SERS' Board Retreat
8:30 a.m.

Join Zoom Meeting
https://ohsers.zoom.us/j/93411945725?pwd=SUZnSzlRaVhFVFJBMWVxd3gvem1IQT09

Meeting ID: 934 1194 5725
Password: 738056

Dial by your location: (929) 205-6099 US (New York)
Meeting ID: 934 1194 5725
Password: 738056

Wednesday, February 17, 2021

8:30 a.m.	**Introduction/Overview**	**Richard Stensrud, Executive Director**
8:35 a.m. – 10:15 a.m.	**Investments Educational Session under R.C. 171.50 and 3309.051**	**Michael Hood (JP Morgan) – Long Term Outlook on Returns**
10:15 a.m. – 10:30 a.m.	**Break**	
10:30 a.m. – 11:30 a.m.	**Investments (continued) Educational Session under R.C. 171.50 and 3309.051**	**Chip Kaye (Warburg Pincus) – Overview on China**
11:30 a.m. – 12:30 p.m.	**LUNCH**	
12:30 p.m. – 2:00 p.m.	**Pension Sustainability**	**Keith Brainard (NASRA) – Plan Design and Risk Sharing**
2:00 p.m. – 2:15 p.m.	**Break**	
2:15 p.m. – 4:00 p.m.	**Pension Sustainability (continued)**	**Discussion with Keith Brainard and Cavanaugh Macdonald (SERS Actuaries) regarding Plan Design & Risk Sharing**

"Sustainable thinking. Why doing good is good for business."
– Unknown author

After the shock: the long-term outlook for returns

Michael Hood

February 17, 2021

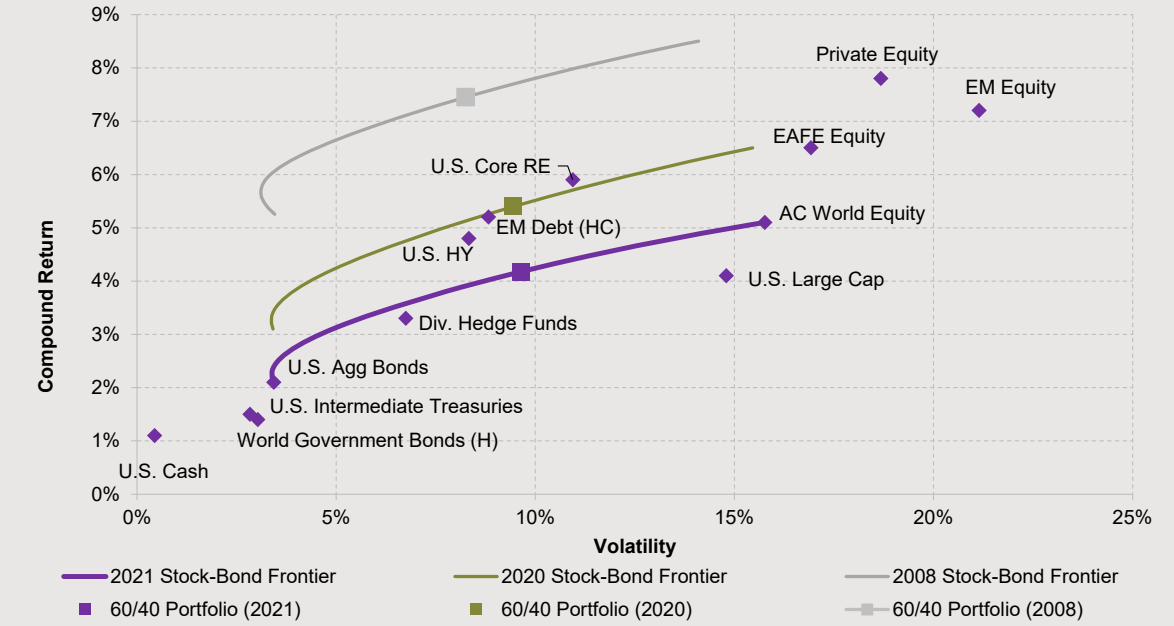
J.P.Morgan
Asset Management

Michael Hood Biography

Michael Hood, *managing director*, is a research analyst on the Multi-Asset Solutions team and provides qualitative economic and market insights to inform Multi-Asset Solutions' investment process. He came to JPMAM in October 2011 from Traxis Partners, a macro hedge fund based in New York, where he served as chief economist from 2007 to 2011. Previously, he worked as an economist and market strategist for Barclays Capital and the JPMorgan investment bank. He began his career in the research department at the Federal Reserve Bank of New York. He graduated from Carleton College and Princeton University.

A new portfolio for a new decade

Stock-bond frontiers: 2021 vs. 2020 and 2008 assumptions (USD)



60/40 lower again

USD 60/40 return forecast falls from 5.4% to 4.2%

Wide dispersion of asset returns

Many assets some way from stock-bond frontier; investors are incentivised to widen opportunity set and monetise a range of risk premia

Post-COVID19 distinct to post-GFC

By contrast, many assets close to the stock-bond frontier post-GFC; investors well rewarded for market risk alone

Source: J.P. Morgan Asset Management; estimates as of September 2020 and September 2019. *EM: Emerging Markets; DM: Developed Markets

J.P.Morgan
Asset Management

Economic environment: still looking for moderate growth and inflation

Compound 10- 15-year GDP Growth and Inflation (%)	DM*	U.S.	Europe	U.K.	Japan
2021 LTCMAs					
Real GDP	1.60 ↑	1.80	1.30 ↑	1.60 ↑	1.00 ↑
Inflation	1.60	2.00	1.30	2.00	0.70 ↓
2020 LTCMAs					
Real GDP	1.50	1.80	1.20	1.20	0.60
Inflation	1.60	2.00	1.30	2.00	0.80

	EM*	China	India	Brazil	Russia
2021 LTCMAs					
Real GDP	3.90	4.40	6.90 ↓	2.40	1.10 ↓
Inflation	3.30	2.50	5.00	4.30 ↓	5.30 ↓
2020 LTCMAs					
Real GDP	3.90	4.40	7.00	2.40	1.20
Inflation	3.30	2.50	5.00	4.50	5.50

Source: J.P. Morgan Asset Management; estimates as of September 2019 and September 2020. *EM: Emerging Markets; DM: Developed Markets

SMALL CYCLICAL BOOST TO GROWTH

- **Growth** – DM projections boosted by cyclical starting point, EM unchanged in aggregate
- **Population** – DM labor forces expanding very slowly by historical standards; EM demographics not universally better
- **Productivity** – Relatively weak over last decade, but tech led productivity boom remains and upside risk to growth
- **Inflation** – Broadly stable in aggregate but risks more evenly balanced than in recent years

Fixed income: a poor outlook for returns

U.S. dollar key fixed income assumptions, 2021 vs. 2020

	Inflation rate	Cash rate	10-yr bond yield	20+-yr bond yield	U.S. IG	U.S. HY	EMD (hard)	EMD (hard corp)
2021 LTCMAs								
Equilibrium Rate / Spread	2.00%	1.90%	3.00%	3.30%	160 bps	500 bps	375 bps	400 bps
Rate / spread on Sept 30, 2020	-	0.25%	0.70%	1.20%	140 bps	560 bps	460 bps	400 bps
Return (%)	-	1.10%	1.60%	0.30%	2.50%	4.80%	5.20%	4.70%
2020 LTCMAs								
Equilibrium Rate / Spread	2.00%	1.90%	3.20%	3.40%	165 bps	500 bps	350 bps	325 bps
Rate / spread on Sept 30, 2019	-	2.00%	1.65%	2.09%	127 bps	409 bps	352 bps	300 bps
Return (%)	-	1.90%	2.40%	1.60%	3.40%	5.20%	5.10%	4.90%

FIXED INCOME KEY POINTS

- We lengthen normalisation windows across major G4 markets.
- The cash returns fall sharply to reflect a structurally dovish central bank.
- Three distinct phases for fixed income returns. Long duration Treasury returns now lower than cash.
- US HY and EMD returns are still attractive with most of the drag coming from the normalization in government bond yields.
- HY returns comparable to Equities

Source: J.P. Morgan Asset Management; estimates as of September 2020 and September 2019. IG = Investment Grade; HY = High Yield; EMD = Emerging Market Debt. Spreads are listed in bps terms.

FX: the dollar may trend lower

	EUR	JPY	CHF	GBP	CAD	AUD	CNY	BRL	MXN
Spot vs. USD on September 30, 2020									
	1.17	105	0.92	1.29	0.75	0.72	6.79	5.61	22.11
2021 LTCMA FX forecast									
% annual change from current level	1.40	1.40	1.10	0.80	0.80	-0.10	1.20	1.00	0.00
Terminal spot rate assumption (10-15 years)	1.39	89	0.80	1.43	1.21	0.71	5.85	4.97	22.04
2020 LTCMA FX forecast									
	1.38	88	0.83	1.48	1.13	0.72	5.58	3.86	21.82

FX KEY POINTS

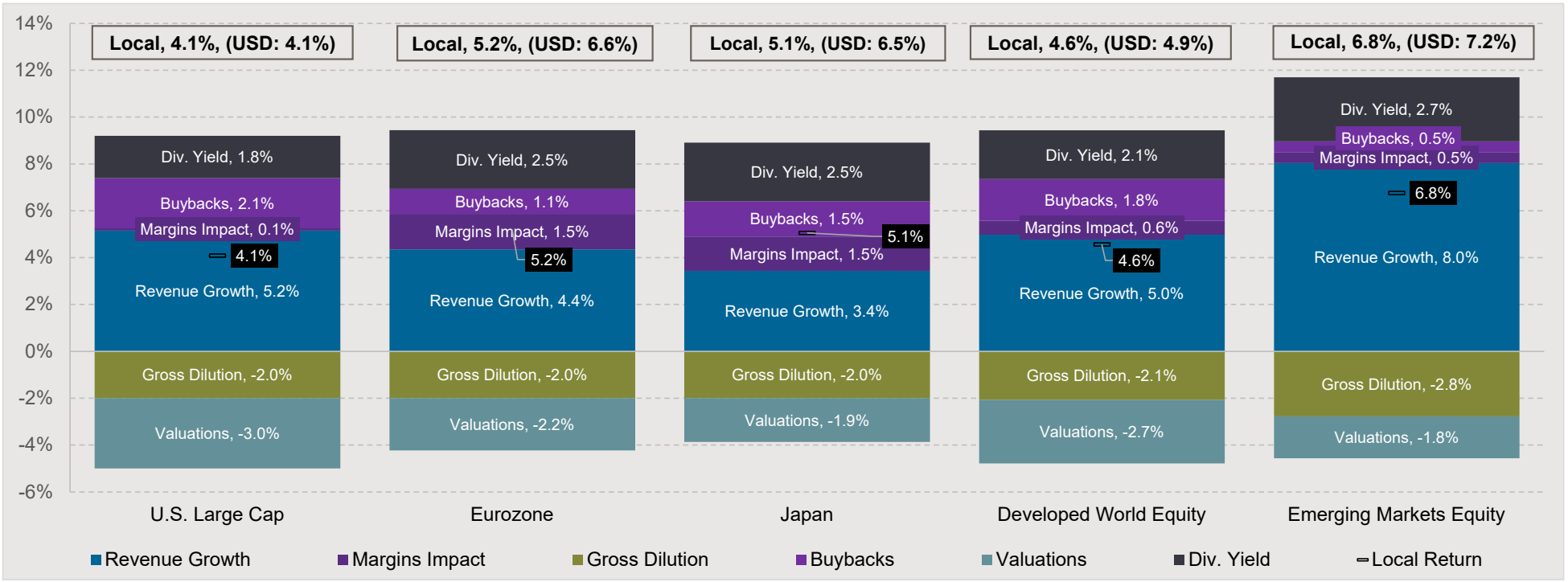
- Our long-held view that the USD is on a secular downtrend now has a cyclical catalyst: the start of a new synchronized global business cycle
- Euro a more credible counterweight to the dollar; may reassert its standing as an alternative reserve currency
- CNY set to appreciate, albeit to a somewhat lesser degree than implied in its fair value.
- Wide dispersion among EM currencies.

Source: J.P. Morgan Asset Management; estimates as of September 30, 2019 and September 30, 2020.

Outlooks and past performance are not reliable indicators of future results. Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met. For further information, see "Understanding long-term estimates" at the end of this presentation.

Equities: valuations support international stocks

Equilibrium total returns; rounded to nearest 10bps*



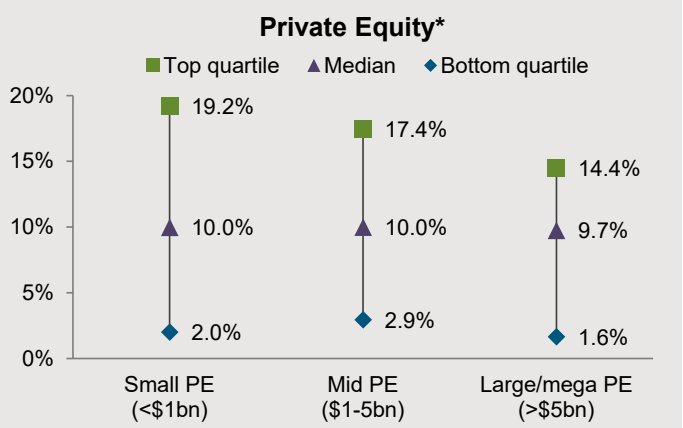
Source: J.P. Morgan Asset Management as of September 2020. Note that final return assumptions are rounded to nearest 10 bps, and sum of building blocks will therefore differ slightly. Opinions, estimates, forecasts, projections and statements of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. There can be no guarantee they will be met. * Note: totals may not sum due to rounding.

