McKinsey & Company

China biopharma – Charting a path to value creation

Nov. 2023

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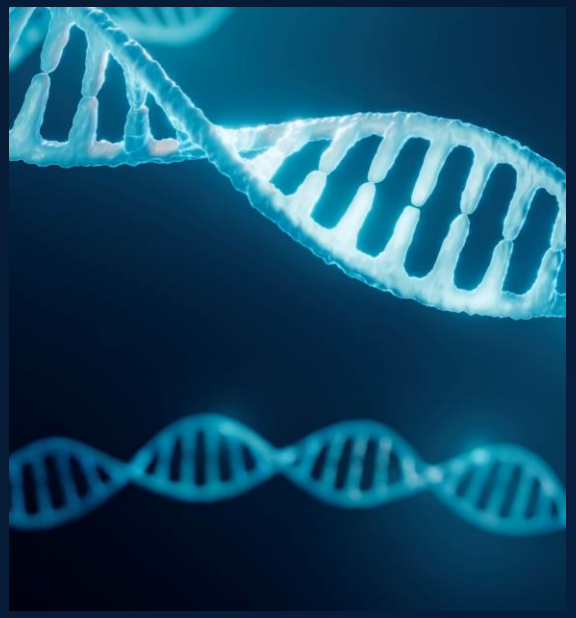
Key questions

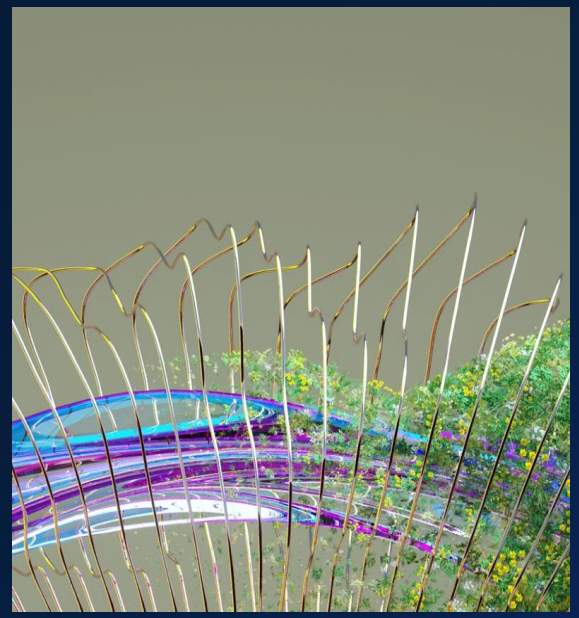
01

What is the 5-10 years outlook for the China innovative biopharma market?



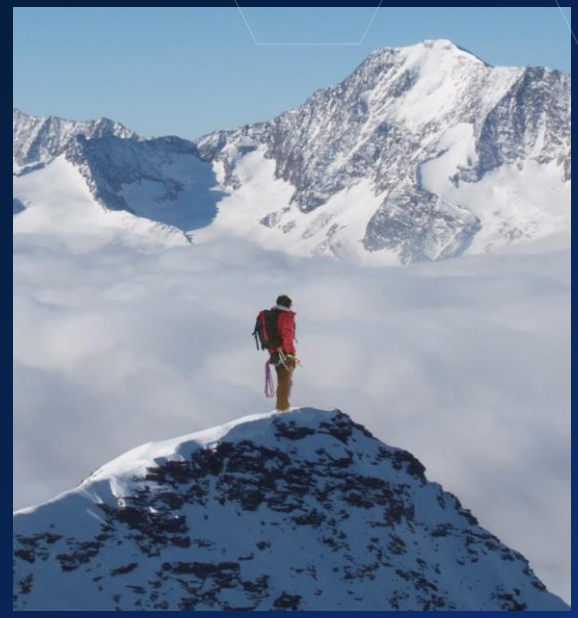
02

What is the state of biopharma R&D innovation originating from China?



03

Can innovation be sustained under the current ecosystem conditions?



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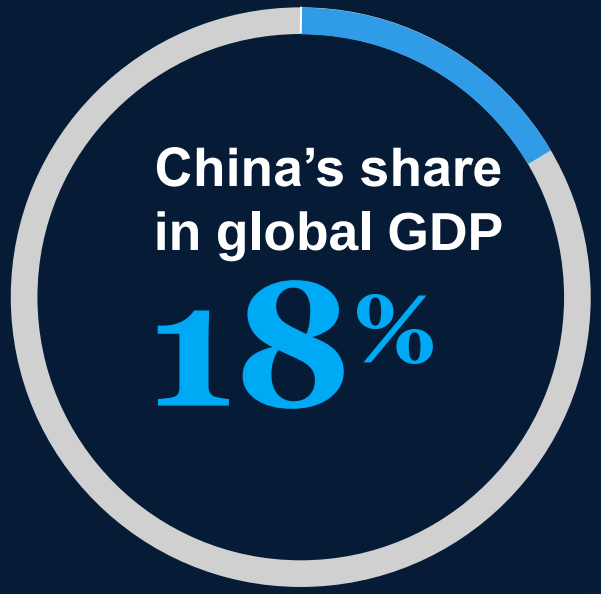
What could future success look like?

01

What is the 5-10 years outlook for the China innovative biopharma market?

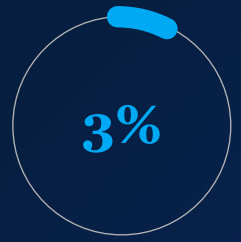
China contributes 3% of the global innovative biopharma market, highlighting a significant opportunity for growth



China's contribution to global market

Biopharma (innovative and Gx)

Innovative biopharma only



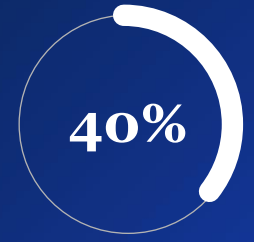
MedTech

Consumer healthcare

Consumer goods

Auto

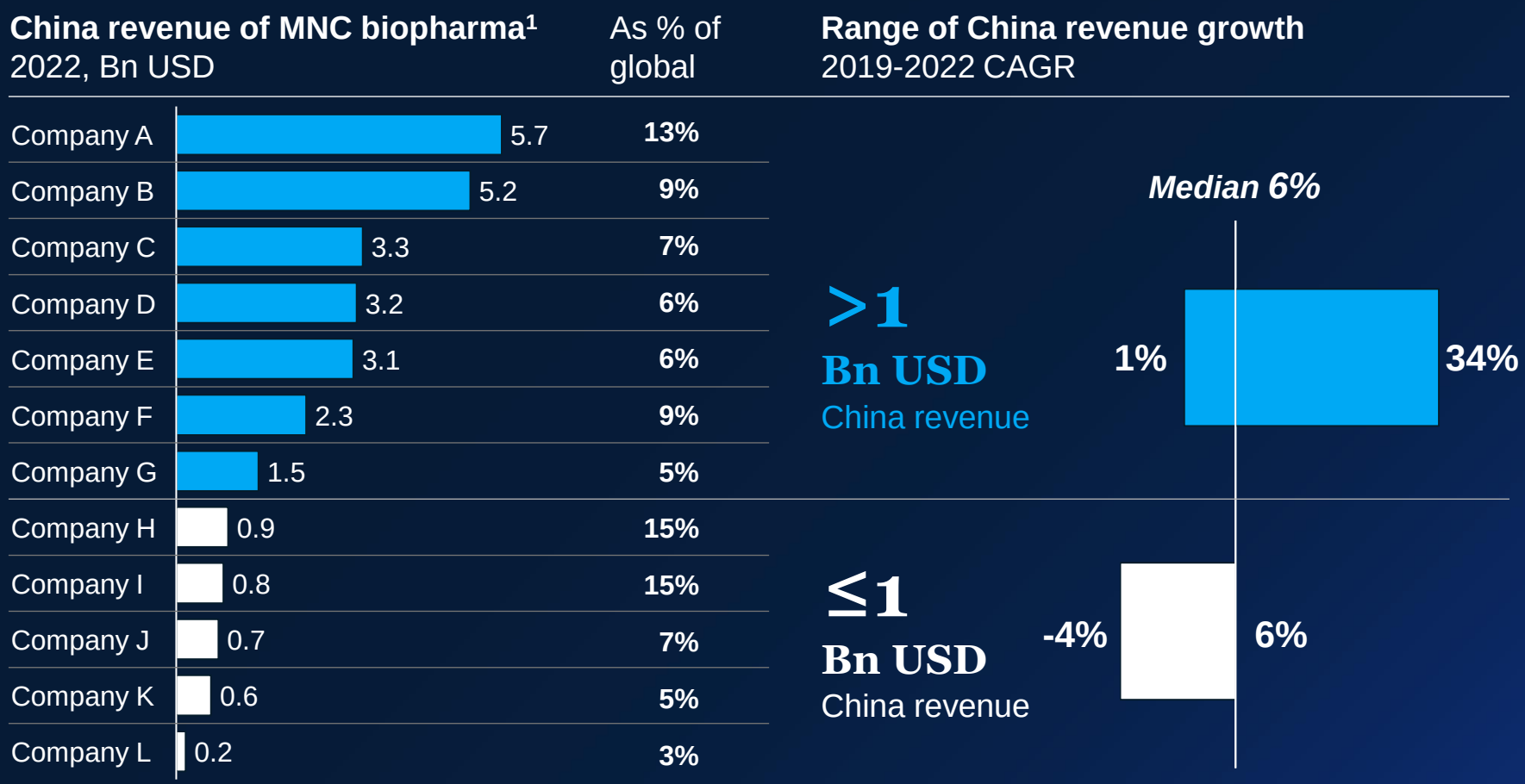
Chemical



Source：IHS Market (S&P); CEFIC; Euromonitor; Press search; McKinsey analysis

Diverging performance of MNC biopharma in China, driven by portfolio mix and strategic stance

Growth performance varies for MNCs with different China business scale



1. N=12, selected 12 companies from top 50 global biopharma that reported China pharmaceutical revenue in their annual report. The total China market revenue of the 12 companies is 27 Bn USD in 2022

Source: Company annual report; McKinsey analysis

Key performance drivers

Top-down commitment from CEO downward

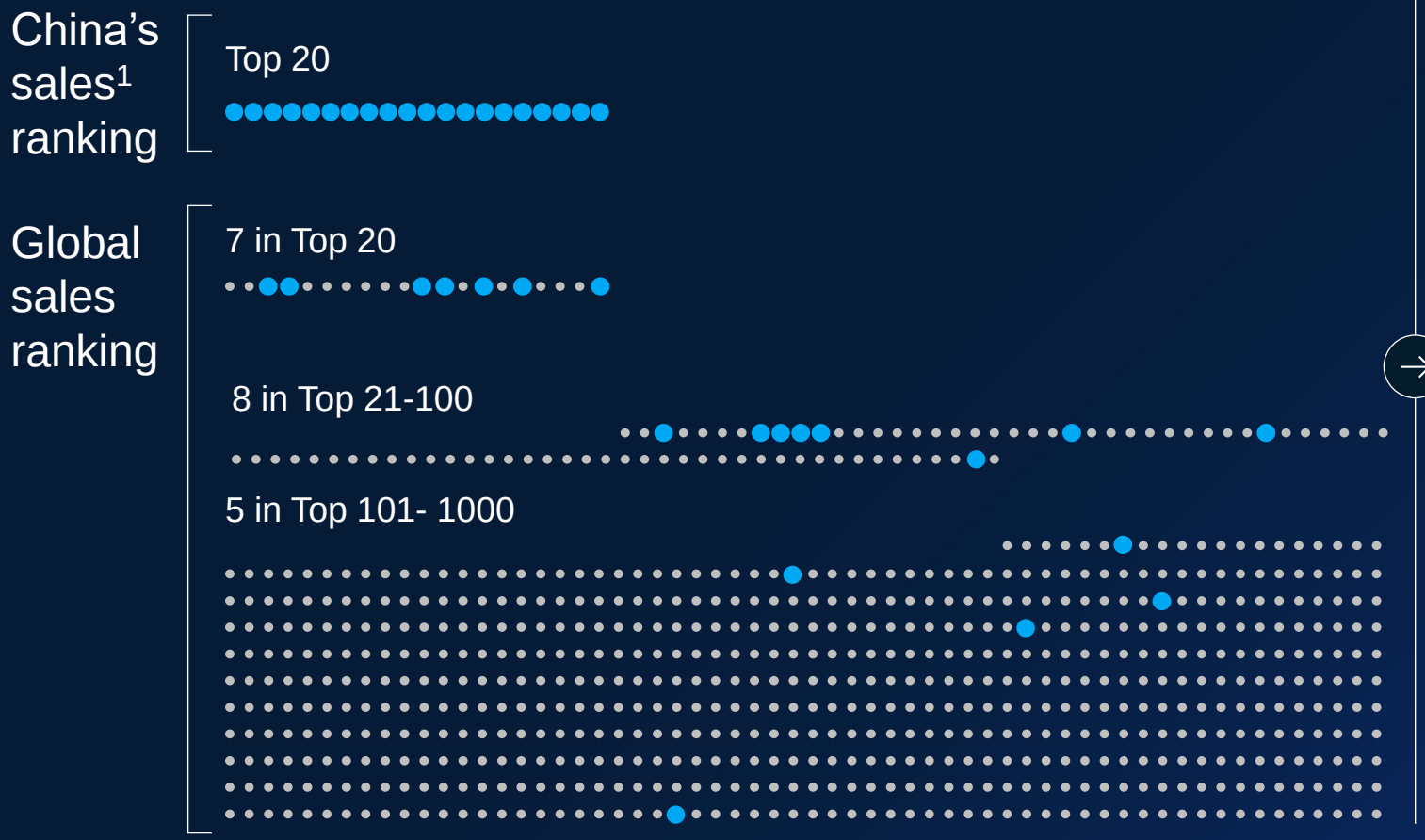
Portfolio mix and market relevance

Commercial scale, capability and investment

GTM innovation and ecosystem building

Top selling innovative MNC drugs in China differ from global, and are characterized by large patient pool and high disease severity

Top selling innovative MNC drugs in China differ from global



Observations of China top 20 brands

% out of top 20 MNC brands in China

"Critical disease"

~50% in **oncology TA** with higher willingness to pay compared to other TAs

"Large patient pool"

~30% drugs for chronic diseases[2] with rising "healthcare consumerism"

"NRDL"

~90% listed in NRDL, enabling broader access to patients

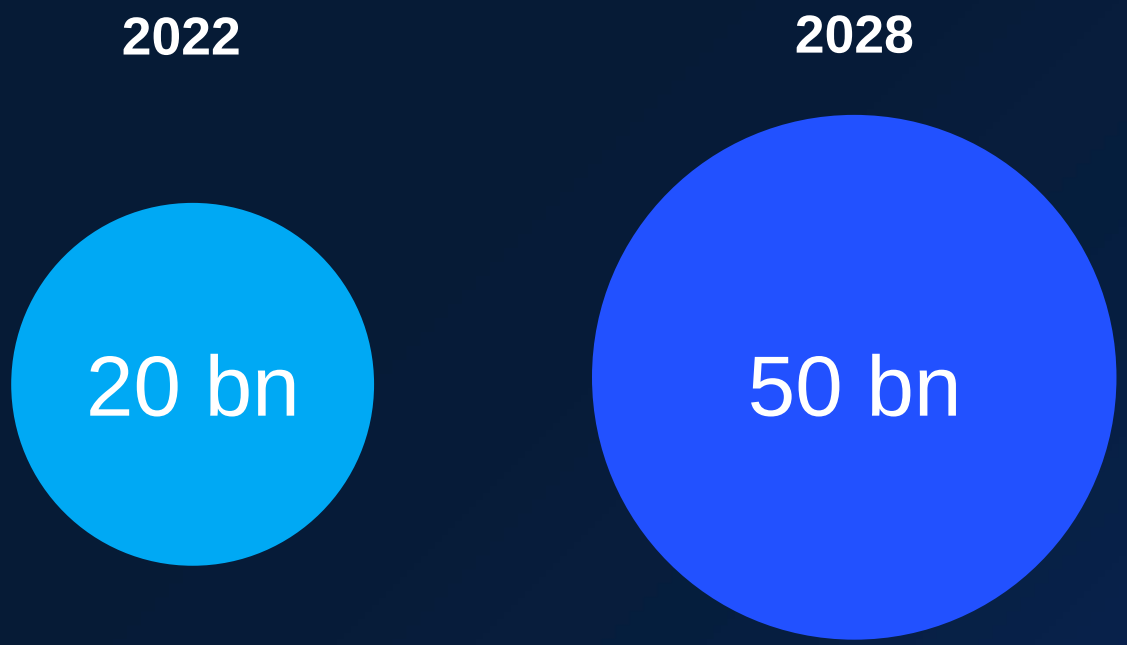
1. Top selling MNC Rx drugs in China launched since 2017, not including vaccine products
2. Including metabolism, cardiovascular, dermatology and immunology

Source: PDB; Evaluate Pharma; McKinsey analysis

What could 2028 look like?

China innovative drug[1] market size

Bn USD



	2022	2028
MNCs	15	30
Locals[2]	5	20

Key conditions for growth

NDA approvals at a stable level of ~50 per year

Market access conditions steadily improve, with gradual shift of BMI funds towards innovative products

Continued investment in market shaping by both MNCs and locals

1. Pre-LOE innovative Rx products, include both therapeutic drugs and vaccines; at ex-manufacturer price
2. Including both China-originated assets and license-in assets of China-originated biopharmas/biotechs

Source: McKinsey analysis

Local innovations expected to increase contributions to the China innovative biopharma market with continued momentum

Growth of local pipeline across modalities and TAs

500+ **innovative INDs[1]** initiated by China-originated biopharma[2] each year

23% **CAGR of INDs[1]** initiated by China-originated biopharma from 2018 to 2022

Local innovations reaching commercial stage

Increasing China NDA[3] contribution from China-originated biopharma[2]

xx (xx%)
xx - # of NDAs from China originated biopharma[3]
(xx%) - % of overall NDAs in China

Commercial ramp up of local innovative brands

100
China-originated innovative drugs approved in China since 2018[4]

$2 Bn
Commercial value of top 10 local innovative products (incl. China and overseas revenue) in 2022

1. Numbers of INDs consolidated at molecule level, including therapeutic drugs and vaccines
2. China-originated biopharma defined as companies with HQ in China
3. China-originated assets only, not including licensed in assets
4. From 2018 to 2023Q3

Source: Press release; GBI; DXY; WIND; McKinsey analysis

Steady improvement of market access; ample room remains to improve access to innovative drugs

Continued improvements on NRDL listing and re-negotiation

1 Faster NRDL listing

Average # of years from approval to NRDL listing (2018 vs. 2022)

2 More transparent and streamlined NRDL re-negotiation process

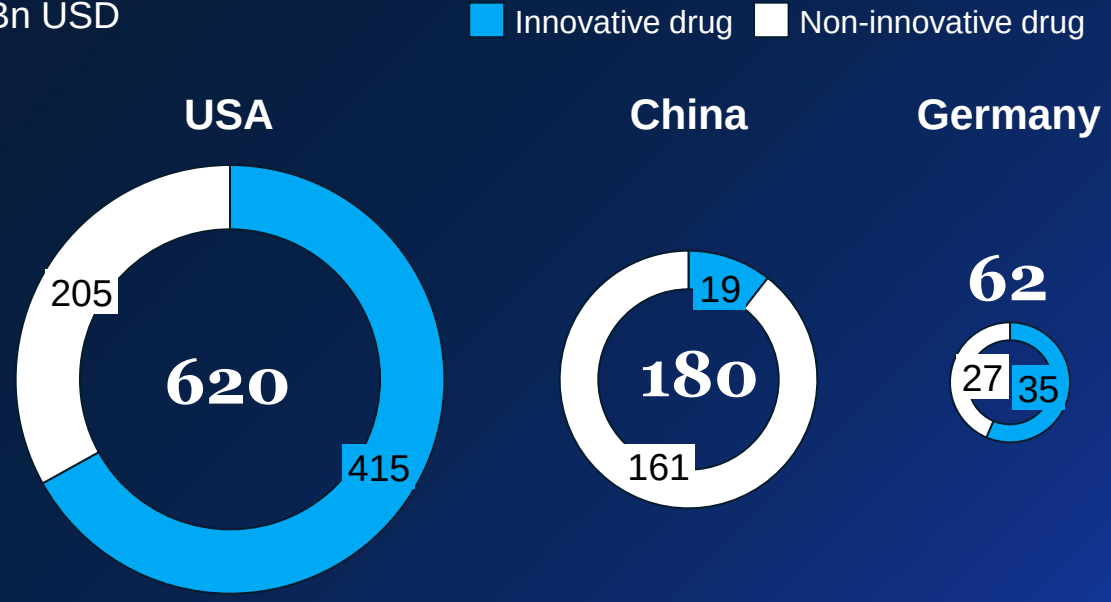
"Rules for Reimbursement Renewal of National Reimbursement Drug Listed Drugs Subject to Price Negotiation" (2023 Edition)

Defined clear **pathways for NRDL renegotiation**[1],with more transparency and predictability

Room to further improve access for innovative drugs

2021 pharma market size

Bn USD



1. Routine catalogue management, simple renewal and re-negotiation

Source: Press release; NHSA; WHO Global Health Expenditure database; McKinsey analysis

02

What is the state of biopharma R&D innovation originating from China?

