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Asia Primer

China Health Insurance: Crossing the Innovation Chasm

China's health insurance industry is rapidly developing. New products and service models are emerging, underpinned by changing regulation, rising demand and evolving technologies. In this report we explain the basics of health insurance, explore future development paths and identify distinct models.

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China's health insurance industry is rapidly developing. New products and service models are emerging, underpinned by changing regulation, rising demand and evolving technologies. In this report we explain the basics of health insurance, explore future development paths and identify distinct models.

Industry View

Hong Kong/China Insurance — In-Line

Democratization of private health insurance in China is well underway. The popularity of health insurance in China has increased since 2013 through critical illness (CI) products – first introduced by Ping An – that target affluent customers. Competition and innovation have helped produce numerous new products and distribution models offering more transparent and affordable pricing to a wider range of customers, e.g., China's mutual aid platforms have accumulated over 200mn customers. With short-term medical and long-term disease insurance sold by insurers, we estimate 15-30% of the population already has some form of commercial coverage. Unlike the U.S. market, China's commercial health insurance is supplementary to China's Rmb6.5trn healthcare system, with the majority of services provided by public hospitals and paid for by China's basic social insurance. Despite its smaller role, we expect the commercial health premium market will reach Rmb3trn by 2030, likely contributing 20% funding to China's total health care spending, per our top-down and bottom-up forecasts, by covering co-pays and addressing needs for income protection as well as broader and better services.

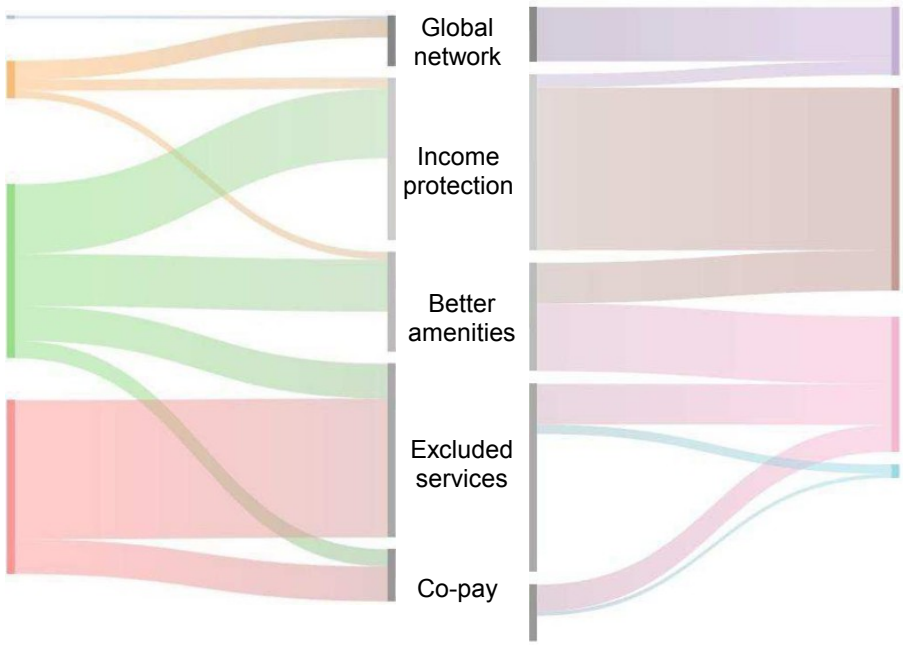
Determinants of health insurance models. The health insurance business is more complex than it seems, entangled with healthcare systems and influenced by technology, capital, the economy, and even cultural factors. We observe four critical new trends in this space that could reshape the health insurance market fundamentally: **1) The redesign of the healthcare system –** China has pushed for significant reforms in the past decade, which we discussed extensively in a previous report. We believe cost control policies will continue to take center-stage, and a more transparent and cost-efficient healthcare system could make previously unviable commercial payor models possible. **2) A low rate environment –** an indirect consequence of Covid-19 is a prolonged low rate environment globally; prevailing health insurance products in China all carry savings components and are highly sensitive to rates. A gradual shift to pure protection products is possible, as we have observed in many developed markets to minimize rate exposure. **3) A shift toward services –** Insurers are redefining their business focus, moving from being sales-oriented to service-oriented to increase customer satisfaction and expand revenue sources. Vertical integration with healthcare providers is taking place. **4) technology advancement** can affect health insurance business from all fronts, which we will explore in Part 3 of this healthcare and health insurance report series.

The winning formula for disruptive innovation. Next-generation payers and providers have attracted much attention from entrepreneurs and venture capital globally in recent years. However, disruptive innovation seems difficult in the short term because: 1) digital infrastructure is still lacking, and a state agenda is likely required to make meaningful progress, 2) a heavily regulated industry is less suitable for "trial and error" or "iterating quickly", and 3) the nature of social benefits could make commercialization less straightforward. Nevertheless, we are still able to identify several promising new models that could thrive: 1) high-end focused ecosystem pioneers that are able to offer differentiated customer experiences, including Ping An and Taikang; 2) mass market co-pay players with conspicuous cost advantages, such as ZhongAn; 3) financial inlcusive operators through a public private partnership (PPP) model or mutual aid platforms to address deficiencies in current public insurance plans such as PICC or China Re. We remind investors that these models are still in the early stages of development, but we believe some will cross the innovation chasm to become mainstream business cases, presenting opportunities.

Contents

China's health insurance - customer segmentation, addressable needs, and prevailing products

Segment (Pop. mn)	Income (US$, p.a.)	Addressable need	Product (ticket size Rmb)	Key provider
HNW (10mn)	>150K	Global network	Offshore medical / CI (70K)	HK insurers (AIA, PCA)
Affluent (147mn)	>30K	Income protection	Comprehensive CI (10K)	Domestic agency operators (Ping An, AIA China)
Middle (626mn)	>10K	Better amenities	Simplified CI (5K)	SME insurers through brokers (Fosun United, Sunlife)
			Mid-end medical (500)	Online operators (Zhong An, Taikang, Ping An)
Low income (681mn)	<10K	Excluded services	Financial inclusive products (50)	City government (opt-in access)
		Co-pay		



Source: Morgan Stanley Research

1. The Path to a US$500bn Market

China's health insurance market has been in existence for quite some time, but started as a small segment providing large corporates with group benefit plans, compared to life and savings markets. It was not until 2013 that the development of individual health insurance market accelerated, making health insurance products a new and important pillar for the entire insurance industry.

1.1 Private health insurance is spreading across wider customer segments

Disclosure has not been very good in this segment, but even high-level data show that sales of health insurance products are taking off in China – overall health gross written premium (GWP) has been rising at a CAGR of 36%, vs. 16% in the life and savings businesses, between 2013 and 2019. Short-term health products with lower price points have been growing at an even a faster pace of 178% annually, vs. 38% for more expensive long-term critical illness products, since 2015 (**Exhibit 1** and **Exhibit 2**). By the end of 2019, long-term health, short-term medical, and mutual aid platforms and similar financial inclusion programs covered 260mn, 520mn, and 200mn people in China (not mutually exclusive as people can own multiple policies and plans).

1.2 Product innovation has been the key driver...

(See **Appendix B – An Overview of Commercial Health Insurance Products** for an introductory overview.)

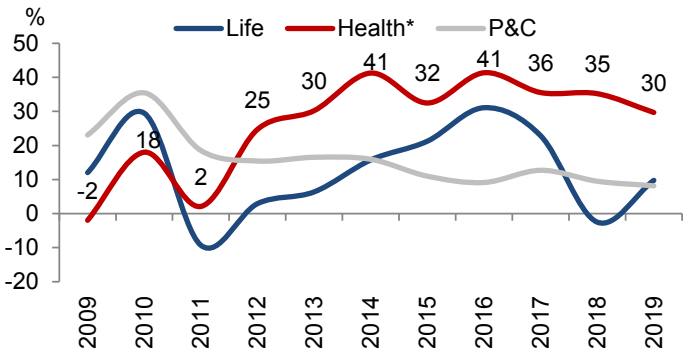
Since 2013 – boom in critical illness (CI) products. Prior to 2013, very few insurers focused on the health insurance segment and growth was driven mainly by the introduction of par savings into the Chinese market. A small employee benefit market has long existed, targeting large and foreign corporates, but the retail health insurance market was not yet developed in China back then. Ping An Life underwrote China's first CI product in 1994. These early products usually covered a few major diseases (including malignant tumors, cardiovascular disease, and stroke), but did not gain much attention until after regulators tightened disease definitions in 2007. Health insurance gained popularity after regulators allowed price cuts by loosening some of the pricing assumptions (such as interest rates) and launched the first CI incidence table in 2013 to help insurers better manage incidence risks. Most major listed insurers launched their long-running flagship CI products around that time, including AIA's All in One (2011), China Life Kang Ning (a repriced version regained popularity in 2013), and Ping An Fu (2013). A wave of new product innovation started within the health market after 2013: coverage expanded from 40 types of critical illnesses to over 100; more minor, non-life threatening conditions were added to coverage; one policy can make multiple claims, closely following features commonly offered in offshore markets (such as Hong Kong). Small and micro (SME) insurers also entered this protection market from 2018, leading the industry towards a different direction of simplifying contract terms and unbundling benefits. These efforts have improved product affordability and allowed insurers to promote CI products across a wider customer spectrum, including younger and less wealthy clients.

Since 2016 – mid-segment medical has taken center stage. China's first online insurer, ZhongAn, substantially disrupted the traditional agency-based health insurance market by launching the first mid-segment medical reimbursement products in 2016 – by paying only Rmb500 a year, customers can get medical coverage up to a few million yuan per annum. This new short-term medical product hit the market and became a huge success. By offering only one-year coverage and having high deductibles (Rmb10k), the product's premium rate was only 5-10% that of whole life critical illness policies and was viewed as a good entry-level product for the mass market and young customers. ZhongAn sold these policies to over 2mn customers in just three years. Traditional insurers began to offer similar products from 2017, but often as riders attached to their main CI products. Other key competitors in this segment include Ping An, PICC, and Taikang.

Since 2018 – financial inclusion offerings emerging. We have noticed that innovation has shifted toward the low-income segment in recent years with the rise of mutual aid platforms. Instead of buying insurance ahead of adverse events, people can finance their health spending from these online platforms after they are diagnosed with a critical illness with a small member fee of under Rmb50 per annum. Local governments have also been leading new initiatives in this segment - partnering with commercial operators to roll out low-cost, supplementary medical insurance products at the city level. The first such program was piloted by the Shenzhen government in 2015, and since the beginning of 2019, 20+ tier 1 and tier 2 cities have implemented similar programs. For only Rmb30 per person per year, residents can increase their overall reimbursement ratio by an additional 10% or more, with many excluded services covered by these voluntary schemes. These new city plans are particularly valuable for senior citizens or customers with pre-conditions who are often rejected by commercial insurers.

Exhibit 1:

Insurance premium growth by type

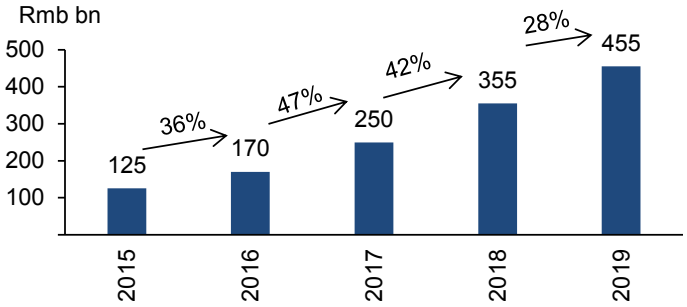


* Excluding short-term investment business written by Hexie Health during 2015-17.

Source: China Banking and Insurance Regulatory Commission (CBIRC), Morgan Stanley Research.

Exhibit 2:

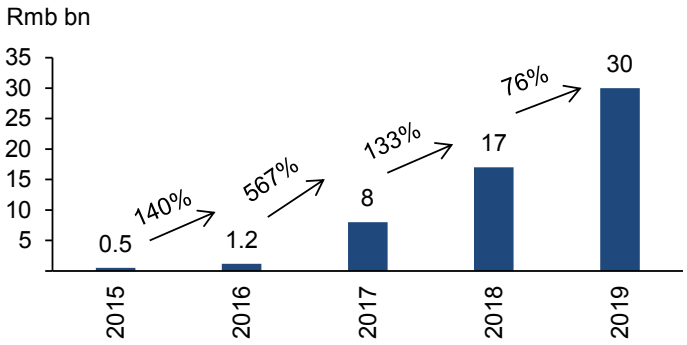
Critical illness (CI) GWP growth



Source: CBIRC, Morgan Stanley Research.

Exhibit 3:

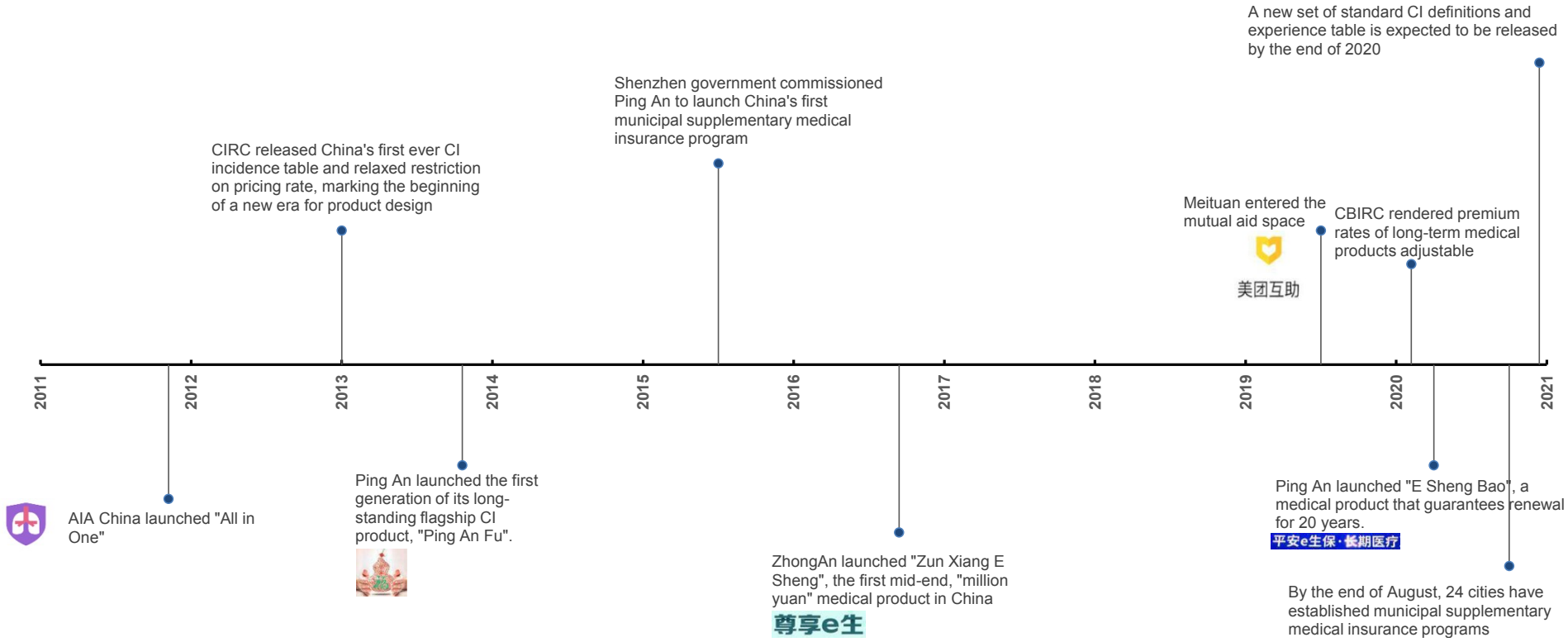
Mid-end medical premium growth



Source: China Re, Morgan Stanley Research.