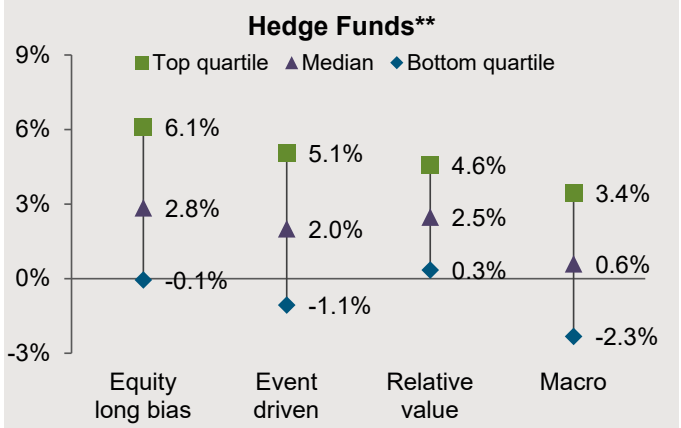
J.P.Morgan
Asset Management

Financial alts: an improving environment for alpha amid a declining outlook for public markets

	Private Equity				Private Debt	Hedge Funds				
USD, %	Small Cap	Mid Cap	Large/Mega Cap	Cap-Weighted[1]	Direct Lending	Equity Long Bias	Event Driven	Relative Value	Macro	Diversified[2]
2021 LTCMAs	**7.30**	**7.40**	**8.00**	**7.80**	**6.80**	**3.40**	**3.10**	**3.60**	**2.20**	**3.30**
2020 LTCMAs	8.70	8.50	9.00	8.80	7.00	4.80	4.80	4.50	3.30	4.50

Returns by manager percentile ranking (USD)





KEY POINTS

- **Private equity**: Lower assumptions reflecting the decrease in public market returns, expect an increasingly global universe, and better environment for innovation and growth
- **Direct lending**: Reduced modestly, reflecting the headwinds of lower cash rates and higher overall credit losses, balanced by higher starting yields, credit selection remains key
- **Hedge fund:** Projections are marked lower vs. 2020 to reflect reduced public market assumptions. However, alpha is expected to improve and we observe increased sector specialization
- *Manager selection is a critical determinant of success*

Source: (Top) J.P. Morgan Asset Management, as of September 30, 2019, and September 30, 2020. (Bottom) * Burgiss Private IQ, J.P. Morgan Asset Management, data as of June 30, 2020, IRR of vintage years 2006-2019; ** Hedge Fund Research, J.P. Morgan Asset Management, data as of June 30, 2020, trailing 5 years as of June 2020;

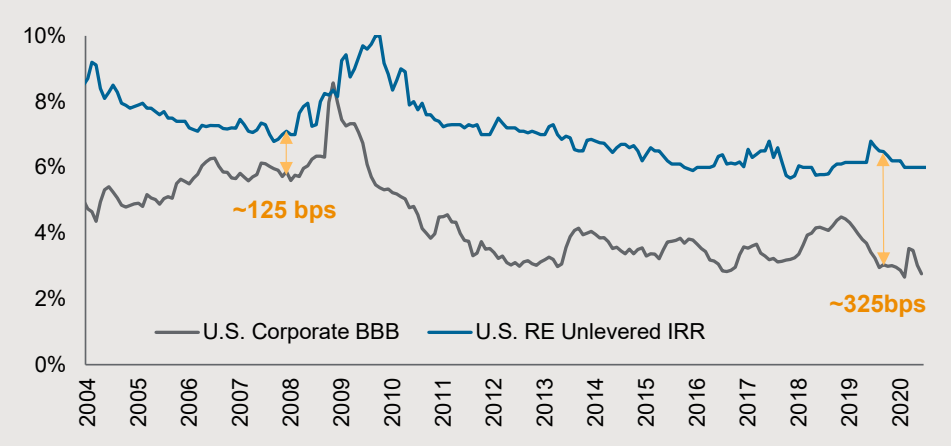
[1] The private equity composite is AUM-weighted: 65% large cap and mega cap, 25% mid cap and 10% small cap. The regional weights for the capitalization-weighted PE composite are: U.S.: 60%; Europe: 20%; Japan: 5%; Asia ex-Japan: 15%.
[2] The diversified assumption represents the projected return for multi-strategy hedge funds.

J.P.Morgan Asset Management

Real assets: Stable income and diversification in a world of lower yields

%[1]	Core Real Estate (Local CCY)				Value-Added Real Estate (Local CCY)			REITS (LOCAL CCY)					Infra and Transport[2] (USD)		Commodities (USD)	
	U.S.	European ex-UK	UK	APAC	U.S.	European ex-UK	UK	U.S.	European ex-UK	UK	APAC	Global	Global Core Infrastructure	Global Core Transport	Commodities	Gold
2021	**5.90**	**5.00**	**5.90**	**6.60**	**8.10**	**7.70**	**8.40**	**6.50**	**5.90**	**6.00**	**6.40**	**6.40**	**6.10**	**7.60**	**2.30**	**2.90**
2020	5.80	5.00	5.50	6.50	7.70	7.50	7.70	6.00	5.50	6.00	6.00	6.00	6.00	N.A	2.50	3.00

U.S. real estate is better positioned than it was just prior to the GFC[3]



KEY POINTS

- **Global real estate:** Minimal change for core real estate across regions. Value-added risk premiums increase as we move into new cycle. Increased return projections for REITs. Rise of new property sectors
- **Global core infrastructure:** Projections in line with prior year. Expected stable returns with long-dated contracted cash flows resulting in less cyclical returns
- **Global core transport:** New addition to LTCMA 2021. Similar to core real estate and infrastructure – majority of the returns underpinned by long-term contractual cash flow with strong counterparties
- **Commodities:** Marginal reduction in returns reflecting lower collateral return expectations and less support from a falling U.S. dollar

Source: (1) J.P. Morgan Asset Management; estimates as of September 30, 2019, and September 30, 2020. (2) Represents a diversified portfolios of privately held, global core equity assets. (3) Moody's Analytics, NCREIF, J.P. Morgan Asset Management; data as of June 2020.

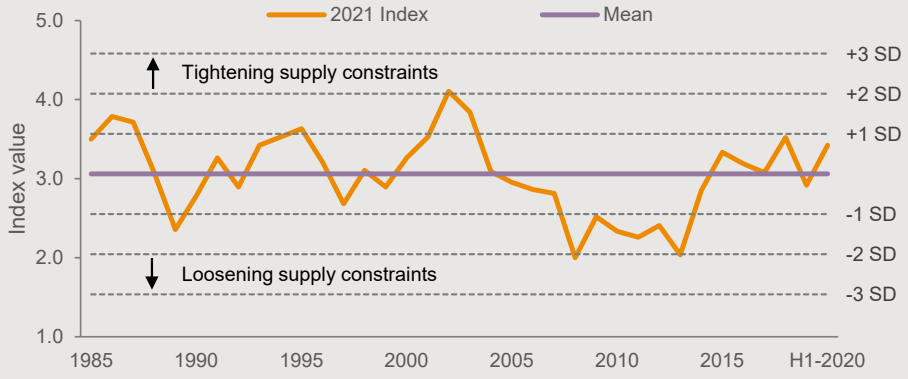
J.P.Morgan Asset Management

Commodities

KEY POINTS

- Our commodities assumption is reduced vs. 2020, primarily due to lower collateral returns and a reduction in the expected decline of the USD
- Helping to offset this downward pressure is a tighter supply dynamic, consistent with early cycle conditions
- With our U.S. inflation assumption at 2.00%, the 2021 commodity return expectation implies a positive real return of 30bps net of fees
- Gold's premium to commodities reflects positive drivers such as continued central bank buying, increasing demand from Asia and interest from investors seeking downside protection outside of fixed income markets

Commodity Event Index



Commodities (USD, %)		
LTCMAs	**Commod.**	**Gold**
2021, net of fees	**2.30**	**2.90**
2020, Net of fees	2.50	3.30

BUILDING BLOCKS

- U.S. cash
- Position in the current cycle
- EM per capita consumption
- U.S. dollar decline
- Fees

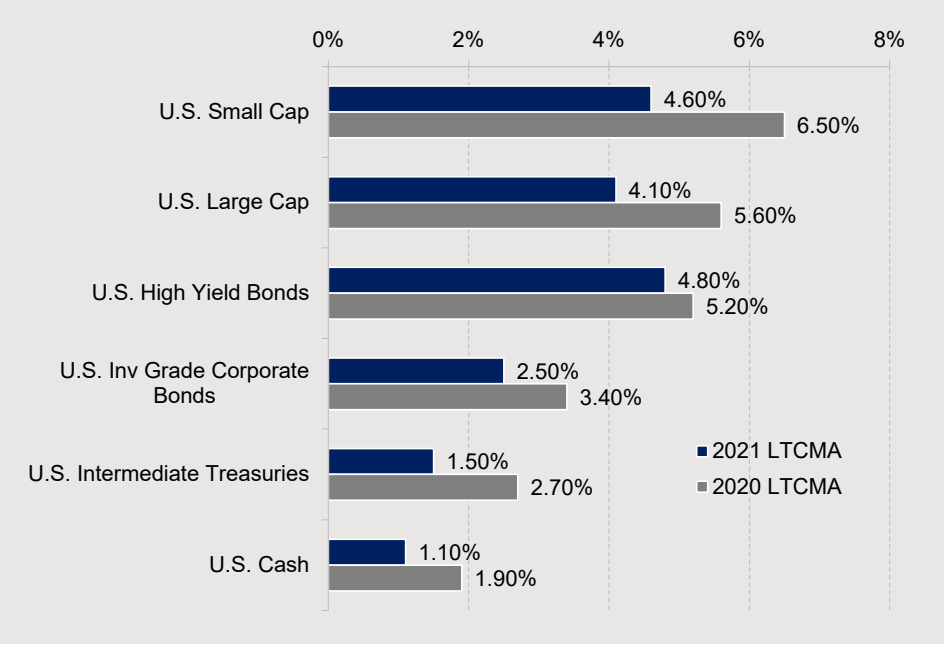
Index component	Weight	Change in component	Impact on index value
Credit rating (1985)	11.1%	Lower	Higher
Age of capital stock (1985)	11.1%	Higher	Higher
Financial leverage (1985)	11.1%	Higher	Higher
Volume of bankruptcies, takeovers, debt-for-equity swaps (2004)	11.1%	Lower	Lower
Capital expenditure to sales (1985)	18.5%	Lower	Higher
Oil rig count (1991)	18.5%	Lower	Higher
CEO turnover (2007)	18.5%	Lower	Lower

Source: (Left) J.P. Morgan Asset Management; estimates as of September 30, 2019 and September 30, 2020. (Right) Baker Hughes, Bloomberg, FactSet, U.S. Bureau of Economic Analysis, J.P. Morgan Asset Management; data as of June 30, 2020.

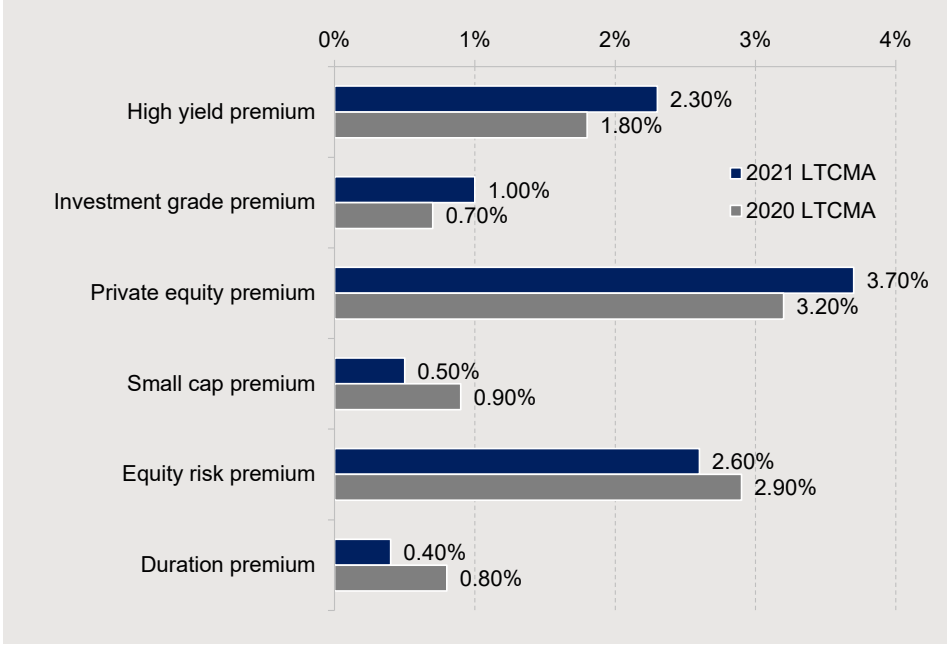
J.P.Morgan Asset Management

USD returns and risk premia

USD Expected Returns



USD LTCMA-implied Risk Premia



Source: J.P. Morgan Asset Management; data as of September 2019 and September 2020. High yield premium = U.S. High Yield Bonds – U.S. Investment Grade Corporate Bonds. Investment grade premium = U.S. investment grade corporate bonds – U.S. intermediate treasuries. Private Equity premium = Private Equity – U.S. Large Cap. Small cap premium = U.S. Small Cap – U.S. Large Cap. Equity Risk Premium = U.S. Large Cap – U.S. Intermediate Treasuries. Duration Premium = U.S. Intermediate Treasuries – U.S. Cash.

J.P.Morgan
Asset Management

Disclaimer

For Professional Clients / Qualified Investors only – not for Retail use or distribution.