Four lenses to assess the state of China biopharma R&D innovation

Patient

Early signs of expanding patient access (with more affordable innovations) and **earlier access** (accelerated by 1-2 years in the last 5 years) **to global innovations**

Gaps still exist as only 25% of FDA approved drugs in the last 5 years are approved in China

Capital

After a decade of rapid growth (100+ Bn USD market cap and 60 listed companies), **China's biopharma innovation capital market is in reset mode** (market cap of 2/3 biotechs' declined by 50%+ from peak)

PE/VC investments returning to pre-2020 levels

Innovation

Continued momentum of China-originated innovation with 400+ INDs and 30+ NDAs over first 3 quarters in 2023

China-originated innovation increasingly seeking global value capture through out-licensing (~30 each year) and FDA/EMA registrations

Society

Emergence of 4 leading biotech innovation clusters in China, hosting 8.5K+ biotechs

30K+ job opportunities added by top 10 listed biotechs

Biotechs' GDP impact remains limited, as most companies are not yet making profit or positive TSR[1]

1. Total shareholder return generated by a stock, calculated using [(current price – purchase price) + dividends] / purchase price

Source: Company annual report; BCIQ; Preqin; WIND; Evaluate Pharma; FDA; CDE; PharmaDeals; GBI; DXY; McKinsey analysis

Patient: Expanded patient access with the emergence of “affordable innovations” – PD-(L)1 example

China ~400-500K[1]
patients covered in 4 years after launch

USA 200K[2]
in 8 years after launch

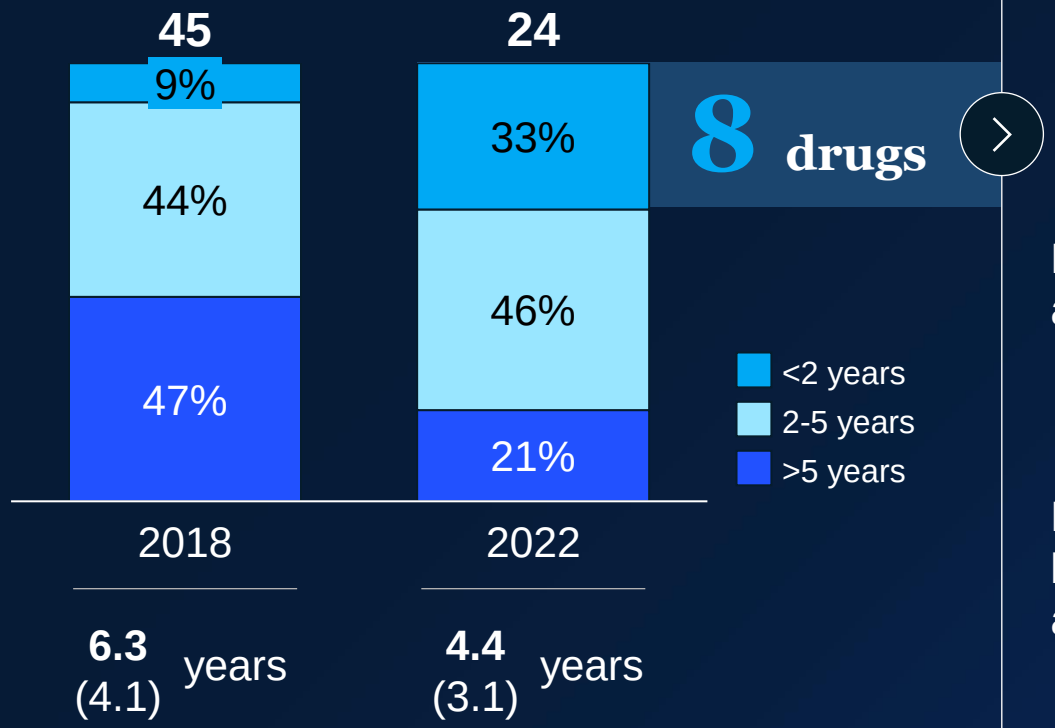
	Top 4 local brands	Top 4 MNC brands
% of patients treated with PD-(L)1 in 2022[1]	~85%	<10%
Hospital coverage	3-5K	1-2K
Annual out-of-pocket PD-(L)1 treatment cost in 2022[1], USD	**Local brands** (post NRDL reimbursement) ~1K	**MNC brands** (post-PAP) ~20K

1. Factor in 6-month real world DoT based on mPFS data and clinical KOL inputs
2. Evaluate Pharma estimation

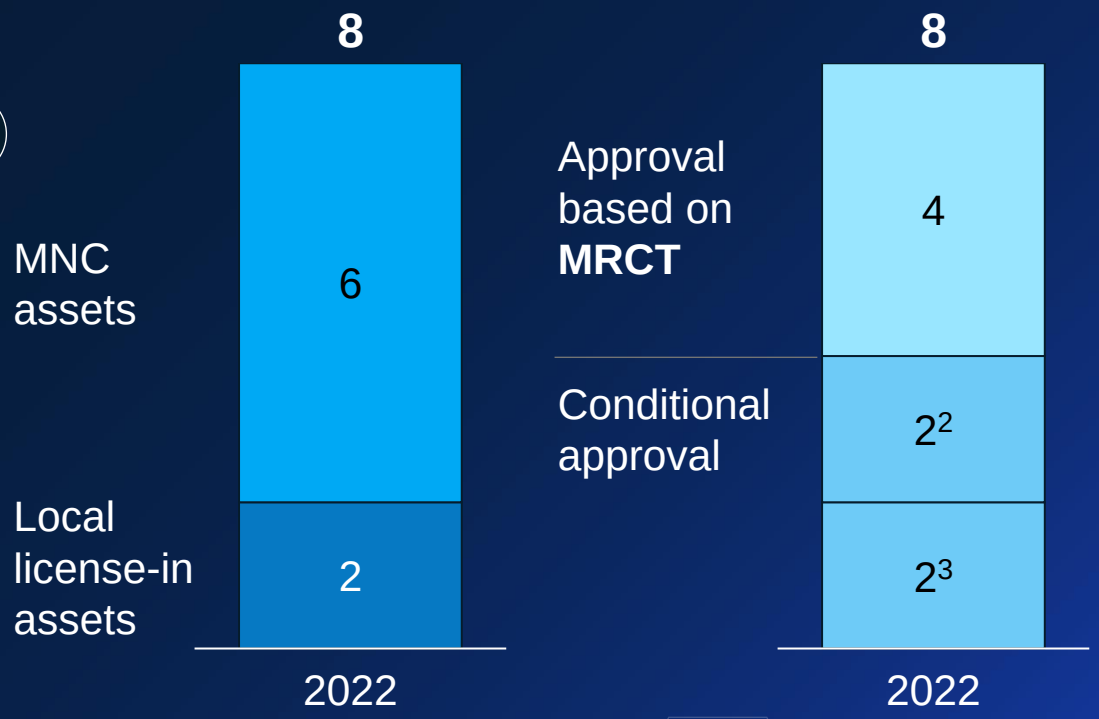
Source: Press release; NHSA; Evaluate Pharma; McKinsey analysis

Patient: Earlier access to global innovative drugs with shortened launch lag

Launch lag of imported drugs has been shortened
(Distribution by launch lag time, 2018 vs. 2022[1])



Drugs launched within 2 years of global 1st launch benefited from MRCTs and conditional approvals
# of drugs



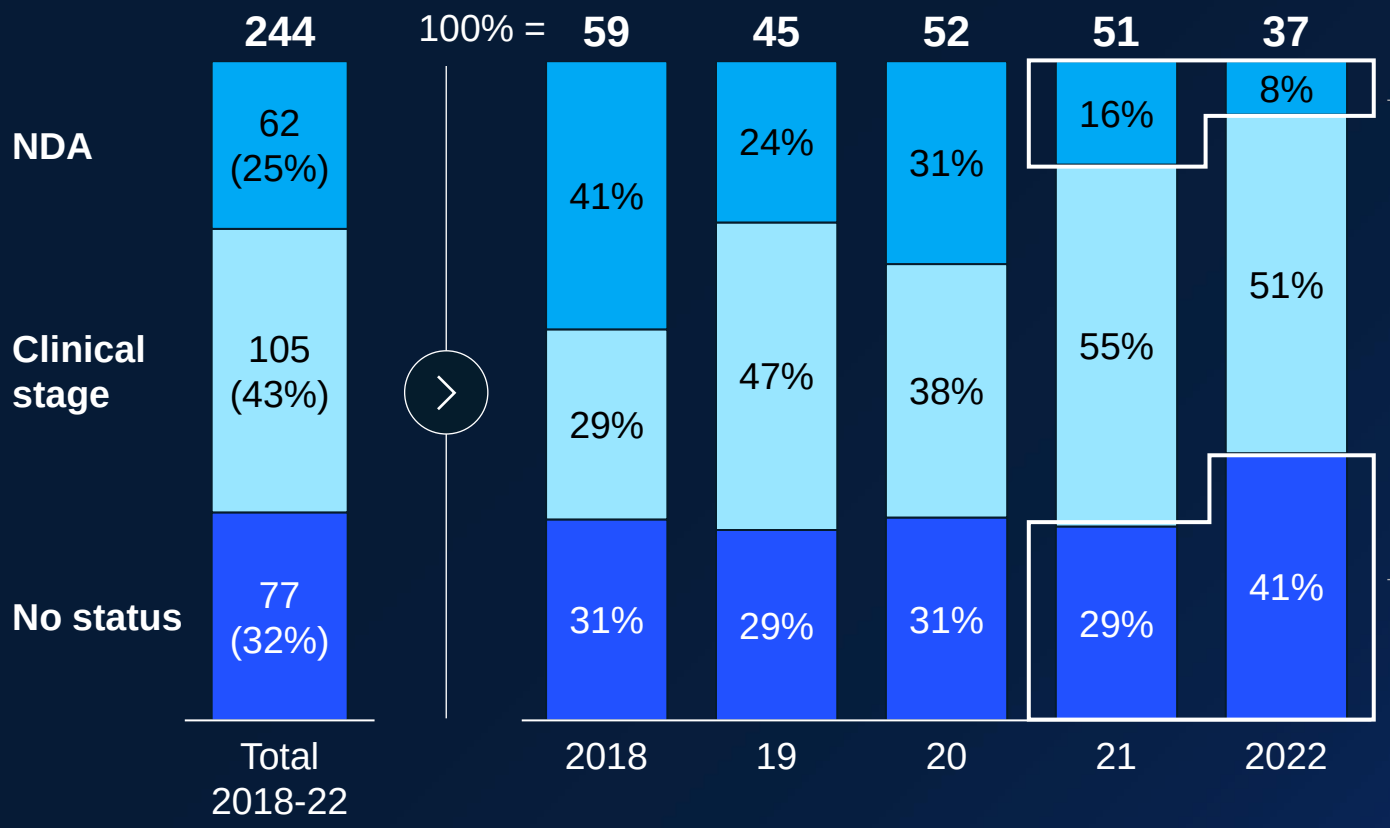
1. Launch lag of imported drugs (include both MNC and local license-in drugs) defined as the years between global first launch and China launch
2. Granted conditional approval to fulfill urgent clinical unmet needs (COVID, cholangiocarcinoma),incl. one using oversea Ph III trials for registrational approval, and the other one using oversea Ph II trial with local bridging Ph I + Ph II trials for approval
3. Granted conditional approval to fulfill clinical unmet needs (rare disease, ES-SCLC); both used overseas trial data for registrational approval

Source: GBI; DXY; McKinsey analysis

Patient: Gaps still exist as only 25% of FDA approved NMEs in the last 5 years have been launched in China

China regulatory status of NMEs approved by FDA

of NMEs, by FDA approval year



11 drugs

55% (n=6) **MNC:** All through MRCT including China patient data

45% (n=5) **Local license-in assets with accelerated approval[1]**

30 drugs

Limited market value in China (e.g., limited potential, highly-competitive, subject to special regulations)

Biotechs/Small-cap with no presence in China

1. 2 conditional approvals, 2 bridging and MRCT, and 1 local PhIII trial

Source: FDA; DXY; GBI; Evaluate Pharma; McKinsey analysis

Capital: Following a decade of rapid development, China's biopharma innovation is experiencing a "reset" phase amidst a global downturn

Emergence phase
Prior to 2017

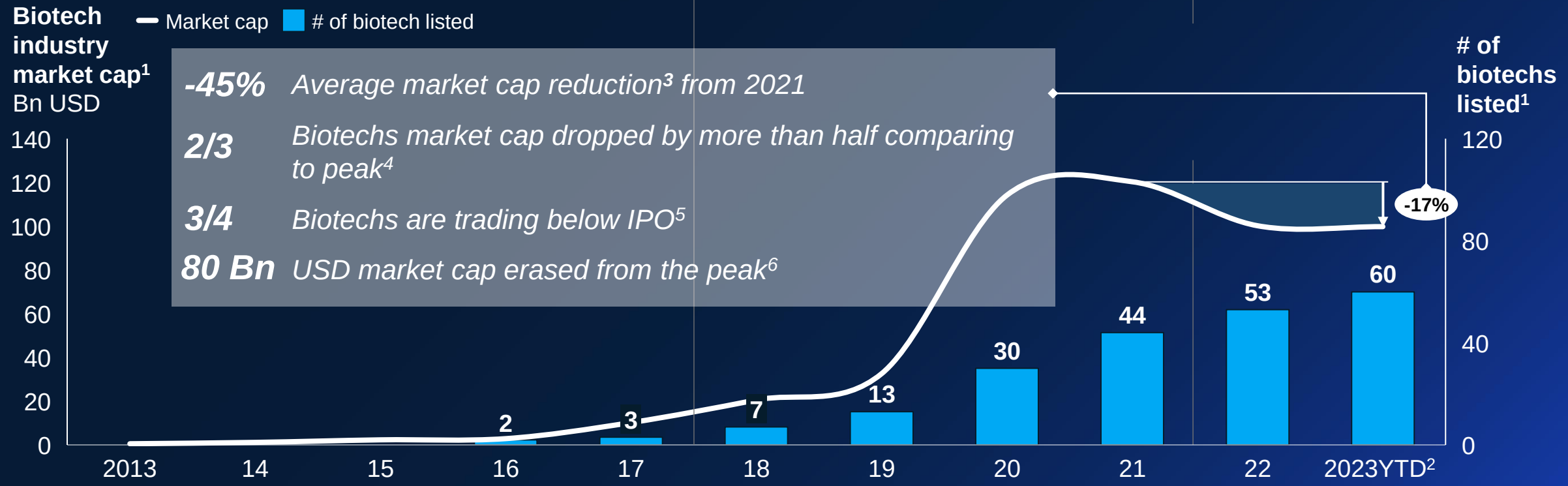
1st wave innovation accelerated with regulatory integration, sufficient funding and "returnee" talents

Exuberance phase
2018-2021

Catalyzed by flourishing funding (entrance of generalist investors) and new IPO channels (HKEX chapter 18A, SSE STAR)

Reset phase
2022 onward

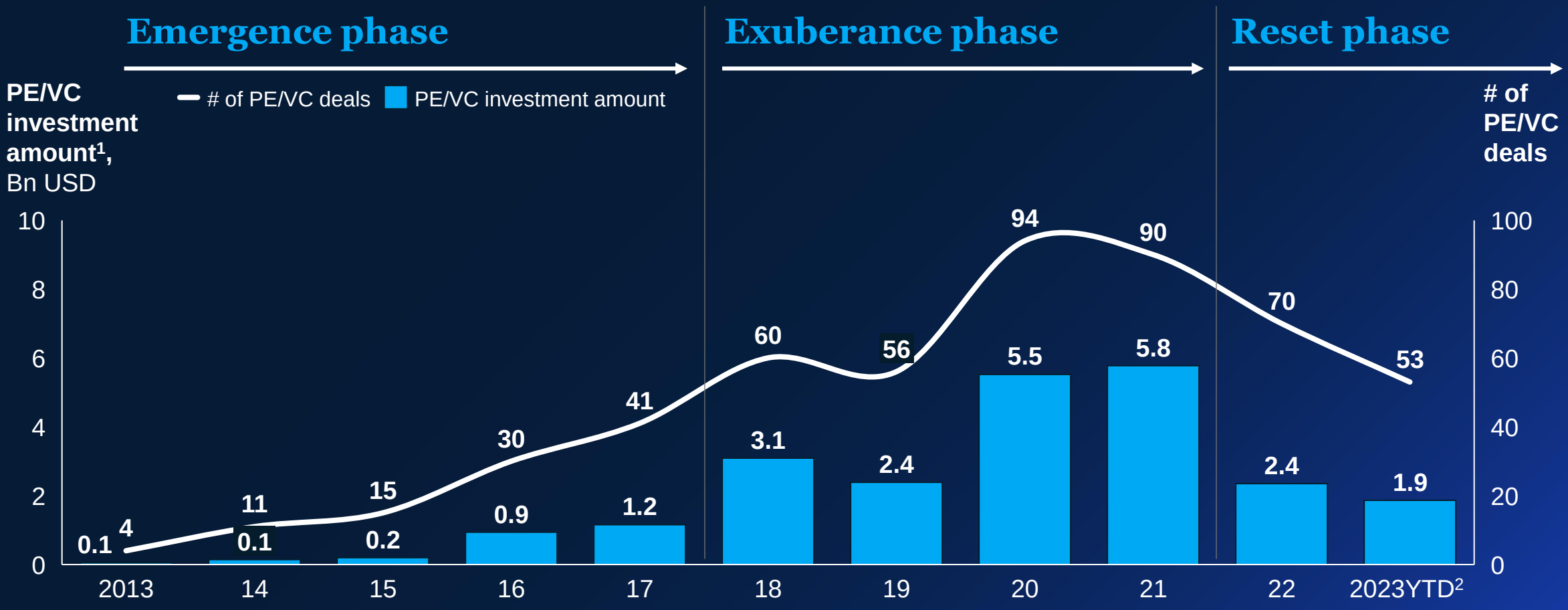
Drastic market correction mirroring global biotech trends



1. Including 60 China-headquartered biotechs focusing on innovative drugs, and are listed in Nasdaq, HKEX Chapter 18A, and SSE STAR Market since 2013. Market cap prioritized Nasdaq if dual listed in Nasdaq and HKEX chapter 18A (BeiGene & ZaiLab) and if dual listed in HKEX chapter18A and SEE STAR (RemeGen & TopAlliance) we took the cumulative value of both (share price * shares outstanding of that particular class) to arrive at the total market cap. Data used the closing market cap on the last day of each year. Excluded biotechs that focus on vaccine only
2. As of Oct 12, 2023 3. Included 44 companies with market cap data available from 2021 to 2023 4. Peak market cap in history since IPO 5. Compared Sept 2023 average daily share price vs. IPO day 6. Compared summed market cap of biotechs (n=35) listed by June 2021 (the market cap peak month)