Exhibit 4:

China's health insurance - a product launch time line



Source: CBIRC, company data, Morgan Stanley Research.

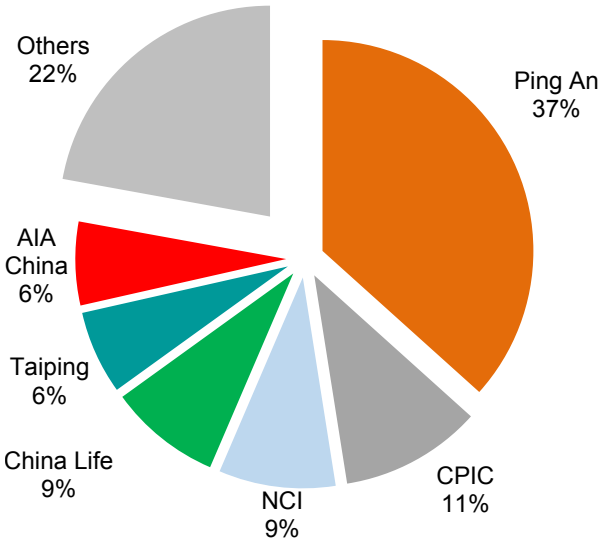
1.3 … also helped by channel diversification…

Group (before 2003) – Initially, when the retail health insurance market was not yet developed due to a shortage of pricing data and inability to implement cost controls with public hospital systems, health insurance was mainly distributed through group channels to large corporates to avoid anti-selection. However, this wholesale market was unprofitable and continues to suffer from a high combined ratio (CoR, over 100% the industry, per our industry channel checks) even today because of intense competition and a lack of incentives for health management or cost containment measures. China Life and PICC are the biggest players in this segment with 34% and 19% premium share, respectively.

Agency (from 2011) – The currently popular critical illness plans are retail market-focused products that are mainly distributed through the agency channel due to their larger ticket size, more complicated product design, and stricter underwriting process. We estimate Ping An, CPIC, and NCI are the top three players in this product segment with around 37%, 11%, and 9% market share, respectively, based on new sales. These are long-term products with both savings and protection features with manageable risks – insurers only take disease incident risks with a pre-defined fixed payout (no medical inflation risk), which tend to be quite stable if the client base is large enough. Clients can also enjoy substantial cash value build-ups over time with a guaranteed 3.5% return (unlike the Hong Kong market, CI plans cannot be designed as a par product in China).

Exhibit 5:

Agency channel CI first-year premium (FYP) market share - 2019



Source: Company data, Morgan Stanley Research.

Value of new business (VNB) margins and ROE can be over 100% and over 20%, respectively, for top-tier players as they can make a profit from both underwriting margins and investment spreads.

Online (from 2016) – This is the space where innovation has really thrived. Following ZhongAn's specially designed short-term health products for online sale (e.g., Personal Clinic Policy aka Zun Xiang E Sheng), many start-ups have been trying to sell even long-term CI products online (such as the newly-listed broker Huize). Strategies are similar in leveraging different sources of online traffic (e.g., search, payment, social media, mutual aid platforms) to do more targeted product marketing and promotion. Online live agents / telesales are typically involved to help customers analyze their demands and facilitate transaction of long-term CI products, and direct sales (self-servicing) have proven to be possible for simpler short-term products. Online mutual aid platforms have become the latest new force to join this competition. While they are not yet licensed health insurance operators, these platforms have been playing an important role to increase insurance awareness, cultivate new demands, and serve as a new channel for customer acquisition.

Brokers (from 2018) – When SME insurers joined the long-term protection market, most of them were facing cash flow pressures as a result of retrenching from Bancassurance savings. It takes time to build a sizable agency channel and most of them chose to work with existing brokers for critical illness product distribution. This has led to significant expansion of the independent life brokerage industry with large operators running national networks with over half a million agents. The economics for this channel are similar to that of the agency market, except for product pricing, which tends to be slightly lower to be competitive vs. incumbent players, but VNB and ROE are still much better than those of savings products, at 50-60% and 10-15%, respectively.

Government partnership (from 2019) – The ongoing reform of China's health care system has created new roles and opportunities for commercial insurers. On one hand, the central government loosened rules and regulations slightly over the use of social insurance funds, and now local governments are encouraged to introduce more commercial mechanisms in the social insurance plans to increase efficiency. Potential reforms of personal accounts under social insurance plans (with Rmb800bn surplus currently) could bring new business opportunities for commercial products. On the other hand, the new centralized drug procurement / price negotiation process implemented by National Healthcare Security Administration (NHSA) has excluded more pharmaceuticals from government reimbursement plans, forcing them to search for new payor models to fund their R&D and potential drug launches. Besides existing business models such as underwriting policy-backed CI plans or managing social insurance plans, the emerging business model is to work with city governments (wealthier cities are now welcome to offer additional benefits) to sell supplementary health insurance with a financial inclusion nature to cover co-pays or cancer drugs (most of the newest not yet covered by social insurance). The profit model differs from current commercial health insurance plans that make a margin on premiums. In this model, insurers try to get rebates from pharmaceuticals (via China's PBMs) by increasing new drug affordability for pharmaceuticals.

1.4 ...and strong government support

2003 – Emphasized protection nature of health insurance and banned participating features. The initial design of long-term critical illness products in China is, in fact, similar to other markets, wherein they also carried participating features. However, Chinese regulators were of the view that these designs could be misused by insurers to provide excessive savings benefits and dilute the product protection functions. To simplify product management and avoid unnecessary risks, since 2003 health insurance in China has been designed as a traditional policy (non-par).

2007 – Standardized CI definition. To help increase consumer confidence in products and bring industry-wide consistency to the claim assessment process, China introduced standardized definitions for 25 major diseases in 2007. Since then, the industry started to have clear and consistent descriptions of CI coverage and consumer complaints dropped substantially.

2012 – Government-backed CI plans. Government launched a new critical illness scheme in August 2012 to further reduce out-of-pocket spending on large medical expenses. Local governments purchase coverage from commercial insurers to reimburse co-pays above certain levels (e.g., Rmb30K in Beijing in 2020). Premiums are mostly subsidized by local governments and paid out of basic social health insurance funds (GWP of Rmb71bn in 2019).

2013 – First CI incidence rate table. The insurance regulator conducted its first experience study on CI incident rates by using data from 2006 to 2010 and launched China's own CI experience table for 25 diseases, ending a period of relying on foreign reinsurers' data to do pricing. This has helped develop CI markets as local insurers can now price products and make reserves more accurately and consistently.

2013 - Pricing rate relaxation. The pricing interest rate was tightly regulated in China and capped at only 2.5% prior to 2013. This was the biggest sales hurdle for long-term CI products as the premium rate was too high. After lifting the pricing rate by 100bps to 3.5%, the product looks more attractive to customers from both protection and savings perspectives and has gradually become a mainstream product in China's market.

2014 - State Council issued opinions on promoting the development of commercial health insurance. The document encouraged commercial operators to increase product supply, expand coverage, and focus on innovative solutions. It also called for supports from various levels of governments / administrations to expedite the sector's development. This marked the first time that health insurance was in the spotlight at the highest level.

2016 – Tax-exempt health insurance products. China piloted a scheme to provide tax incentives from 2016 to stimulate demand for private health insurance. The pilot scheme in 31 cities was quickly expanded nationally from July 2017 – spending of up to Rmb2,400 per year on health insurance products is income tax-deductible for individuals. However, these products are often only available in the group channel and are not very easy for individual customers to purchase given China's income tax collection process, which used to rely on corporates to settle. The new tax filing process for individuals only began from 2020 and could provide new opportunities for these tax-supported health insurance products to gain popularity (GWP was only Rmb1bn in 2018).

2019 – CBIRC amended the long outdated "Administrative Measures on Health Insurance". This could lay a new foundation for the next health insurance product cycle and lead to two profound changes for the industry, in our view: 1) the document has allowed the premium rate for long-term health insurance to be adjustable (it used to be guaranteed for life). This will allow insurers to design long-term medical reimbursement products (rather than one year) and make medical inflation risks manageable (i.e., shared between insurers and policyholders). Already in 1H20, we have seen the launch of whole life, 20-year, and 15-year medical insurance plans by PICC, Ping An, and CPIC, respectively; 2) the cost of health management can be added to insurance pricing up to 20% of the premium (vs 10% previously). Insurers have been packaging health-related services into their insurance products, and we will likely see even more bundling going forward as China shifts its health care focus from treatment to prevention. Insurers' interests are well aligned with consumers to achieve a longer and healthier life, and we expect insurers to provide more health management services.

2020 – Rmb2trn health premiums by 2025 targeted. In January, CBIRC and 13 other relevant government agencies jointly issued a new directive to further develop the commercial insurance market, targeting Rmb2trn health premiums by 2025, up from ~Rmb700bn at the end of 2019. It also stressed its aim to improve operations for government-backed CI insurance, build new commercial markets for long-term care products, and promote insurance integration with health management services.

2020 – New pricing guidelines to cut price by 3-5%. In February, amid the COVID-19 outbreak, CBIRC released new pricing guidelines for life policies including health insurance to make products affordable for more people. As surrender rates have been low in China, the regulator has decided to lower the cash surrender value for early policy years to reduce the premium rate.

2020 – New set of standard CI definitions and experience table. The Insurance Association of China began soliciting opinions on a new set of CI definitions on May 7. This was the first revision of China's CI definition standards in 13 years. Leveraging a much bigger and higher-quality data set (370mn policies and 5.87mn claim records), the China Association of Actuaries also conducted new experience studies and plans to roll out a new set of morbidity tables this year. These new tables should better reflect China's latest disease experience and substantially improve life insurers' pricing and risk management capabilities. The China Association of Actuaries also expanded its scope to cover three additional severe illnesses (28 diseases in total), plus three minor conditions with tiered benefits to address experience deterioration issues caused by non-life-threatening diseases such as thyroid cancer.

1.5 We expect health insurance to be a Rmb3trn market

Our top-down analysis.

National Health Commission (NHC) has projected that China's total health expenditure (THE) could surpass Rmb15trn by 2030. So far, government and social insurance plans have been the largest payors, contributing a combined 61% to China's health care system. Each individual's share is still relatively high at 28% of THE (vs only 20% of OECD's average). And after rapid development in the past five years, private health insurance premium accounted for 11% of THE in 2019. China has committed to further reducing out-of-pocket (OOP) spending to 25% by 2030. The gap in spending could be filled largely by commercial insurers, in our view, given China's slowing GDP growth and an aging population – pressures from social health and pension insurance schemes are mounting. If we assume a stable reimbursement ratio from its social health insurance plans (at 60-70%), commercial insurance could expand its role and shoulder 20% of THE in 2030, implying a premium opportunity of Rmb3trn in 10 years and a CAGR of 15%. For detailed forecasts, please refer to **Appendix A.1 – Sizing Up the Commercial Health Insurance Market: A Top-down Approach**

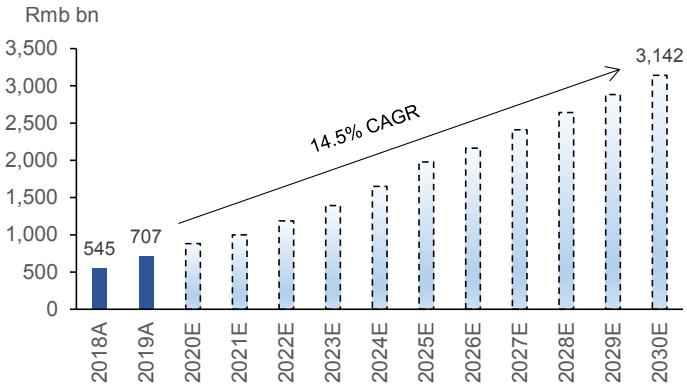
Our bottom-up and product level analyses.

Per Euromonitor's survey data, China already has a sizeable high-net-worth and affluent population at 6mn and 53mn in 2020, respectively. The strong demand for insurance from these two population groups is likely the key driver for the rapid development of the health insurance market in the past five years, including both the onshore China and offshore Hong Kong markets. Going forward, democratization of health insurance could take center stage, helped by a change in product designs (i.e., the prevalence of more affordable medical insurance rather than long-term CI plans), the adoption of more efficient sales channels (i.e., various online or virtual sales models are being tested in China) as well as the integration with health management serviced (a key tool that the Chinese government wants to leverage to contain medical costs). This could mean that reaching the mass market with sensible products, services and channels could be key for insurers to gain market share.

