Center was approved by Sichuan Provincial Health Department to provide AIH treatment
Jul 2006	Jinjiang IVF Center was granted license to provide conventional IVF-ET and IVF with ICSI treatment
Mar 2010	Prior Chengdu Xinan Hospital was established
Oct 2015	Prior Chengdu Xinan Hospital obtained the ISO9001:2008 certificate, signifying its management quality meets with stringent international standards
May 2016	Commenced offering VIP fertility treatment services
Sep 2016	Commenced operations of Chengdu Xinan Hospital
Sep 2016	Commenced the IVF Specialty Collaboration Agreements with Jinjiang District Maternity and Child Health Hospital in relation to the joint management of those medical facilities
Jan 2017	Acquired Shenzhen Zhongshan Hospital
Jul 2017	HRC Management began to manage HRC Medical through the MSA
Aug 2017	Warburg Pincus LLC invested in the Company
Jun 2018	Ever Excelling invested in the Company as a pre-IPO investor
Jul 2018	LionRock Capital invested in the Company as a pre-IPO investor
Aug 2018	CNCB Investment, Sequoia Capital China, Southern Creation and WuXi AppTec invested the Company as pre-IPO investors
Dec 2018	Acquired HRC Management which manages HRC Medical through the MSA
Feb 2019	Relocated the operations at Chengdu Xinan Hospital to the New Hospital Building
May 2019	Acquired Chengdu Jinyi which owns the New Hospital Building and the Carpark Facilities

Source: Company data, CMBIS

Figure 65: Directors and senior managements

Name	Age	Date of joining	Current position	Roles and Responsibilities
Director				
Mr. Wang Bin (王彬)	55	Jun 2017	Chairman and non-executive Director	Responsible for developing corporate strategies and development planning
Mr. Zhong Ying (钟影)	62	Mar 2010	Executive Director and CEO	Responsible for the overall management of the business and the development of medical business
Ms. Yan Xiaoqing (严晓晴)	50	Mar 2010	Executive Director and senior vice president	Responsible for the overall management and overseeing operations and internal audit
Dr. John G. Wilcox	57	Dec 2018	Executive Director	Responsible for the management of clinical operations and business development in North America
Senior management				
Mr. Zhong Yong (钟勇)	48	Jun 2017	Co-chief executive officer	Responsible for the overall management of daily operations and implementing mergers and acquisitions
Ms. You Fei (由飞)	41	8 Oct 2018	Chief financial officer	Responsible for the financial management and its member companies, financing activities and investor relations management
Dr. Chi Ling (池玲)	65	Jun 2018	Chief science officer	Responsible for the overall coordination, standardization, quality control, quality insurance, and technical improvement of IVF clinical laboratories, and the development of clinical embryologist training center
Mr. Zeng Yong (曾勇)	54	May 2017	Senior vice president	Responsible for medical research and development and management of Shenzhen Zhongshan Hospital
Ms. Zhang Jing (张婧)	38	Sep 2018	Vice president	Responsible for implementing international development strategies and international mergers and acquisitions, and the management of HRC Management
Ms. Liu Jing (刘敬)	51	Mar 2010	Vice president	Responsible for the medical quality control and management of Chengdu Xinan Hospital
Ms. Zhu Yujuan (朱玉鹃)	40	Mar 2010	Vice president	Responsible for managing the daily affairs of medical business
Ms. Deng Meixi (邓梅希)	48	Jan 2019	Chief compliance officer	Responsible for overseeing all compliance matters within the Group