Source: Capital IQ; Nasdaq; McKinsey analysis

Capital: PE/VC investment has returned to pre-2020 levels



1. PE/VC fund investment in biopharma
2. As of Sep 14, 2023

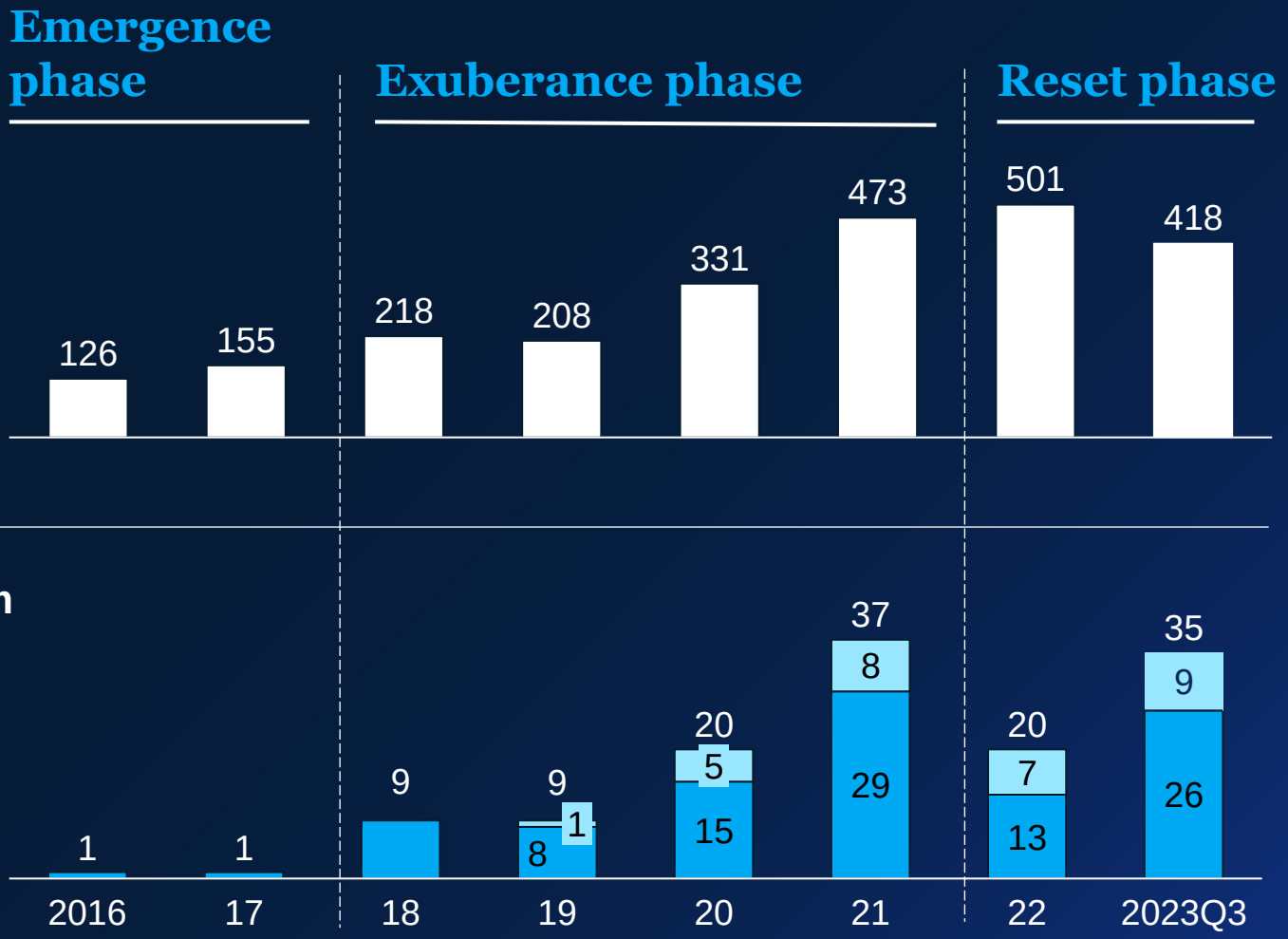
Source: BCIQ; McKinsey analysis

Innovation: Continued momentum of INDs and NDAs in China

# of China INDs[1] initiated by China-originated biopharma

by innovative molecules

# of China NDAs[1] from China-originated biopharma

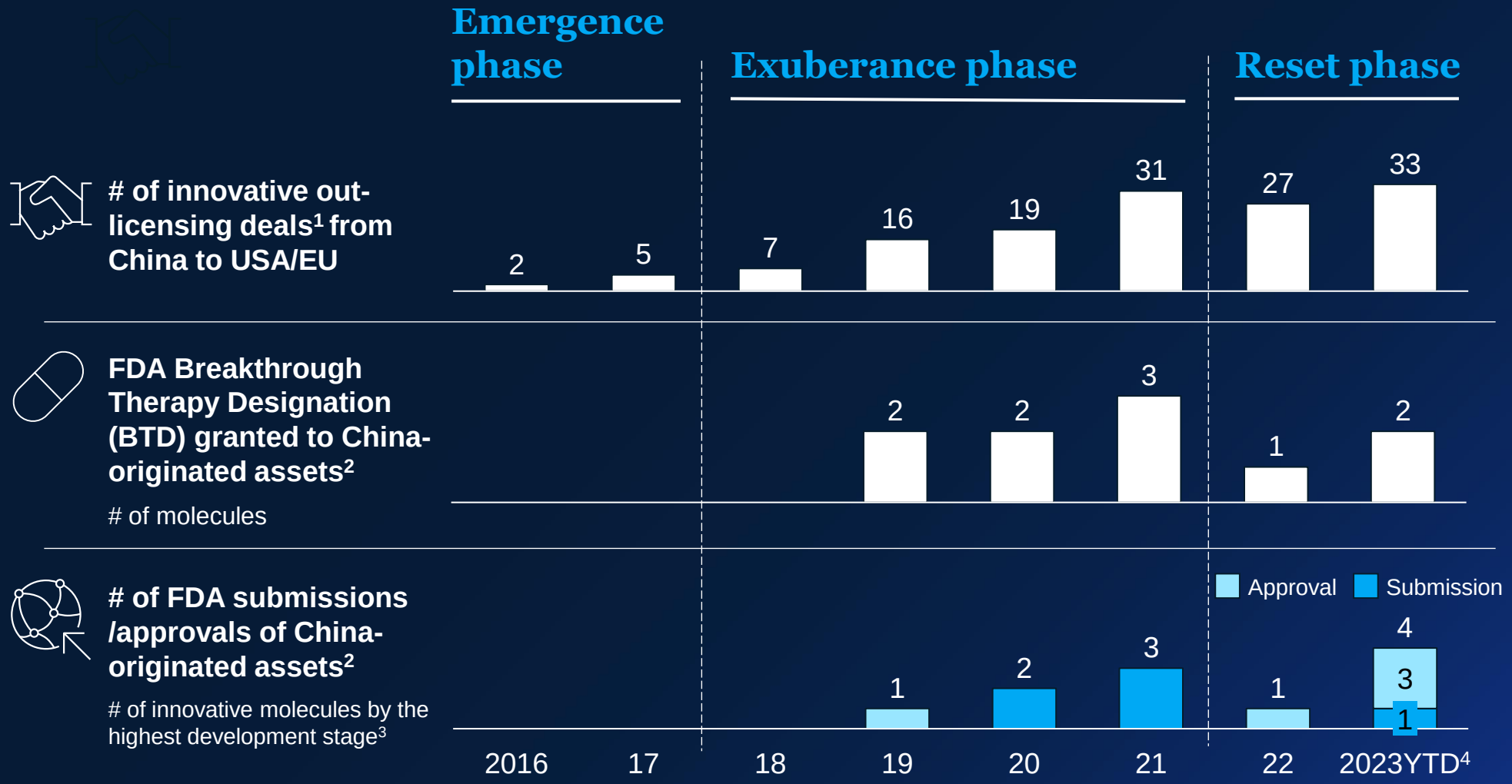


Continued momentum of INDs and NDAs from China-originated biopharma (exception in 2022 due to COVID)

1. Include therapeutic drugs and vaccines

Source: GBI; DXY; McKinsey analysis

Innovation: China-originated innovation is starting to show impact on the global stage



Stable out-licensing momentum with ~30 deals each year since 2021

A small set of assets have started pursuing FDA registration path to realize global potential

1. Innovative asset-based deals with licensor being China HQ companies and deal rights territory including USA/EU markets. Deals included 14 discontinued deals
2. Assets developed by China-originated biopharma 3. For the 5 FDA NDAs: Brukinsa filed in 2019 and approved in 2019, Carvykti filed in 2020 and approved in 2022, Fruzaqla filed in 2023 and approved in 2023, Loqtorzi filed in 2021 and approved in 2023, Ryzneuta filed in 2021 and approved in 2023 4. As of Nov. 17, 2023

Source: GBI; Evaluate Pharma; Pharma projects; FDA; McKinsey analysis

Society: 4 Leading innovation clusters hosting 8.5K+ biotechs/biopharma and creating abundant job opportunities

Emergence of 4 leading biotech clusters in China

12+

biotech innovation hubs[1]

8.5K+

Biotechs/biopharma in the leading hubs

3 leading hubs[1]
1K+ biotech/biopharma companies in leading hubs

4 leading hubs[1]
4K+ biotech/biopharma companies in leading hubs

2 leading hubs[1]
2K+ biotech/biopharma companies in leading hubs

3 leading hubs[1]
1K+ biotech/biopharma companies in leading hubs

Abundant high value-add job opportunities created in China

32K+

Employees in top 10 biotech companies[2]

1. Leading hubs in Bohai Rim cluster located in Beijing, Tianjin and Jinan; leading hubs in Yangtze River cluster located in Shanghai, Suzhou, Hangzhou, Wuxi; leading hubs in South China cluster located in Shenzhen, Guangzhou, Xiamen; leading hubs in Mid-west cluster located in Wuhan and Chengdu
2. Ranked by market cap as of Q3 2023

Source: Press release; WIND; Company annual report; McKinsey analysis

Society: Leading China-originated biopharma are establishing global footprints

Global footprints of top 10 China-originated biotechs[1]

Out of the top 10 biotechs[1]

9 established overseas footprints in a total of 15+ countries

3 set up full value chain footprints in USA and/or EU

6 set R&D centers in USA, EU and/or Australia

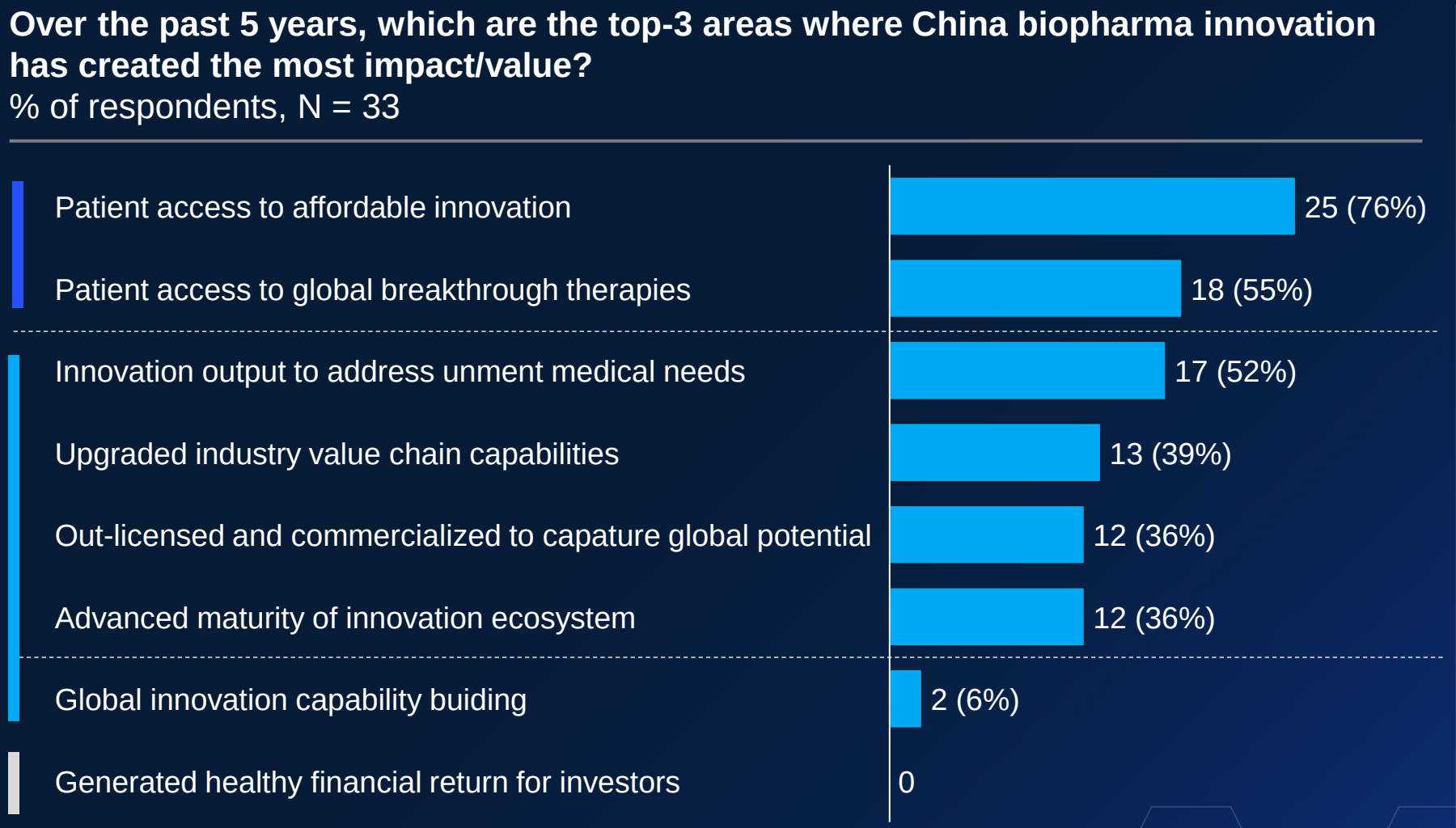
3 built manufacturer sites in USA and/or EU

1. Ranked by market cap, data as of Oct. 2023

Source: Press release; Mckinsey analysis

Improving patient access, innovation capability and outputs are among the top value creation drivers by the industry in the past 5 years

Over the past 5 years, which are the top-3 areas where China biopharma innovation has created the most impact/value?
% of respondents, N = 33



Expanded patient access ranked at the top, followed by capability and innovation both in terms of input and output

Globalized capability building and generating viable financial return remain challenging

Source: McKinsey “momentum of China-originated biopharma innovation” executive survey (N=33), 2023

“Growing pains” for China biopharma innovators to reflect and learn

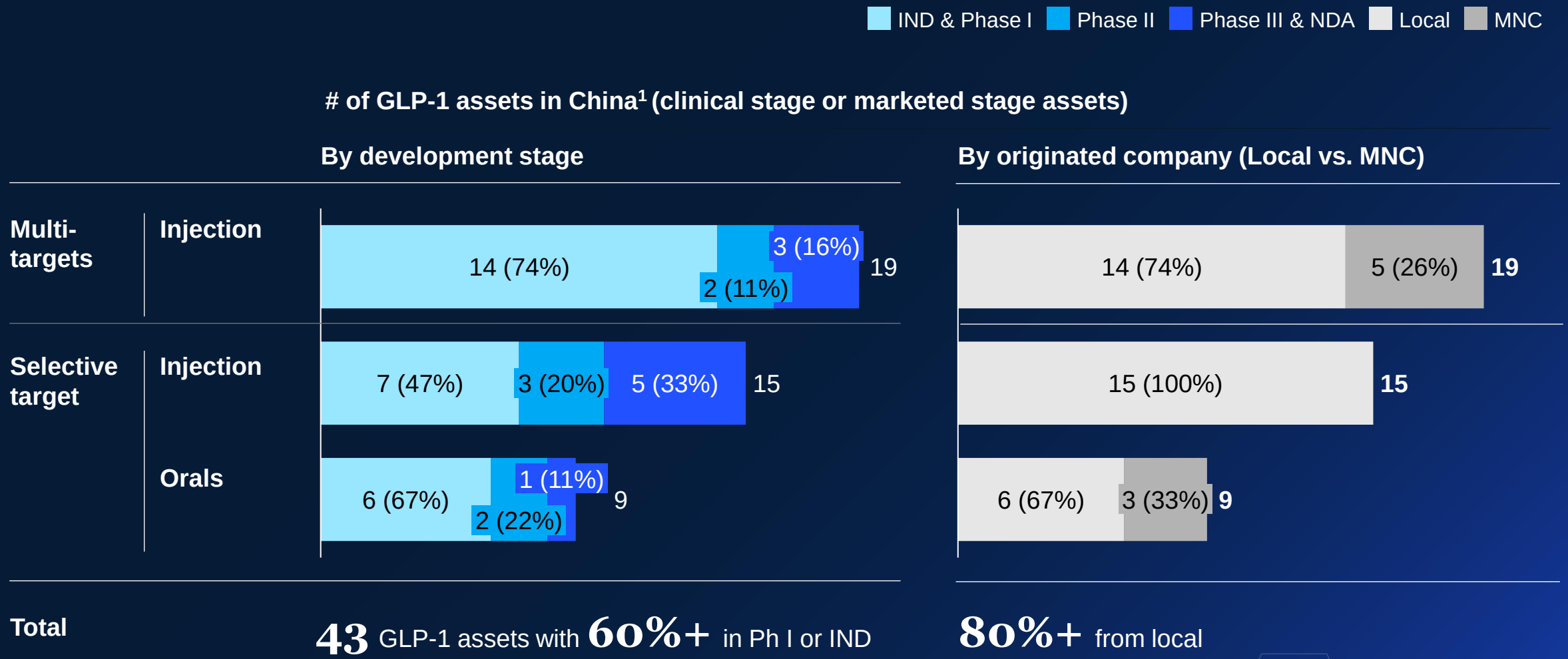
Management team/Investor capability | Clinical development direction/approach | Internal Control

Reflecting on the past 5 years, which might be the top-3 areas that have stalled long-term value creation in the China biopharma ecosystem? (multiple choices)
% of respondents, N = 33

> “From an investment perspectives, we are learning our lessons and staying away from herding/me-toos. We are looking at differentiation, the management team and capabilities.
>
> Investors that remain in biotech investment are more specialized and cautious, and we are getting back to the basics, which are science and team.
>
> **- Leading investors**

Source: McKinsey “momentum of China-originated biopharma innovation” executive survey (N=33), 2023

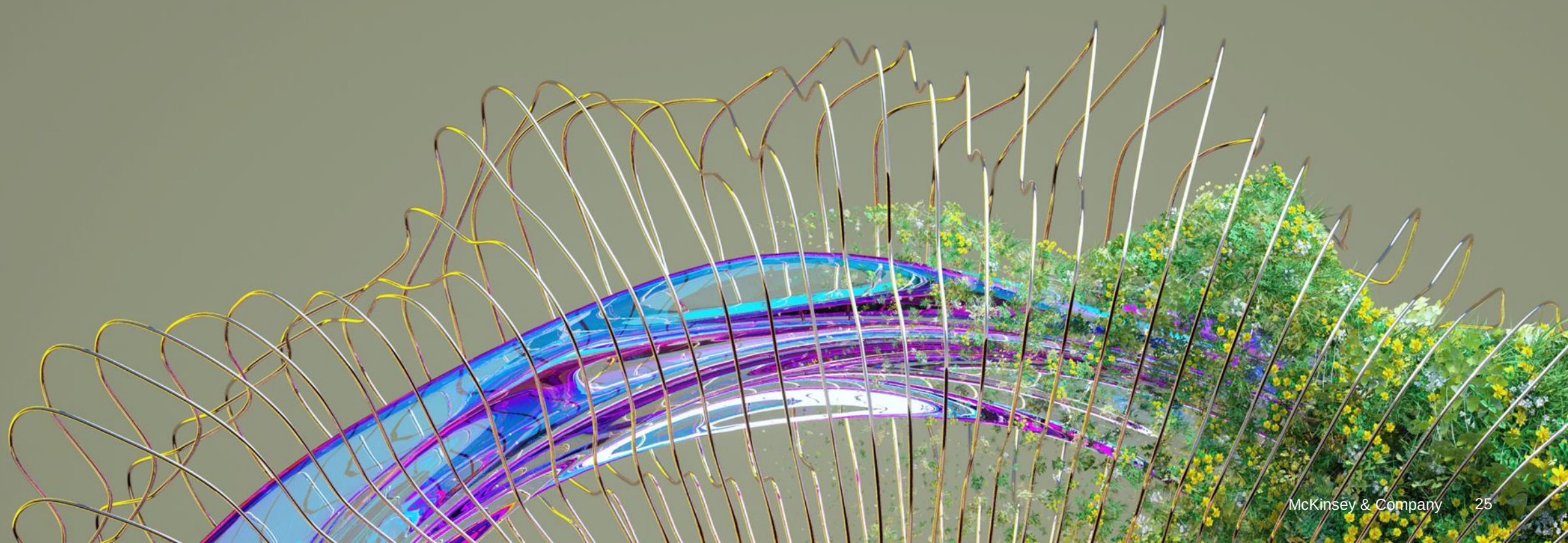
Herding - Is the GLP-1 field at risk of becoming the next PD-1?



1. As of Jun. 2023

Source: DXY; McKinsey analysis

03 Can innovation be sustained under the current ecosystem conditions?



3 lenses to assess the ecosystem sustainability and impact on global

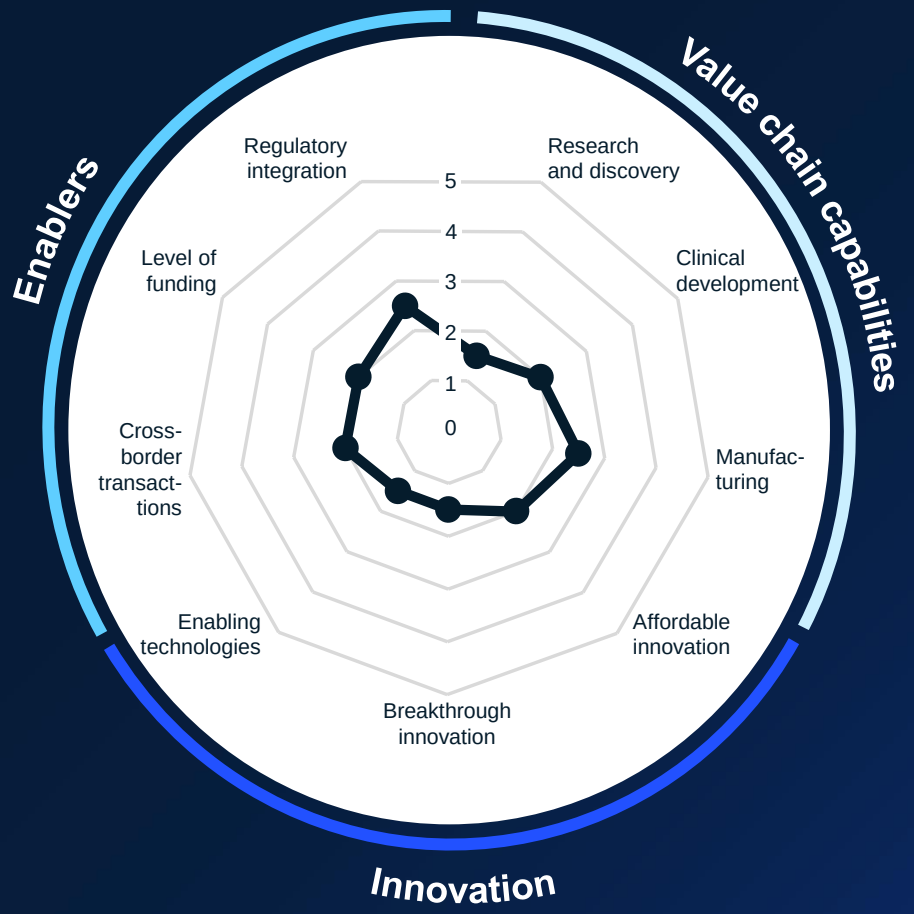
A Enablers

Regulatory integration – Continued progress on global regulatory alignment

Funding – Drastic decline in late-stage and public funding; early-stage funding level largely sustained

Cross-boarder transactions – Vibrant cross-border asset-level transactions; M&A unlikely a meaningful funding source in the near term

Where China stood in 2021[1]



B Value chain capability

Foundational capabilities in place across discovery, development and manufacturing; clear needs to further upgrade to drive global-caliber innovations

Globally-competitive CRO/CMO industry with quality and efficiency

C Innovation

“Going global” a clear pivot: despite early setbacks, innovation quality is improving evidenced by emergence of next-gen modality play and first-wave play

Leading players have begun to realize commercial potential in China and capture global value

1. McKinsey & Co. *Vision 2028: How China could impact the global biopharma industry*

Source: McKinsey analysis

9 dimensions to assess China's impact on global biopharma

A

Regulatory integration — Degree of continued integration within global regulatory framework, including application of pro-innovation regulatory changes in China

Funding — Ability to secure financing from both private investors and public markets, including potential to deploy funding outside of China

Transaction — Vibrancy of the transaction market, including domestic and cross-boarder activities at both asset-level and company-level

C

Enabling tech innovation — Level of global impact of innovative enabling platforms, including new modalities (e.g., CGT) and new technology (e.g., AI)

Where China stood in 2021[1]

B

Research and discovery — Capability to contribute to global therapeutic innovation, including scientific breakthroughs of global significance

Development — Capability to contribute to global clinical development pipeline across therapeutic areas and development stages

Manufacturing — Capability to supply global needs across modalities, including competitiveness to serve global requirements in quality and cost base

C

Breakthrough innovation — Scale of global contribution on FIC/BIC assets achieved with scientific breakthroughs that significantly outperform current SoC

Affordable innovation — Scale of global contribution on innovative drugs with validated targets to expand patient access by lower prices and maintaining quality

1. McKinsey & Co. *Vision 2028: How China could impact the global biopharma industry*

Source: McKinsey analysis

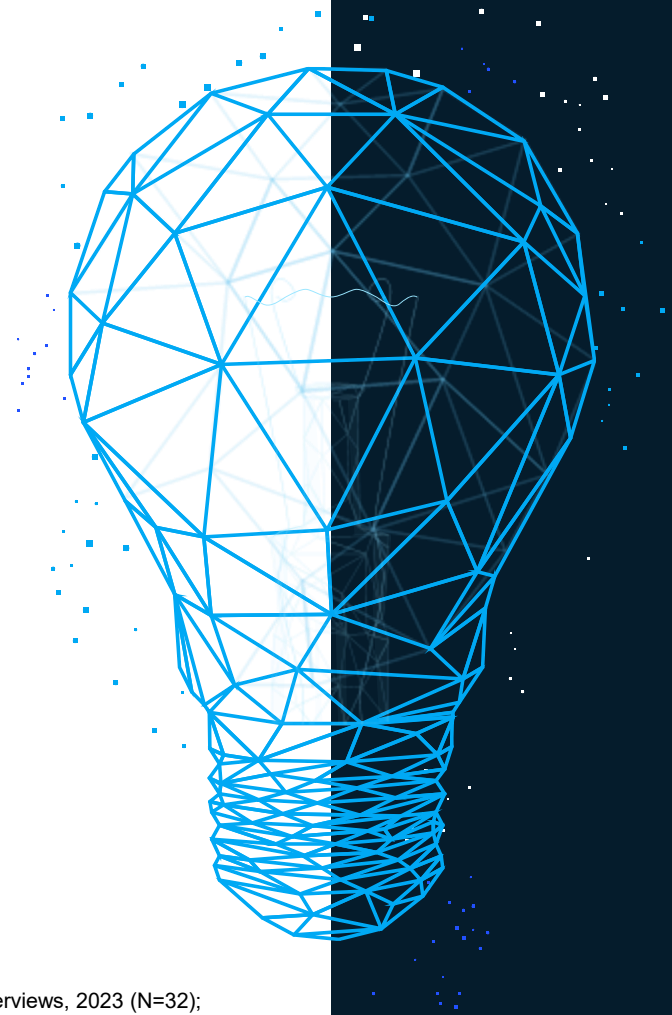
A. Do we have a viable enabling environment to support innovation post exuberance phase?