Euromonitor estimates that over 50% of the population will have entered middle class by 2030 (with an annual income of >US$10,000). Considering a higher contribution from commercial medical insurance, a modest 6% funding to the healthcare system could imply a total market of Rmb760bn by 2030. CI products, in our view, will continue to exist in China, with more marketing emphasis on its income protection function (patients could focus solely on recovery and take time off from work) should still be well received by upper middle class (annual income>US$15K) and affluent (annual income>US$30K) customers. A 50% penetration amongst middle class families, with a protection target of 3x annual income, could mean a total addressable market of Rmb2.2trn. For detailed forecasts, please refer to **Appendix A.2 – Sizing Up the Addressable Commercial Health Insurance Market: A Bottom-up Approach Appendix A.3 – Sizing Up the Addressable Commercial Health Insurance Market: A Product Level Approach**

Exhibit 6:

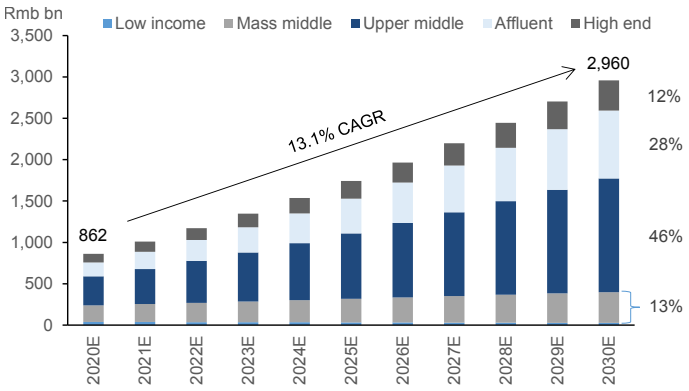
Health insurance GWP projection (top-down)



Source: China National Health Commission (NHC), State Council, CBIRC, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Exhibit 7:

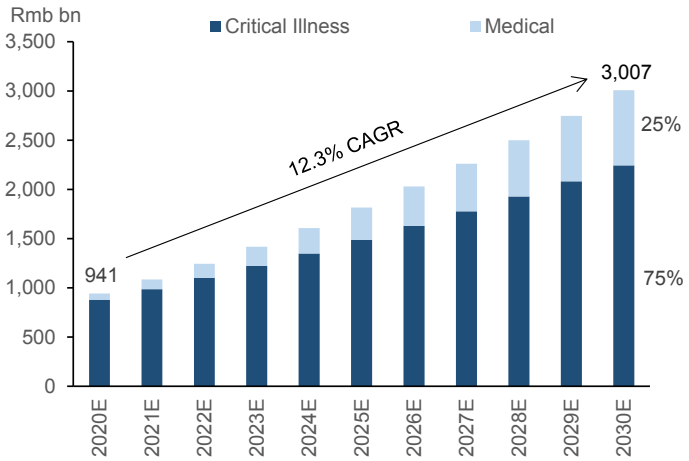
Health insurance TAM projection (bottom-up)



Source: CBIRC, Euromonitor, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Exhibit 8:

Health insurance TAM projection (product level)



Source: NHC, CBIRC, Euromonitor, Morgan Stanley Research. E = Morgan Stanley Research estimates.

2. Health insurance market overview

The fastest-growing segment within the insurance industry. CBIRC data show that China's insurance industry overall has expanded at a CAGR of 16% in the past five years, with life, health, and P&C premiums increasing 16%, 35%, and 10%, respectively. Health insurance has been the fastest developing sub-sector, outgrowing the other two sub-sectors by a wide margin. New premiums for CI products have risen at a CAGR of 49% between 2013 and 2019, covering over 200mn customers (or ~15% of China's population), according to regulatory data. However, we note the CI ticket size per customer has been low at below Rmb2K, suggesting a sum assured (SA) of <Rmb100K in most cases, below the current Rmb300K cost of a critical illness treatment in China, and likely also below the recommended income protection level of 3x the annual salary. Up-selling to existing insurance customers could be another important agenda for big operators in the next couple of years, while getting more new customers insured (Japan's penetration of cancer / medical insurance is about 20%-30%).

CI was the key growth driver; retail medical insurance are now catching up. Disclosure in the health insurance market has been quite limited, making it difficult to develop a clear view about product, distribution and competition trends. We compiled a health insurance data set from various sources for this report (including regulatory filings, company reports, as well as local news). It shows that CI is the largest segment, with Rmb 455bn GWP in 2019, accounting for 65% of the total health insurance market. Group health benefit is the next biggest segment, with around Rmb100bn premium revenue in 2019, followed by government-backed CI plan's Rmb71bn GWP (unlike commercial CI products, it is a short-term, reimbursement plan, supplementing basic health insurance coverage). Medical products sold to retail market, although gaining a lot of traction, were still small, with only Rmb30bn premium in 2019, taking up 4% of the market, suggesting it is still in the early stage of development. Long-term care and disability income insurance almost do not exist in China.

Still dominated by large players, but new players growing fast. We note agency operators are the largest players in the CI markets, with an aggregate 68% market share in 2019, on our estimate. However, their shares have been in decline over the past three years, as, in 2016, they took 85% of the market. More and more SME insurers are entering this lucrative CI market with innovative products and distribution strategies. Meanwhile, we do believe this CI market is large enough for more players (we expect it to be a Rmb2trn market), incumbent players' development seems to have been lagging the overall market due to its concentration in the high-end market (and being slightly too complacent, in our view). We have seen evident changes from leading insurers such as Ping An, China Life and CPIC in 2019, doing more customer segmentation, launching more diversified portfolio and offering coverage at different pricing points.

Key players in each subsegment?

CI market - Ping An was the largest, with 23% GWP share in 2019, followed by China Life (11%), NCI (11%), and CPIC (10%).

Group health - China Life and PICC have been the key players in this segment, with 34% and 19% shares. Listed players are still active in this segment, with 80% market share, despite poor economics of this business.

Government backed CI - As expected, SOEs are key players underwriting low-margin government plans. PICC and China Life are two dominating players, with 45% and 36% market share. CPIC and Ping An are also involved, with 6% and 6% market shares. Other companies only took 7% market share.

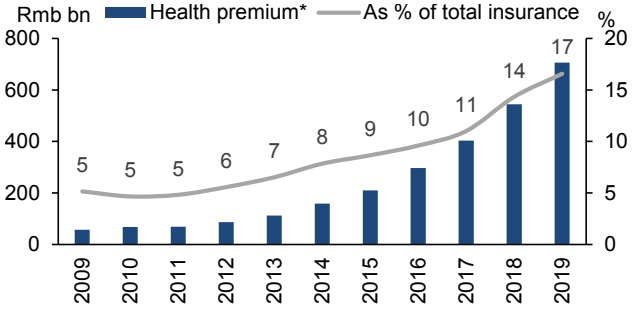
Mid-segment medical - Per China Re, total market for mid-segment medical was around Rmb30bn in 2019, and Zhong An is one of the larger players, with 14% market share.

There are other smaller short-term health products, with a total premium revenue of Rmb43bn (6% of health insurance market) in 2019, which could contain high-end retail medical products or other various government-backed products. Unfortunately, we do not have more details about these businesses.

For detailed growth trends, product mix and market share data, please refer to **Exhibit 9** to **Exhibit 20**

Exhibit 9:

Premium size as a percentage of total insurance industry over time

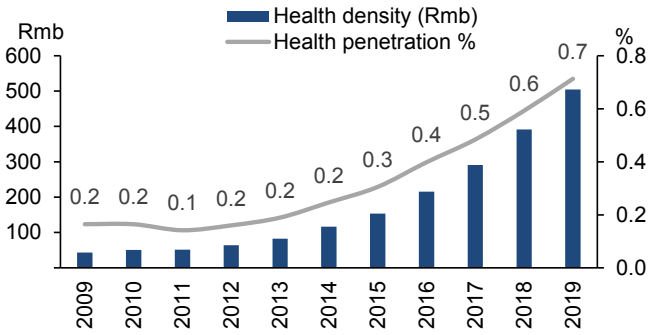


*** Excluding the short-term investment business written by Hexie Health during 2015-17.**

Source: CBIRC, Morgan Stanley Research.

Exhibit 10:

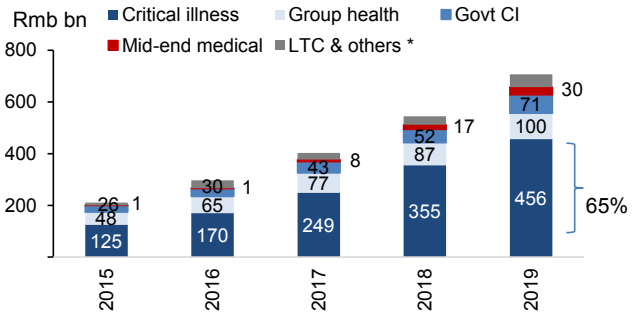
Health insurance density & penetration



Source: CBIRC, Morgan Stanley Research.

Exhibit 11:

Health insurance product premium mix

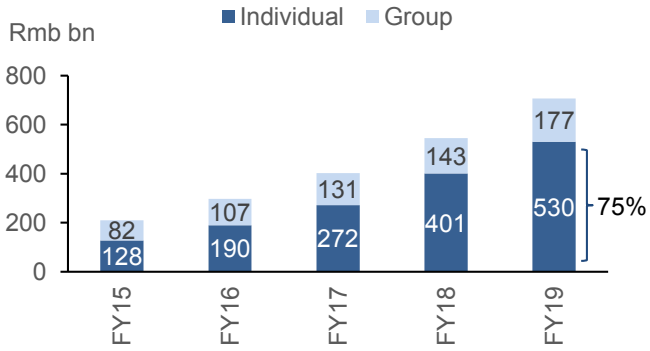


*** LTC & others exclude short-term savings product during 2015-17.**

Source: CBIRC, China Re, PICC, Morgan Stanley Research.

Exhibit 12:

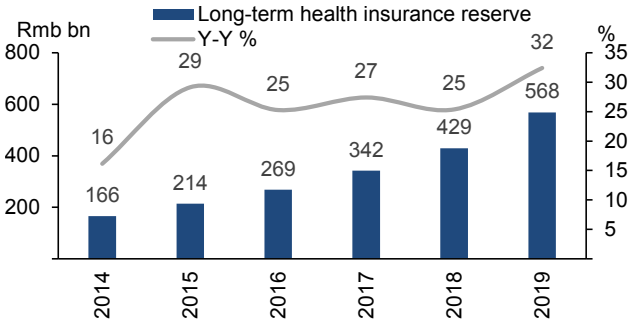
Health insurance sales channel



Source: CBIRC, China Re, PICC, Morgan Stanley Research.

Exhibit 13:

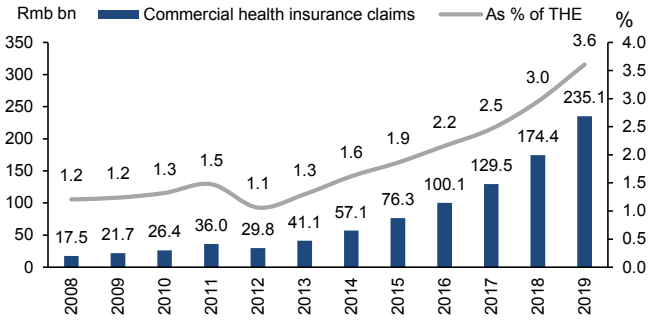
Long-term health insurance reserve growth



Source: Company data, Morgan Stanley Research.

Exhibit 14:

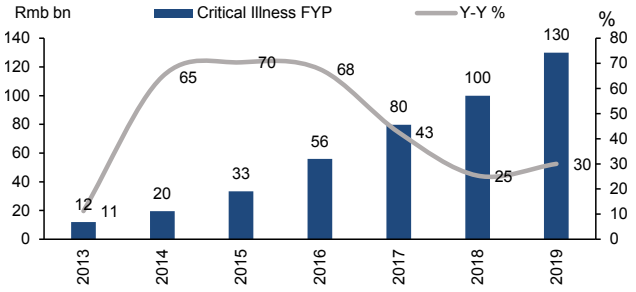
Health insurance claims as a percentage of THE



Source: CBIRC, Morgan Stanley Research.

Exhibit 15:

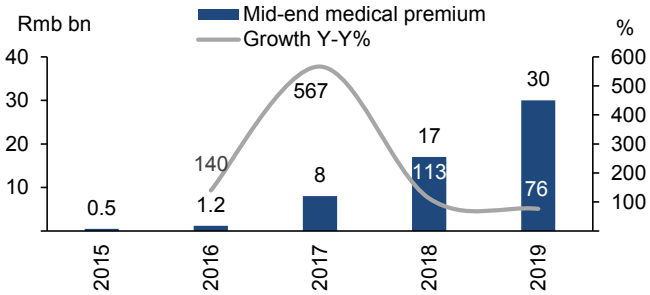
Critical illness FYP and growth



Source: CBIRC, China Re, Morgan Stanley Research.

Exhibit 16:

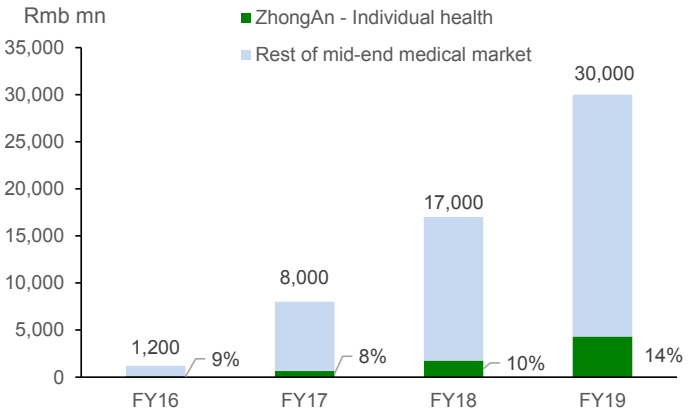
Mid-end medical premium and growth



Source: CBIRC, China Re, Morgan Stanley Research.

Exhibit 17:

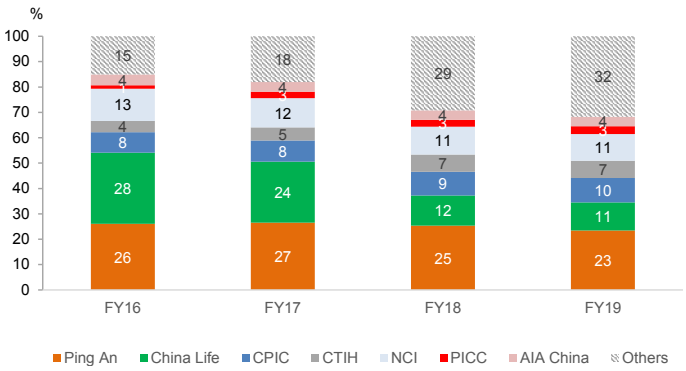
ZhongAn's individual mid-end medical's market share



Source: Company data, China Re, Morgan Stanley Research.

Exhibit 18:

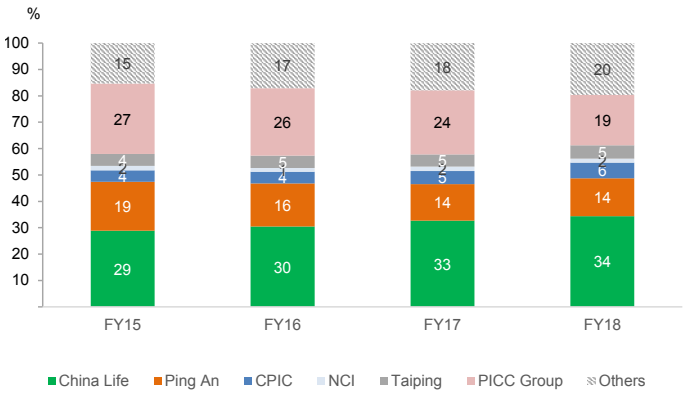
Long-term health GWP market share



Source: Company data, Morgan Stanley Research.