JPMAM Long-Term Capital Market Assumptions: Given the complex risk-reward trade-offs involved, we advise clients to rely on judgment as well as quantitative optimization approaches in setting strategic allocations. Please note that all information shown is based on qualitative analysis. Exclusive reliance on the above is not advised. This information is not intended as a recommendation to invest in any particular asset class or strategy or as a promise of future performance. Note that these asset class and strategy assumptions are passive only – they do not consider the impact of active management. References to future returns are not promises or even estimates of actual returns a client portfolio may achieve. Assumptions, opinions and estimates are provided for illustrative purposes only. They should not be relied upon as recommendations to buy or sell securities. Forecasts of financial market trends that are based on current market conditions constitute our judgment and are subject to change without notice. We believe the information provided here is reliable, but do not warrant its accuracy or completeness. This material has been prepared for information purposes only and is not intended to provide, and should not be relied on for, accounting, legal or tax advice. The outputs of the assumptions are provided for illustration/discussion purposes only and are subject to significant limitations. "Expected" or "alpha" return estimates are subject to uncertainty and error. For example, changes in the historical data from which it is estimated will result in different implications for asset class returns. Expected returns for each asset class are conditional on an economic scenario; actual returns in the event the scenario comes to pass could be higher or lower, as they have been in the past, so an investor should not expect to achieve returns similar to the outputs shown herein. References to future returns for either asset allocation strategies or asset classes are not promises of actual returns a client portfolio may achieve. Because of the inherent limitations of all models, potential investors should not rely exclusively on the model when making a decision. The model cannot account for the impact that economic, market, and other factors may have on the implementation and ongoing management of an actual investment portfolio. Unlike actual portfolio outcomes, the model outcomes do not reflect actual trading, liquidity constraints, fees, expenses, taxes and other factors that could impact the future returns. The model assumptions are passive only – they do not consider the impact of active management. A manager's ability to achieve similar outcomes is subject to risk factors over which the manager may have no or limited control. The views contained herein are not to be taken as advice or a recommendation to buy or sell any investment in any jurisdiction, nor is it a commitment from J.P. Morgan Asset Management or any of its subsidiaries to participate in any of the transactions mentioned herein. Any forecasts, figures, opinions or investment techniques and strategies set out are for information purposes only, based on certain assumptions and current market conditions and are subject to change without prior notice. All information presented herein is considered to be accurate at the time of production. This material does not contain sufficient information to support an investment decision and it should not be relied upon by you in evaluating the merits of investing in any securities or products. In addition, users should make an independent assessment of the legal, regulatory, tax, credit and accounting implications and determine, together with their own professional advisers, if any investment mentioned herein is believed to be suitable to their personal goals. Investors should ensure that they obtain all available relevant information before making any investment. It should be noted that investment involves risks, the value of investments and the income from them may fluctuate in accordance with market conditions and taxation agreements and investors may not get back the full amount invested. Both past performance and yield are not a reliable indicator of current and future results. J.P. Morgan Asset Management is the brand for the asset management business of JPMorgan Chase & Co. and its affiliates worldwide. To the extent permitted by applicable law, we may record telephone calls and monitor electronic communications to comply with our legal and regulatory obligations and internal policies. Personal data will be collected, stored and processed by J.P. Morgan Asset Management in accordance with our EMEA Privacy Policy www.jpmorgan.com/emea-privacy-policy.

This communication is issued in Europe (excluding UK) by JPMorgan Asset Management (Europe) S.à r.l., 6 route de Trèves, L-2633 Senningerberg, Grand Duchy of Luxembourg, R.C.S. Luxembourg B27900, corporate capital EUR 10.000.000.

This communication is issued in the UK by JPMorgan Asset Management (UK) Limited, which is authorised and regulated by the Financial Conduct Authority. Registered in England No. 01161446. Registered address: 25 Bank Street, Canary Wharf, London E14 5JP.

Material ID: 0903c02a82a64af8

J.P.Morgan
Asset Management

End of Presentation

WARBURG PINCUS

Presentation to the Board of School Employees Retirement System of Ohio

CHIP KAYE

CHIEF EXECUTIVE OFFICER

Chip Kaye, Chief Executive Officer

Chip Kaye joined Warburg Pincus in 1986 and is the firm's Chief Executive Officer. In this capacity, Mr. Kaye oversees the firm's investment decisions and leads Warburg Pincus' Executive Management Group. Mr. Kaye lived in Hong Kong from 1994 to 1999, where he was instrumental in the launch and development of Warburg Pincus' Asia operations. Mr. Kaye is a graduate of The University of Texas at Austin. He is a member of the Council on Foreign Relations and the International Advisory Board of the University of Pennsylvania's Center for the Advanced Study of India (CASI). Mr. Kaye currently serves on the Board of the US-India Strategic Partnership Forum and is Vice Chairman of the Board of Trustees of New York-Presbyterian Hospital.

Agenda


1
Warburg Pincus Overview
2
Growth in China & COVID-19 Impact
3
Industry Trends in China
4
Investing in China
5
Q&A

Warburg Pincus Overview

WARBURG PINCUS

50+ year track record of growth investing through a thesis-driven approach across target sectors and geographies

$57+	920+	50+	11	7
BILLION AUM	COMPANIES SINCE INCEPTION	YEARS OF INVESTING	GLOBAL OFFICES IN 10 COUNTRIES*	INDUSTRIES OF FOCUS

As of December 31, 2020. Past performance is not necessarily indicative of future results. There can be no assurance that any particular Warburg Pincus fund or fund investment will achieve its investment objectives.

*Note: excludes administrative offices.

Globally Integrated Approach to Investing

One of the first US-based private equity firms to invest outside of the US

250 investment professionals across **11 global offices***

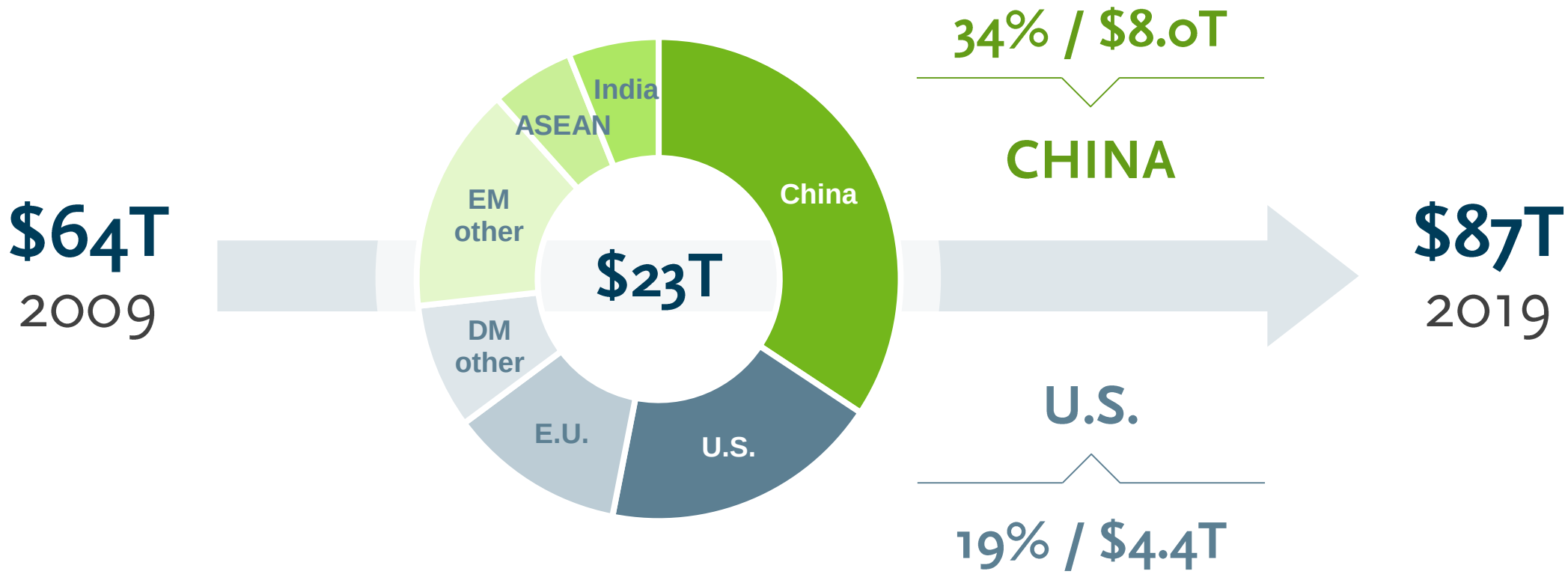
approximately 50% of investment professionals based outside of the US

WARBURG PINCUS

*Note: excludes administrative offices.

Growth in China & COVID-19 Impact

Global GDP Growth: Past 10 Years

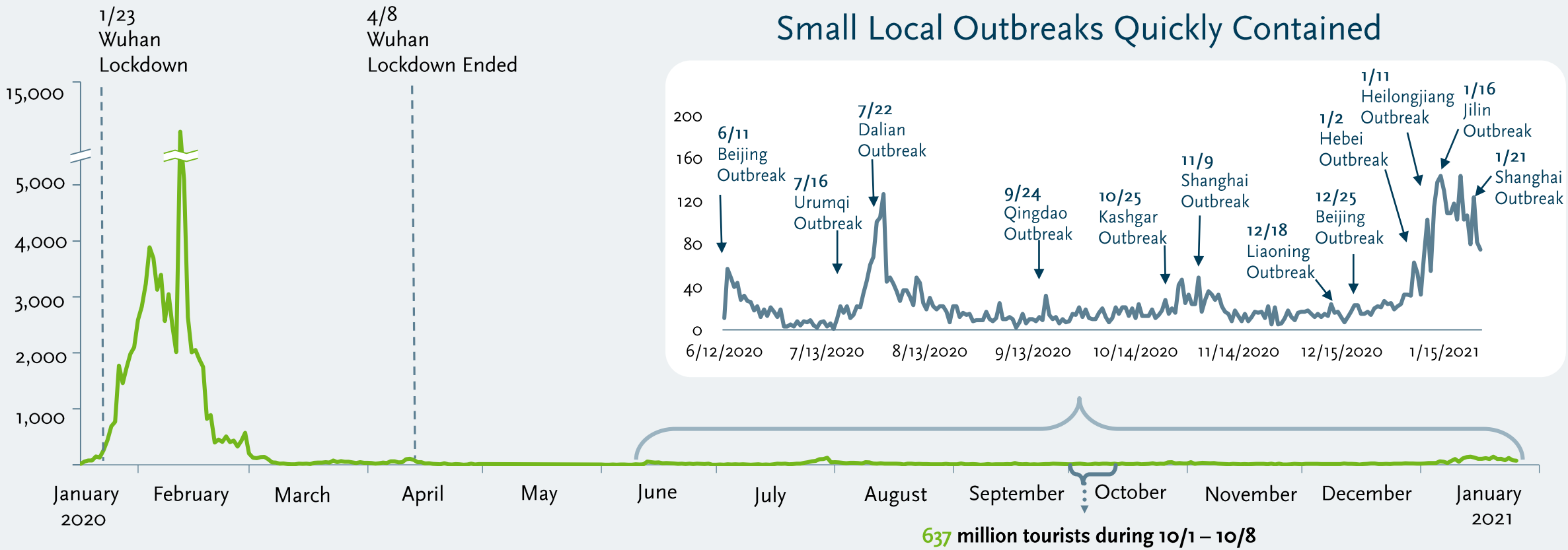


Source: Real GDP growth from 2010 to 2019. Measured in constant 2019 USD. Data from IMF (October 2020).