NOT EXHAUSTIVE

What could give people

Confidence

- Continued progress in regulatory integration with global
- Level of early-stage investment sustained (for now)
- Innovators pivoting towards assets with global potential, making early progress evidenced by growing number of out-licensing deals to MNCs



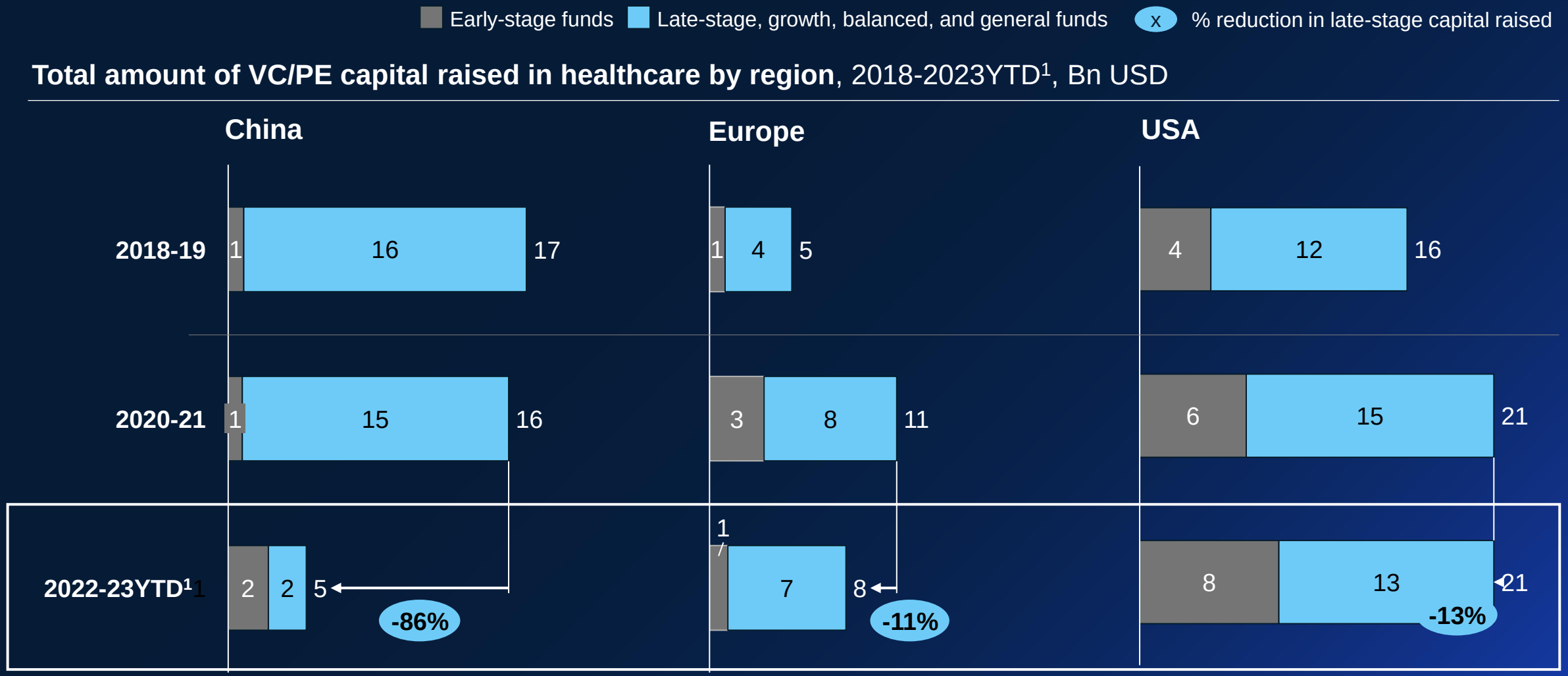
What could give people

Pause

- A prolonged “capital winter” – pull back of late-stage and public funding, closed IPO window and limited feasibility of M&A
- Market access conditions (e.g., NRDL) showing insufficient momentum towards appropriate rewards for innovation

Source: McKinsey “momentum of China-originated biopharma innovation” executive interviews, 2023 (N=32); McKinsey analysis

A. Early-stage VC/PE fundraising has sustained, but late-stage fundraising has declined most significantly in China

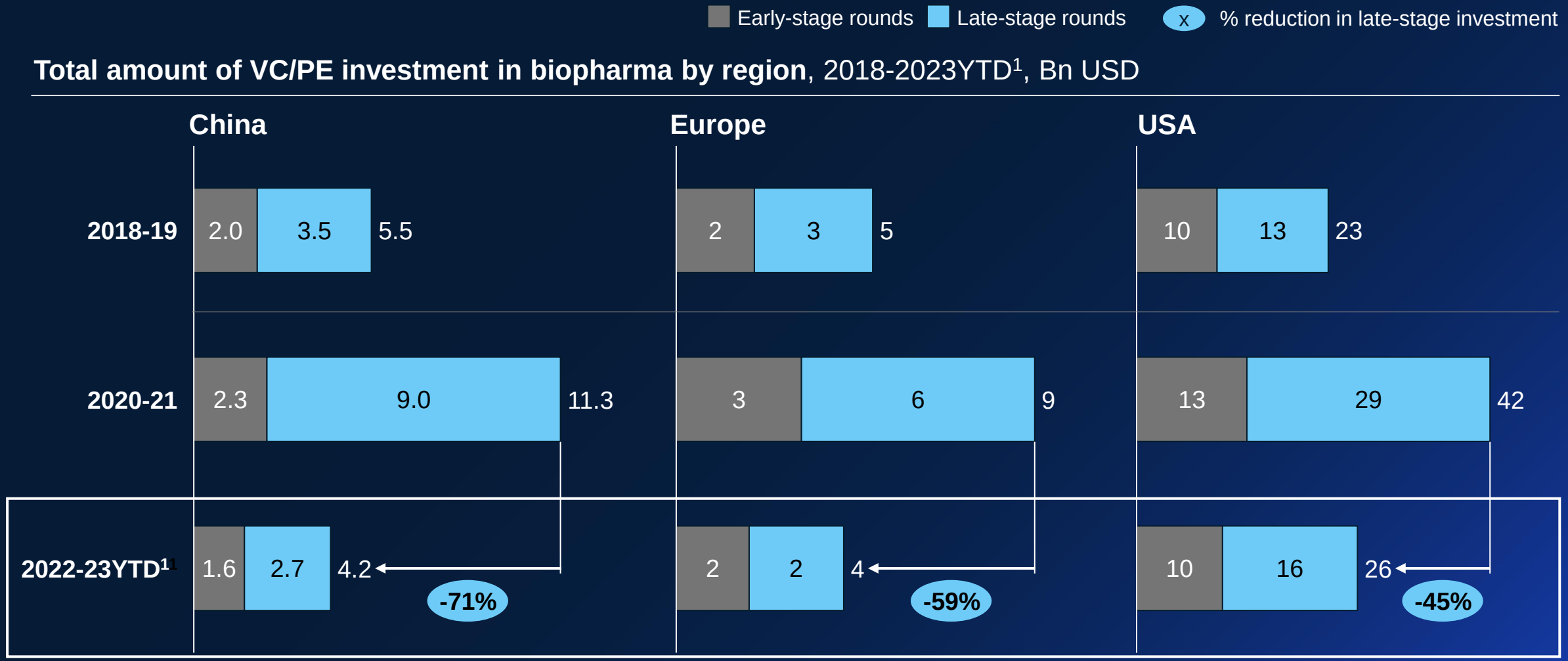


1. As of Sep 26, 2023

Note: Selected fund with core industry in healthcare. Excluding funds that are smaller than 5 Mn USD

Source: Preqin (Sep 2023); McKinsey analysis

A. Late-stage investment in biopharma returned to pre-2020 levels, while momentum of early-stage investment is sustained



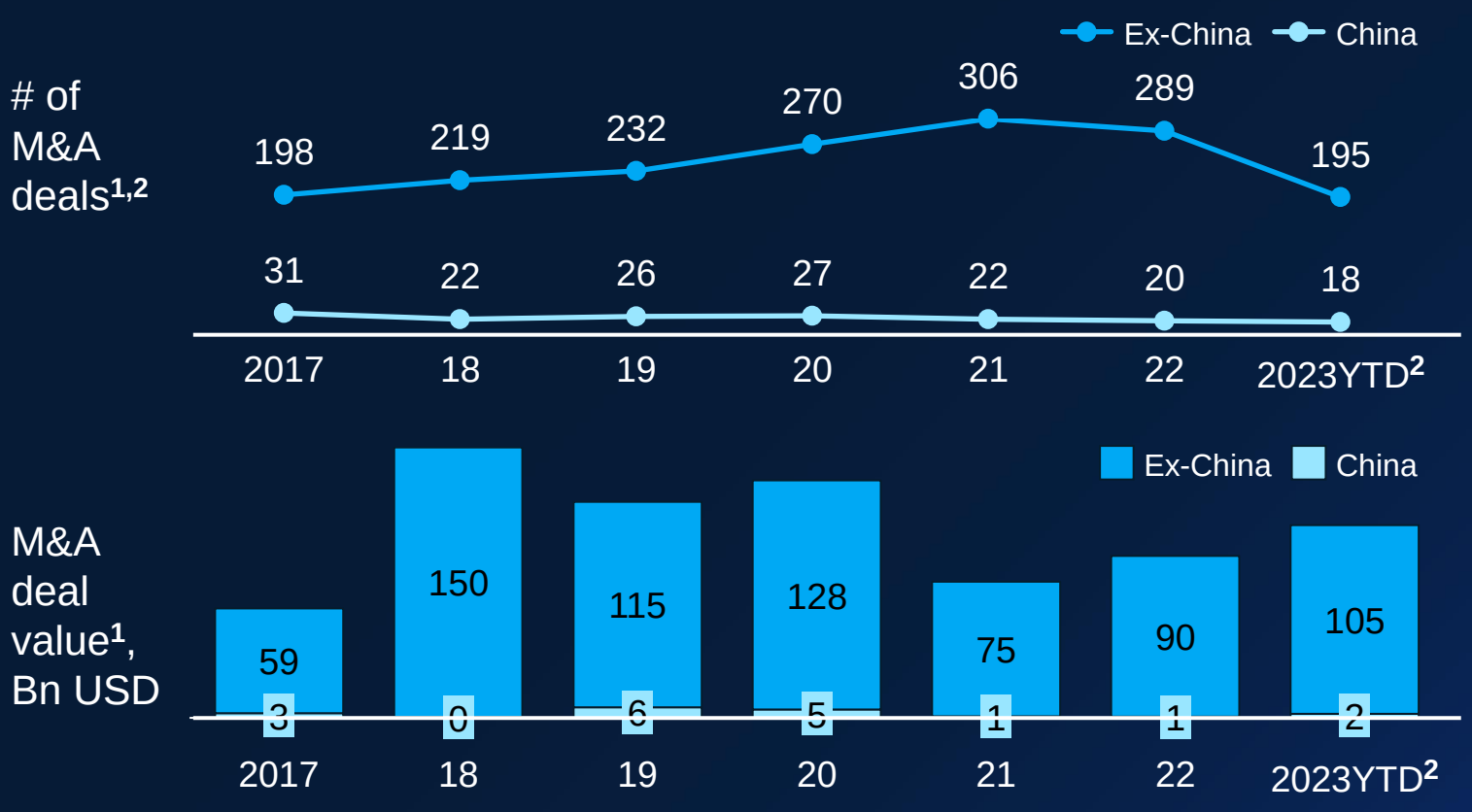
1. As of Sep 14, 2023

Note: Select investment organization type in biopharma. Early-stage rounds include seed financings and series A; late-stage rounds include series B and beyond. Not including venture (debt) and uncategorized equity rounds

Source: BCIQ (Sep 2023); McKinsey analysis

A. M&A unlikely to become a major exit path for China biotech/ biopharma companies in the short/mid term

M&A is picking up momentum globally, but unlikely to be a major exit option for China-originated biotechs/biopharma



Rationale for global M&A

- Sufficient dry powder from top MNCs[3] (~300 Bn USD)
- Hedge patent cliff: 70% revenue in 2022 are from products that will enter LOE by end of 2028

Conditions for China biotech M&A exit likely not mature

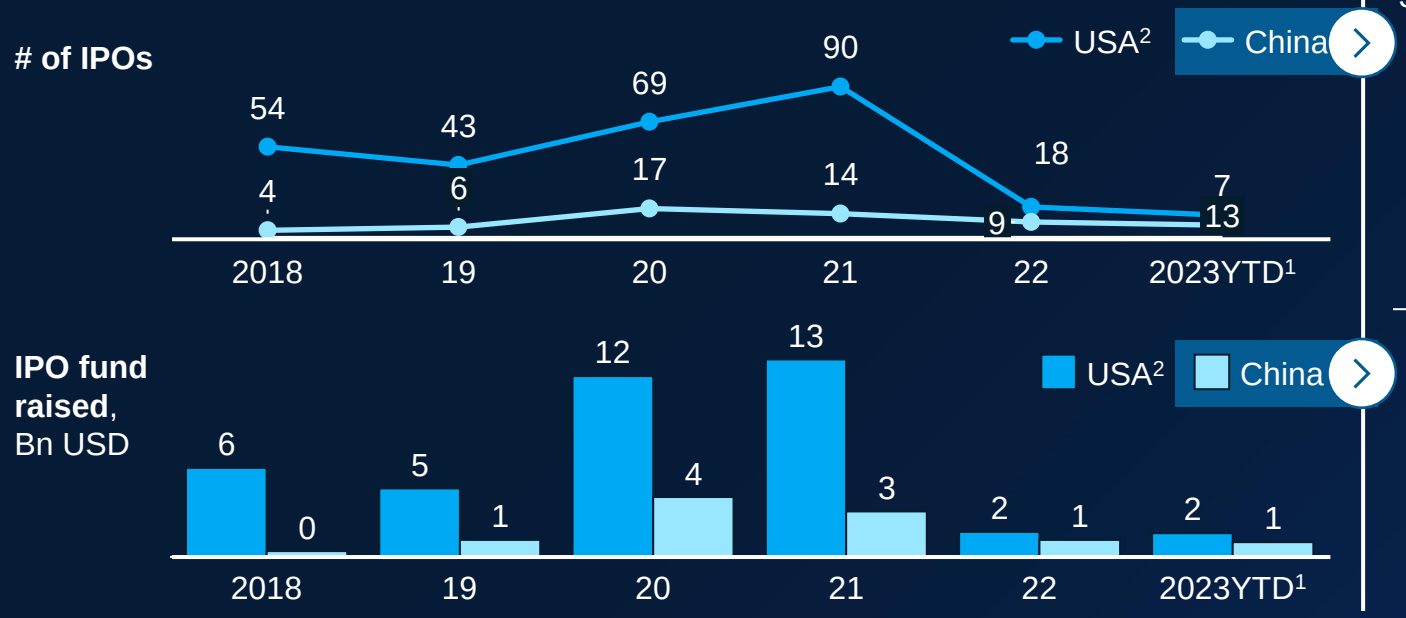
- Subpar innovation quality of the overall biotech portfolio (with many me-toos and limited value)
- Limited dry power from top China biopharma[3] (~20 Bn USD) and mismatch given similar internal pipeline and commoditized capability in biotechs
- Uncertainty in cross-border transactions with geopolitical tension and M&A related regulations

1. Target industry classification as biotechnology, transaction status as announced/effective/closed, by target geographic locations
2. As of Oct.10, 2023
3. Additional net debt capacity + cash capacity for biopharma companies. Top 10 Chinese biopharma selected from the listed pharmaceutical companies with largest # of innovative assets in the clinical stage

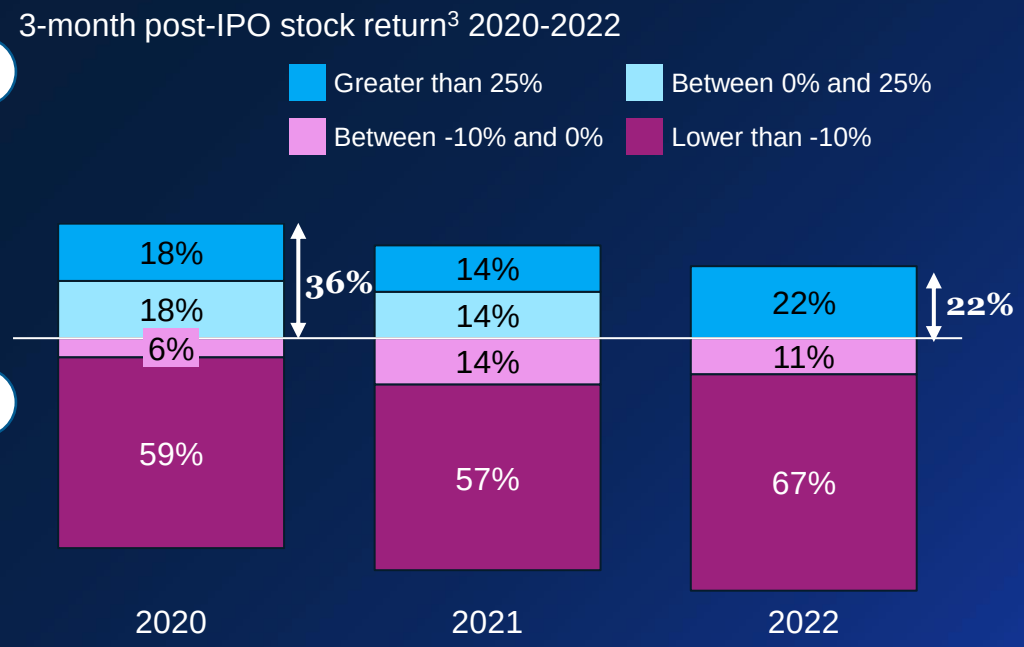
Source: S&P Capital IQ (Oct. 2023) ; McKinsey analysis

A. IPOs slowed down significantly since late 2021; reopening of the IPO window is unlikely in the next 1-2 years

Global and China IPOs slowdown drastically since 2021



China-originated biopharma IPO performance has declined in the last two years



Forward-looking IPO perspective	Likelihood of the IPO window return in the next 1-2 years is limited due to the challenging exit path[4] from HKEX and SSE STAR and underperforming IPO return

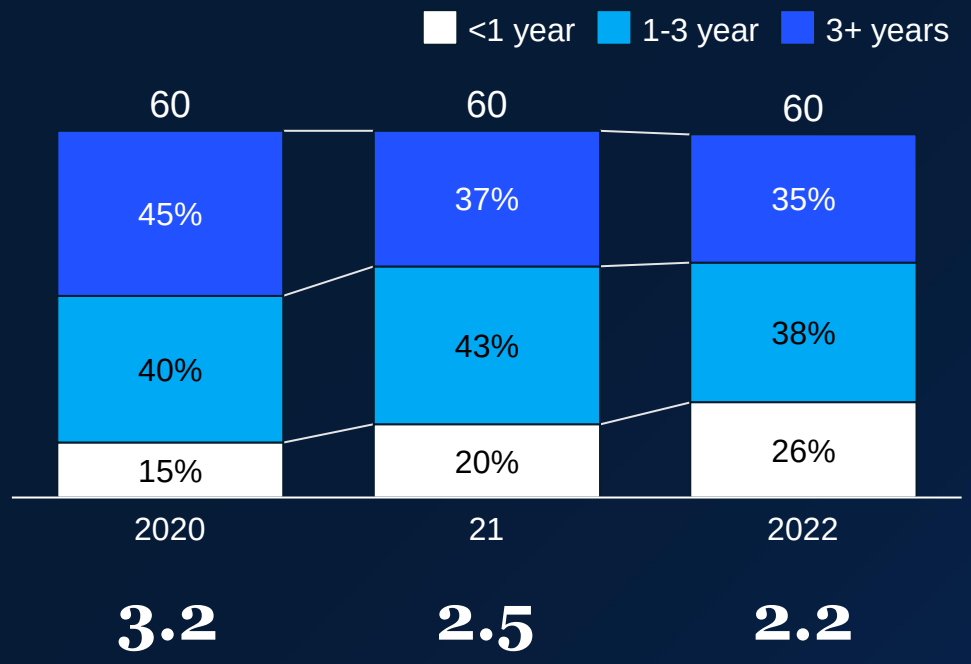
1. As of Sep 14, 2023 2. Selected organization type of biopharma for analysis 3. Including 60 China-headquartered biotechs that focus on innovative drugs and are listed in Nasdaq, HKEX Chapter 18A, and SSE STAR Market since 2013. Excluded biotechs that focus on vaccine only 4. Worsened liquidity in HKEX due to geopolitical tensions, US interest rate hikes, etc. Higher exit hurdles in STAR after new CSRC (China Securities Regulatory Commission) shareholding reduction regulations