Exhibit 19:

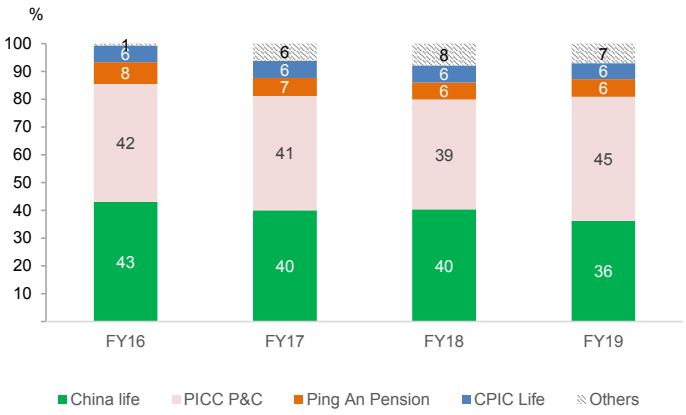
Group channel health GWP market share



Source: Company data, Morgan Stanley Research.

Exhibit 20:

Government-backed illness GWP market share



Source: Company data, Morgan Stanley Research.

3. Factors Shaping the Future of Health Insurance

3.1 Gaps in public health insurance are a pre-requisite for private insurance

Deductibles. For both outpatient and inpatient services, individuals will have to pay a minimum amount out of pocket – often a couple of hundred for basic medical insurance for urban and rural residents (BMURR), and a couple of thousand for urban employee basic medical insurance (UEBMI). Any spending above the deductible would be eligible for reimbursement from public insurance system.

Co-pays. Individuals will also need to share the cost with public health insurance funds through co-pays: often set to 10-50% depending on age, provider network, and spending amount. Seniors (older than 65 who have officially retired) are entitled to better coverage and lower co-pays. The government also encourages patients to use lower-tier hospitals to save on medical resources and as a result set lower cost-sharing ratios. A larger amount of spending also tends to carry slightly lower co-pays to help alleviate financial burdens, but this may not always be true due to funding pressure of local public insurance funds. Certain drugs, although included in the public insurance's reimbursement catalogue, can also render co-pays. Many countries, such as the US and Germany have caps on co-pays to ensure healthcare affordability, but China does not have this mechanism yet.

Reimbursement ceilings. China's public health insurance plans only cover expenditure up to a certain limit (e.g., Rmb500K in Beijing; could be much lower for other local plans), which is often not how other developed countries run their social health insurance systems and presents a distinctive problem for China. Usually, the public health insurance system has no reimbursement ceiling to ensure effective protection on catastrophic medical costs, but China's system has yet to have the financing capacity to cover every single enrollee on every penny spent. This is often one of the key reasons why out-of-pocket remains high in China and a key factor in commercial market products' designs.

We include detailed reimbursement schedules for Beijing (Tier 1 city) and Changsha (Tier 2 city) in **Exhibit 53** and **Exhibit 55** for your reference.

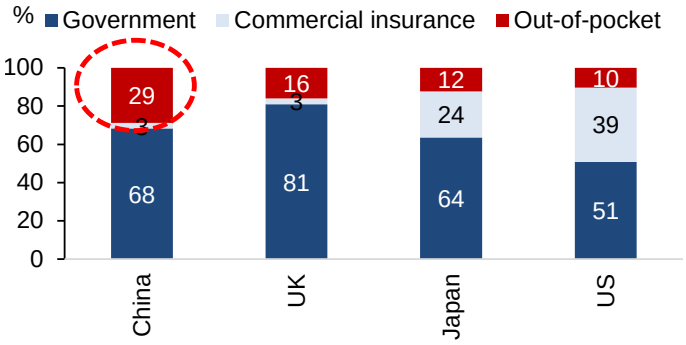
Uncovered services. Drugs, diagnostics, and treatments outside of NHSA's reimbursement catalogue are not be covered by public health insurance. These, for example, could include spending on certain outpatients tests (e.g., CT scans), certain expensive life-support equipment or organ transplants, heath check-ups, dental / eye care, cosmetic surgery, fertility treatments, etc.

Opt-out options. China's basic health insurance intends to cover the whole population and is already covering over 95% of that. However, payments and enrollments are not compulsory despite the fact that very few people choose to opt out of the plan.

Provider access. Although policies vary among different cities, in general, each basic medical insurance enrollee can only make claims at 3-5 designated general hospitals and 1 community clinic (no restriction on specialty hospitals) and does not get reimbursed outside his or her own designated network.

Exhibit 21:

Source of funding for health expenditure



Note: As of 2018.

Source: NHC, UK Office for National Statistics (ONS), US Centers for Medicare & Medicaid Services (CMS), Japan Ministry of Health, Labour and Welfare (MHLW), Morgan Stanley Research.

Exhibit 22:

An illustration of deductibles, co-payments, and caps in China's social health insurance

Items	Schemes	Deductibles (Rmb)	Max limit (Rmb)	Co-pay % Primary care	Secondary	Tertiary
Outpatient	UEBMI	1,800	Up to 20,000	90%	70%	70%
	BMURR	100-550	Up to 4,000	55%	50%	50%
Inpatient	UEBMI	1,300	Up to 300,000	90-99%	87-99%	85-99%
	BMURR	150-1,300	Up to 250,000	80%	78%	75%

Source: Local governments, Morgan Stanley Research.

Exhibit 23:

Three reimbursement catalogues of China's social health insurance

Reimbursement list	Categories	# of items	Reimbursement rules
Drugs	Class I drugs	640	100% included, subject to UEBMI/BMURR caps
	Class II drugs	2003	Require 10-30% co-pay
	Class III drugs	>190k	Not covered under social insurance
Medical services	Covered services	Essential and reasonable diagnosis services	100% included, subject to UEBMI/BMURR caps
	Partially covered	Certain mature medical services, e.g. CT screening	Require ~20% co-pay
	Non-covered	Preventive/rehabilitation/mental services, innovative treatments	Not covered under social insurance
Medical facilities	Covered services	Essential and reasonable facilities, e.g. standard wards	100% included, subject to UEBMI/BMURR caps
	Non-covered	High-end medical devices/screenings	Not covered under social insurance

Source: Nation Healthcare Security Administration (NHSA), Morgan Stanley Research.

Case study: Role of Chinese health insurers

Commercial health insurance needs to work with the existing healthcare system and bases its functions and capabilities around public insurance coverage. It can play a principal role (as in the US) or a supplementary role (as in China), all depending on the setup of the nation's healthcare system. Most countries have moved to a universal healthcare coverage system, and private health insurance takes the backseat in providing either complementary, supplementary, or substitutive coverage, as discussed below.

Substitutive: If people are excluded from the public healthcare system, or if they are allowed to opt out of publicly financed healthcare coverage, private insurance can be an alternative option – for example, 11% of the population in Germany chooses to use commercial coverage rather than public coverage. In China, both private health insurance sector and private health care sector are still underdeveloped and most citizens still rely on the public system for funding and services.

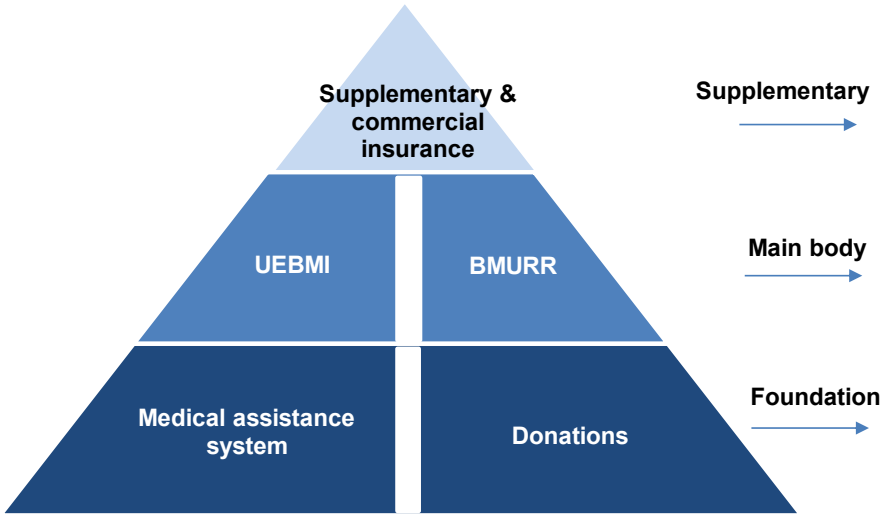
Supplementary: Private health insurance in most markets provides supplementary coverage, allowing people to have faster access to treatment (using private clinics or hospitals to avoid long wait times), greater choice of providers (highly specialized hospitals overseas for better treatment), or enhanced amenities (VIP wards). The supplementary market is usually small in terms of contribution to spending on health or share of population covered, as such coverage is often tailored to higher-end demand. Demand for better care has been rising in recent years in China, as seen from increasing overseas medical trips and a surge in offshore insurance sales in Hong Kong. Insurers have also started working with health care providers to offer priority access or expanded networks in their high-end products.

Complementary: Private health insurance can also play a complementary role to cover co-pays, deductibles, or services excluded from the public health insurance scheme. This can be a more substantial market if public coverage is insufficient. In China's case, despite the government's efforts to build universal coverage, out-of-pocket spending is still trending up (Rmb1.8trn for 2019), leaving significant room for private health insurance. We expect this type of demand will form the backbone of China's health insurance industry in the next few years.

Besides providing medical cost protection, commercial insurers can also design products to provide income protection through critical illness policies, disability income insurance, or long-term care coverage, although the latter two are not common in China yet. CI products, interestingly, have been the mainstream product in China, serving multiple goals in one product through its lump-sum cash benefits, which can be used covering medical costs, funding for overseas treatments, or protecting incomes. The government has been piloting a basic long-term care coverage in its social health insurance plans since 2016, and PICC has been a key operator. Once more experience data are accumulated, we expect these commercial carriers to leverage their insights gained from underwriting public plans to launch commercial long-term care or disability coverage in China.

Exhibit 24:

China's healthcare pyramid



Source: NHSA, Morgan Stanley Research.

Exhibit 25:

Roles of commercial insurance

Market role	Driver of market development	Nature of commercial insurance coverage
Supplementary	Perceptions about the quality and timliness of publicly financed health services	Offers faster access to services, greater choice of healthcare provider or enhanced amenities
Complementary (services)	The scope of the publicly financed benefits package	Services excluded from the publicly financed benefits package
Complementary (enrollee's share of spending)	The existence of enrollee's share of spending for publicly financed health services	Enrollee's share of spending for goods and services in the publicly financed benefits package
Substitutive	The share of the population entitled to publicly financed health services	People excluded from or allowed to opt out of publicly financed coverage

Source: Morgan Stanley Research.

3.2 Yield environment

Interest rates are a new factor that could increasingly influence product design in China. China has no specialty health insurers yet, such as UHC or Humana in the US. Instead, most health insurance policies are underwritten by life insurers and are often bundled with some savings features with health coverage as riders. In our view, the key risk for these products (i.e., whole-life critical illness polices) is not morbidity rates but, rather, interest rates. Whether this will change remains a key industry debate.

China's commercial health funds are mainly accumulated through sales of CI products, but this could change when yields become much lower. We can see from **Exhibit 26** that China has accumulated Rmb568bn reserves from CI policies, vs. the short-term health funds running at Rmb244bn (approximated by annual premium incomes). We project these long-term funds to continue to grow in the next 10-20 years, before these funds are released to pay for health expenditures (CI incident rates are much higher for seniors older than 65).

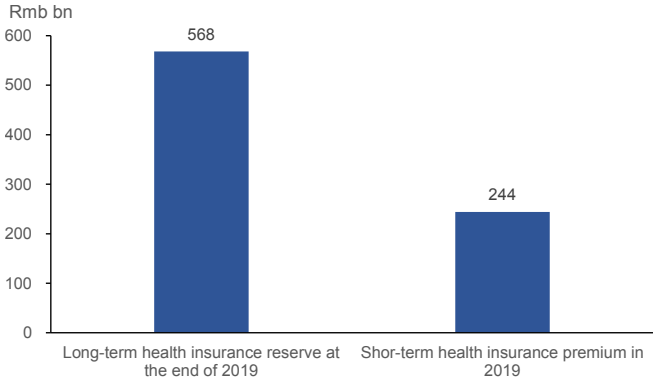
We note that China is the only large health insurance market with CI as the main product. The US is dominated by specialized health insurers with annually priced medical coverage (**Exhibit 28**). CI also exists in the US, but the market is much smaller and the products are often marketed by life insurers, emphasizing their role in income and wealth protection. While the US may not be a good comparison due to its more commercially run healthcare insurance market, we note that whole life CI products with significant savings components are also unpopular in Japan, a country with a low rate for many years. Japan has significant medical and cancer products penetration at 30% and 20%, respectively (measured by number of in-force policies/total population), but these products are often offered without cash value built-ups to avoid interest risks. These change in product designs could also have implications to China's health insurance market development, in our view.

Why are CI products popular in China? We believe whole life CI is a good interim product for Chinese insurers to accumulate data for pricing and risk management owing to its simplicity, as it only takes incidence risk on a limited number of diseases. By being bundled with savings, these products can sell with quite large ticket sizes and generate lucrative commissions for agents.

On the other hand, China's domestic rates are still significantly higher than those of other countries, CI products can generate quite high shareholder returns from both underwriting margins and investment spreads. With close to 10mn agents in China, life insurance companies might have little interest in cutting these products for risk management reasons, particularly given that visibility into the direction of longer-term rates in China is still low. However, insurers are also actively developing pure risk products and new channels to tap rising mass market demand on medical insurance - Ping An, CPIC, and PICC all launched long-term medical insurance for the first time in 2020; more fundamental changes seem to be happening.