WARBURG PINCUS

COVID-19 Largely Contained in China

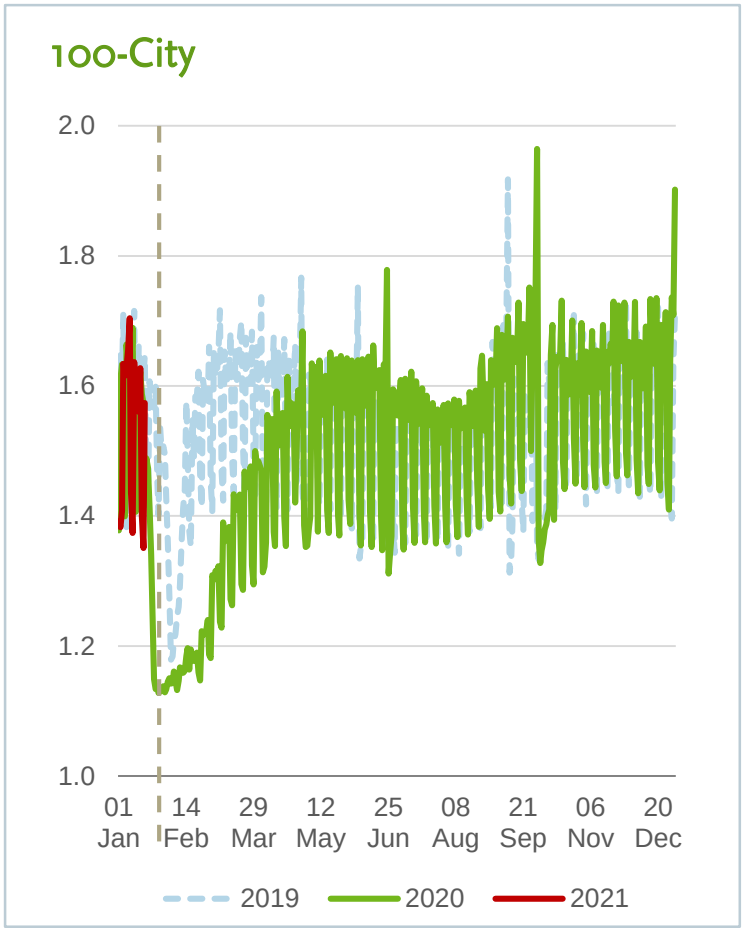
Newly Confirmed Cases

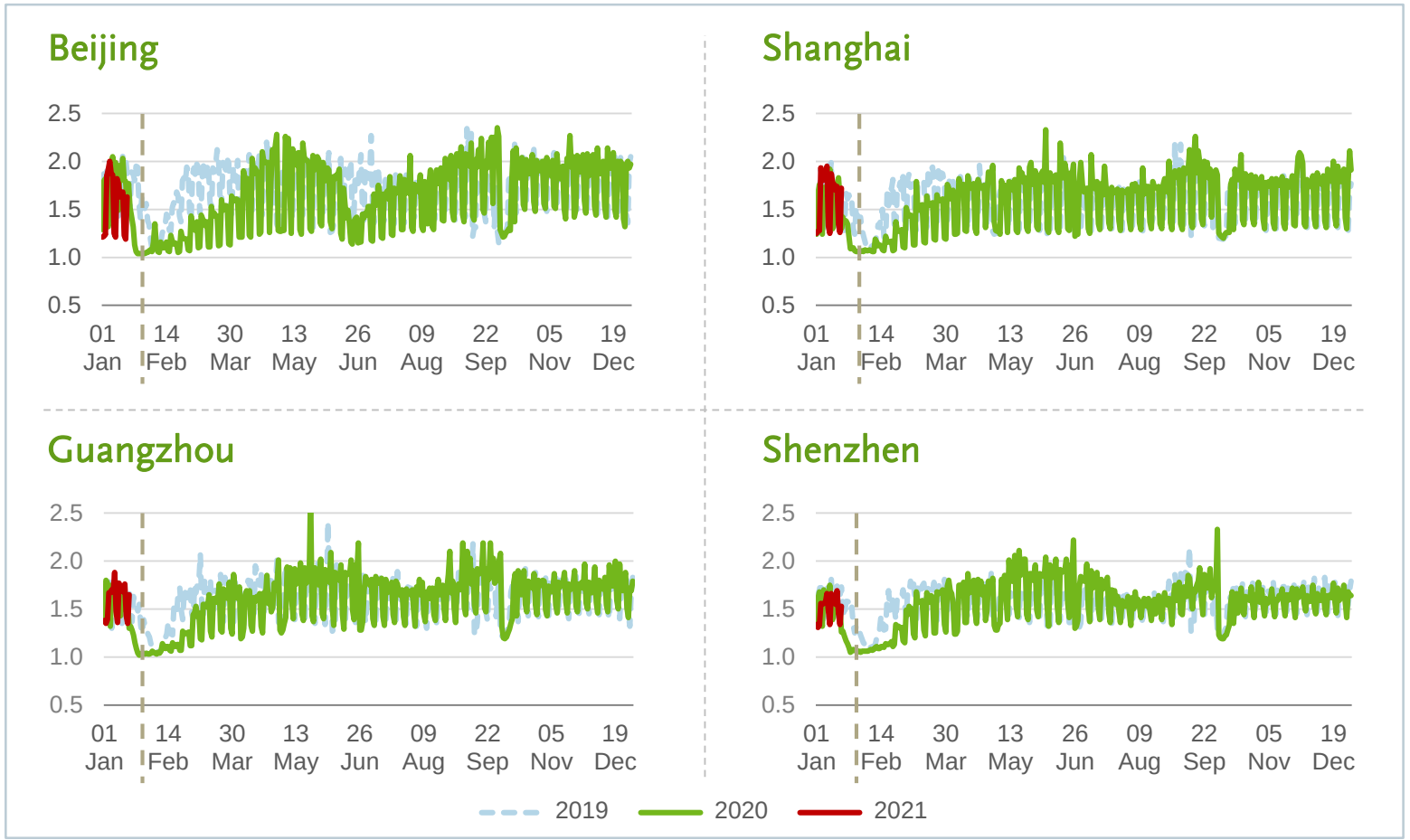


Sources: CDC, local government website, WIND, Ministry of Culture and Tourism
Notes: including imported and local cases.

WARBURG PINCUS

Transport Congestion Index



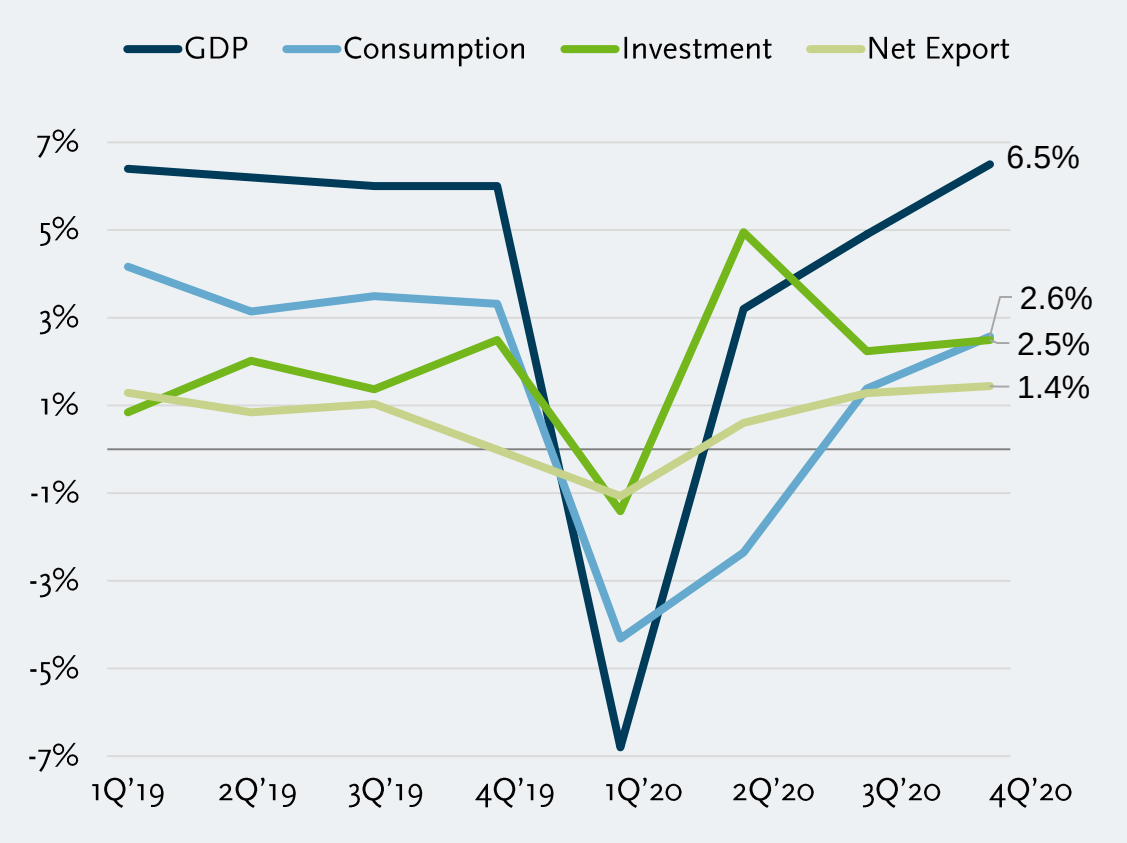


Traffic recovered to pre-virus levels by the end of 2020 and has continued into 2021

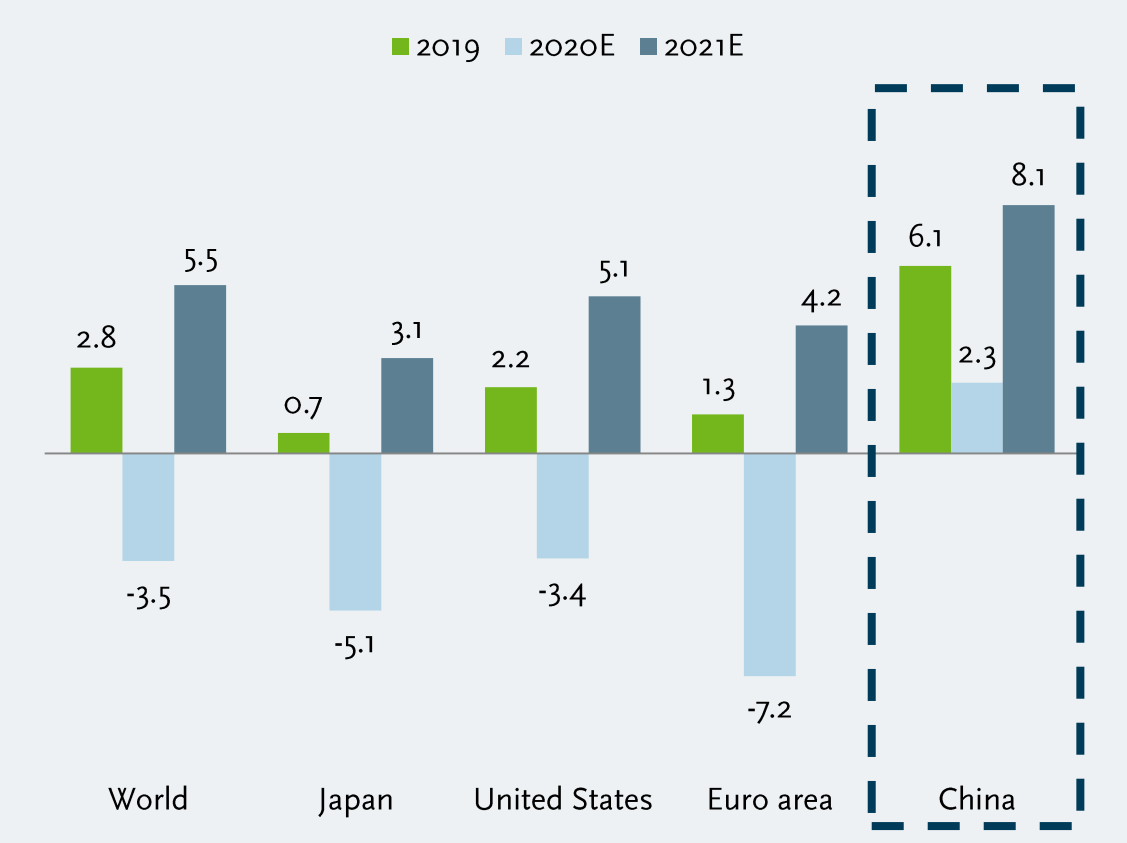
Note: the proportion of urban residents average actual travel time to free flow travel time
Source: Wind, as of 01/18/2021

Economy is Back on Growth Track

GDP Quarterly Growth



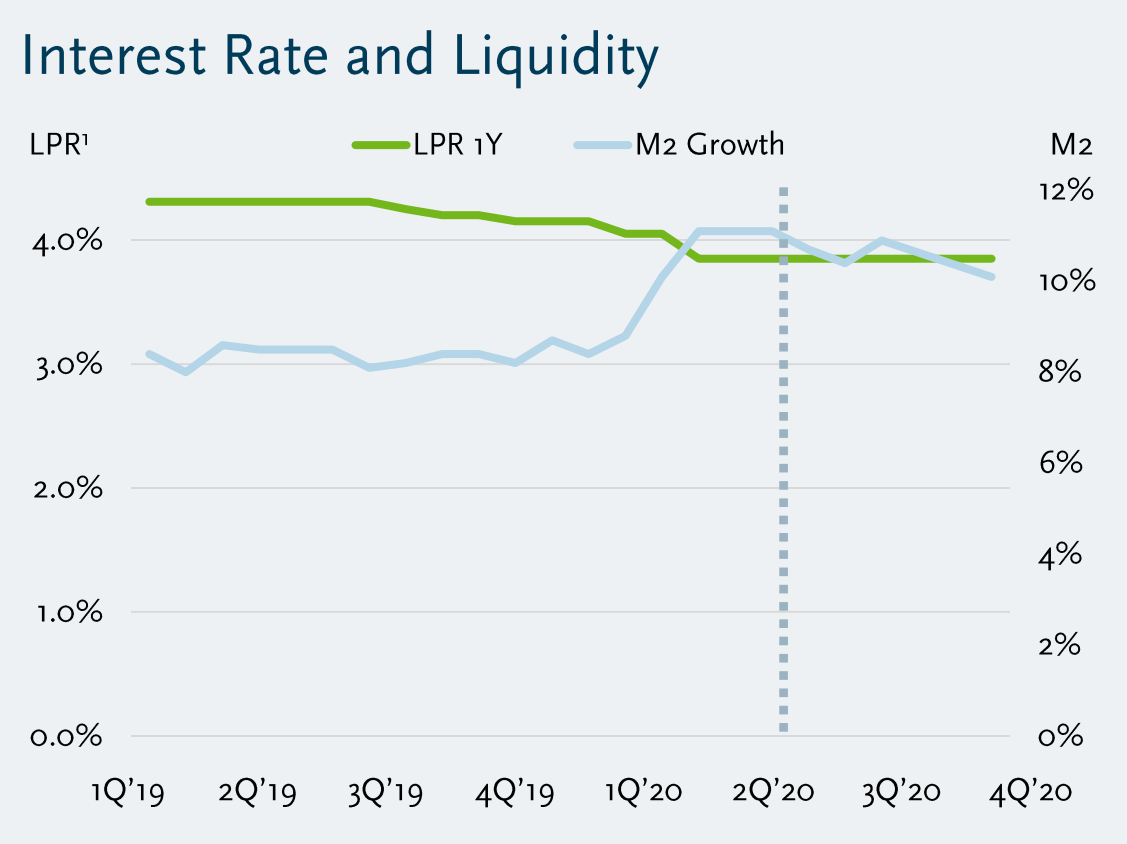
GDP Forecast (%)



Source: China Statistics Bureau, IMF, as of Jan 2021

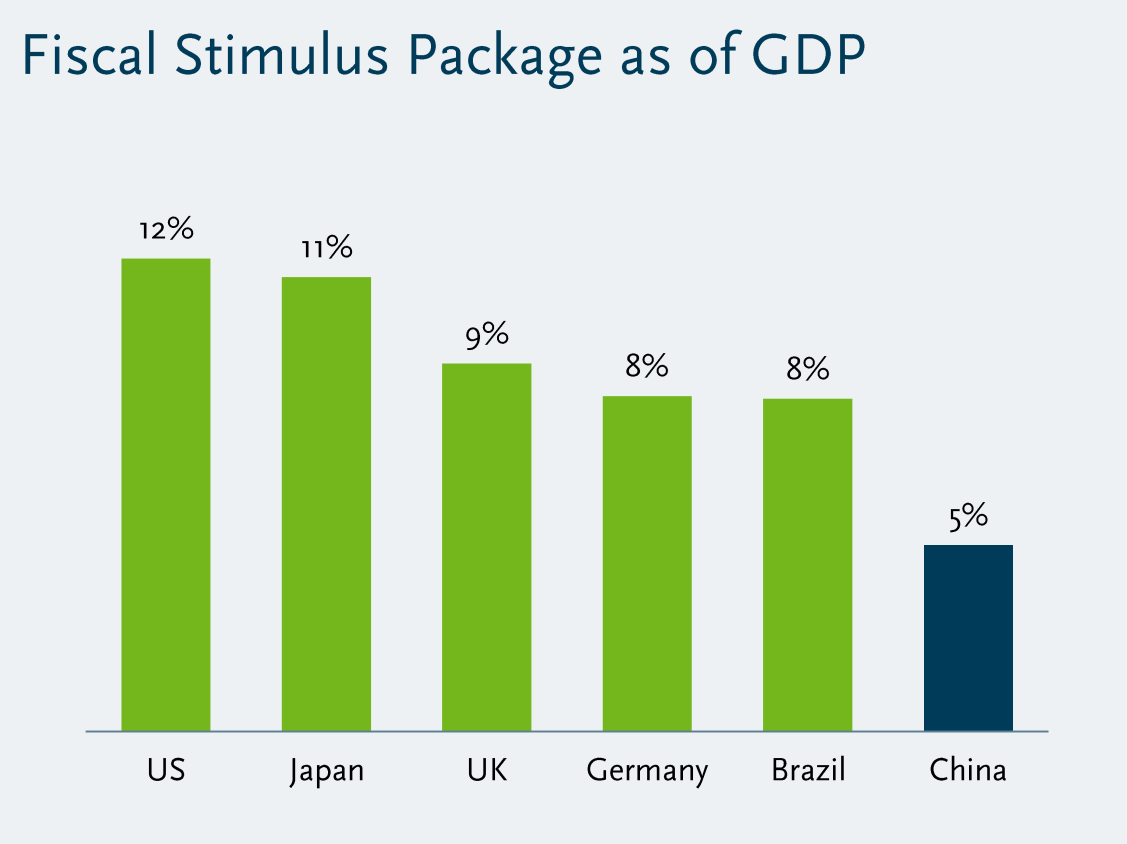
Under Moderately Simulative Monetary & Fiscal Policies