Source: BCIQ (Sep 2023); Capital IQ; Nasdaq; WIND; McKinsey analysis

A. Challenging funding situation has led to rationalization of R&D investments

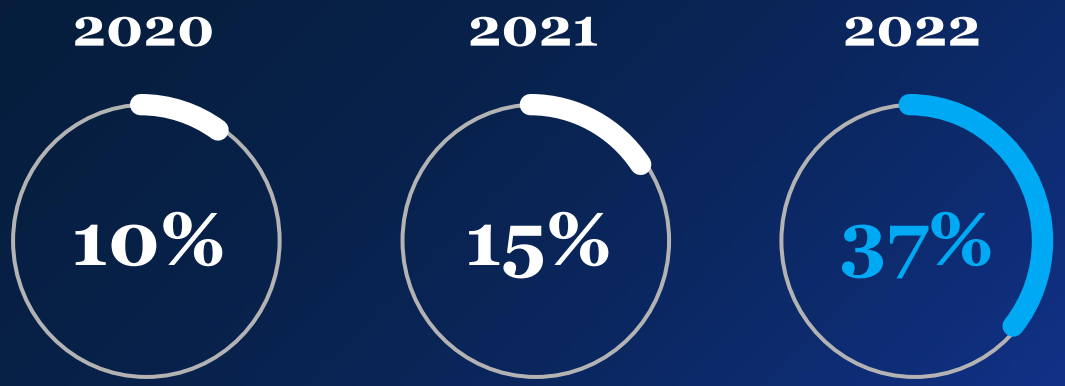
China-originated biotech funding situation has worsened since 2020

Year-end cash position[1]/R&D expense of 60 listed biotechs[2]



Over 1/3 companies have scaled back R&D expenses

of biotechs[2] with decreased R&D expenses vs. previous year, as % of 60 listed biotechs[2]



1. Cash position estimated by (total current assets – current liabilities - account receivables - inventory)/R&D expenses; cash positions may be underestimated if there are financial investments outside of current assets
2. Including 60 China-headquartered biotechs that focus on innovative drugs and are listed in Nasdaq, HKEX Chapter 18A, and SSE STAR Market since 2013. Excluded biotechs that focus on vaccine only

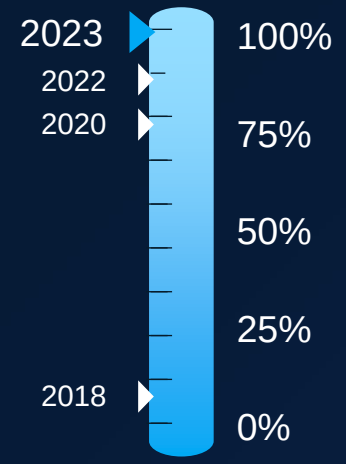
Source: Capital IQ; Nasdaq: WIND; McKinsey analysis

A. Continued progress expected on global regulatory integration with a few areas to further strengthen (e.g., clinical value)

Continuous ICH harmonization

Implemented 100% ICH guidelines by 2023, with **room to further drive execution** (e.g., E17)

% of ICH guidelines implemented in China by year[1]



"Clinical value-oriented" & "Patient-centric" innovation

Series of policies and guidelines published to elevate the innovation quality and clinical value

以临床价值为导向的抗肿瘤药物临床研发指导原则
Clinical Value-oriented Cancer Drug Clinical Development Guideline (implemented, Nov 19, 2021)

以患者为中心的药物临床试验设计、实施、获益-风险评估技术指导原则(试行)
Guideline on Patient Centric Clinical Trial Design/ Implementation/ Benefit-risk assessment (Interim) (Official document, July 2023)

药品附条件批准上市申请审评审批工作程序(试行)(修订稿征求意见稿)
Process for Conditional Approval of Drug Marketing Authorization Applications (Interim) (Draft for public feedback Aug. 25, 2023)

Enhancing IP & data protection

Enhanced IP law, room for further improvement on execution and enforcement

《专利法》第四次修订
Patent Law Fourth Amendment (implemented, Jun 1, 2021)

Data protection law still in draft stage

《药品管理法实施条例》修订草案征求意见稿
Implementing Regulations of the Drug Administration Law (Draft Amendments for public feedback, May 9, 2022)

1. NMPA announcement of the # of ICH guidelines implemented from 2018 to 2023 June

Source: Press release; ICH; McKinsey analysis

A. China market access environment calls for novel mechanism to better reward and sustain innovation

Industry experts interviewed expressed concerns over sustainability of the market access environment to support innovation

Suggested potential directions to consider:

Mechanism refinements

- **Professionalize health benefit and economics assessment** e.g., IQWiG[1] in Germany, HAS[1] in France, and Chuikyo[1] in Japan
- **Fine-tune pricing negotiation process with HEOR inputs from various sources** incl. professional organizations and biopharma

Bold moves

- **Risk sharing**: set capped cost agreements per drug between manufacturers & payers, e.g., risk-sharing arrangement (RSA) in Australia
- **Setting reimbursement cap at MoA level**: leaving the product pricing to manufacturers

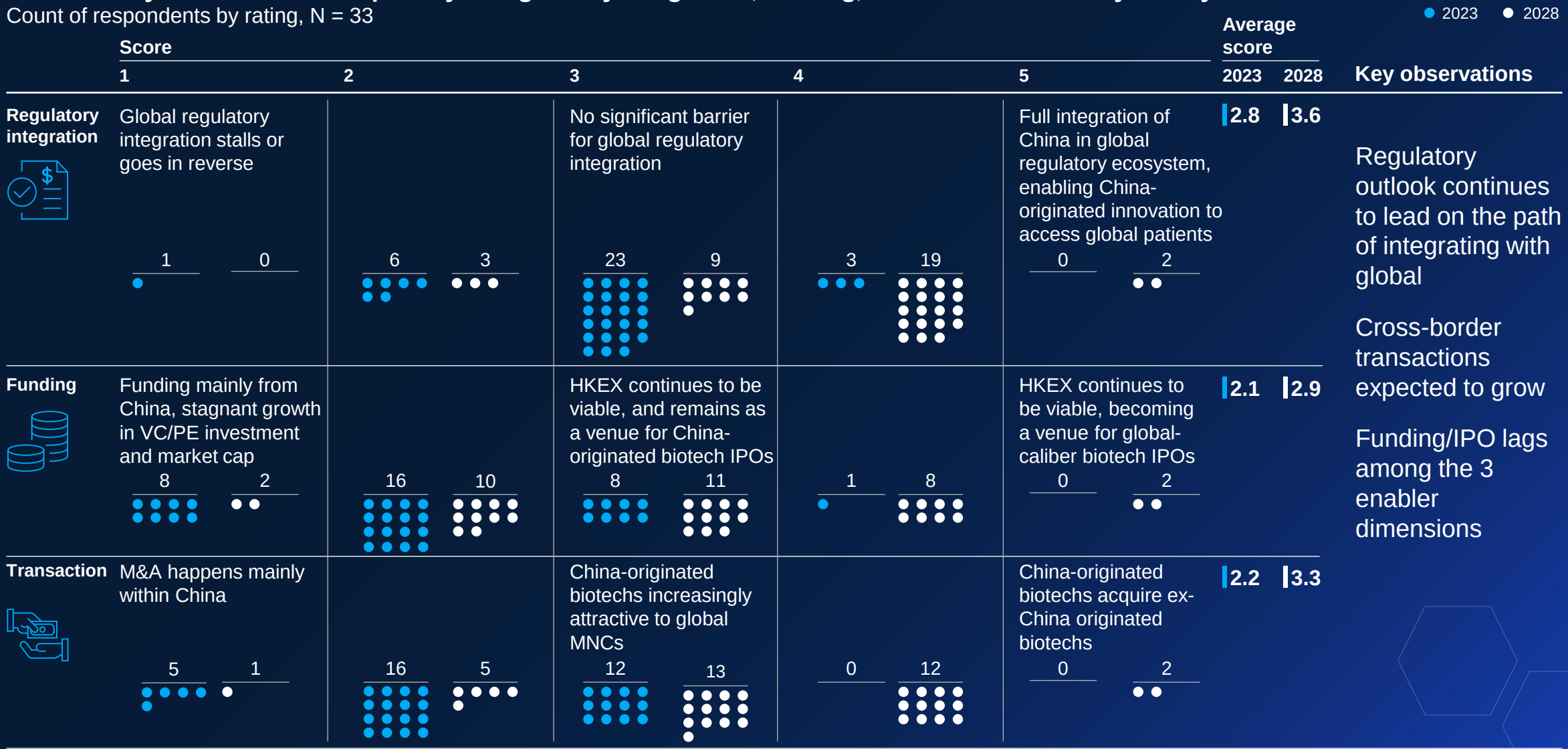
1. Institute for Quality and Efficiency in Health Care (IQWiG); National Health Service (HAS); Central Social Insurance Medical Council (Chuikyo)
2. Based on McKinsey "momentum of China-originated biopharma innovation" executive interviews, 2023 (N=32)

Source: Press release; McKinsey "momentum of China-originated biopharma innovation" executive interviews, 2023 (N=32); McKinsey analysis

A. *Enablers*: despite recent challenges, industry leaders retain a positive view on the 5-year outlook

How would you rate China's capability in regulatory integration, funding, and transaction today and by 2028?

Count of respondents by rating, N = 33



Source: McKinsey "momentum of China-originated biopharma innovation" executive survey (N=33), 2023

B. Can China develop globally competitive value chain capabilities to foster productive innovation?

NOT EXHAUSTIVE

What could give people

Confidence

Maturing value chain capabilities at scale as pipeline reaching critical mass with experiences across broader range of modalities and TAs

Speed and efficiency demonstrated in discovery (e.g., shorter cycle time to PCC) and clinical trial execution (e.g., accelerating global enrollment)

Manufacturing reaching scale and global quality standards across modalities

What could give people

Pause

As many local innovators pivot towards globally competitive innovation, several capabilities need to be upgraded, e.g.,

- Scientific research in biology
- More effectively translating academic research to drugs
- More robust global clinical development & regulatory strategy; more thoughtful trial design

Uncertainty remains on how quickly China innovators can close these gaps

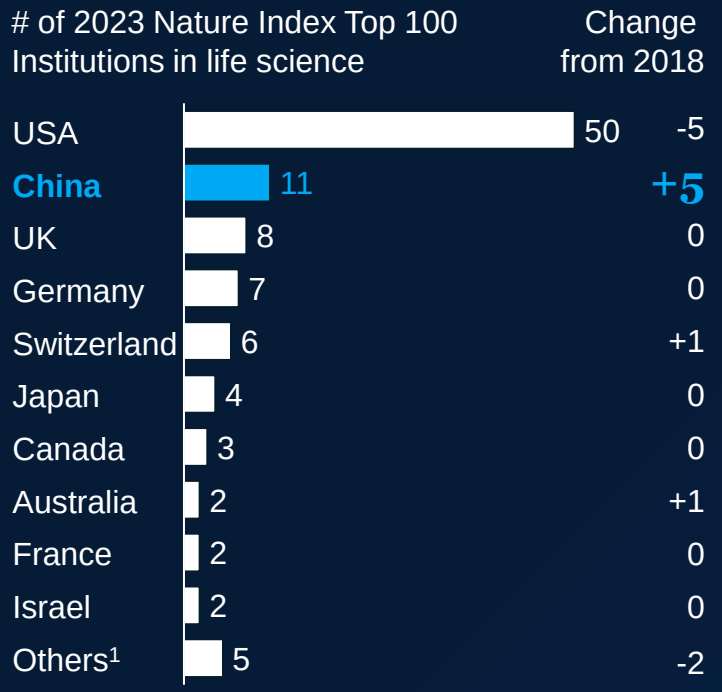
Source: McKinsey “momentum of China-originated biopharma innovation” executive interviews, 2023 (N=32); McKinsey analysis

B. Rapid progress has been made in research; further strengthening of tech transfer will be essential

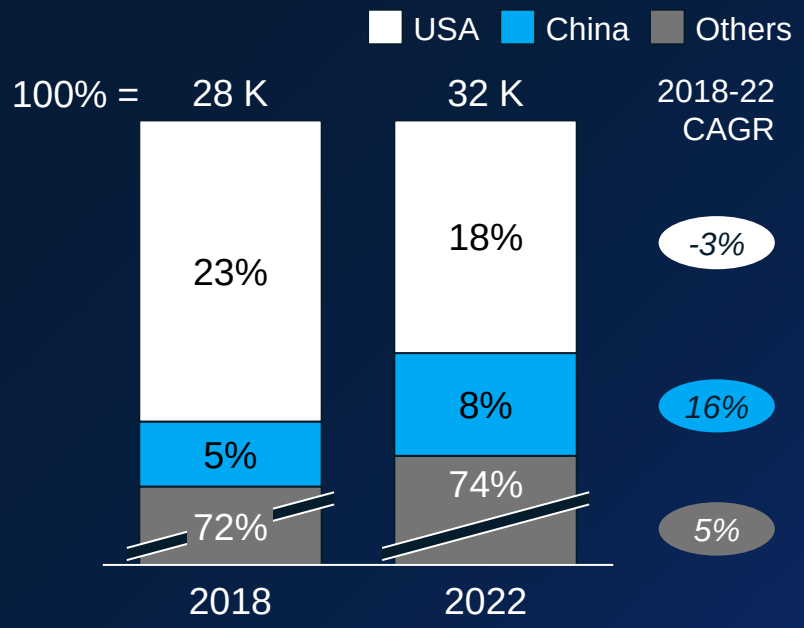
While gap is narrowing on the research output volume….

…there is still room for improvement in technology translation

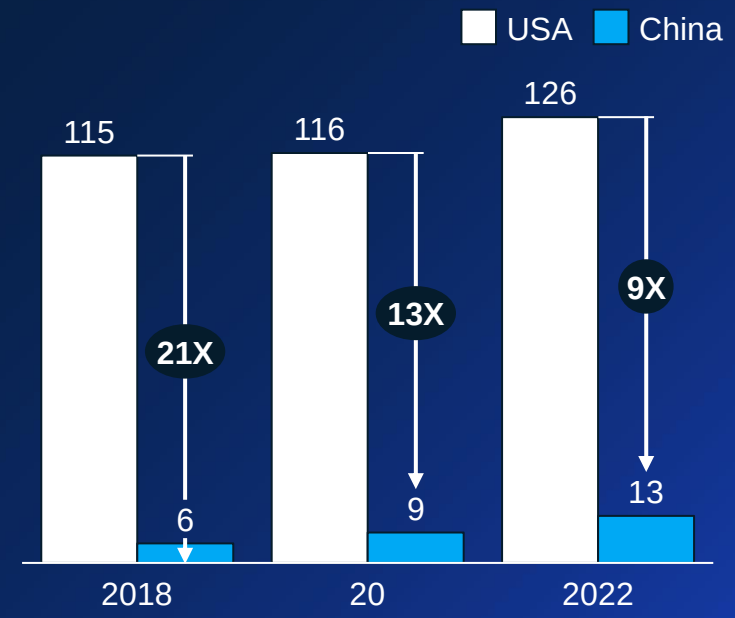
China ranked a distant 2nd on the total # of leading life science institutions



Growth of high-quality biomedical publications in China



China IP revenue is one-tenth of USA



1. Including Denmark, Italy, Singapore, Spain, and Sweden
2. Total charges for use of IP across the industries. Share of biomedical patent among total patents in USA is 7%, and in China is 4%

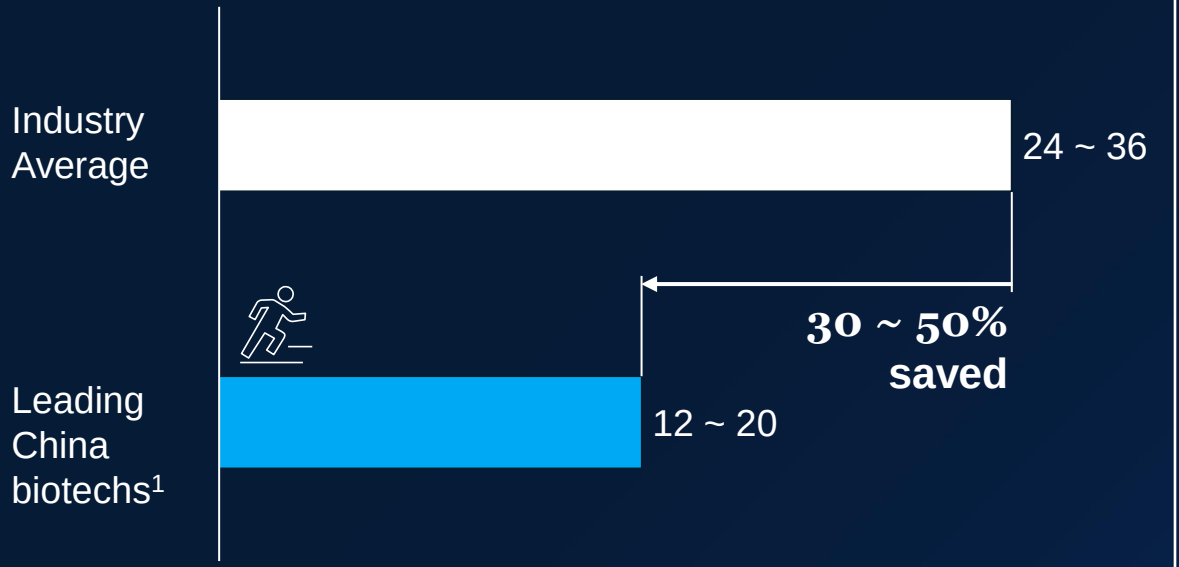
Source: ESI; Web of Science; GBI; World Bank; McKinsey analysis;

B. Chinese companies have started to harness the discovery, trial execution efficiency and speed advantages of China

China representative Industry average

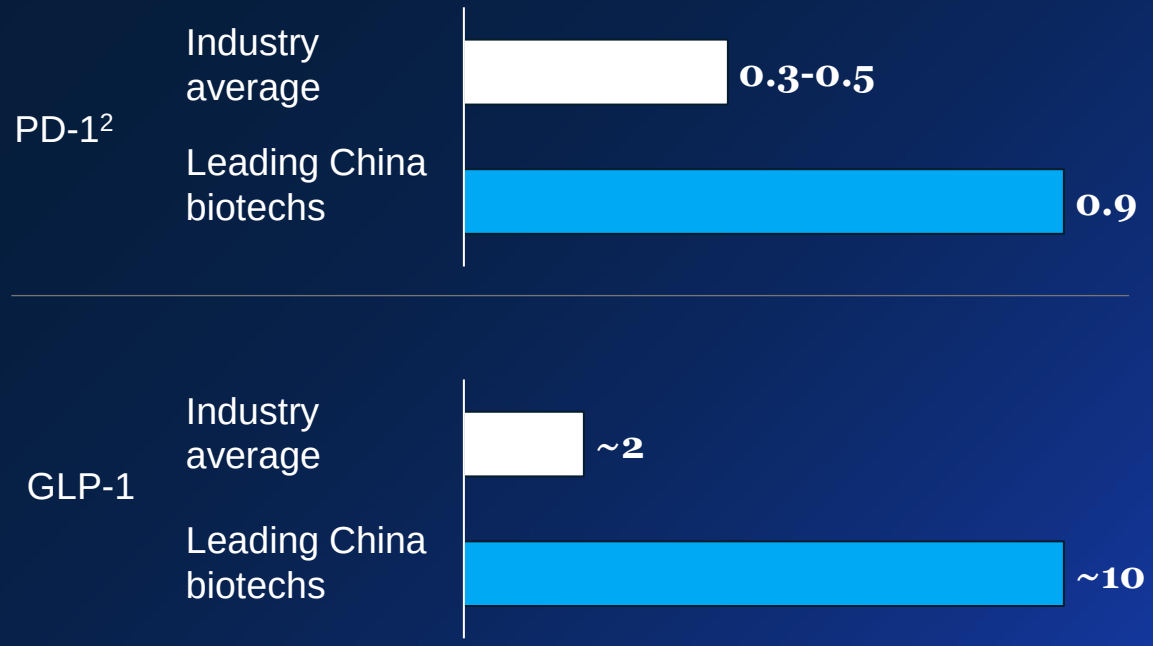
Discovery: 30-50% reported acceleration of timeline

Average time spent from target validation to PCC, months



***Clinical*:** 2-5X faster patient enrollment reported

Clinical trial enrollment speed comparison, patient/site/month



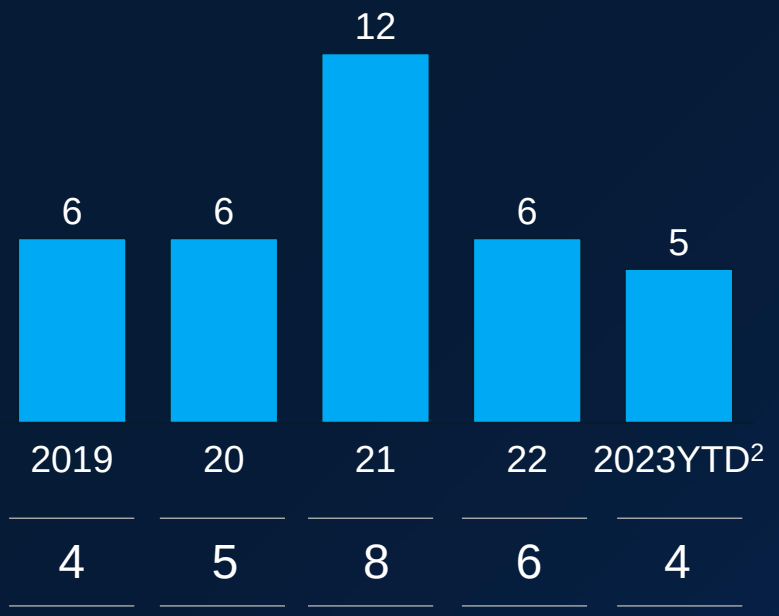
1. Self-reported time from 3 representative biotechs across different modalities, lead time from target validation to PCC/IND
2. 1L NSCLC studies