Exhibit 26:

Long-term health insurance reserve vs. short-term health insurance premium

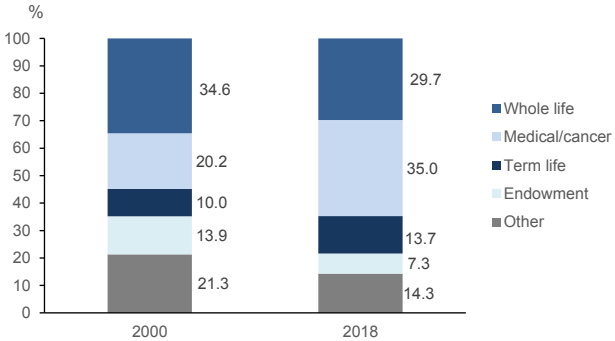


Note: Short-term health insurance includes group health insurance and government-backed critical illness insurance.

Source: CBIRC, company data, Morgan Stanley Research.

Exhibit 27:

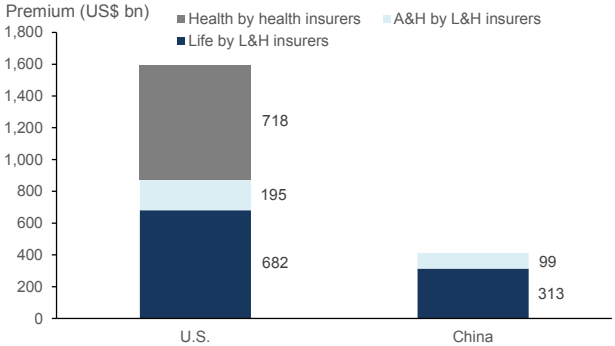
Japan life product mix shift measured by number of in-force policies in total number of in-force policies



Source: Life Insurance Association of Japan (LIAJ), Morgan Stanley Research.

Exhibit 28:

Life and health product mix - U.S. vs. China in 2018



Source: Federal Insurance Office (FIO), National Association of Insurance Commissioners (NAIC), CBIRC, Morgan Stanley Research.

3.3 Capital at Insurers

Vertical integration can be expensive. Integrated healthcare is popular in the US, with insurers that also own provider networks such as as clinics, hospitals, and pharmacies (PBMs). However, these models require large amounts of capital as suggested by transactions done in the US market – Cigna acquired Express Scripts for US$67bn, while the Aetna and CVS merger cost US$69bn. In China, some insurers have been building their own hospitals; a decent tertiary hospital could require an initial investment of as high as Rmb4bn, such as Taikang's new hospital in Wuhan, and take at least 5-7 years to break even. Senior care centers are also expensive to build and can cost Rmb3-4bn each with very high maintenance costs. There are also capital-light businesses that may be of interest to insurers to accumulate data or customers, such as health information companies and online hospitals, but even those may be unaffordable for smaller insurers – Ping An Doctor is already a US$15bn company and China Life has spent approximately Rmb2.85bn to acquire an 18.3% stake in Wonders Information.

Integrated model in China will be driven by completely different rationale than the US. Due to fundamental differences between the US and Chinese healthcare systems, China's health insurance market may not grow as big and its ability to influence healthcare providers can also be limited. The integrated model can emerge in China, but likely with a completely different rationale. US insurers directly supply 35% of funding to the healthcare system via their commercial products and can also influence another 37% of funding by underwriting and administrating government plans such as Medicare advantage. Its investments on the provider side are often driven by "cost containment" considerations. However, for China, healthcare providers are run as a public sector, with social security funds being the single largest payor and insurers contributing a merely 3%; hence, cost containment is mostly assumed by social insurance funds and related government agencies. Private insurers, as we discussed in earlier sections, will likely find a complementary higher-end market to operate in, with the key purpose of enhancing value and customer experience (such as high-end private hospitals and reputable specialists). This will be more similar to health insurers' models in a few EU markets such as Germany.

Exhibit 29:

US healthcare companies' vertical integration

U.S. managed care company	Healthcare provider acquired/integrated	Type of service integrated	Acquisition cost (US$ bn)	2019 revenue contribution %
UnitedHealth	Optum	Clinics, surgery centers, doctor networks, and PBM	Incubated	19.8
Aetna	CVS	Managed healthcare, doctor networks	69	72.9
Cigna	Express Scripts	PBM	67	68.7

Source: Company data, Morgan Stanley Research.

3.4 Technology

Health insurance is an area that could be heavily affected by technology developments, from what operators can insure, to how they conduct business, and to their ultimate profitability. Advancements in medical diagnostic tests have altered cancer morbidity trends globally, as smaller tumors and cancer cells are being identified much earlier than before, resulting in the actual morbidity experience being worse than expected in younger age groups, but better than expected in older age groups. Wearable devices and IoT technology could be another field of significant interest to insurers, either as a way to better understand customers' lifestyles to predict future experience or as a tool to interface with customers and build more heath management services to encourage healthier lifestyles. Of course, these could all mean that insurers will need to keep track of a larger amount of more complex data sets from various sources and dimensions, and some data could be real-time as well. This could continue to push insurers to upgrade their IT system and explore more efficient ways of collecting, processing, and analyzing data.

Exhibit 30:

Valuation of China's health information companies, online healthcare platforms, and private hospitals

Business	Ticker	Market cap (US$ bn)
Online healthcare platform		
Alibaba Health Information Technology	241.HK	30.2
Ping An Good Doctor	1833.HK	15.3
Healthcare information technology		
Winning Health Technology	300253.SZ	5.8
DHC software	002065.SZ	5.0
Wonders Information Co	300168.SZ	4.3
B-SOFT	300451.SZ	2.7
China Reform Health	000503.SZ	1.5
Hangzhou Century Co	300078.SZ	1.5
Jiuyuan Yinhai	002777.SZ	1.1
General/specialty hospital chain		
Aier Eye Hospital Group	300015.SZ	30.0
Hygeia Healthcare Holdings	6078.HK	4.3
Jinxin Fertility Group	1951.HK	3.2
China Resources Medical Holdings	1515.HK	0.8

Note: Market cap as of September 11, 2020.

Source: Company data, Morgan Stanley Research.

4. Disruptive New Payor Models on the Rise?

4.1 A reality check for China's healthcare and health insurance industry

Still lacking digital infrastructure. Data in the healthcare industry is difficult to obtain and organize due to its sensitivity. The sector has fallen behind in terms of digitalization: the market is fragmented, involving companies from various sectors and localized service providers; individual health data are also complicated and less structured; and regulation can make it difficult to share and consolidate these data for commercial purposes. This could mean that likely no single entity has accurate, comprehensive, and structured healthcare data yet for easy commercial use. Insurers have large amounts of health-related data through their underwriting and claim settlement processes, but their data is not rich or complete and is limited to medical records for serious illnesses at this point. Software companies may have access to certain local hospitals' HIS data, but it is unlikely they can build a national database. The most comprehensive data and records are still controlled by the government (**Exhibit 31** ; NHC: hospital and drug data; NHSA: social insurance data), which will probably not allow the commercialization of such data over the near term, in our view.

Heavily regulated. Innovation has lagged in the healthcare system and will likely continue to be slow going forward as most of the sub-segments are heavily regulated and trial-and-error types of innovation cannot be easily applied in this industry. We have seen some deregulation in the space, particularly post COVID-19, which could attract new capital and spur innovation in the next few years, in our view. In particular, regulators have relaxed rules covering online drug sales and consultations (March 2020) and have been more open about leveraging commercial insurers to improve the efficiency of the use of insurance funds (January 2020), making new space for the private sector to grow.

Patients still controlled by large public hospitals, and they often have little interests in cooperating with private players. Although small step changes have taken place for quite a few years, the reality is patient resources are still pretty much in the hands of large public hospitals – 52% of patient visits are done at tertiary hospitals. These public hospitals may have little motivation to change, and the tight patient-hospital relationship could also create significant barriers for any private players who are trying to reinvent the space.

Exhibit 31:

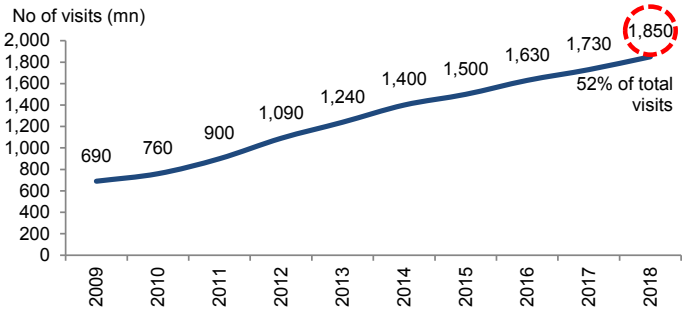
Data owners and data owned

Data owner	Data owned
NHC	Information on healthcare insititutions and personnel; drug, consumable, and device catalogues; financials of healthcare system on a national level
NHSA	National data of social insurance claims
Healthcare providers	Data of local hospital/clinic visits, examininations, procedures, treatment, and hospitalization; financials of local healthcare system
Insurers & reinsurers	Empirical data on mortality and morbidity; selected medical records from underwriting and claim settlement
Tech companies	Data on lifestyle and payment

Source: NHC, NHSA, Morgan Stanley Research.

Exhibit 32:

Visits to public tertiary hospitals



Source: NHC, Morgan Stanley Research.

Exhibit 33:

Electronic medical records in China are still at a nascent stage

Item	Details
Administration	Central NHS set the standards and local NHC responsible for execution
Goal	By 2020, all class III hospitals need to reach level 4 EMR standards, class II hospitals reach level 3 EMR standards
Assessment standards	Level 0: no electronic medical records (EMR) Level 1: Independent EMR by department, no data sharing Level 2: Manual EMR data sharing between certain departments Level 3: Automatic EMR data sharing between certain departments Level 4: Automatic EMR data sharing in the whole hospital, which could support elementary clinical decision … Level 7: Automatic EMR data sharing between hospitals in local region Level 8: Integrated medical and health record sharing for all services providers in local region
Key HIS providers	Beijing Goodwill (~10%), Haitai medical information system (~10%), Neusoft (8-10%), DHC software (8-10%), Winning Health (8-10%)

Source: NHC, Morgan Stanley Research.

Exhibit 34:

Key regulatory changes and initiatives in healthcare in light of Covid-19

Date	Key regulatory initiatives and changes in 2020
Relaxation of online prescription drug sales	**NHSA and NHC jointly issued a guidance on online consultations and common drug sales during Covid-19**
March 2, 2020	- NHSA to extend coverage to healthcare services for common and chronic diseases delivered online - Encourage hospitals and pharmacies to sell common prescription drugs via non-contact, online channels
Relaxation of online consultations	**NHC issued a guidance on online consultations and drug prescriptions during Covid-19**
February 3, 2020	- Encourage public hospitals to leverage online technologies for consultations and diagnosis - Encourage registered online hospitals and health platforms to facilitate in consultations and drug dispensing for common diseases
Encouraing commercial insurance funds' participation in healthcare	**13 Central Government Agencies collectively issued a guidance on direct commercial insurance to participate more in healthcare**
January 23, 2020	- Expand health insurance supplies - More participation in local social insurance schemes - More participation in providing healthcare via direct investment in institutions - More support toward senior care products and institutions - More support toward long-term care

Source: NHC, NHSA, Morgan Stanley Research.

4.2 The innovation map - an overview of commercial health insurance business models

Today, insurers aim to offer as broad a health product line-up as they possibly can. All major life-centric insurers have branched out into the medical space to expand their audience base and complement their critical illness-heavy books, whereas property & casualty (P&C) insurers, restricted by regulations, instead focus on the short-term medical market, striving to cover every demand niche, making the marketplace very crowded. Against that backdrop, insurers have been exploring ways to differentiate themselves by going up or down the value chain or reaching even farther horizontally.

Meanwhile, tech giants and capital-backed startups do not want to wait on the sidelines. Internet players leverage the massive amount of data and traffic that flows through their platforms to integrate mutual aid into their service offering portfolios, whereas startups borrow the pharmacy benefit manager model from overseas and tap into the specialty drug segment, which basic social insurance does not yet address.

In this section, we will first analyze and summarize all existing business models and then take a look at some of the more distinctive business models.

Exhibit 35:

The innovation map

Product	Premium size	Growth rate	Covered population	Key players (market share)	Sum assured	Healthcare Network
Offshore CI	**US$8bn (FYP in 2019)**	21% 5-year CAGR	1-2 mn	APE basis: AIA (21%), PCA (17%)	Lump sum fixed payment; Whole Life. (US$500K-US$1mn)	Global best
Comprehensive CI	**Rmb455bn (GWP in 2019)**	45% 5-year CAGR	200-300mn	Ping An (23%), CPIC(10%), AIA China (4%)	Lump sum fixed payment; Whole Life. (Rmb300K-500K)	Local public / private
Simplified CI				Fosun United (0.3%)	Lump sum fixed payment; Term or Whole Life. (Rmb100K)	
Mid-end Medical	**Rmb30bn**	178% 4-year CAGR	60-100mn	ZhongAn (14%), Taikang	Reimbursement; 1 year (Rmb1mn-5mn)	Local public plus some exclusive networks
Mutual aid	**Rmb7.5bn**	Started from 2019	>250mn	Qing Song, Meituan	Lump sum fixed payment; 1 year. (Rmb100K-300K)	Local public
Financial inlusive products		Started from 2019	~17.5mn	China Re	Reimbursement; 1 year. (Cap at Rmb1mn-3mn)	Local public

Source: CBIRC, Insurance Authority, company data, Morgan Stanley Research.

4.3 – China's Ecosystem Players Explained

Vertical integrators. Many new players are entering the healthcare space as it represents a significant market segment (6.6% of GDP) with still-slow business model and technology adoption. Insurers, along with tech giants and new start-ups, are also making vertical moves into the healthcare industry to expand their service scope as well as to enhance customer experience. Unlike US managed care organizations, Chinese insurers are not big enough in the healthcare and health insurance system to influence health providers' pricing and performance, so the purpose of such expansion in the form of acquisitions and incubation in the healthcare system is not to cut costs at the moment (China's NHSA, a central governmental body, is responsible for overall cost containment in the healthcare system through its social health insurance system) but to 1) increase customer retention by providing more complementary services along with insurance products, 2) gain data access in order to better price and design products, and 3) acquire potential customers from these adjacent sectors.

Key players. Most large and listed players are making some kind of expansion into the healthcare industry. The ones that have made the most investments so far are Ping An and Taikang. Key areas of interests for insurers include 1) hospitals and clinics (three of the top 10 insurers already have their own provider networks), 2) health information companies (six of the top 10 own stakes in these operations), 3) senior care facilities (almost all build these centers at various scales), and 4) PBMs. **Exhibit 36** shows insurers' positioning and rationale in the healthcare industry.

Revenue model. Direct revenue contribution from healthcare business is still low, but as we discussed earlier, there are evident synergies from owning other players in the healthcare system for either customer insights or traffic acquisition. These should theoretically increase premium income and reduce costs for insurers' core insurance underwriting business and build a wider economic moat over time. Due to quite different business natures for these adjacent sectors, insurers often own partial stakes in these business to avoid large financial impacts. Only a few insurers are building all these business from scratch and continue to own 100%.