Monetary Policy Stabilized Since April



Note 1: LPR - Loan Prime Rate
Source: PBOC, as of Jan 2021

Fiscal Policy has Plenty Room



Source: International Monetary Fund, as of Oct 2020

WARBURG PINCUS

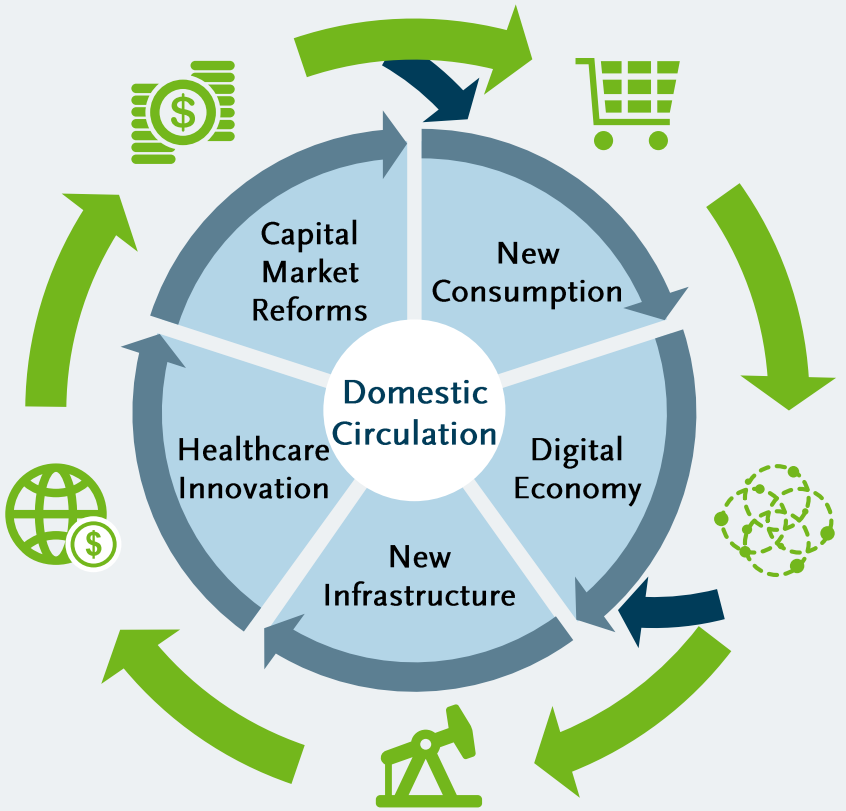
Industry Trends in China

14th Five-Year Plan Emphasizes Dual Circulation & Tech Innovation

14th Five-Year Plan

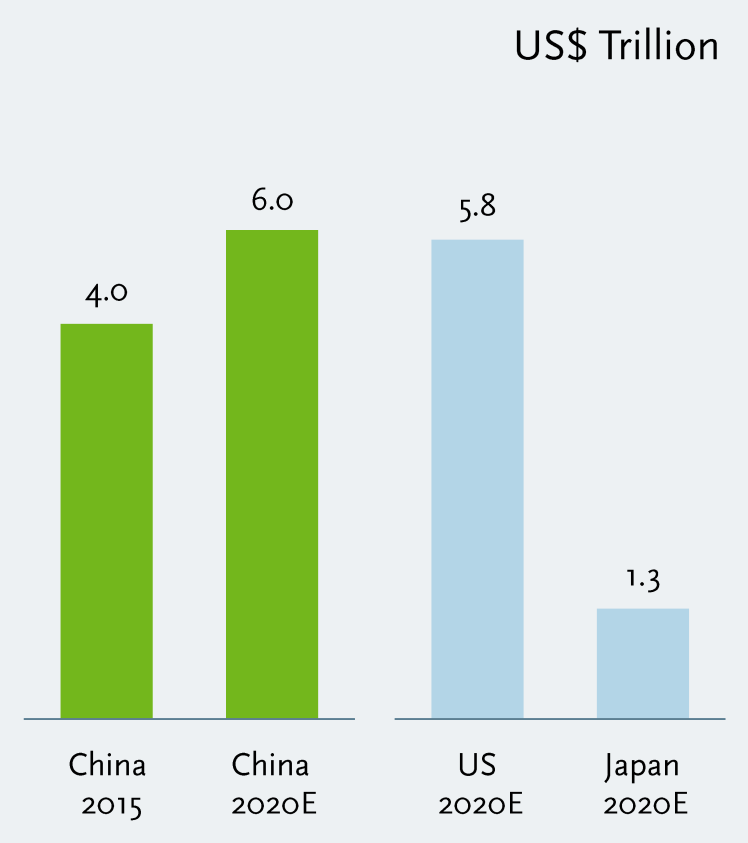
- Dual Circulation Strategy
- A global leader in innovation
- Reach the level of medium income countries in 2035

Dual Circulation Strategy

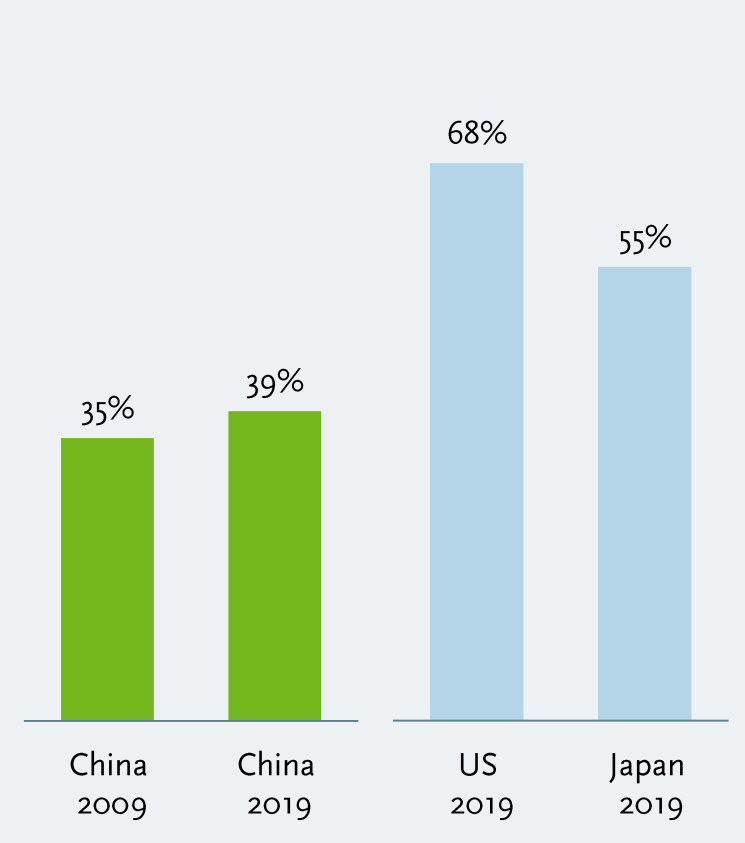


China is Becoming the Largest Consumer Market

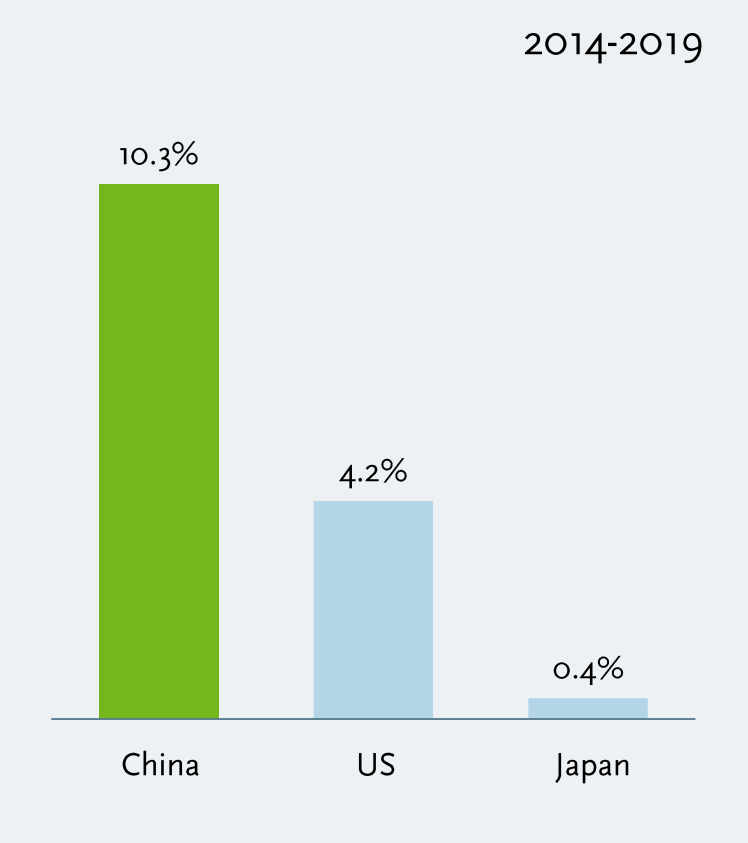
Total Retail Sales



Consumption % of GDP



Consumption Growth Rate

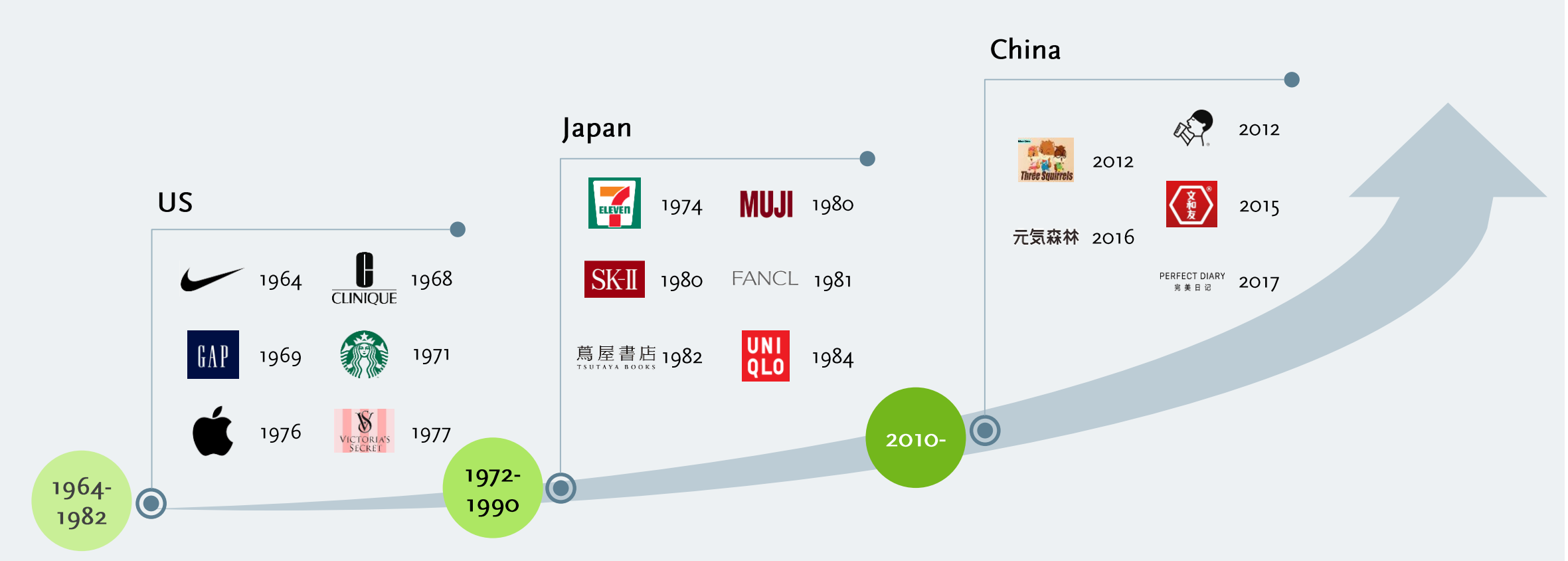


Source: China Statistics Bureau

WARBURG PINCUS

Golden Decades of Chinese Consumer Brands

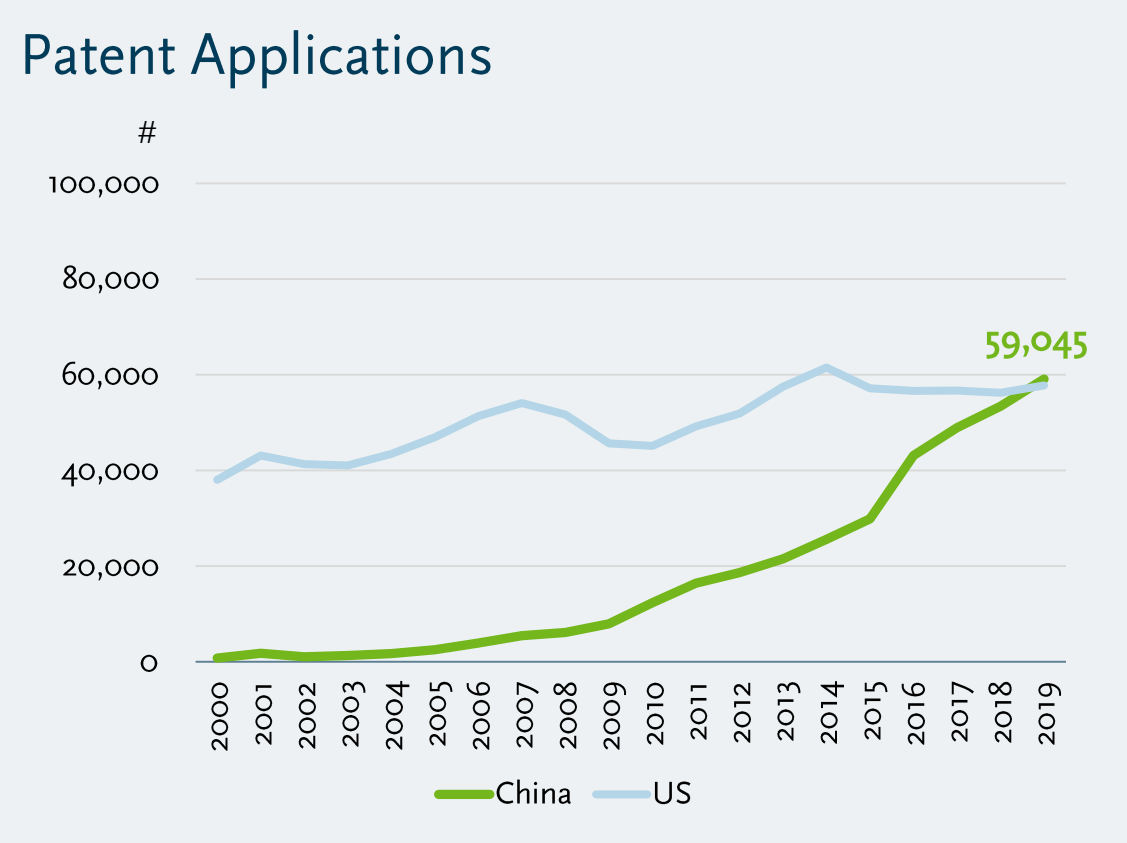
New Consumer Brands Rising with Middle Class