Source: Press release; McKinsey analysis

B. Improving clinical capabilities with more overseas trial experiences; still lagging in designing and leading global trials

China's innovation continues to accumulate overseas clinical trial experiences…

of Ph II & III trials initiated by top 5 China-originated biopharma in USA and EU[1]



…and starts building the capabilities to lead global trials

12+

Chinese PIs led global Ph II or Ph III MRCT (incl. USA site) since 2019

85%+

focus on Oncology (lung, liver, nasopharynx) given unmet needs and patient base in China

Time and investment needed to further build global-caliber capabilities

- Invest and leverage the global talent pool and capability
- Improve site and PI capabilities through the collective efforts of MNCs and locals

1. Top 5 companies selected by number of total Ph II and Ph III oversea trials initiated in USA and EU, incl., both MRCT and standalone trials
2. As of September 2023

Source: Clinicaltrials.gov; GBI; McKinsey analysis

B. China has built a globally-competitive CRO/CDMO industry with global footprints, speed, and efficiency advantages

2 out of

Top 10[1] global pre-clinical CRO…

3 out of

Top 10[1] global CDMO/CMO…

1 out of

Top 10[1] global clinical CRO…

… are **China-originated** companies

Company	Revenue in 2022, Bn USD	Global business rev. % in 2022	Global footprints (lab, manufacturing site, office, etc.)
WuXi AppTec	5.6	81%	~9 countries in USA, Europe, Asia-pacific
WuXi Biologics	2.2	76%	~5 countries in USA, Europe, Asia-pacific
Pharmaron	1.5	82%	~3 countries in USA, Europe, China
Asymchem	1.4	85%	~3 countries in USA, Europe, China
Porton Pharma	1.0	N.A.	~6 countries in USA, Europe, China
Tigermed	1.0	49%[2]	20+ countries in Asia-pacific, Europe, North America, Latin America, Africa

Global footprints offer flexible sourcing options to address the rising needs in supply chain resilience

Competitive advantages of China CRO/CDMO

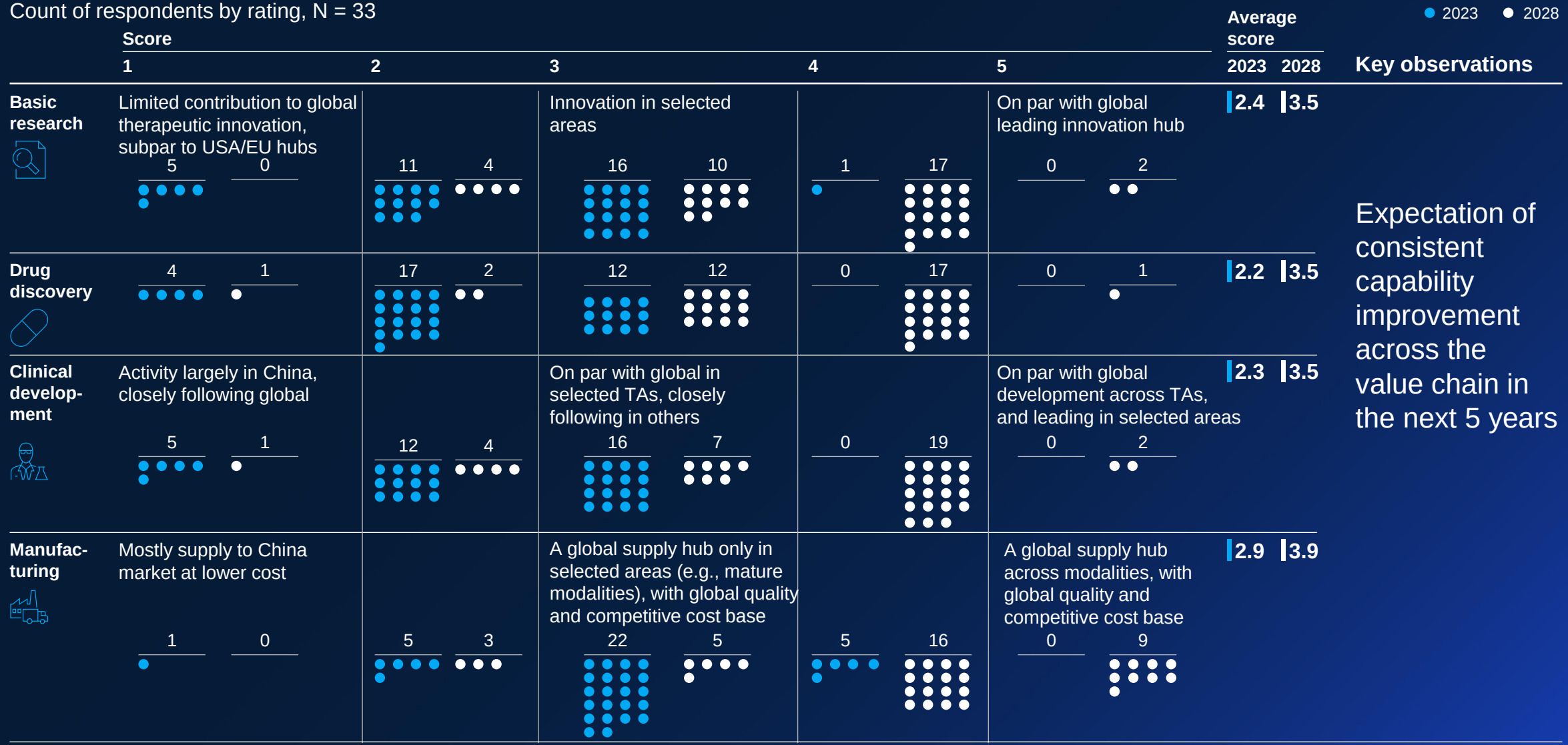
- **Cost-efficiency** with economy of scale
- **Reliable quality,** building on extensive experiences **serving MNC clients**
- **Efficient & agile delivery** enabled by flexible teams and diverse talent pool to fulfill customized needs

1. Top 10 ranked by revenue from China biopharma customers
2. Includes global clinical trial operation business

Source: Company annual report; McKinsey analysis

B. *Value chain capability*: continued momentum in capability build-up

How would you rate China's capability in basic research, drug discovery, clinical development and manufacturing today and by 2028?
Count of respondents by rating, N = 33



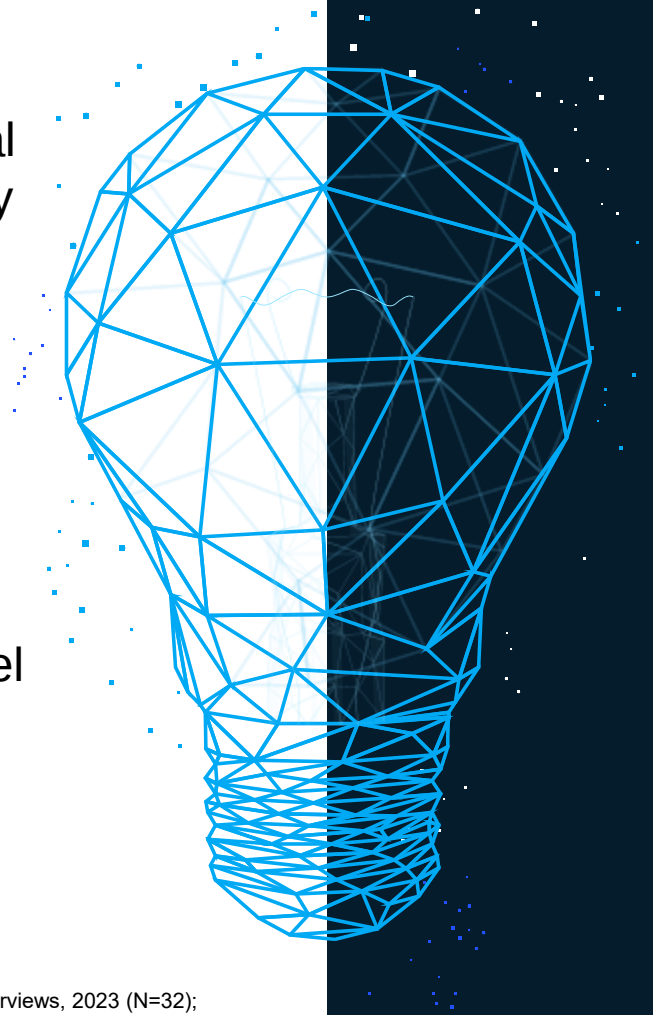
Source: McKinsey "momentum of China-originated biopharma innovation" executive survey (N=33), 2023

C. Can at-scale breakthrough innovation emerge from China?

NOT EXHAUSTIVE

What could give people
Confidence

- Leading local players adapting clinical development and registration strategy to meet USA & Europe requirements
- More deliberate focus on clinical differentiation and global first-wave; emerging edge in new modalities
- Leading players starting to realize ex-China commercial potential through partnership or in-house model
- Leading AI players demonstrating potential via MNC partnerships and advancing own pipeline



What could give people
Pause

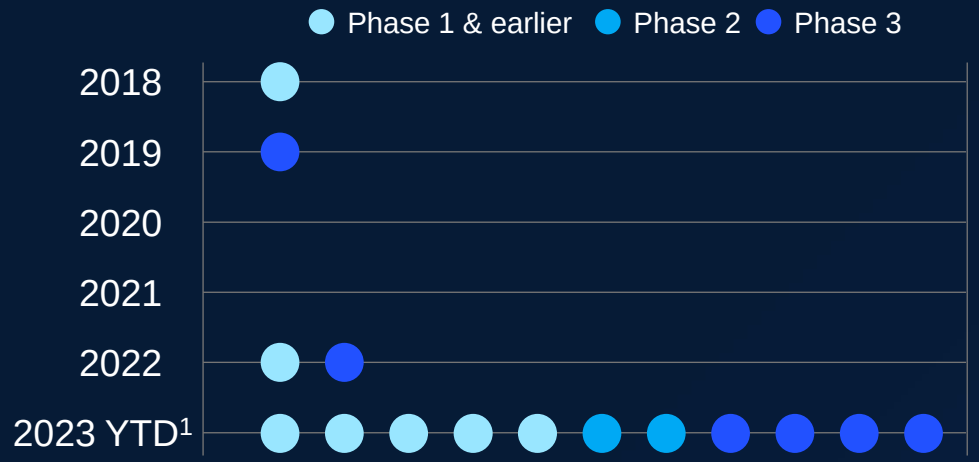
- Multiple rejected or delayed FDA/EMA registration reviews
- Wave of recent returns of out-licensed assets by MNCs due to company strategic redirection, lackluster clinical profile and/or changing competitive landscape
- No clear path yet to realize the commercial potential of affordable innovation at scale outside of China

Source: McKinsey “momentum of China-originated biopharma innovation” executive interviews, 2023 (N=32); McKinsey analysis

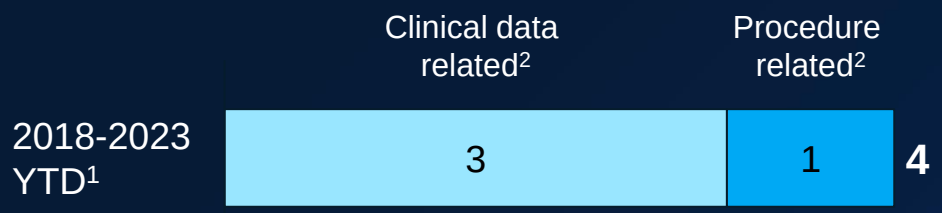
C. China-originated innovation experienced several regulatory set-backs and returns from partners

Recent setbacks of out-licensing deals and FDA registrations

Return of out-licensed assets from China[1]



FDA rejections since 2018



Suggested reasons

- Data package not meeting FDA/EMA regulatory requirements (e.g., lack of representative global data)
- New MoAs with inherent R&D attritions
- Strategic or organizational change of the licensor

Potential path forward

- **Ramp up the learning curve in adopting global mindset and standards** (registration requirements, clinical plan and data, etc.)
- **Proactive regulatory communication** throughout the development processes
- **Careful choice of partner** with long term dedication and strategic alignment

1. As of Oct. 24th, 2023
2. Clinical data related: lack of clinical evidence to support approval e.g., insufficient presentative global data; Procedure related: unable to conduct preapproval inspections in China due to COVID-related travel restrictions

Source: Press release; FDA Complete Response Letter; McKinsey analysis

C. China-originated fast-following assets have started to pursue differentiated profiles for globally-competitive value capture

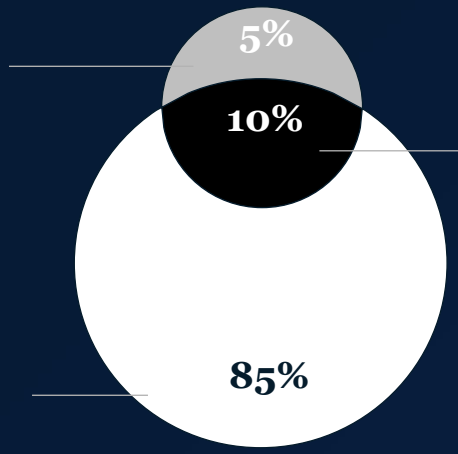
Non-exclusive examples

China is fast-following with speed and differentiation

Breakdown of global clinical stage oncology MoAs[1] by company origin (2021)

MoAs developed by **China-originated biotechs ONLY**

MoAs developed by companies outside of China but **NOT under development by China-originated biotechs**, majority in early stage, non-validated targets



MoAs concurrently developed by **BOTH** China-originated biotechs and global biopharma

Out of the 10% (61) MoAs, **50%** were pursued by China-originated biopharma with first-wave potential (same stage or leading) globally

China-originated biopharma have started to pursue global head-to-head clinical trials with MNC assets to differentiate

2+ published results

5+ ongoing (initiated after 2021)

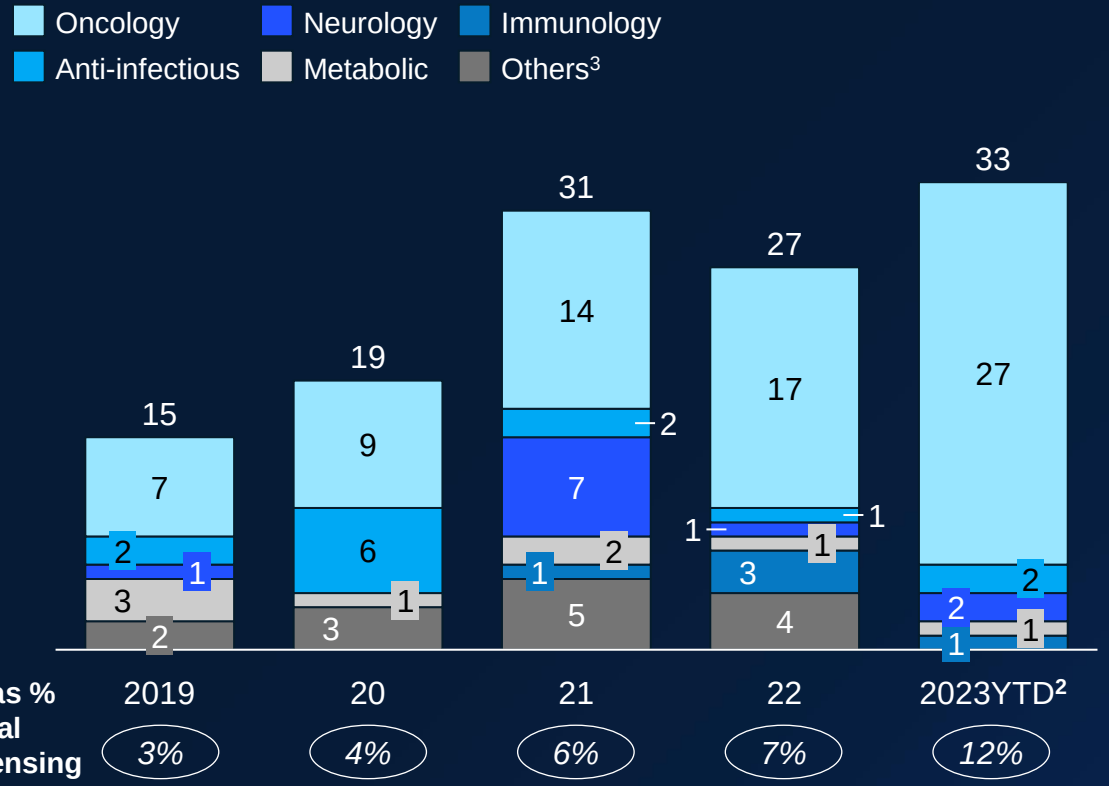
1. For small molecule, ADC, and mAbs, the MoAs are counted by the unique targets; for multivalent mAbs and CGT, the MoAs are counted by the target combinations

Source: GBI; NEJM; 2023 ASCO; 2022 ESMO; McKinsey analysis

C. China has increased its contributions to global asset licensing activities, mostly in oncology, with an increasing mix of modalities

59% of the total deals from China are in oncology…

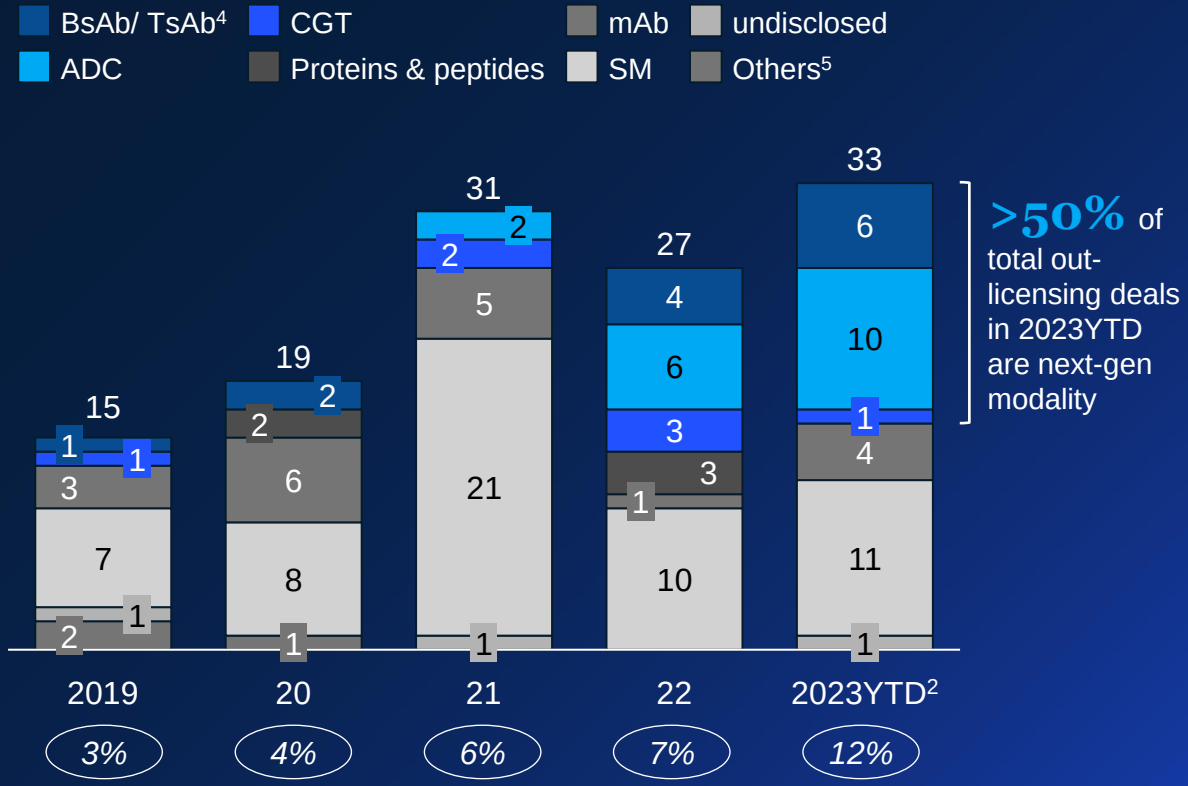
China out-licensing deals[1] by TA, # of deals, 2019-2023YTD[2]



China as % of global out-licensing deals

… with an increasing share of next-gen modalities

China out-licensing deals[1] by modality, # of deals, 2019-2023YTD[2]



1. Innovative asset-based deals (excluding Gx and biosimilar) with licensor being China-originated companies and deal rights territory including USA/EU markets 2. As of Nov 17, 2023 3. Incl. muscle-skeletal, respiratory, CV, Opthalmology, etc. 4. Incl. 1 deal in 2022 for both mAb & BsAb and 1 deal in 2023 for multiple assets (BsAb & TsAb) 5. Incl. Traditional Chinese Medicine, probiotics, vaccines

Source: Press release; PharmaDeals; McKinsey analysis

C. The steady flow of out-licensing deals from China to MNCs showcases China innovation potential

Top MNC out-licensing deals1 from China in 2023 YTD[2]