Risks. 1) Regulatory uncertainty – the integration and digital adoption for both health care and health insurance business could be affected by the pace of deregulation in the health care industry and some could take years to come. 2) Long investment cycles: typically the break-even period tends to be quite long for health care providers (may be in the range of 5-10 years for offline operators and online models are largely untested). 3) Heavy capital commitment: both R&D spending for technology advancement in health care and capital input for network expansion can be expensive and likely in the range of billions. These three risks mean it takes time for new entrants to build a material presence in the healthcare industry, which might go beyond public investors' investment horizon.

Exhibit 36:

Healthcare sub-sectors and insurers in play

	Insurer	Healthcare investment/partner
Online consultation/ Appointment booking - Address the problem of shortage and uneven distribution of quality doctors in China's health system - Value to insurers: 1) differentiated customer service 2) accumulate consultation data (but could be very front-end)	Ping An AIA China PICC ZhongAn Taikang	Ping An Good Doctor WeDoctor PICC Health ZA Internet hospital Taikang Doctor
Health management plans - Plans that incentivize fitness activities through gifts/rewards - Value to insurers: 1) lower morbidity risks of customers 2) chronic disease management to prevent over-hospitalization 3) increase customer engagement/loyalty	Ping An CPIC	Vitality More Health
Pharmacy benefit manager - Negotiate and procure innovative drugs for insurers - Value to insurers: 1) effective control of drug costs 2) ensure availabilities of imported drugs	China Re	MediTrust Health
Offline health management centres - Mainly provide health check-up services - Value to insurers: 1) differentiated service and increase customer engagement 2) accumulate health check-up data	New China Life CPIC China Life Ping An	19 NCI Health management centre & 1 rehabilitation hospital CWI Healthcare centre Town Health Wanjia Fullerton Health
Hospitals - Provide either general or specialty hospital services - Value to insurers: 1) accumulate significant amount of deep-down medical and treatment data 2) easy access to medical resource for customers	Taikang Sunshine	5 hospitals & 4 rehabilitation hospitals 1 hospital
Health information technology - Gather and analyze health data; provde data and IT services to payors and other insurers - Value to insurers: 1) increase insurers' healthcare data and IT capacities 2) digitally enable insurers to be healthcare data and information integrators	Ping An China Life ZhongAn CPIC	Ping An HealthKonnect Wonders Information Nuanwa Technology Lianren Health

Source: Company data, Morgan Stanley Research.

4.4 Case study: High-end ecosystem integrator – Ping An

In the high-end market, we like Ping An's ecosystem model, which could provide an unique one-stop shop service experience. The company has a chance to succeed in healthcare value chain expansion and tap additional profit pools in healthcare provider segments by substituting its financial reimbursement with more valuable service compensation to better address consumer pain points and improve the patient experience. The company is already packaging medical services provided by Ping An Good Doctor with its insurance products (e.g., integrating 24/7 online primary care consultation) and even stationing its own staff in certain tertiary hospitals to guide its insurance customers on specialist appointments or claim settlements. Besides, the company has also made significant investments in health information technologies, pharmaceuticals as well as many smart care related start-ups. We believe the entry barrier for this model is high as only large and profitable insurers have the capital and customer resources to make this long-term investment.

Exhibit 37:

Ping An Good Doctor is China's leading online healthcare platform

Source: Ping An 1H20 interim results presentation.

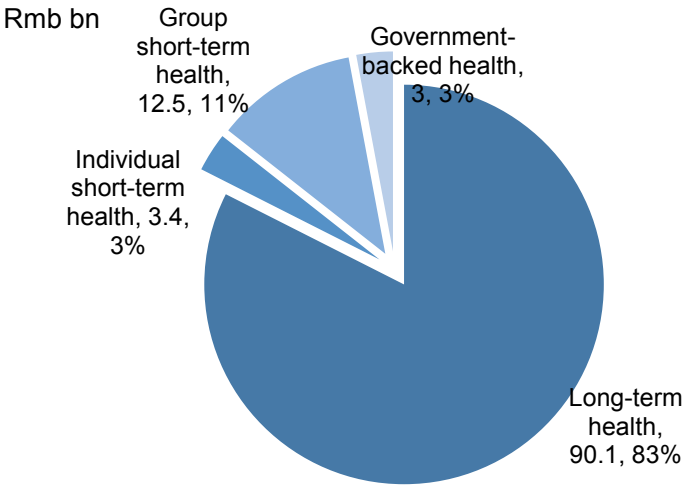
Amongst its peers, only Taikang (unlisted) is working on a similar model (with a heavier focus on senior care services and expansion in offline hospital chains). Other SOE peers have also indicated their interest and started to make early investments in the space but are still quite a few years behind Ping An.

Health insurance business overview Ping An wrote Rmb109bn of GWP from health insurance in 2018, contributing 23% of its total life and health business. It is the largest underwriter in the long-term CI market, having generated Rmb52bn FYP and Rmb90bn GWP in 2019, commanding 52% new business and 25% GWP market share. It has also written a significant amount of individual short-term medical insurance through various channels, at Rmb3.4bn and 20% market share in 2018, on our estimate. The company is also a large player in the corporate and government health insurance markets, with Rmb13bn and Rmb3bn premium revenue, representing 14% and 6% market share in 2018, respectively.

Healthcare business overview. Despite its ambition in the health care industry, Ping An has been careful in its capital allocation, largely focusing on capital-light platform business models such as online doctors, clinic chains and health information technologies. These businesses are still in its early stage of development and has not made material revenue contribution on our understanding. Exhibit 37 shows Ping An Good Doctor's business highlights.

Exhibit 38:

Ping An's health insurance GWP breakdown in 2018



Source: Company data, Morgan Stanley Research.

4.5 China's Mass-Market Players Explained

The most transitional market. One-year renewable reimbursement type of medical insurance is the most common form of health insurance seen in places such as the US and EU. The product has a low premium rate as it has no savings/cash value and only covers medical costs of a short duration like one year. Insurers reserve the right to reprice the product if the experience of the insured portfolio deviates substantially from its original expectation to manage risks. These are often distributed in the group market in other countries to save distribution costs and avoid anti-selection. In China, the most popular product is high deductible medical insurance covering catastrophic health care costs up to a few millions (in Rmb) in the individual market. One of the beauties of this product is that it avoids using a fixed list of diseases (this kind of products often require individuals to pay costs below Rmb10K, automatically excluding costs for treating minor conditions), providing more complete coverage than CI products even there is a disease spectrum change in the future. This design also reduces insurance fraud risks and operating expenses associated with smaller ticket sizes but a large volume of claims. The premium rate can be as low as Rmb500 for a 30-year-old.

Key players. ZhongAn was the first to offer these medical insurance products with the launch of Personal Clinic Policy in 2016 via online channels. Many traditional insurers have launched similar products (e.g., Ping An's E Sheng Bao) for online sales or as riders for key agency products to attract customers.

Revenue model. Essentially, private insurers are underwriting medical policies to cover co-pays in the social health insurance system. They do not have much influence over healthcare pricing or utilization. Most insurers also do not have tight underwriting requirements – agency operators could be using these products as a loss leader to do customer acquisition and online operators are relying on their young customer base and low operating costs to generate a margin.

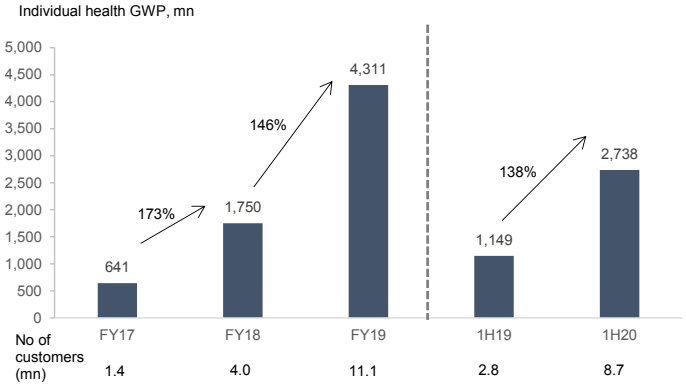
Key risks. The claim trend is the key risk for these products and operators – while insurers have the option to change pricing, they are often reluctant to do so as it may disappoint customers and cause healthy customers to move to cheaper products. As medical inflation continues in China (now at a rate of 10.2%, estimated by Mercer), claim pressure will mount, testing insurers' pricing discipline. The "fixed amount deductible" design, could also be future problem when something like Rmb10K is no longer a big amount to effectively select customers with critical conditions, triggering rise in incidence rate. Under these scenarios, insurers underwrite short term products could have the right to terminate inviable products and migrate customers onto new plans but these transitions, if not managed properly (e.g., new plans are substantially more expensive), could cause reputation risks and damaging insurers brand image.

4.6 Case study: Low-cost carrier – ZhongAn

In the mass market, we see ZhongAn as a likely winner given its persistent focus on product innovation and distribution efficiency to provide easy and low-cost coverage. The company's business model, in our view, is largely built on data analytics and online distribution to ensure higher operating efficiency than the agency model. The recent launch of its own virtual hospital could help strengthen its data advantage by having medical data at a more granular level and over a longer lifespan to help it lead in product design and pricing. It also allow ZhongAn to package more convenient health care services to move up-market. The sustainability of its product profitability remains to be seen, as ZhongAn's current clientele tends to be younger with below-average claim experiences.

Exhibit 39:

Zhong An's health premium and user numbers has grown rapidly



Source: Company data, Morgan Stanley Research.

Overview of its health insurance business. ZhongAn generated a total individual health insurance premium of Rmb4.3bn in 2019, accounting for 14% of the total individual short-term medical market in 2019, and is one of the largest players in this niche market. According to the company, 24% of these premiums are now generated from its self-owned channels (including APP, mini programs, official websites for handsets), rather than from third-party platforms. ZhongAn stated it accumulated 11.1mn health insurance customers in 2019.

Product innovation continues. Looking at ZhongAn's 2020 medical insurance product portfolio, it continues to increase its coverage and service varieties, helping expand its addressable market from the young to the senior and from the standard to the sub-standard customers. Now the company provides coverage not just on co-pays for social insurance but also covers drugs and treatments outside of basic social insurance reimbursement list. Its cancer policy extends coverage to patients aged 80 years and significantly simplifies health acknowledge requirements.

Exhibit 40:

ZhongAn's product universe

Product name	Basic coverage	Value-added services								
		Priority access for CIs	Drugs delivery service	Oversea cancer treatment	Heavy Ion radiotherapy	Advance payment for in-patient	Post-surgery in-house care	Online medical consultation	Gene test for cancer	Psychological consultation
Personal Clinic 尊享e生	- Eligible to buy if <age 60; Renewable until age 105 - Medical reimbursement capped at Rmb3mn (or Rmb6mn for selective CIs) - Rmb10K deductible; cover 100% net of social insurance compensation	Y	Y	Y	Y	Y				
Personal Clinic-parents 尊享e生爸妈版	- Eligible to buy if between age 40-60; Renewable until age 105 - Reimbursement capped at Rmb3mn (or Rmb6mn for selective CIs) - Rmb10K/20K deductible; cover 100% net of social insurance compensation	Y	Y		Y	Y	Y			
Personal Clinic-Family 尊享e生家庭版	- Eligible to buy if < 60; Renewable until age 105 - Medical reimbursement capped at Rmb3mn (or Rmb6mn for selective CIs) - Rmb10K deductible shared amongst families - cover 100% net of social insurance compensation	Y	Y			Y	Y			
Personal Clinic-outpatient 尊享e生门诊版	- Eligible to buy if < 60; Renewable until age 105 - Medical reimbursement capped at Rmb3mn (or Rmb6mn for selective CIs) - Rmb10K deductible; cover 100% net of social insurance compensation - Reimbursement capped at Rmb5K for online consultations - Reimbursement capped at Rmb2K for emergency treatments	Y	Y			Y		Y		Y
Anti-cancer 众安百万防癌医疗险	- Eligible to buy if <age 80 even with certain chronic conditions - Renewable until age 105 - Medical reimbursement capped at Rmb2mn for cancer treatments - No deductibles; cover 100% net of social insurance compensation	Y	Y		Y	Y				
Xiaoxin-cancer 孝欣恶性肿瘤医疗险	- Eligible to buy if between age 45-80 even with certain chronic conditions - Renewable until age 105 even post the diagnosis of cancer - Medical reimbursement capped at Rmb2mn for cancer treatments - No deductibles; cover 100% net of social insurance compensation	Y							Y	
10k Bao-inpatient 万元宝个人住院医疗保险	- Eligible to buy if <60yrs; Renewable until age 105 - Reimbursement capped at Rmb10K for in-patient treatments (no deductible) - Hospital cash capped at Rmb9K for in-patient treatments							Y		
Anwen-inpatient 安稳e生住院医疗险	- Eligible to buy if between age 18-55 even with hypertension or diabetes; - Renewable until age 80 - Reimbursement capped at Rmb500K for in-patient treatments - Reimbursement capped at Rmb50K for special out-patient services - Rmb10K deductible; cover 100% net of social insurance compensation									
Children guardian 少儿成长卫士	- Eligible to buy if < age 17 - Cash payment of Rmb500K on CI diagnosis; or Rmb200K on death / disability - Cash payment of Rmb20K for 15 types of infectious diseases - Hospital cash capped at Rmb9K for in-patient treatments - Medical reimbursement capped at Rmb3mn (or Rmb6mn for selective CIs) - Rmb10K deductible; cover 100% co-pay of social health plans									

Source: Company data, Morgan Stanley Research.

4.7 China's Low Income Market Players Explained – PPP Model

In recent years, innovation has helped develop completely new models to service the low-income segment, which traditionally has not been a focus of commercial insurers. Most product offerings in this segment are aimed at improving financial inclusion and often operate with almost zero profit margins. As such, revenue models in this space need to rely on commissions from cross-selling other products (drugs or commercial insurance). Two promising models in this space include PPP (public private partnership) models and mutual aid platforms.

PPP model is common in health insurance market. Commercial insurers can underwrite government backed health business (for a thin margin) or help manage government plans for a small administration fees. This has been a global practice and we can see similar models even in the US or EU markets. Commercial insurers can have different degree of influence in the health care costs depending on roles assigned by the government. In China, government has largely been leveraging large insurers' national operating network to do policy administration and claim settlement services with a scope to involve commercial operators more on the cost containment sides in the future. Insurers have so far been doing services in three types of government plans: 1) manage the basic social health insurance plans for various level of local governments (90% of these plans are now contracted with commercial insurers, per State Council and CBIRC); 2) underwrite government-backed CI plans since 2012; and 3) underwrite supplementary city health insurance plans for selective local governments (most in wealthier regions) from 2019.