Source: United States Department of Commerce, Ministry of Commerce of China, Ministry of Economy, Trade and Industry of Japan, Huatai Securities Research

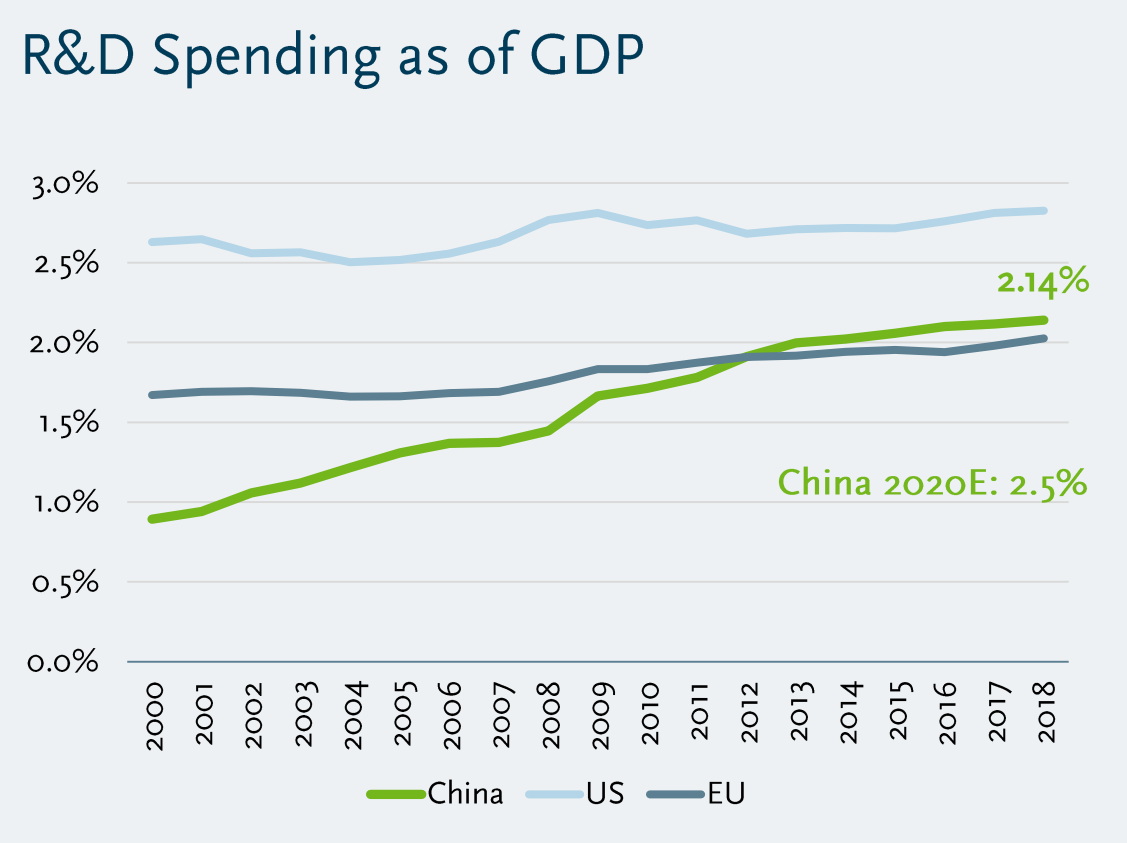
A Global Leader in Innovation

Rising Power in Innovation



Source: WIPO, As of July 2020
Note: Number of Patent applications files in the PCT international patent system

Invest in R&D

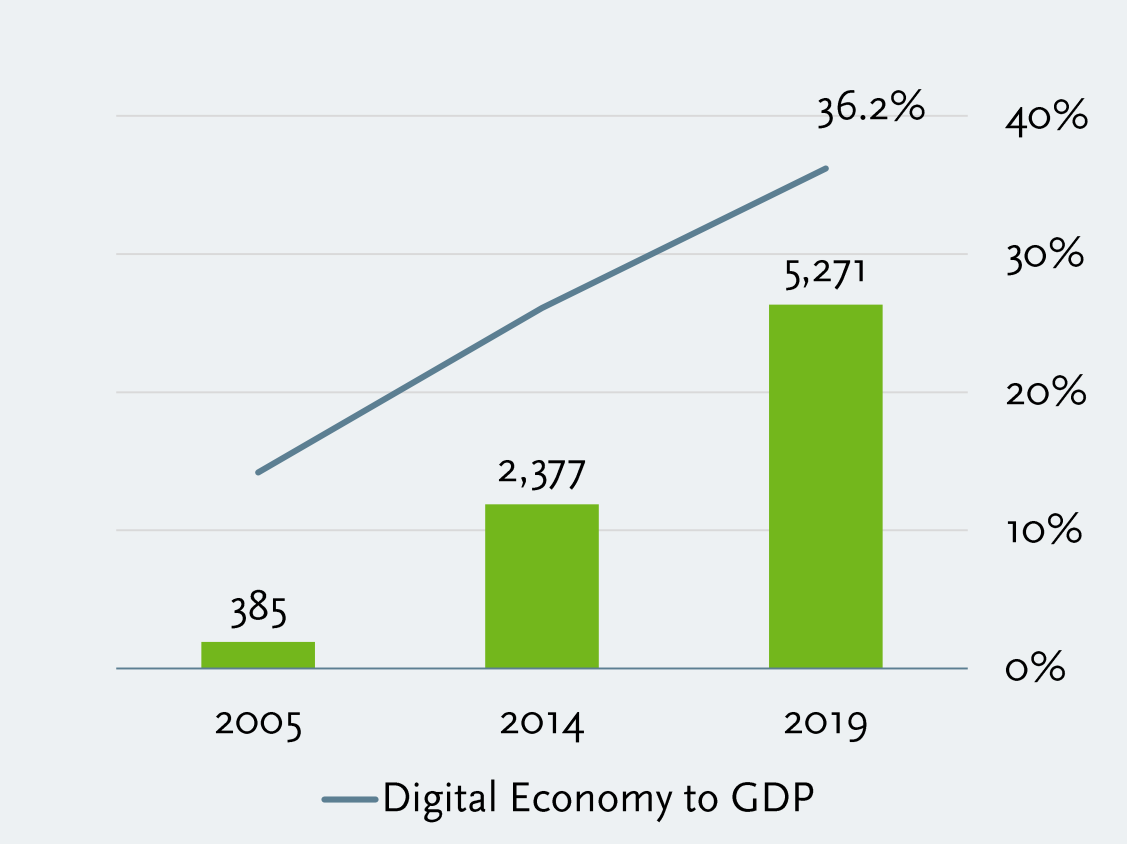


Source: OECD Data, Main Science and Technology Indicators, Volume 2020 Issue 1
Note: China 2020 forecast ratio is the government target in 2020 in the 13th 5-year plan

WARBURG PINCUS

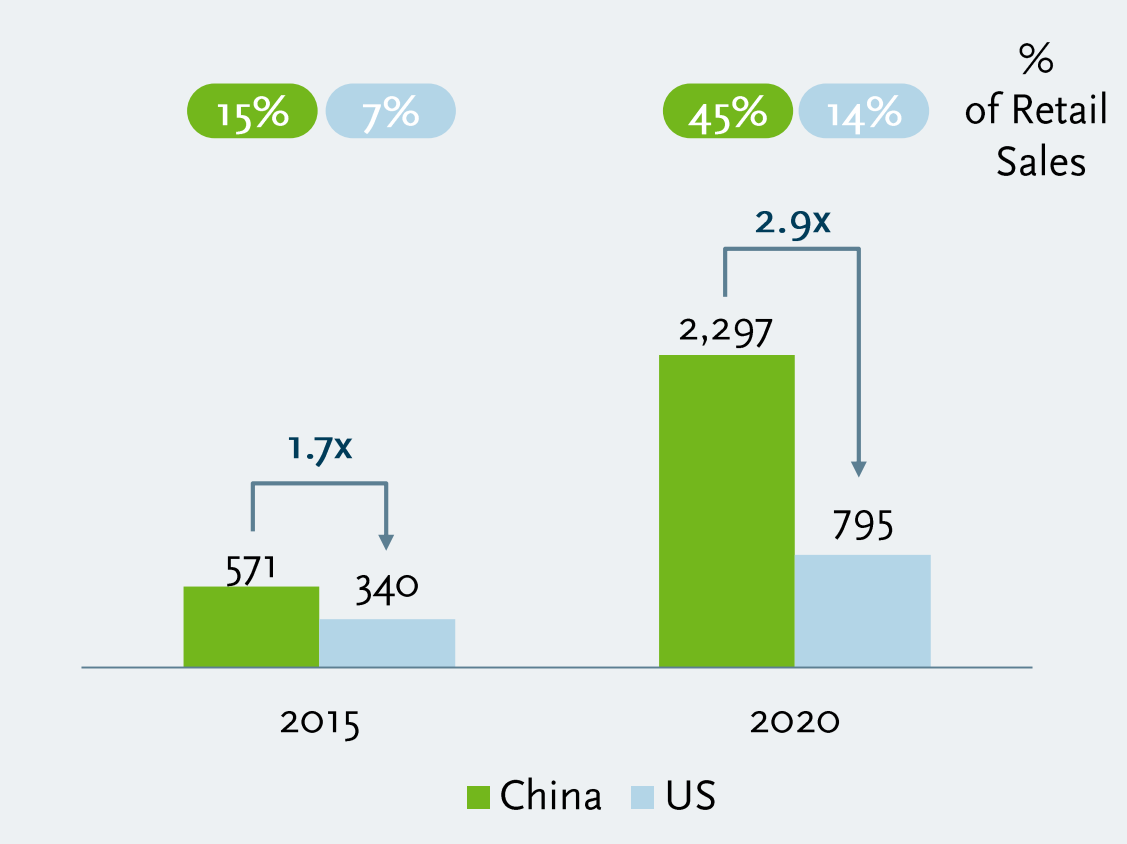
Digital Economy Plays an Important Role

China Digital Economy (US$ Billion)



Source: China Academy of Information and Communication Technology (CAICT)

E-commerce Sales (US$ Billion)