Source: Company data, CMBIS

Appendix 2: Overview of private ARS hospitals in China

Figure 66: Overview of private ARS hospitals in China by end-2018

Province/ municipality	Population (mn)	# of total ARS institutions	# of private hospitals	Private hospital	Chinese name	Location	License
Guangdong	113	56	10	Zhongshan Boai Hospital	中山市博爱医院	Zhongshan	AIH, IVF-ET, IVF-ICSI
				Shenzhen Zhongshan Hospital	深圳中山泌尿外科医院	Shenzhen	AIH, IVF-ET, IVF-ICSI
				Zhanjiang Jiuhe Hospital	湛江久和医院	Zhanjiang	AIH, IVF-ET, IVF-ICSI
				Donguan Guangji Hospital	东莞广济医院	Dongguan	AIH, IVF-ET, IVF-ICSI
				Jieyang Aiweiai Hospital	揭阳爱维艾夫医院	Jieyang	AIH, IVF-ET, IVF-ICSI
				Dongguan Kanghua Hospital	东莞康华医院	Dongguan	AIH, IVF-ET, IVF-ICSI
				Dongguan Donghua Hospital	东莞东华医院	Dongguan	AIH, IVF-ET, IVF-ICSI
				Zhaoqing Xijiang Hospital	肇庆西江医院	Zhaoqing	AIH, IVF-ET, IVF-ICSI
				Guangdong Armed Police Corps Hospital	武警广东省总队医院	Guangzhou	AIH, IVF-ET, IVF-ICSI
				Shenzhen Hengsheng Hospital	深圳恒生医院	Shenzhen	AIH, IVF-ET, IVF-ICSI
Jiangsu	80	32	0				
Hebei	76	31	2	Xingtai Infertile Hospital	邢台不孕不育专科医院	Xingtai	AIH, IVF-ET, IVF-ICSI
				Shenglujia Hospital	圣禄嘉妇产医院	Shijiazhuang	AIH
Shandong	100	30	0				
Henan	96	29	3	Luoyang Infertile Hospital	洛阳不孕不育症医院	Luoyang	AIH
				Zhengzhou Longhai Hospital	郑州陇海医院	Zhengzhou	AIH
				Henan Xinhe Hospital	河南信合医院	Xinyang	AIH
Zhejing	57	28	0				
Hubei	59	27	2	Wuhan Kangjian Women&Children Hospital	武汉康健妇婴医院	Wuhan	AIH, IVF-ET, IVF-ICSI
				Wuhan Huangpu Obsterics and Gynecology Hospital	武汉黄浦中西医结合妇产医院	Wuhan	AIH, IVF-ET, IVF-ICSI
Hunan	69	24	4	Zhongxin Xiangya Fertility Hospital	中信湘雅生殖与遗传专科医院	Changsha	AIH, AID, IVF-ET, IVF-ICSI, PGS/PGD
				Changshao Fertility Hospital	长沙生殖医学医院	Changsha	AIH, IVF-ET, IVF-ICSI
				Hengyang Nanhuaxing Fertility Hospital	衡阳南华星辉生殖健康专科医院	Hengyang	AIH, IVF-ET, IVF-ICSI
				Shaoyang Huien Fertility Hospital	邵阳汇恩生殖健康专科医院	Shaoyang	AIH, IVF-ET, IVF-ICSI
Guangxi	49	21	0				
Shanghai	24	19	3	Shanghai Jiai Hospital	上海集爱遗传与不育诊疗中心	Shanghai	AIH, AID, IVF-ET, IVF-ICSI, PGS/PGD
				Shanghai Yongyuanxing Women Hospital	上海永远幸妇科医院	Shanghai	AIH, IVF-ET, IVF-ICSI
				Shanghai International Medical Center	上海国际医学中心	Shanghai	AIH, IVF-ET, IVF-ICSI
Beijing	22	18	3	Beijing Jiaendeyun Hospital	北京家恩德运医院	Bejing	AIH, IVF-ET, IVF-ICSI
				Beijing Jiayuan Hospital	北京家圆医院	Bejing	AIH, IVF-ET, IVF-ICSI
				Beijing Baodao Hospital	北京宝岛妇产医院	Bejing	AIH, IVF-ET, IVF-ICSI
Jiangxi	46	18	1	Nanchang Kangjian Fertility Hospital	南昌康健生殖医院	Nanchang	AIH, IVF-ET, IVF-ICSI
Yunnan	48	17	6	Kunming Aiweiai Hospital	昆明爱维艾夫医院	Kunming	AIH, IVF-ET, IVF-ICSI
				Yunnan Jiuzhou Hospital	云南九洲医院	Kunming	AIH, IVF-ET, IVF-ICSI
				Ganmei International Hospital	甘美国际医院	Kunming	AIH, IVF-ET, IVF-ICSI
				Baoshan Anli Hospital	保山安利医院	Baoshan	AIH
				Kunming Angel Women & Children Hospital	昆明安琪儿妇产医院	Kunming	AIH, IVF-ET, IVF-ICSI
				Kunming Hewanjia Women & Children Hospital	昆明和万家妇产医院	Kunming	AIH, IVF-ET, IVF-ICSI
Liaoning	44	16	2	Shenyang Dongfangjinghua Hospital	沈阳东方菁华医院有限公司	Shenyang	AIH, AID, IVF-ET, IVF-ICSI
				Shenyang Jiuzhoujia Hospital	沈阳九州家圆医院	Shenyang	AIH, AID, IVF-ET, IVF-ICSI

Fujian	39	15	2	Xiamen Anbao Hospital	厦门安宝医院	Xiamen	AIH, IVF-ET, IVF-ICSI
				Putian Xueyuan Hospital	莆田学院附属医院	Futian	AIH, IVF-ET, IVF-ICSI
Shanxi	37	12	1	Jinzhong Women & Children Hospital	晋中婴泰妇产医院	Jinzhong	AIH, IVF-ET, IVF-ICSI
Sichuan	83	12	1	Chengdu Xinan Hospital	成都西囡妇科医院	Chengdu	AIH, AID, IVF-ET, IVF-ICSI
Tianjin	16	11	3	Tianjin UFH Hospital	天津和睦家医院	Tianjin	AIH, IVF-ET, IVF-ICSI
				Tianjin IVF Hospital	天津爱维医院	Tianjin	AIH, IVF-ET, IVF-ICSI
				Tianjin Amcare Hospital	天津美津宜和妇儿医院	Tianjin	AIH, IVF-ET, IVF-ICSI
Anhui	63	11	0				
Heilongjiang	38	10	1	Heilongjiang Tianyuan Maternity Hospital	黑龙江天元妇产医院	Harbin	AIH
Guizhou	36	10	0				
Chongqing	30	9	1	Chongqing Beibu Maternity Hospital	重庆北部妇产医院	Chongqing	AIH
Jilin	27	8	0				
Hainan	9	8	3	Hainan Hejing Fertility Hospital	海南和京生殖医院	Haikou	AIH, IVF-ET, IVF-ICSI
				Haikou Mary Hospital	海口玛丽医院	Haikou	AIH, IVF-ET, IVF-ICSI
				Hainan Modern Women & Children Hospital	海南现代妇女儿童医院	Haikou	AIH, IVF-ET, IVF-ICSI
Inner Mongolia	25	6	0				
Xinjiang	24	6	1	Xinjiang Jiayin Hospital	新疆佳音医院	Xinjiang	AIH, IVF-ET, IVF-ICSI, PGS/PGD
Shaanxi	38	5	0				
Gansui	26	4	0				
Qinghai	6	2	0				
Ningxia	7	2	0				
Xizang	3	1	1	Xizhang Fokind Hospital	西藏阜康医院妇产儿童分院	Xizang	AIH, AID, IVF-ET, IVF-ICSI

Source: National Health Commission, CMBIS

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