Revenue model. While revenue and profitability of these government business are often low, insurers still have significant interests in participating these business for acquiring customer data, building claim insights and increasing brand influence as all people from the same region are often enrolled altogether into these plans (automatically opted-in). SOE insurers are often large players in this segment, with China Life and PICC taking 36% and 44% market share, respectively, in terms of major illness insurance GWP. The synergy with commercial business is strong in our view, particularly in the area of pricing and customer service – PICC has utilized its experience in government business and successfully launched the market's first long term medical product and China Life has been piloting direct settlement services for government and commercial plans in one go.

Key risks: 1) Low profitability and capital returns, which could dilute shareholder returns in the near term; 2) Corporate governance concerns – if certain government business lines are suffering material losses for too long, this could trigger concerns of providing too much national services and hurting minority shareholder's interest. 3) clients contacts obtained from government plans are still banned from being used for cross-selling commercial products, making direct monetization still difficult at the moment.

4.8 Case study - PICC

The largest government business player. SOEs are often playing a bigger role in this segment – PICC has so far been the largest player in this segment. According to the company, it has been serving over 800mn people through various government health insurance plans. It is the largest underwriter in the government CI business with Rmb32bn premium (covering 537mn population). The company has also led in piloting long-term care (LTC) coverage within the social insurance program.

Commercialization has been quite successful. PICC plans to leverage its significant presence in the government business to develop commercial coverage. Its new online health product series has been a success, insuring 35mn people in just two years, with good claim experience. This experience has allowed the company to launch its first whole life, cancer-specific medical product (with adjustable premium rate) on the market and its leading experience in government backed long-term care coverage could also mean future advantage when long-term care insurance is further commercialized in China.

Exhibit 41:

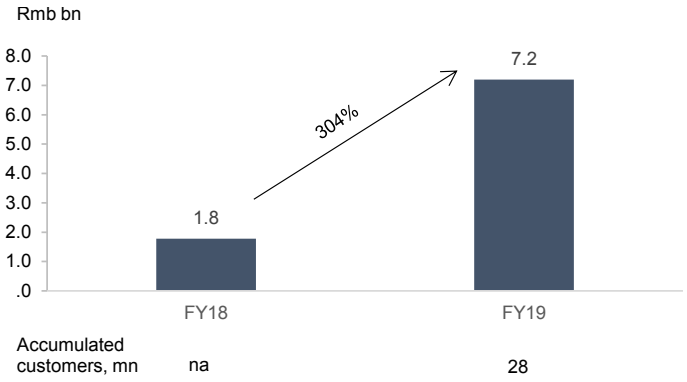
PICC's government-backed CI business involvement in 2019

	Covered population	GWP (Rmb mn)
PICC	537	31,760
China life	~400	25,757
Ping An	75	4,494
CPIC	~100	4,123

Source: Company data, Morgan Stanley Research.

Exhibit 42:

PICC's online health premium and growth



Source: Company data, Morgan Stanley Research.

4.9 China's Low Income Market Players Explained – Mutual Aid Platforms

What are mutual aid platforms? Online mutual aid platforms started to emerge in China in 2011. They operate as a claim-sharing community that offers basic compensation for those facing large amounts of medical spending as a result of often critical illnesses. These platforms are popular among China's low- and middle-income families, as indicated by researchers at Nankai University. Unlike official insurance contracts where policyholders pay a predetermined premium upfront, members of these platforms usually do not have to commit to any payments when joining (or a very small membership fee, usually under Rmb10); instead, members share the cost of a claim when it occurs – a Rmb300K medical bill, shared among 300K members, would cost each member just Rmb1. Platforms also charge a technical fee (around 8%) for the processing and verification services they provide.

Key players. While this business model was originally set up by charitable cancer organizations, more tech giants have entered the space in recent years (Meituan: 2019; Xiaomi: 2020), likely seeing it as a good way of breaking into the healthcare sector to enhance customer experience and monetize their large client bases. **Exhibit 43** shows key players and their key operating data.

Revenue model. These platforms in total have attracted 250mn members by now (likely to grow to 485mn by 2022 per iiMedia Research), the profit and revenue model remains debatable. Given their not-for-profit nature, it is unlikely these platforms can generate lucrative profit margins through membership or technical service fees. Most platforms are hoping to generate additional revenues through cross-selling health-related services or products, or up-selling by converting members into formal insurance clients. As such, most of these platforms have acquired insurance brokerage licenses (e.g., Qing Song has its own online brokerage platform, Qing Song Bao) or have signed distribution partnership agreements with insurers. In addition to direct commission incomes, our understanding is that mutual aid platforms can also collect advisory fees by feeding sales leads to insurers or other product sellers.

Key risks. 1) Regulatory – CBIRC has tightened oversight of financial institutions following the difficulties in China's P2P lending market and prefers that only licensed, properly regulated financial institutions conduct financial activities. These new mutual aid platforms' business model also involves money-pooling and loss-sharing that constitute P2P insurance activity by nature. While marketing these services as insurance contracts is already strictly prohibited, whether the regulators will impose even stricter rules or formally regulate this space in the future remains uncertain. 2) Operating – Low costs are the key competitive advantage of these new forms of mutual aid plans, with annual contribution capped at around Rmb50. However, underwriting and risk management measures likely remain limited vs. formal insurance operations for these pools. As members age, claim costs could rise, causing healthy members to seek cheaper options elsewhere. This could leave members with higher-than-expected morbidity rates if plans cannot convince new, healthy members to join. 3) Products offered by these platforms tend to simple and standard, which may not be sufficient to meet more complex or customized demand across all customer segments, limiting its margin and growth potential.

Exhibit 43:

China's popular online mutual aid platforms

	Qing Song Mutual Aid	Meituan Mutual Aid
Key investors	IDG, Tencent, DT Capital	Meituan Dianping
Number of members (in millions)	8.3	18.7
Entry fee (Rmb)	10	Free
Claim and admin cost share per member in 2019 (Rmb)	na	12
Maximum claim and admin cost share per member in 2020E (Rmb)	36	50
Maximum claim payout (Rmb)	18 - 40: 300k 41 - 50: 150k	Under 40: 300k 40 - 59: 100k
Underwriting conditions	18 - 50; Meet health requirements without pre-existing conditions	Under 59; Meet health requirements without pre-existing conditions
Insurance/brokerage license or cross-selling insunrace products?	Yes; Qing Song has its own online sales platform and collaborates with insurers	Yes; obtained in 1H20

Source: Company data, Morgan Stanley Research.

4.10 – China's Emerging Pharmacy Benefit Market Explained – PBMs in China

What are PBMs? PBM or pharmacy benefit manager is a third-party administrator of drug programs for health insurance/benefit plans. They perform the role of developing a drug list that is eligible for insurance reimbursement (i.e., formulary), negotiating discounts with pharmaceuticals and processing drug claims. PBMs in the US gradually developed into a quite big industry with revenue of over US$350bn. Its top three major PBMs combined are valued at over US$175bn, according to the latest transaction and valuation data. In China, this area has just started to draw attention from industry players and investors as a result of healthcare reforms in recent years. The new volume-based procurement policy implemented in China's social health insurance system will limit suppliers in each drug category to three, leaving most drug manufacturers outside the social insurance reimbursement system. This creates demand for additional formulary covered by commercial insurance contracts, particularly for drugs that have better efficacy but higher pricing, or new drugs that have yet to be included in the social insurance plan.

Key players in China. Haihong tried to build a PBM business in 2010, but the timing was not right due to low commercial insurance penetration and a problematic drug distribution system in China (drugs prescribed in the social insurance system were largely driven by commissions and no centralized purchasing system existed). Shanghai MediTrust Health (6.9% owned by China Re and 23.54% owned by SPHChina) started to build a PBM business in 2017 and is the largest player in this space at the moment. Other players include Wanhu Health, Ali Health, Jian Yi Bao, Nuohui Medical, ZN Pu Hui and Yuanxin.

Revenue model. China's PBM market, as we can see from its development history, is very different from the US. Commercial insurers who assume a major role in the US's healthcare system and PBMs process over 80% of total annual drug consumption. The existence of this middle layer is largely for cost containment purposes through a similar volume and quality-based procurement mechanism as implemented by China's social insurance scheme and they will make a margin on their value-added services. However, in China, new PBMs are intending to maintain a commercial formulary to improve customer affordability and expand the addressable market for certain drug companies.

They essentially act as distributors for high-end or new drugs and earn commissions (rebates) from drug companies.

PBMs and supplementary health insurance plans. Given low incidence rates for major illnesses, PBMs in China will need to cover a large population to locate a sufficient number of customers for drug manufacturers and hence, besides working with commercial insurers and commercial products, they also cooperate with local governments to provide commercially operated but financially inclusive products to cover as many people as possible. 21 cities in China have worked with PBMs to provide low-cost insurance (below Rmb100 per annum) to residents. The funding model ranges from direct government purchase (by using funding from its social health insurance), government subsidies, and individual contributions. So far over 8 million people have been covered by these new supplementary plans with enhanced drug benefits (some specialty cancer drugs are covered) and better services (delivering drugs to patients directly instead of paying cash).

Key risks. The potential sustainability and size of China's PBM markets will depend on how fast China can close the gaps in the social insurance schemes, especially on drug benefits. If China is determined to pursue, and is capable of affording, a true universal health care system with coverage on all essential drugs in a timely manner, then the demand for a commercial formulary will likely vanish over time.

Exhibit 44:

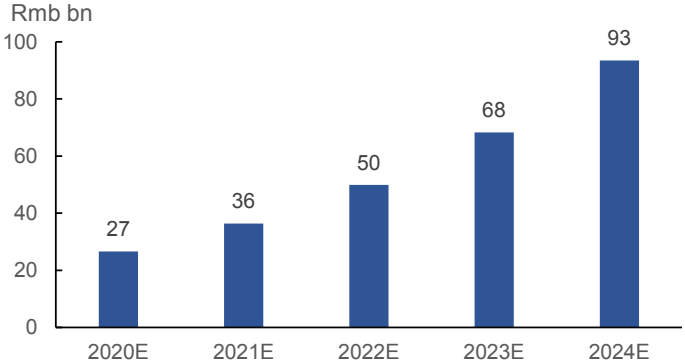
China's PBM startups and their key investors

PBM startup	Key investors
MediTrust	SPHChina, China Re
Wanhu Health	Thalys, NanJing Pharmaceutical
Nuohui Medical	Legend Star, BV Baidu
Yuanxin Huibao	Sequoia Capital, Qiming VC

Source: Company data, Morgan Stanley Research.

Exhibit 45:

Estimated annual cost of immunotherapy drugs in China



Source: NCCR, Frost & Sullivan analysis, Morgan Stanley Research. E = Morgan Stanley Research estimates.

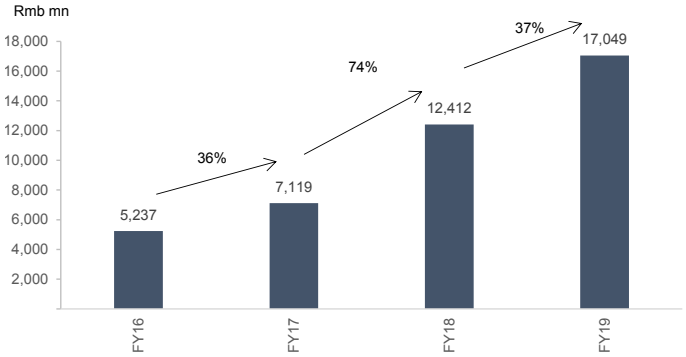
4.11 Case Study - China Re & MediTrust

Protection health insurance business is gaining traction. China Re has been one of the largest reinsurer in China, who is actively helping direct insurers to do risk-transfer as well as product innovation in the individual health insurance market. Its life protection reinsurance business has seen substantial growth in recent years, up at a pace of 49% p.a and contributing 12% of its group GWP. While this business seems small at the moment, health insurance market could grow into a Rmb3trn market on our estimate and a 10% ceding ratio in this segment could mean material reinsurance premium opportunity (Rmb300bn) for China Re Life overtime, a new revenue and profit driver that should not be ignored by capital market.

China Re's PBM ambition – Besides taking a margin on its reinsurance contracts with direct health insurers, China Re has found a new niche drug benefit market to operate in recent year. In 2020, it invested in a stake in MediTrust and started to focus on establishing a commercial formulary to provide drug coverage which is not yet covered by public health insurance plans. The exact margin and profit sharing ratio between drug company, PBMs and China Re have not been disclosed, but the addressable market for this business could be in the range of Rmb50-100bn according to our health analysts, based on estimates for cancer drug market in China by 2024. China Re is so far the only insurance player in the PBM space.

Exhibit 46:

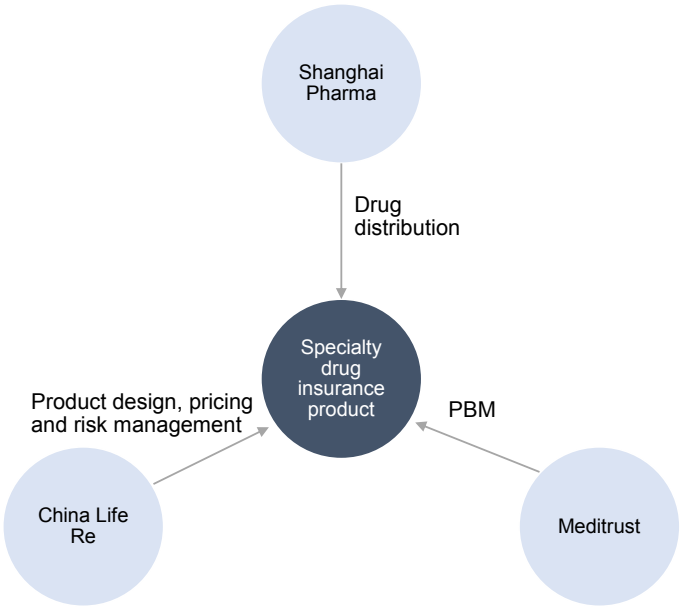
China Re's protection reinsurance premium and growth



Source: Company data, Morgan Stanley Research.

Exhibit 47:

China Re and MediTrust's cooperation model



Source: Company data, Morgan Stanley Research.