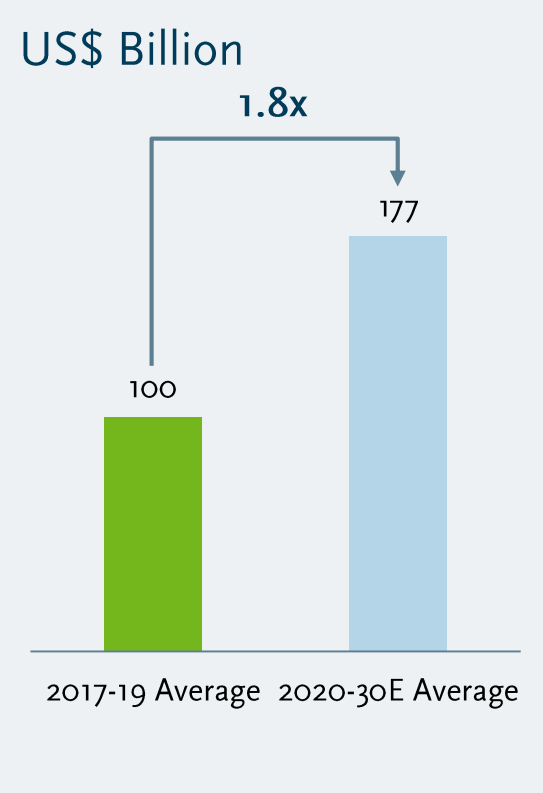


Source: eMarketer

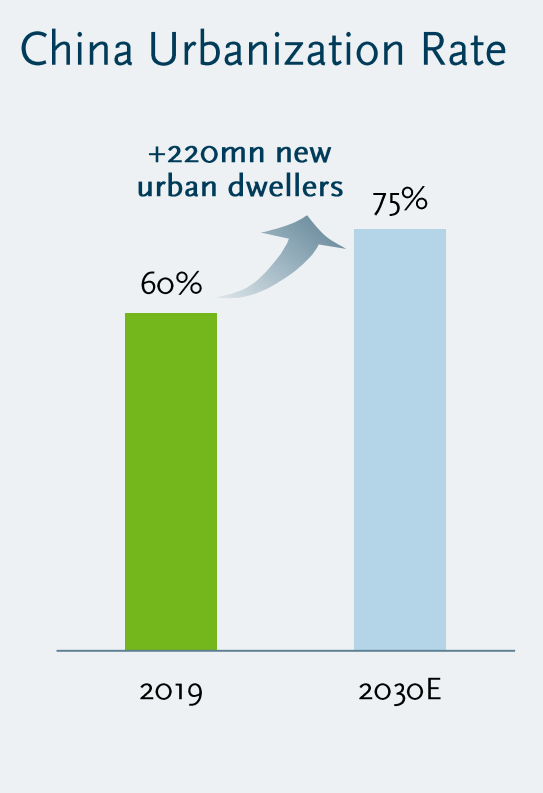
WARBURG PINCUS

Sustained Infrastructure Build-out

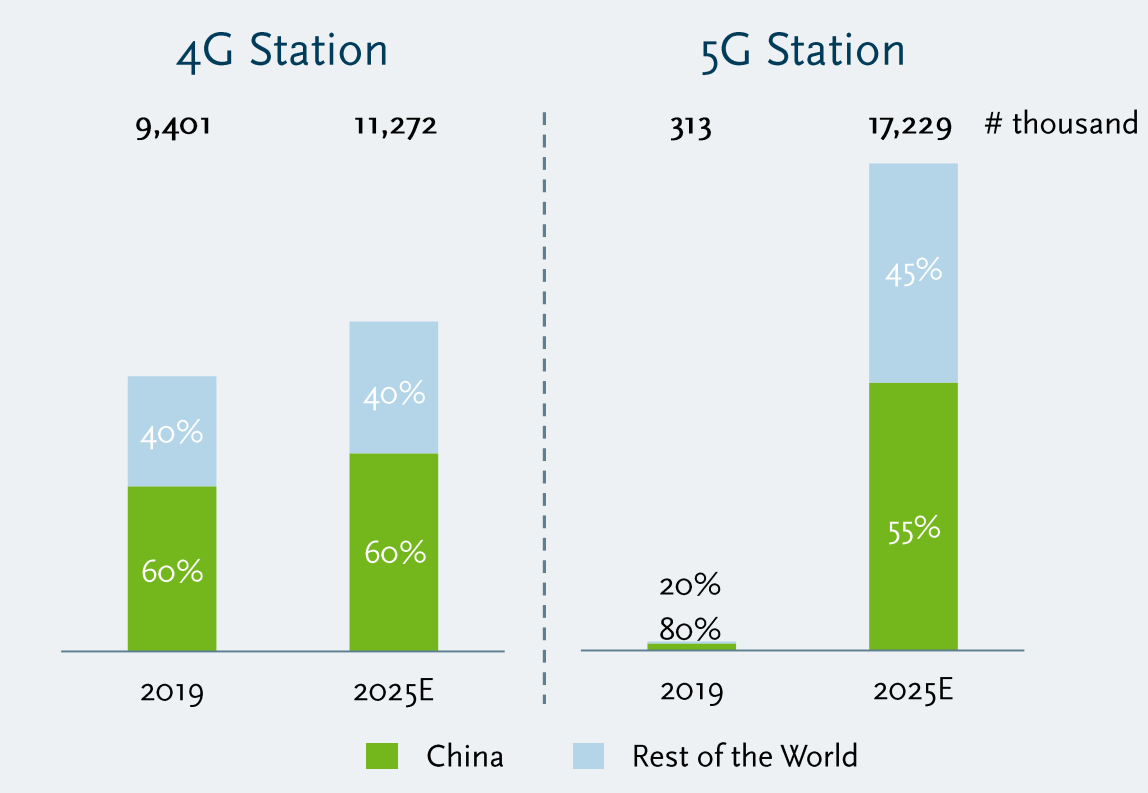
New Infrastructure Investment



Urbanization 2.0



Base Station



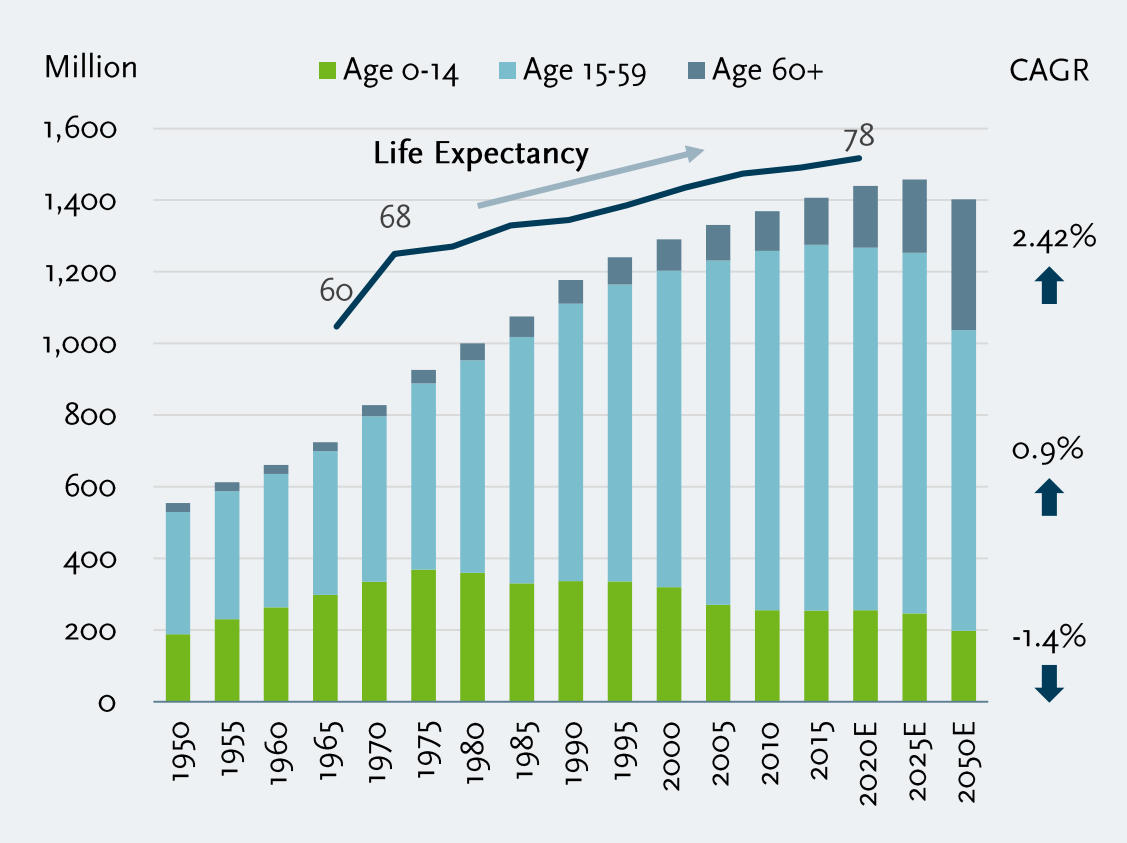
Source: Morgan Stanley Research estimates

Source: China Renaissance International

WARBURG PINCUS

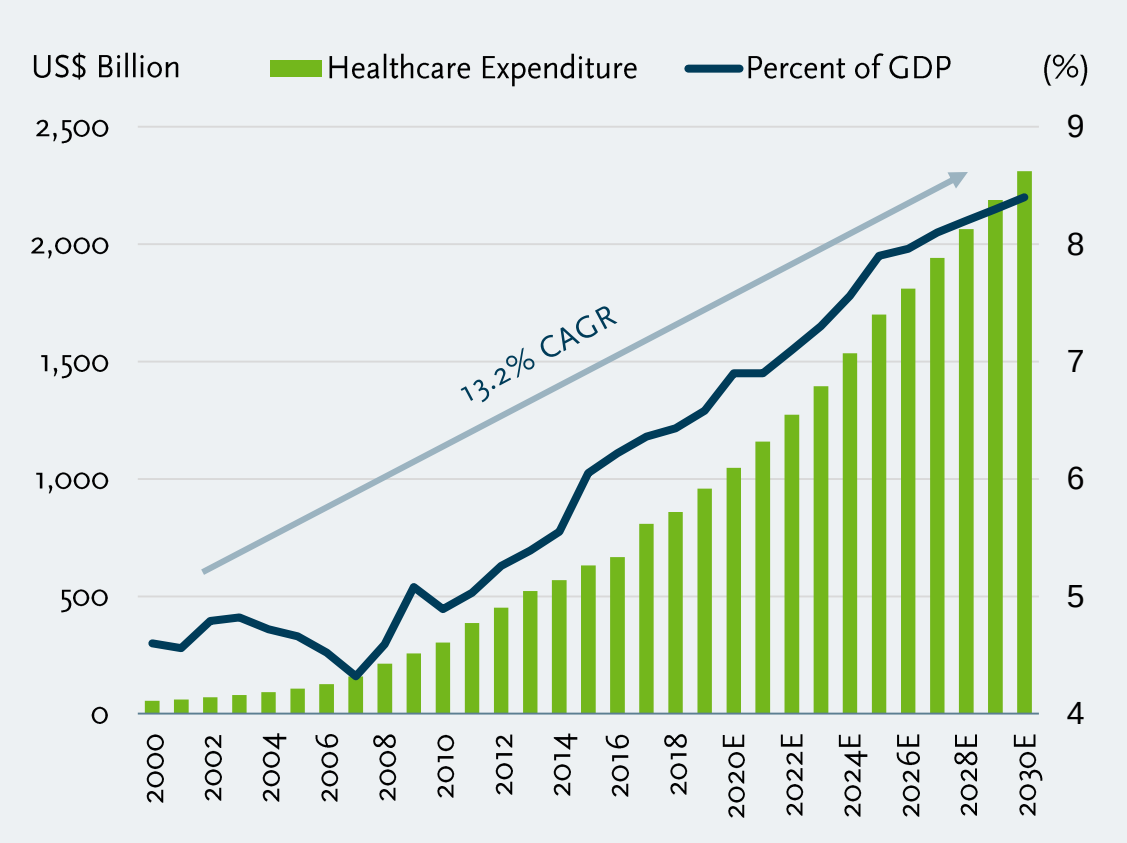
Aging Population Leads to Rising Healthcare Spending

China's Aging Population



Source: United Nations, Prospects is of 2019 Revision, Annual growth is CAGR 1950-2020

China's Rising Healthcare Spending



Source: NBS, Morgan Stanley Research

WARBURG PINCUS

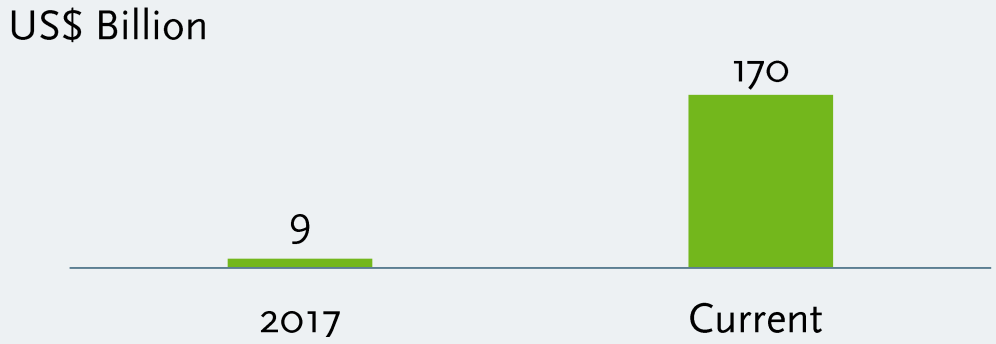
Innovation Gaining Prominence

Structural Trends

-50%
Review Time by the NMPA（China FDA）

250,000+
Overseas Trained Scientists Returned to China

China Biotech Market Cap



100+
Innovative Drugs Added (2017 - 2020)

Source: Broker research, Capital IQ, as of January 26, 2021

Financial Industry Reforms Accelerate

Over-reliance on Indirect Financing	72%	21%
Under-developed Capital Market (Market Cap to GDP)	88%	244%

Structural Changes

Domestic

Registration based IPO system

International

Open-up to foreign capital

Source: McKinsey research, WIND, IMF, World bank; leverage ratio from BIS as of 2020Q1, market cap as of 2020 year end.