ILLUSTRATIVE AND NON-EXHAUSTIVE

	Jan	Apr | Aug	May	May	Oct	Oct	Nov	Nov
China originator	HUTCHMED	Duality	CBMG	Zion Pharma	Hansoh	Hengrui	Legend Biotech	Eccogene
Asset	Fruquintinib (VEGFR TKI)	DB-1303 (HER2 ADC) DB-1311 (B7-H3 ADC) DB-1305 (TROP2 ADC)	C-CAR039 (CD19xCD20 CAR-T) C-CAR066 (CD20 CAR-T)	ZN-A-1041 (HER2 TKI)	HS-20089 (B7-H4 ADC)	HRS-1167 (PARP1 inhibitor) SHR-A1904 (CLDN18.2 ADC)	LB2102 (DLL3 CAR-T)	ECC5004 (Oral GLP-1RA)
MNC licensee	**Takeda**	**BioNTech**	**J&J IM**	**Roche**	**GSK**	**Merck KGaA**	**Novartis**	**AstraZeneca**
Upfront Mn USD	**400**	**170** | Undis-closed	**245**	**70**	**85**	**~170**[3]	**100**	**185**
Total value Bn USD	**1.13**	**1.67** | Undis-closed	Undisclosed	**0.68**	**1.57**	**~1.50**[3]	**1.11**	**1.825**

1. Ranked by upfront payments 2. As of Nov 16, 2023 3. Exchanged rate: 1 EUR = 1.06 USD

Source: PharmaDeals; GBI; McKinsey analysis

C. China has built up competitive advantages in pursuing fast-following and modality/tech platform-based innovations

ADC innovation as an example

ILLUSTRATIVE AND NON-EXHAUSTIVE

Decoding the advantages of China biopharma innovation (ADC as an example)

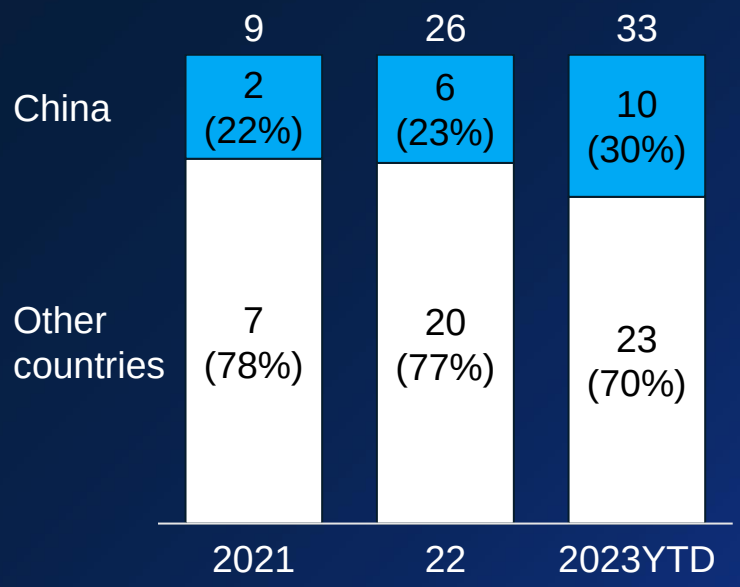
Strength in engineering-based innovation with rapid adoption of latest technology and fast iterations supported by the abundant high-quality STEM talents

"China speed" to generate fast clinical & PoC data with a resilient, efficiency-driven working model

"Multiple shots on goal" building on sizable investment and scaled pipeline

China increased its share of global ADC out-licensing deals[1]

2021-23YTD[2], %



Potential to extend the competitive edge to other "modality play" and MoAs, e.g., bispecific/multi-specific antibody, CGT

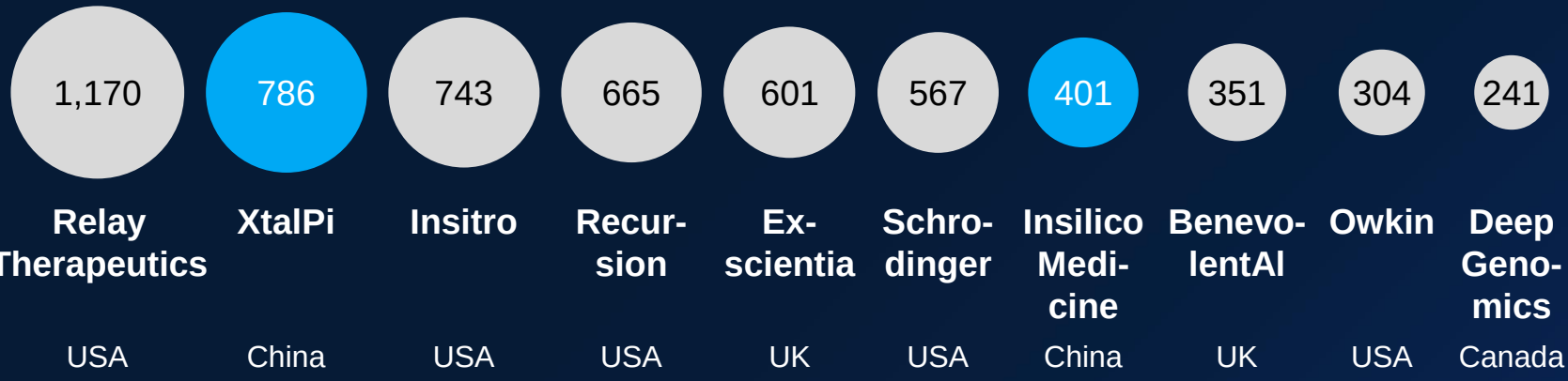
1. ADC deals from China need to include USA/EU markets in deal territory, global ADC related deals exclude acquisitions
2. As of Oct 31, 2023

Source: DXY; PharmaDeals; McKinsey analysis

C. In AIDD area, there has been significant investments and collaborations with global biopharma community

Companies with headquarters in Greater China | Companies with headquarters ex-Greater China | Deals with global biopharma

Global top 10 AIDD companies by pre-IPO funding[1], Mn USD



Deals with global biopharma

Global partner	Deal type	Deal size
Lilly 2023.06	Small molecule discovery collabo-ration	Up to **250 Mn USD**

Global partner	Deal type	Deal size
Exelixis 2023.09	Out-licensing of ISM3091	**80 Mn USD** upfront by Q3 2023
Sanofi 2022.11	Research collaboration on new targets	Up to **1.2 Bn USD** (21.5 Mn USD upfront)

Unique advantages of AIDD in China

NON-EXHAUSTIVE

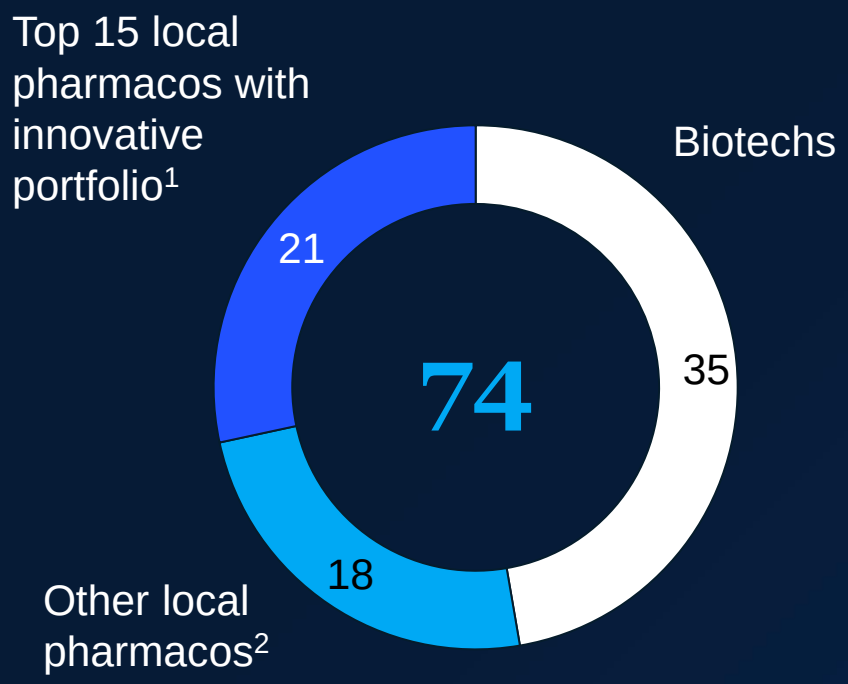
- **Robust digital ecosystem and foundation,** with digital native mindset of rapid iterations
- **Ample talent supply** in computing, CADD[2] , chemistry and biology areas
- **Fast clinical data generation** to inform iterative design leveraging the CRO ecosystem and clinical resources

1. As of Sep 2023
2. Computer-Aided Drug Design

Source: Press release; Crunchbase; Pitchbook; McKinsey analysis

C. China-originated innovation has started entering commercial space, mostly with limited scale and global value capture to date

of China-originated innovative drugs approved in China between 2018-2022



Top 10 China-originated innovative drugs launched between 2018-2022 from biotechs

China Overseas

Company	Molecule	Target	2022 Sales, Mn USD
BeiGene	Zanubrutinib	BTK	565
BeiGene	Tislelizumab	PD-1	425
Innovent	Sintilimab	PD-1	293
Legend	Ciltacabtagene Autoleucel[3]	BCMA	134
Allist	Furmonertinib	EGFR	118
TopAlliance	Toripalimab	PD-1	109
HUTCHMED	Fruquintinib[4]	VEGFR	94
Innocare	Orelabrutinib	BTK	84
Akeso	Cadonilimab	PD-1/CTLA4	81
Henlius	Serplulimab	PD-1	46

1. Top 15 large China pharmacos ranked by the number of innovative assets in clinical stage
2. Other local pharmacos incl. local biotech/biopharma companies that beyond the top 15 local biopharma and the 60 listed biotechs
3. Ciltacabtagene Autoleucel approved in USA and EU
4. Recent FDA with global value capture potential

Source: Press release; GBI; DXY; WIND; McKinsey analysis

C. Profitability remains elusive for China-originated biotechs

ILLUSTRATIVE AND NON-EXHAUSTIVE

60

Listed China-originated biotechs

Of which …

52

Biotechs (87%) with revenue[1], incl. **29 (48%)** with commercial revenue in 2023YTD[2]

Of which …

8

Biotechs (13%) with net profit, incl. 5 (8%) with commercial revenue in 2023YTD[2]

Given a challenging funding environment, companies are becoming more vigilant in ROI assessment when making key investment decisions, for example:

- **Reducing R&D burn rate:** halt development of pipeline assets with questionable NPV (e.g., late to market in a crowded field with limited differentiation)
- **More diverse commercialization approach:** "in-house build" no longer the default choice for China launch**.** As first-time launcher, companies lacking sufficient portfolio scale could face sub-par productivity, and should proactively explore partnership as an alternative
- **Re-evaluating manufacturing investment:** critical to assess whether in-house manufacturing is justified with re-sized portfolio (i.e., overcapacity, learning curve to achieve cost competitiveness)

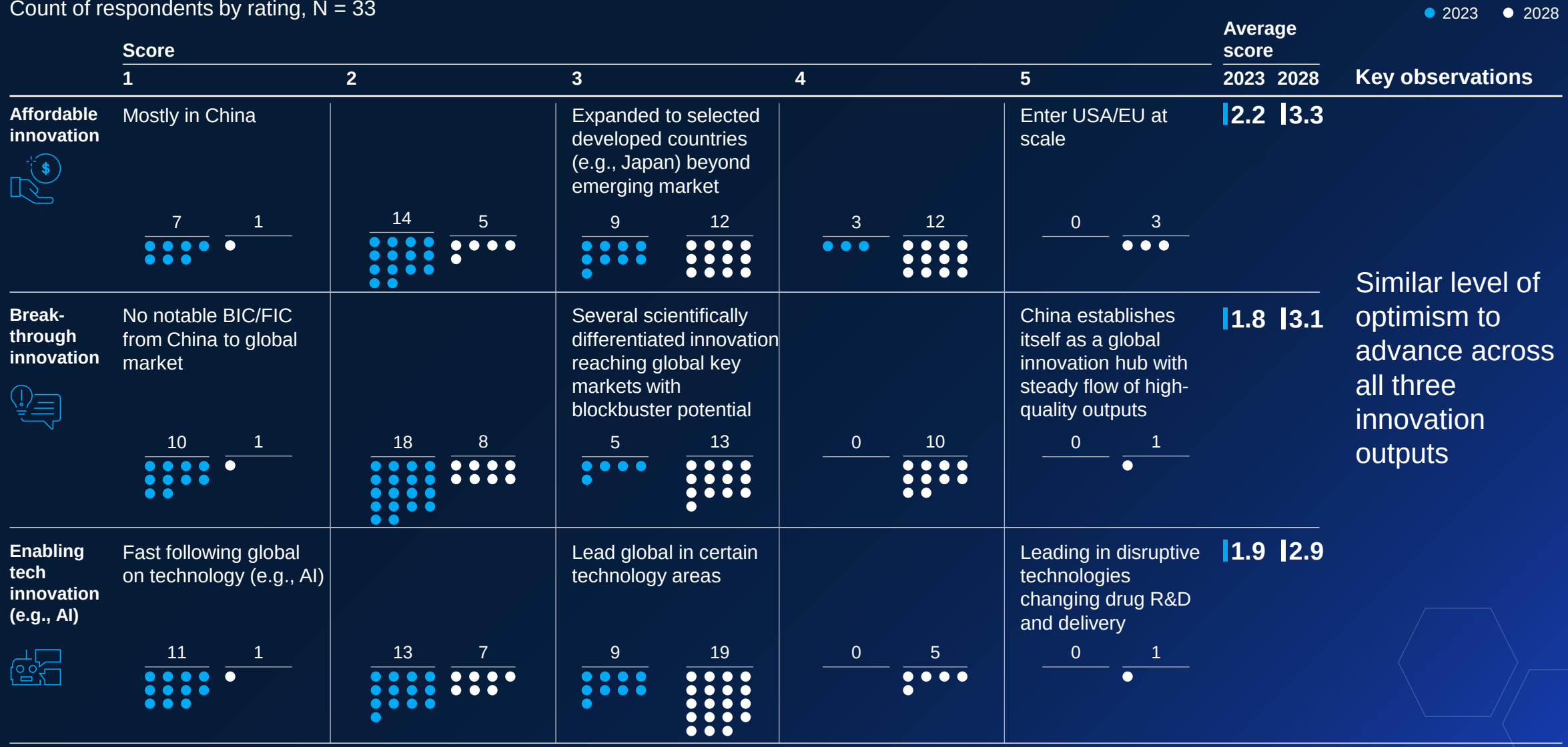
1. Revenue includes both product commercial revenue and partnership payment
2. As of Oct. 30, 2023. Revenue and net profit data is based on the most recent company financial disclosure

Source: Press release; WIND; McKinsey analysis

C. *Innovation output:* optimism about the potential advancements across affordable & breakthrough innovations and technology

How would you rate where we are today and where we are heading in 5 years?

Count of respondents by rating, N = 33



Source: McKinsey “momentum of China-originated biopharma innovation” executive survey (N=33), 2023

How will perspectives evolve from 2023 to 2028?

Value chain capability | Enabler | Output

How would you rate where we[1] are today and where we[1] are heading in 5 years?

Ratings from 1 to 5, N = 33 — 2023 ratings — 2028 ratings

By **2028**,

the Biopharma industry is expected to witness continued **gradual improvement** across dimensions, with **regulatory integration** and **value-chain capabilities** leading the way

1. China biopharma industry

Source：McKinsey “momentum of China-originated biopharma innovation” executive survey (N=33), 2023

9 dimensions to assess China's impact on global biopharma

Enabler | Value chain capability | Output

		Scoring criteria		
		1	3	5
Enabler	**Funding**	Funding mainly from China, stagnant growth in VC/PE investment and market cap	HKEX continues to be viable, and remains as a venue for China-originated biotech IPOs	HKEX continues to be viable, becoming a venue for global-caliber biotech IPOs
Enabler	**Transaction**	M&A happens mainly within China	China-originated biotechs increasingly attractive to global MNCs	China-originated biotechs acquire ex-China originated biotechs
Enabler	**Regulatory integration**	Global regulatory integration stalls or goes in reverse	No significant barrier for global regulatory integration	Full integration of China in global regulatory ecosystem, enabling China-originated innovation to access global patients
Value chain capability	**Research and discovery**	Limited contribution to global therapeutic innovation, subpar to USA/EU hubs	Innovation in selected areas	On par with global leading innovation hub
Value chain capability	**Development**	Activity largely in China, closely following global	On par with global in selected TAs, closely following in others	On par with global development across TAs, and leading in selected areas
Value chain capability	**Manufacturing**	Mostly supply to China market at lower cost	A global supply hub only in selected areas (e.g., mature modalities), with global quality and competitive cost base	A global supply hub across modalities, with global quality and competitive cost base
Output	**Affordable innovation**	Mostly in China	Expanded to selected developed countries (e.g., Japan) beyond emerging market	Enter USA/EU at scale
Output	**Breakthrough innovation**	No notable BIC/FIC from China to global market	Several scientifically differentiated innovation reaching global key markets with blockbuster potential	China establishes itself as a global innovation hub with steady flow of high quality outputs
Output	**Enabling tech innovation (e.g., AI)**	Fast following global on technology (e.g., AI)	Lead global in certain technology areas	Leading in disruptive technologies changing drug R&D and delivery

Source: McKinsey analysis

04

What could future success look like?

What could be the success formula for local and MNC biopharma?

NON-EXHAUSTIVE

China-originated biopharma

Clear strategic bets (e.g., market and innovation focus, path to global value capture) combined with practical operational measures (e.g., funding management) and rapid upskilling of capabilities, to survive and thrive in the Reset Phase

MNC biopharma

Clear strategic stance choices, based on future aspiration and value at stake, a balanced and aligned view of risks and opportunities, combined with a reconfiguration of the approach to tap into value for China AND global

Source: McKinsey analysis

Three archetypes for China-originated biopharma innovators

ILLUSTRATIVE AND NON-EXHAUSTIVE

→ Potential for companies to transition from one archetype to another

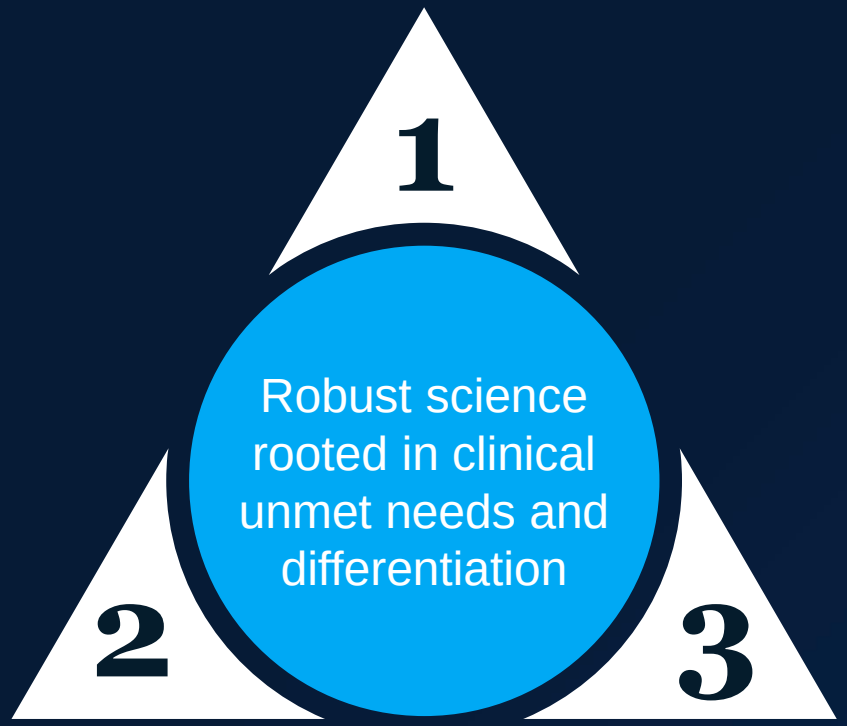
	Innovation focus	Archetype of leading future China-originated biopharma
Global-oriented play	*Globally competitive asset(s)/technology platforms with breakthrough potential*	**Global biotech** with global caliber R&D and BD capabilities → Options to expand to global biopharma with innovation of sufficient scale → **Global biopharma** with global value chain capabilities, global culture, and robust funding capability
China market-focused play	*Me-too/Fast-following products*	**China-focused biopharma** Capture value from China's innovative market and potentially selected emerging markets, with operational efficiency and scale

Options to expand to global market-focused play if develops globally competitive innovation ↑

Source: McKinsey analysis

What could we expect on innovations from China?