Exhibit 48:

Cities' supplementary medical insurance plans

City	Year launched	Commercial insurer partner	PBM/Health Tech partner	Number of people covered as of 2019	Premium rate	Deductible (Rmb)	Coverage	Source of funding
Shenzhen	2015	Ping An Annuity	N/A	7.5mn	Rmb30	10k	70% of hospitalization and specialty drug costs	Commercial underwriter
Guangzhou	2019	Ping An Health	Medbanks Health	700k	Rmb49	20k	80% of hospitalization and specialty drug costs	Commercial underwriter
Suzhou	2020	Soochow Life	MediTrust	Intended: all covered by basic health insurance	Rmb49	20k (hospitalization only)	70% of hospitalization and specialty drug costs	Commercial underwriter
Nanjing	2020	Taikang	N/A	380k	Rmb49	20k	100% of hospitalization	Commercial underwriter
Fuzhou	2020	Ping An Annuity	Ping An Good Doctor & Ping An HealthKonnect	Intended: all covered by basic health insurance	Rmb68	20k	80% of hospitalization and specialty drug costs	Commercial underwriter

Source: Municipal government data, Morgan Stanley Research.

Appendix A.1 – Sizing Up the Commercial Health Insurance Market: A Top-down Approach

Exhibit 49:

Projected commercial health insurance premiums for 2020-30 based on a top-down approach

Rmb bn	2019	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	CAGR %
GDP (nominal)	99,087	103,203	114,172	121,996	129,978	138,125	146,374	154,676	162,965	171,188	179,256	187,081	5.9
Y-Y % (real)	6.1	2.5	9.3	5.4	5.0	4.8	4.5	4.2	3.9	3.5	3.2	2.9	
Deflator %	2.4	1.6	1.3	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5	
THE as % of GDP	6.6%	6.9%	6.9%	7.1%	7.3%	7.6%	7.9%	8.0%	8.1%	8.2%	8.3%	8.4%	
Total health expenditure	**6,520**	**7,121**	**7,878**	**8,662**	**9,488**	**10,442**	**11,564**	**12,312**	**13,200**	**14,037**	**14,878**	**15,715**	**8.3**
Out-of-pocket	1,849	1,998	2,187	2,378	2,577	2,805	3,071	3,233	3,427	3,602	3,773	3,929	7.1
Governmental	1,743	1,815	2,008	2,146	2,286	2,429	2,575	2,721	2,866	3,011	3,153	3,291	5.9
Social insurance	2,221	2,426	2,684	2,951	3,233	3,558	3,940	4,195	4,497	4,782	5,069	5,354	8.3
Commercial insurance	707	882	999	1,186	1,392	1,650	1,978	2,164	2,410	2,642	2,883	3,142	14.5
Contribution %													
Out-of-pocket	28.4	28.1	27.8	27.5	27.2	26.9	26.6	26.3	26.0	25.7	25.4	25.0	
Governmental	26.7	25.5	25.5	24.8	24.1	23.3	22.3	22.1	21.7	21.5	21.2	20.9	
Social insurance	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	34.1	
Commercial insurance	10.8	12.4	12.7	13.7	14.7	15.8	17.1	17.6	18.3	18.8	19.4	20.0	

Source: State Council, NHC, CBIRC, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Appendix A.2 – Sizing Up the Addressable Commercial Health Insurance Market: A Bottom-up Approach

Exhibit 50:

Projected total addressable commercial health insurance premium market (TAM) for 2020-30 based on a bottom-up approach

	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	CAGR %
Total population (mn)	1,439	1,442	1,444	1,447	1,449	1,452	1,454	1,457	1,459	1,462	1,464	0.2
High end (income>US$150K)												
Segment population (mn)	6	6	7	7	8	8	8	9	9	10	10	6.0
% of population	0.4	0.4	0.5	0.5	0.5	0.6	0.6	0.6	0.6	0.7	0.7	
Annual insurance spending (Rmb)	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	70,000	
Penetration rate %	25.6	28.1	30.6	33.1	35.6	38.1	40.6	43.1	45.6	48.1	50.0	
TAM (Rmb mn)	105,000	123,216	143,311	164,649	187,864	213,554	240,812	270,714	302,093	335,106	366,314	13.3
Affluent (income>US$30K)												
Segment population (mn)	53	61	69	77	86	95	105	115	125	136	147	10.8
% of population	3.7	4.2	4.8	5.3	5.9	6.6	7.2	7.9	8.6	9.3	10.0	
Annual insurance spending (Rmb)	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	7,000	
Penetration rate %	45.5	49.0	52.5	56.0	59.5	63.0	66.5	70.0	73.5	77.0	80.0	
TAM (Rmb mn)	168,000	207,708	252,676	302,474	358,470	420,872	489,607	564,785	645,718	732,209	820,634	17.2
Upper middle (income>US$15K)												
Segment population (mn)	194	212	230	247	264	282	299	316	332	347	361	6.4
% of population	13.5	14.7	15.9	17.1	18.2	19.4	20.6	21.7	22.7	23.7	24.7	
Annual insurance spending (Rmb)	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	5,000	
Penetration rate	36	40	44	48	52	56	60	64	68	72	76	
TAM (Rmb mn)	350,000	424,195	505,973	593,716	688,759	790,933	899,545	1,012,848	1,130,190	1,250,741	1,375,276	14.7
Mass middle (income>US$10K)												
Segment population (mn)	218	224	229	234	239	244	249	253	257	261	264	2.0
% of population	15.1	15.5	15.9	16.2	16.5	16.8	17.1	17.4	17.6	17.8	18.1	
Annual insurance spending (Rmb)	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	2,000	
Penetration rate	45.9	48.4	50.9	53.4	55.9	58.4	60.9	63.4	65.9	68.4	70.0	
TAM (Rmb mn)	200,000	216,403	233,156	250,181	267,487	285,014	302,709	320,546	338,545	356,699	370,280	6.4
Low income (income<US$10K)												
Segment population (mn)	969	940	910	881	852	822	793	764	736	708	681	-3.5
% of population	67.3	65.2	63.0	60.9	58.8	56.6	54.5	52.4	50.4	48.5	46.5	
Annual insurance spending (Rmb)	50	50	50	50	50	50	50	50	50	50	50	
Penetration rate	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	80.0	
TAM (Rmb mn)	38,756	37,593	36,412	35,254	34,079	32,892	31,709	30,548	29,421	28,332	27,255	-3.5
Total TAM (Rmb bn)	**862**	**1,009**	**1,172**	**1,346**	**1,537**	**1,743**	**1,964**	**2,199**	**2,446**	**2,703**	**2,960**	**13.1**

Source: CBIRC, Euromonitor, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Appendix A.3 – Sizing Up the Addressable Commercial Health Insurance Market: A Product Level Approach

Exhibit 51:

Projected total addressable commercial health insurance premiums for 2020-30 based on a product level approach

Rmb bn	2020E	2021E	2022E	2023E	2024E	2025E	2026E	2027E	2028E	2029E	2030E	CAGR %
Critical Illness												
Middle class & above population (mn)	470	502	534	565	597	629	662	693	724	754	783	5.2
Average annual income (Rmb)	74,801	78,617	82,522	86,375	90,331	94,395	98,474	102,584	106,622	110,577	114,593	
Sum assured (3 x income)	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0	
Penetration rate %	50	50	50	50	50	50	50	50	50	50	50	
Premium rate %	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	2.5	
TAM (Rmb bn)	880	987	1,102	1,221	1,349	1,485	1,629	1,777	1,929	2,083	2,243	9.8
Medical												
THE (Rmb bn)	7,121	7,878	8,662	9,488	10,442	11,564	12,312	13,200	14,037	14,878	15,715	8.2
Medical spending %	80	80	80	80	80	80	80	80	80	80	80	
Social insurance coverage %	70	70	70	70	70	70	70	70	70	70	70	
Commercial coverage %	1.1	1.6	2.1	2.6	3.1	3.6	4.1	4.6	5.1	5.6	6.1	
TAM (Rmb bn)	61	99	144	195	257	331	401	483	570	664	764	28.7
TAM (Rmb bn)	**941**	**1,086**	**1,245**	**1,416**	**1,606**	**1,816**	**2,030**	**2,261**	**2,499**	**2,747**	**3,007**	**12.3**

Source: NHC, CBIRC, Euromonitor, Morgan Stanley Research. E = Morgan Stanley Research estimates.

Appendix B – An Overview of Commercial Health Insurance Products

Exhibit 52:

An overview of commercial health insurance products by type

Benefit	Product name	Coverage term	Payment term	Premium rate*	Profitability	Key provider	Issue	Market share
A fixed lump sum payment	Critical Illness	Whole life	20-30 years	Rmb7,000/year	VNB margin: 60-100%	AIA, Ping An	- Deterioration of CI incidence rate - Poor underwriting - Long-term reinvestment risks	~64%
		Term		Rmb3,000/year		Fosun United Health		
	Cancer-specific	Whole life	20-30 years	Rmb5,000/year		Taiping		
		Term	1-10 years/ 20-30 years	Rmb4,000/year		AIA		
Reimbursement of medical expenses actually incurred	Mid-end Medical Reimbursement	1 year/6-20 years	Renewed annually	Rmb500/year	CoR: 95-105%	ZhongAn, Ping An, Taikang	- Medical cost inflation - Fradulent claims - Adverse selection	~35%
	Cancer-targeted Reimbursement	1 year/6 years - whole life		Rmb300/year		PICC Health, CPIC, Ping An		
	Specialty Drug Benefit	1 year		Rmb100/year	Unknown due to it being relatively new	AIA, Taikang	- National healthcare policy risk	
	Group Employee Benefit			A nominal figure	CoR: 105%	All major listed and unlisted life insurers	- Fierce competition and margin risk	
	City Supplementary Medical			Rmb50/year	CoR: 100%	Local SOE insurers, China Re	- Low margin	
	Government-backed Critical Illness				CoR: 100%	PICC, China Life		

* Premium rate quoted for a 30-year-old male.

Source: Company data, Morgan Stanley Research.

Appendix C – Basic Medical Insurance's Reimbursement Standards: Beijing and Changsha

Exhibit 53:

Beijing UEBMI reimbursement standards

Beijing UEBMI Reimbursement Standards								
	Outpatient	Status		Deductible	Maximum	Reimbursement ratio		
		Employed		Rmb1,800	Rmb20,000	Community Hospitals	Others Hospitals	
		Retired	Under 70	Rmb1,300		90%	70%	
			70 & over				85%	
							90%	
	Inpatient	Status	Deductible	Reimbursement ratio				
				Medical expense	Primary	Secondary	Tertiary	
Urban employees		Employed	First hospital stay of the year: Rmb1,300 Second stay and beyond: Rmb650 per stay	Rmb1,300 - 30,000	90%	87%	85%	
				Rmb30,000 - 40,000	95%	92%	90%	
				Rmb40,000 - 100,000	97%	97%	95%	
				Rmb100,000 - 500,000	85%			
		Retired		Rmb1,300 - 30,000	97%	96.10%	95.50%	
				Rmb30,000 - 40,000	98.50%	97.60%	97%	
				Rmb40,000 - 100,000	99.10%	99.10%	98.50%	
				Rmb100,000 - 500,000	90%			

Source: Beijing HSA, Morgan Stanley Research.

Exhibit 54:

Beijing BMURR reimbursement standards

Beijing BMURR Reimbursement Standards							
		Status		Primary	Secondary	Tertiary	**Maximum**
Urban and rural residents	Outpatient	Urban and rural residents	**Deductible**	Rmb100	Rmb550		Rmb4,000
			Reimbursement ratio	55%	50%		
	Intpatient	Senior citizens & Employable residents	**Deductible**	Rmb300	Rmb800	Rmb1,300	Rmb250,000
				Deductible for stays following the first stay is 50% of that for the first stay			
			Reimbursement ratio	80%	78%	75% (78% if at a district hospital)	
		Pupils & Children	**Deductible**	Rmb150	Rmb400	Rmb650	
			Reimbursement ratio	80%	78%	75% (78% if at a district hospital)	

Source: Beijing HSA, Morgan Stanley Research.

Exhibit 55:

Changsha UEBMI reimbursement standards

Changsha UEBMI Reimbursement Standards						
Urban employees	Outpatient	Basic medical insurance personal account				
	Inpatient			Primary	Secondary	Tertiary
		Maximum		Rmb120,000		
		Deductible		Rmb480/stay	Rmb650/stay	Rmb900/stay
		Reimbursement ratio	0 - Rmb10,000	95%	91%	88%
			Rmb10,000 - Rmb120,000	96%	95%	92%

Source: Changsha HSA, Morgan Stanley Research

Exhibit 56:

Changsha BMURR reimbursement standards

Changsha BMURR Reimbursement Standards					
Urban and rural residents	Outpatient		Community clinic	Rural clinic	School clinic
		Maximum	Rmb800/year		
		Reimbursement ratio	60%	70%	70%
	Inpatient		Primary	Secondary	Tertiary
		Maximum	Rmb150,000		
		Deductible	Rmb300/stay	Rmb500/stay	Rmb1100/stay
		Reimbursement ratio	70%	65%	60%

Source: Changsha HSA, Morgan Stanley Research.

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INDUSTRY COVERAGE: Hong Kong/China Insurance

COMPANY (TICKER)	RATING (AS OF)	PRICE* (09/17/2020)
Jenny Jiang, CFA		
China Life Insurance (601628.SS)	U (05/27/2015)	Rmb42.95
China Life Insurance (2628.HK)	E (02/25/2019)	HK$17.76
China Pacific Insurance (Group) Co., Ltd (601601.SS)	E (07/25/2018)	Rmb30.32
China Pacific Insurance (Group) Co., Ltd (2601.HK)	O (05/27/2015)	HK$22.20

China Reinsurance Group (1508.HK)	U (09/13/2018)	HK$0.78
China Taiping Insurance (0966.HK)	E (05/27/2015)	HK$12.02
Fanhua Inc. (FANH.O)	E (06/18/2020)	US$18.98
Fosun International Ltd (0656.HK)	E (09/30/2019)	HK$8.59
New China Life Insurance Company Ltd (601336.SS)	U (12/13/2014)	Rmb61.08
New China Life Insurance Company Ltd (1336.HK)	U (04/08/2020)	HK$29.90
PICC Group (1339.HK)	O (04/08/2020)	HK$2.40
PICC Group (601319.SS)	U (04/03/2019)	Rmb6.78
PICC P&C Company Ltd (2328.HK)	O (05/19/2016)	HK$5.73
Ping An Insurance Company (2318.HK)	O (05/27/2015)	HK$81.75
Ping An Insurance Company (601318.SS)	O (05/27/2015)	Rmb79.00
ZhongAn Online P & C Insurance Co Ltd (6060.HK)	E (07/21/2020)	HK$43.65

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* Historical prices are not split adjusted.

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