NON-EXHAUSTIVE



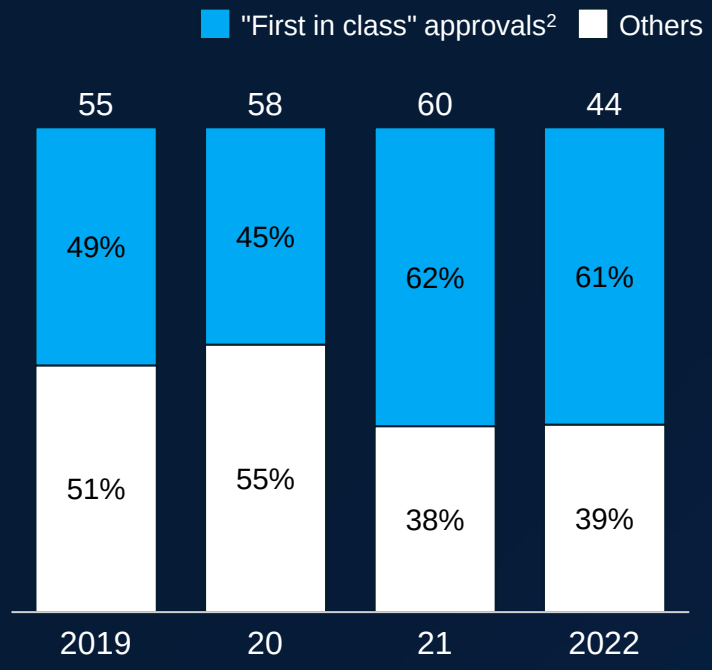
1	**Fast following** with an edge in speed and differentiation	Reach first wave (global top 3) or demonstrate clinical differentiation (e.g., new indication, BIC potential) with fast iterations
2	**Modality play** powered by rapid engineering	Rapidly adopt the latest modality technology and apply fast engineering iterations to drive innovation with differentiation potential (i.e., from “1 to 10”)
3	**TA bets** based on disease knowledge and high unmet needs	Select opportunities beyond crowded TA/DAs, by establishing deep disease and clinical insights, leveraging cost-efficiency and tapping into large patient population (e.g., CNS)

Source: McKinsey analysis

1. Fast-following with an edge: opportunities exist, but need to aim for top 3 and/or differentiated profile to capture meaningful value

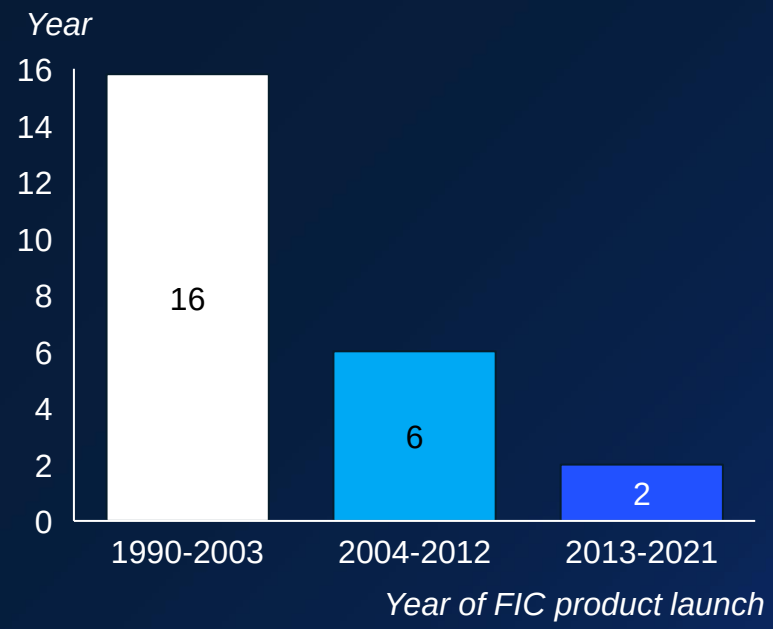
40-50% FDA-approved NDAs are not FIC assets

of FDA[1] approvals



Fast-following innovation has a much narrower window to compete effectively

Average time to have 3 products on market post launch of FIC product



90%

of VC investors interviewed are strengthening investment criteria and steering away from me-toos

We are no longer investing in me-too products; we will only invest if assets are

1) Globally top 3 by development status

2) Having clear differentiation potential

- Leading biotech investor in China

1. New approvals were tallied from CDER NDAs and BLAs and select CBER BLAs (only innovative vaccines, gene therapies, and cell therapies). First-in-class therapies were identified through publications up until 2011 and then through Evaluate pre-2011. All innovative CBER BLAs were assumed to be first in class.
2. "First in class" approval is defined as the 1st drug approved in each MoA, not considering the indication or clinical superiority

Source: FDA CDER New drug approvals review ; FDA CBER Biological license application approvals; McKinsey analysis

3. Opportunity for China to tackle TAs of high unmet needs and large patient populations that are underrepresented in global pipeline?

Not exhaustive of all TAs

Endocrine | Cardiovascular | Central nervous system | Hematology | Anti-infectives (incl. vaccines)
Respiratory | Musculoskeletal | Gastrointenstinal | Immune system | Oncology

In USA, a clear shift toward developing drugs for smaller patient populations with high per patient value

50%

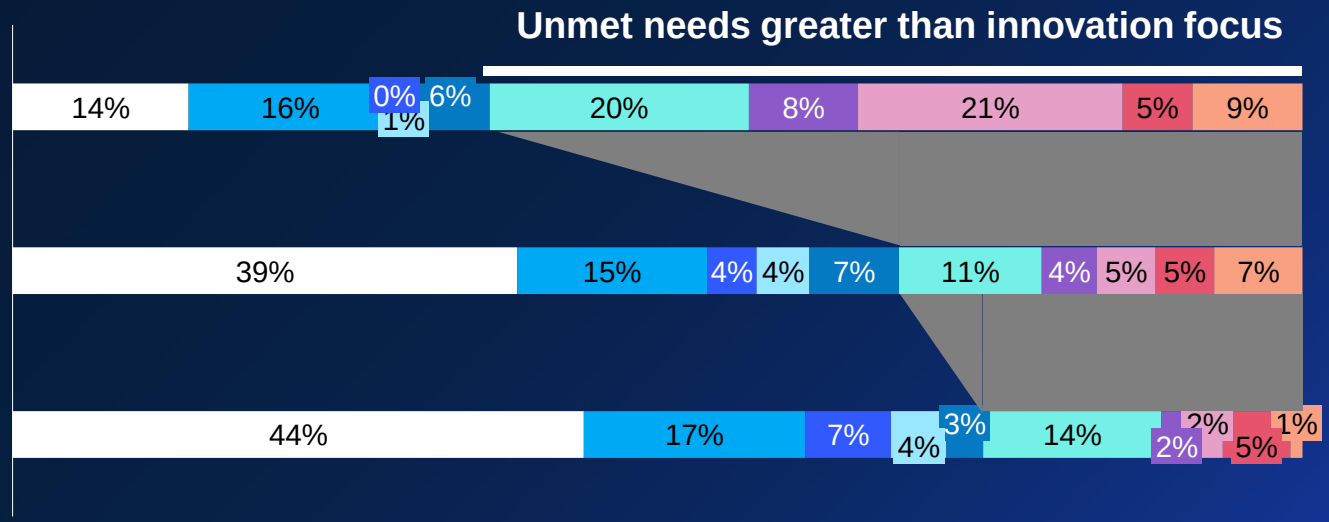
of novel drug approvals in the last 5 years are orphan indications

90%

drop in the number of USA patients treated by top 10 drugs in the last 10 years

There are large disease areas presenting substantial unmet needs, creating opportunities for China and the industry as a whole

Innovation efforts do not fully align with global patient needs



Does China have the potential to tackle the TAs that are underrepresented in global pipeline leveraging the large patient base, cost efficiency and speed advantages, and increasing regulatory openness?

1. Top 15 Pharmacos ranked by November 2022 market cap and classified as pharmaceutical companies by S&P Global Market Intelligence
2. Top 15 biotechs defined by November 2022 market cap and classified as biotech companies by S&P Global Market Intelligence with a market cap less than 85 Bn USD

Source: WHO; McKinsey & Co. *Helix: Rewiring the DNA for the next wave of impact in biopharma*; EvaluatePharma November 2022, IHME database as of October 2022; S&P Global Market Intelligence as of November 2022; McKinsey analysis

Potential strategic bets to “survive and thrive” for future global-oriented innovators

NON-EXHAUSTIVE

A Prudent funding management

More cautious cash flow management and capital deployment with clear linkage to value creation

B Portfolio innovation

Place a few bets on portfolio innovation with clear unmet needs and differentiation potential

C Creating strategic distance

Along the value chain, make clear choices of what to build in-house vs. leveraging partners

Build distinctive capabilities to compete globally (e.g., deep biology insights, clinical science in priority TA/DAs)

D Global value capture

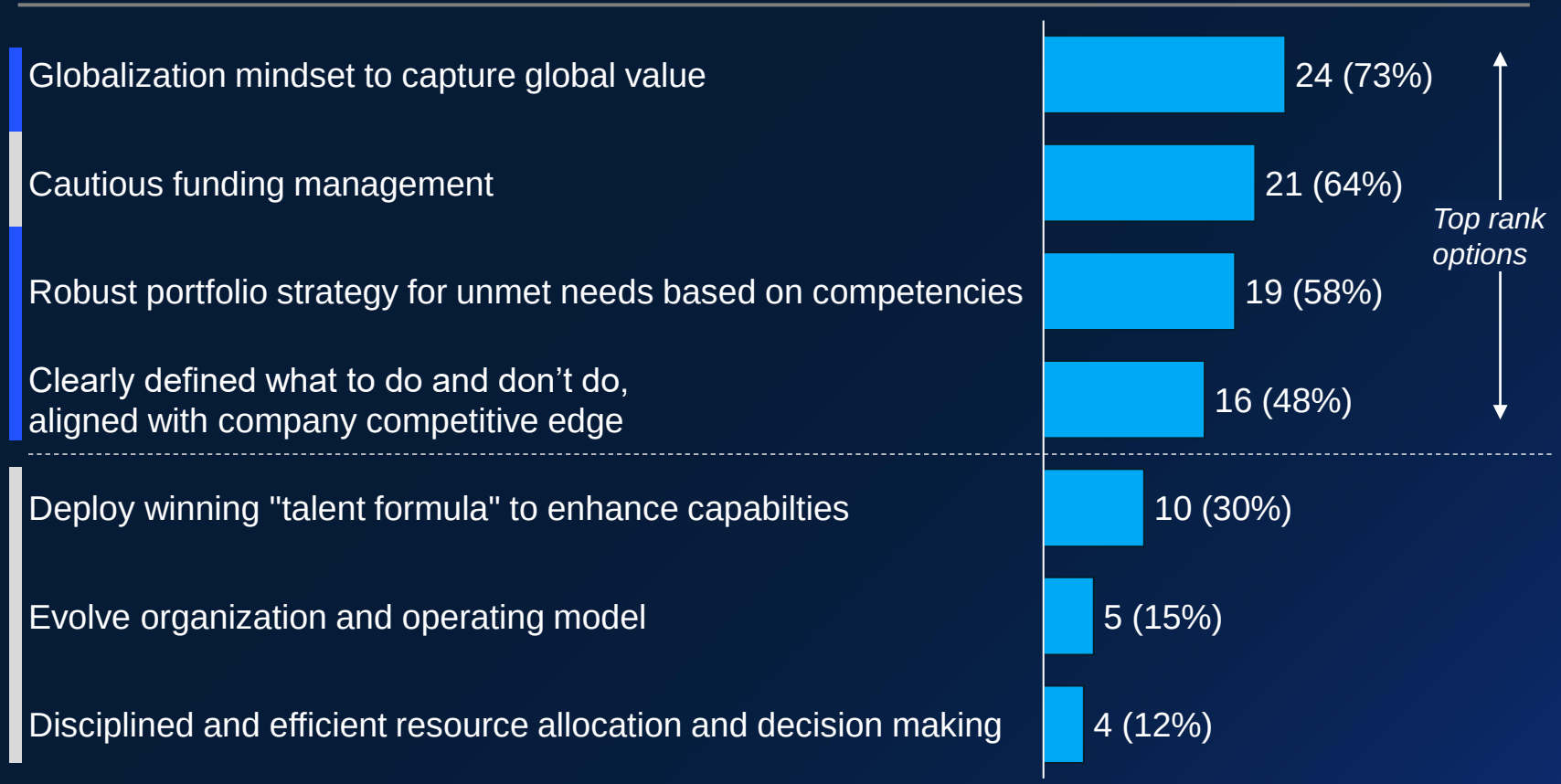
Plan globalization roadmap that best matches company development stage and capability

Build the “right culture” (e.g., org and team) and management approach to enable a high performing global company

Source: McKinsey analysis

Industry leaders and investors are largely aligned on the top set of priorities to enable value creation

Looking ahead, which would be the top-3 priorities for China innovative biopharma CEOs to maximize value creation in the next 5-10 years? (multiple choices)
% of respondents, N = 33



Globalization mindset and global value capture ranked at the top

On top of managing funding, industry executives highlighted the necessity for companies to upgrade company strategy (e.g., more rigorous portfolio decisions)

Source: McKinsey "momentum of China-originated biopharma innovation" executive survey (N=33), 2023

D. Common pitfalls to look out for to fully realize global market value

NON-EXHAUSTIVE

Common pitfalls

- **Insufficient understanding of regulatory requirements** in the US/EU
- **Late and reactive engagement with global expert network**
- **Internal-orientation,** insufficient communication/data exchange and networking with potential biopharma partners
- **Underestimation of the complexity of global clinical operation,** often overly relying on CROs
- **Lack of understanding of commercialization barriers by geography**

Potential mitigation tactics

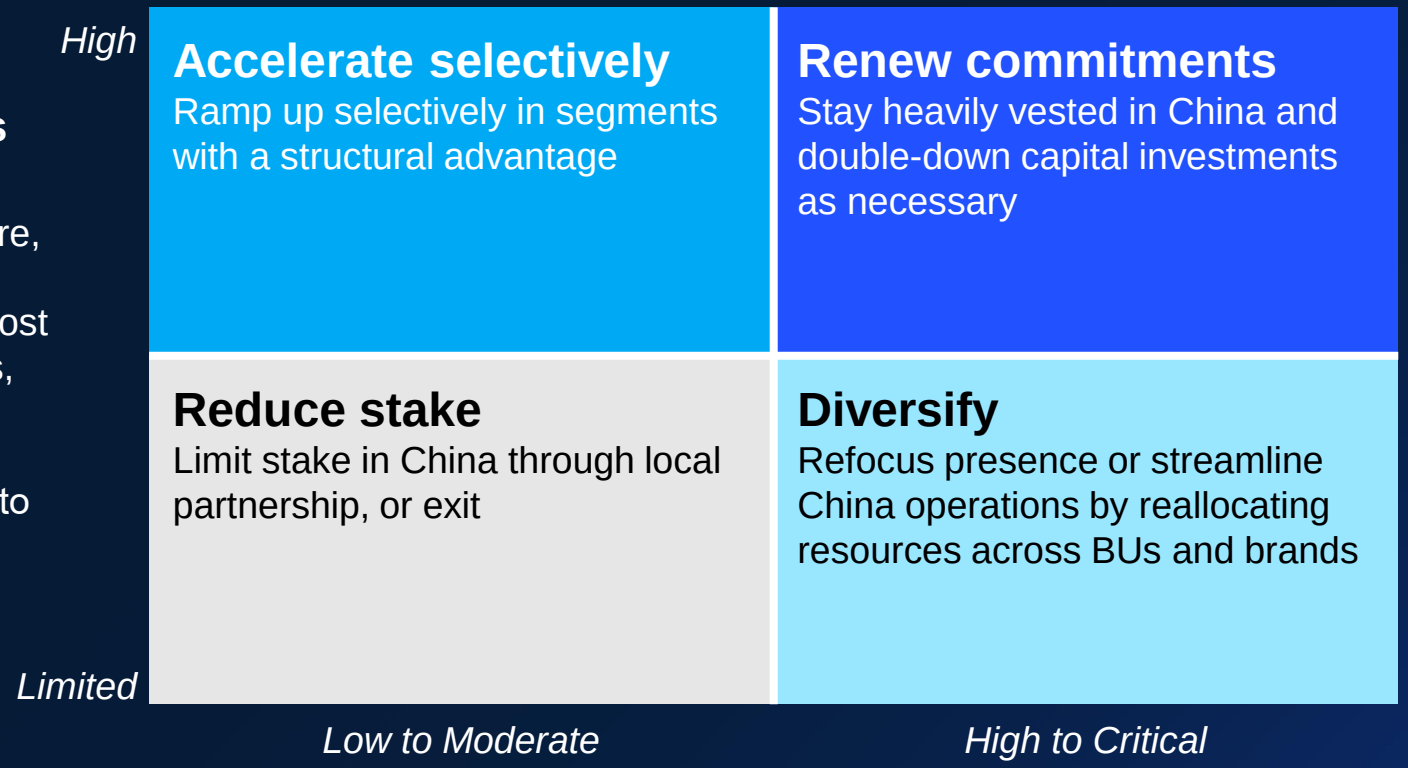
- **Proactively and regularly communicate with regulatory authorities,** and seek early input to shape clinical development plan and registration pathway
- Intentionally **tap into global expert network** (e.g., scientific advisors, KOLs/PIs, regulatory expert, etc.) to formulate clinical development strategy
- **Exchange early data** through global forums
- **Proactively engage** potential MNC biopharma partners, and consistently invest efforts across companies to build trust
- **Build PI/site network** and take systematic approach to **drive trial execution excellence** (e.g., predictive model to optimize site selection, submission excellence)
- **Carefully assess commercialization approach** (partnering vs. self-build), taking into account competition intensity, investment required, etc.

Source: McKinsey analysis

In this era of resilience, a clear strategic posture will be critical for MNCs

ILLUSTRATIVE AND NON-EXHAUSTIVE

Four primary courses of action for biopharma MNCs in China[1]



Review of current value at stake and future right to win should be conducted at both corporate and business segment levels, for biopharma MNCs to define their strategic posture

Amid current macro-environment in China, MNCs more than ever need to reconfigure for their opportunities and risks in China

1. McKinsey & Co. *The China imperative for multinational companies*

Source: McKinsey analysis

A balanced view is necessary to assess both opportunity and risk in China

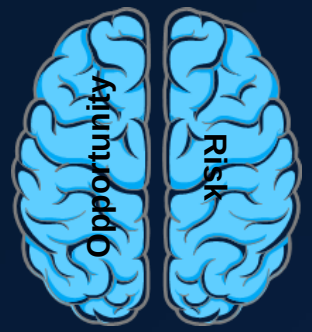
ILLUSTRATIVE AND NON-EXHAUSTIVE

Three mindsets observed when reconfiguring for opportunity and risk

Opportunity-driven

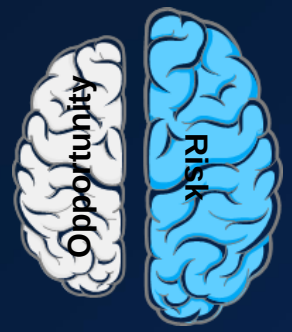
Opportunity focused - considering China LT upside exceeded downside and justified bold bets, with limited attention given to risks

Balanced



Taking a balanced view on opportunity and risk, realistically assessing and managing both sides

Risk-driven



Driven by risk avoidance, overlooking potential opportunities and ways to de-risk. Short term focused on opportunity assessment

Before COVID, many MNCs skewed towards “opportunity-driven”

Post COVID, more MNCs shifting towards “risk-centric”

A proper strategy should be based on a balanced posture

Difficult equilibrium to find given dynamics

MNCs can swing from one main mindset to another as a result of geopolitical and China sectorial dynamics

Lately, risk-driven mindsets *are more prevalent*, in the USA in particular

Landing on a balanced view requires anchoring into a common source of truth, and developing scenarios that can be aligned at HQ level, and between HQ and local operations

1. McKinsey & Co. *The China imperative for multinational companies*

Source: McKinsey analysis

Future-proof recipe for MNC biopharma in China

NON-EXHAUSTIVE

Top-down CEO commitment and full alignment
across senior management team behind a well-defined China strategy

China for China

- **Market-relevant portfolio** addressing differentiated unmet needs with synergy and continuous launch momentum
- **Upgraded GTM model to drive profitable growth** and hedge against increasing operational **cost** (e.g., rethink of coverage and channels, digital and omni-channel engagement, and innovative patient solutions)
- **Integration into the fabrics of local innovation and digital ecosystem** to pioneer and capture unique opportunities (e.g., health consumerism, digital/AI)

China for global

- **Accelerating global development** for both pivotal and early clinical stages
- **Enriching global portfolio** with local innovative assets/technology platforms
- **Innovating global business model** with China as a testing ground
- **Empowering global talent pool** with global-caliber diverse talent resources and capabilities

Raised importance of effective partnership in full range from asset licensing, value chain capability leverage, and broader ecosystem partnership to maximize value capture

Locally empowered governance model with an upgraded risk management mechanism to remain "in control at arm's length"

China for China and China for global can both create significant value, and be the primary axis of the strategy

Source: McKinsey analysis

Key takeaways

China innovative pharma market is still a growth story with room to grow into 2.5x the size of today

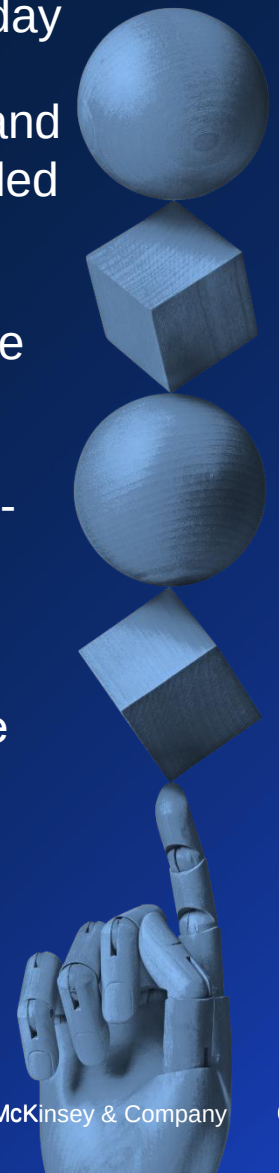
China biopharma went through a Cambrian phase before 2021, with many companies created and fund raised, formation of the innovation ecosystem, and value chain capability build-up with scaled fast-following innovations

A significant correction took place globally in 22-23, and is more severe in China, challenging the fundamentals of value creation and revealing major ecosystem gaps

However, China biopharma innovation ecosystem is showing signs of resilience (e.g., flow of ex-China deals, shifting toward globally-competitive innovation) and we have seen enough green shoots to recover overtime towards more sustainable value creation

Locals could accelerate a steep and tough journey towards capturing global potential to “survive and thrive”

MNCs could consider reconfiguring their business and the risk/opportunity equation to preserve their rights to win in China, while more actively leveraging China for global



Source: McKinsey analysis

For more on China life sciences and healthcare…

www.mckinseychina.com

McKinsey China Life Sciences Practice leadership team

2022 China biotech executive roundtable on global BD&L partnership

McKinsey 2022 China Launch Roundtable

China Local Pharma Roundtable

Acknowledgements

We would like to thank the global biopharma BD executives, industry experts, leading China biotech executives and investors that participated in our interviews and survey

In-depth interviews
with 30+ global and China biopharma leaders and investors

Focused C suite and investor survey
(N=33)

Consolidated inputs from 54 experts worldwide

30 CEOs and executives from China-originated biotechs/biopharma

14 Investors and equity researchers from leading PE/VC and investment banks

7 Senior BD executives from global biopharma

3 Industry experts on legal/regulatory affairs

Source: McKinsey analysis

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