Increased Exposure Across Global Leaders

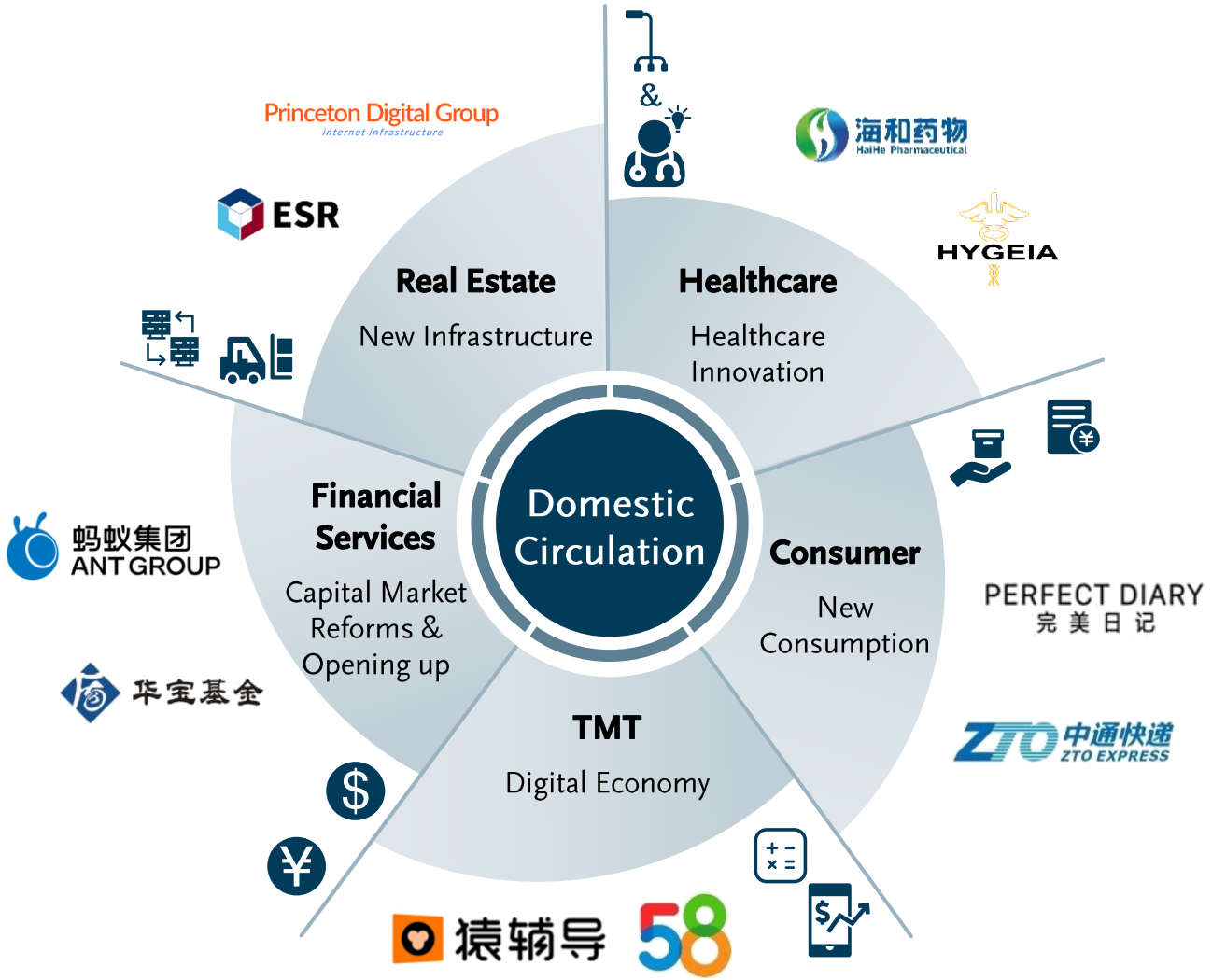
Removal of Shareholding Limits on Foreign Ownership in Financial Sector

	Bank Asset Management	Insurance Asset Management	Life Insurance	Securities Mutual Fund Futures	Rating Agency
Before	NA	Up to 25%	Up to 51%	Up to 49%	Up to 30%
Now	Control	Control	Up to 100%	Up to 100%	Up to 100%
Examples	BlackRock. TEMASEK Control	AberdeenStandard Investments Control	AIA 100%	J.P.Morgan 100%	S&P Global Ratings 100%

Source: The State Council, People's Bank of China, Bloomberg, WSJ, Company Website

Note: BlackRock and Temasek set up China joint venture with China's CCB bank together. Other firms are arbitrary samples of all the firms expanding their China business.

Our China Team is Aligned with Key Drivers Across Sectors

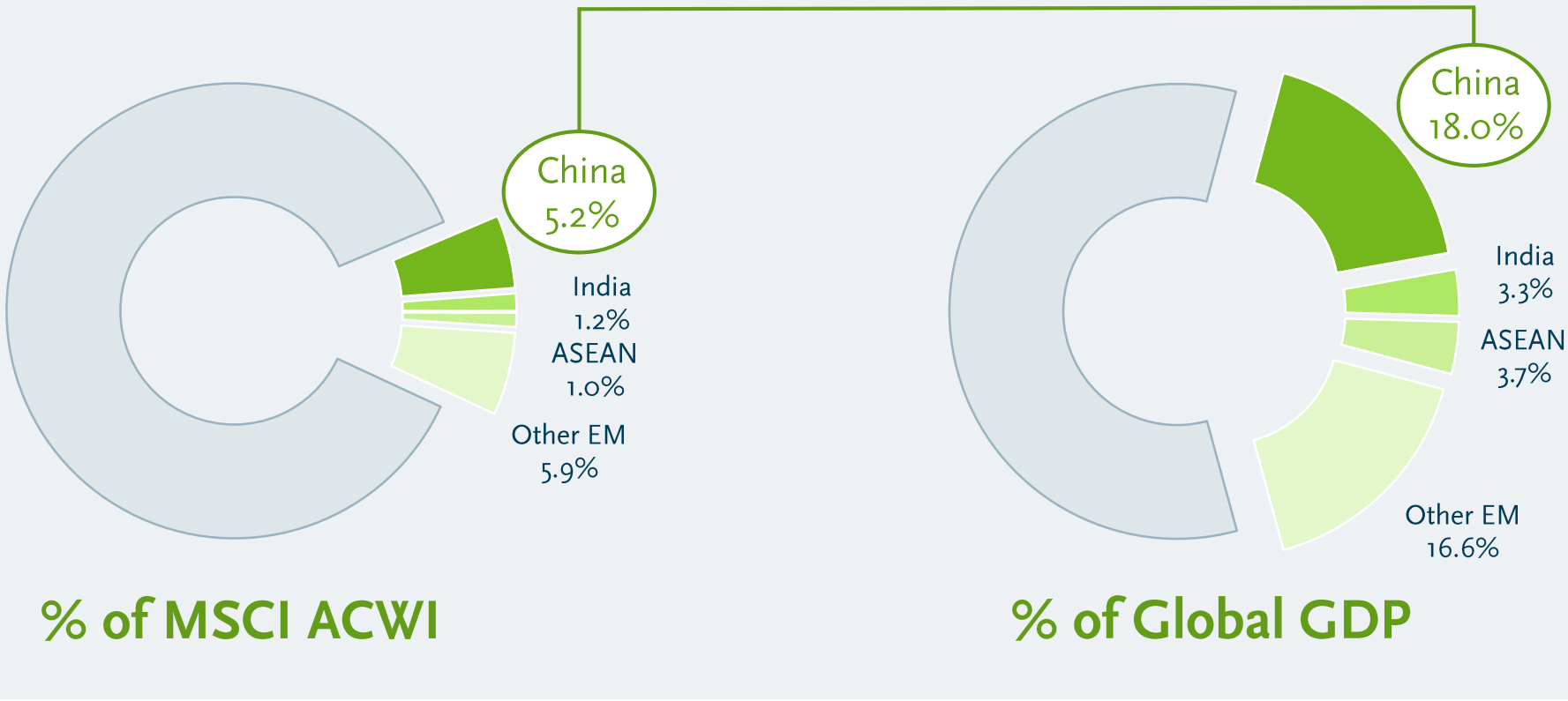


WARBURG PINCUS

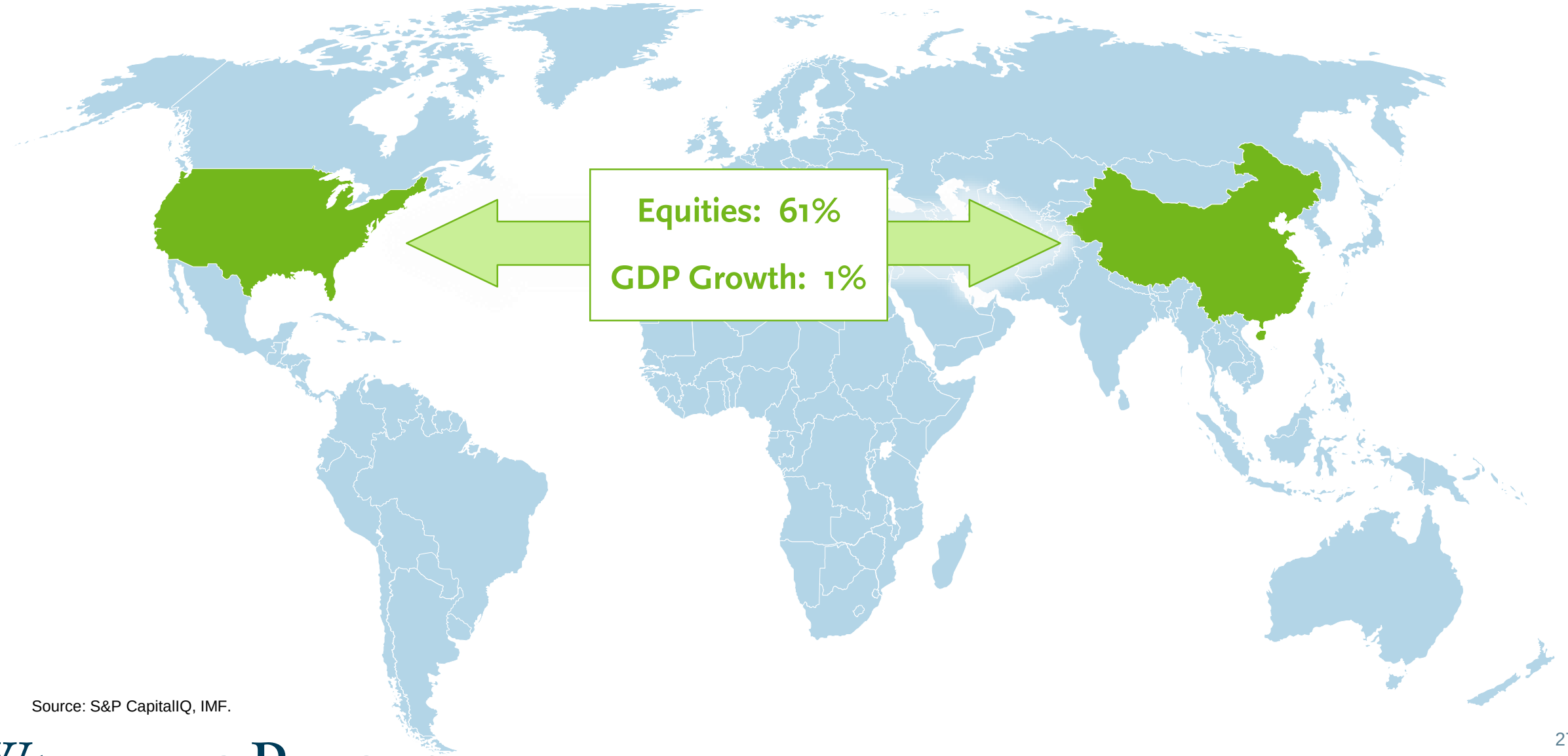
Investing in China

China Underrepresented in Global Equity Allocations

Investment vs. Growth



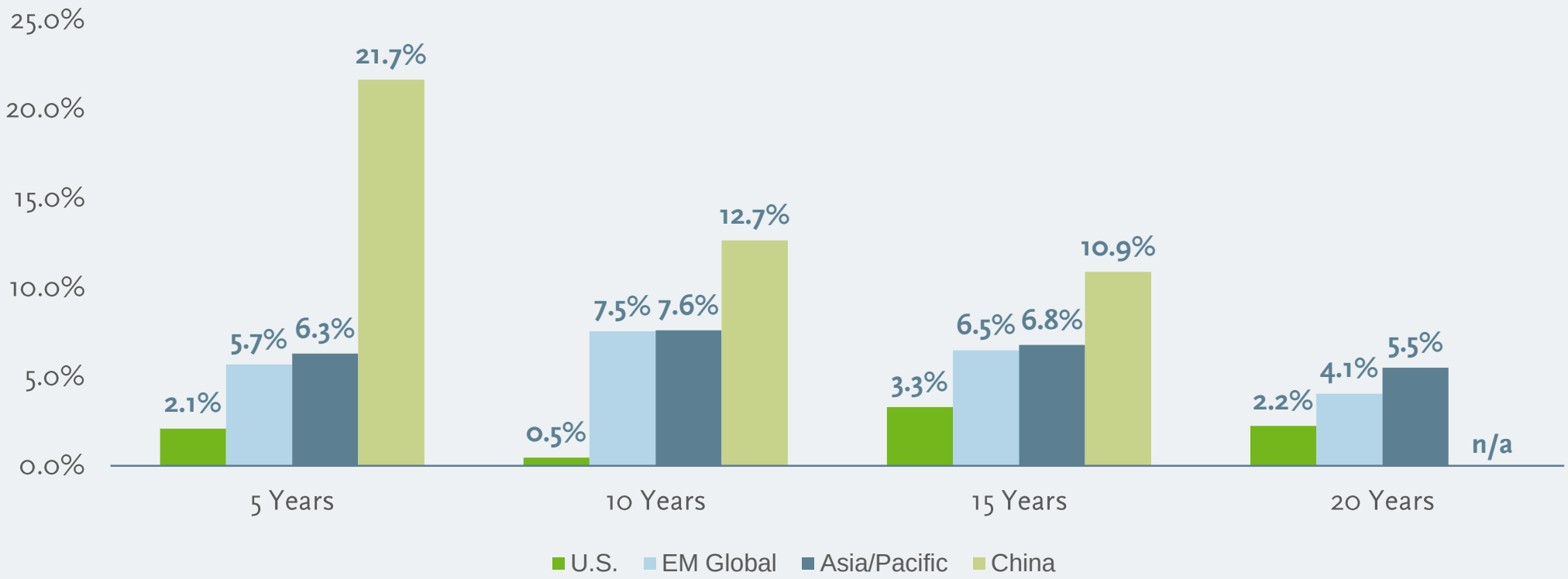
Correlation of U.S. and China's Equity Markets and GDP Growth



Source: S&P CapitalIQ, IMF.

Private Equity's Outperformance of Public Markets By Region

Private Equity Horizon Excess Returns (Alpha)



Note: excess returns are calculated via the Direct Alpha method against the total returns of the Russell 3000 index, the MSCI Emerging Markets index, the MSCI EM Asia IMI index, and the China A-shares (IMI) index. Includes Venture, Growth and Buyout funds from Cambridge Associates. As of June 30, 2020. Investments in private equity do not have the same liquidity or diversification profiles as investments in public market indices.

Key Attributes for an Investment Manager

Depth and experience

Global risk management

Length of track record

Local presence

Size and scale

Brand and reputation

Q&A

Will the US-China dynamic improve in the Biden administration?

Do the geo-political tensions affect your ability to do business in China?

What are the effects on the broader Asia opportunity – SE Asia, India?

Others?

End of Presentation

Public Pension Risk-Sharing

Keith Brainard

Ohio SERS Retirement Board

February 2021

- Retirement Plan Type vs. Plan Design
- What is risk?
- Types of risk in public pension plans
- Who bears what risks, and how
- Examples of risk-sharing in public pension plans

Presentation Summary

Plan Type vs. Plan Design

- **Retirement plan type** refers to the *category or classification* of the retirement benefit.
- There are three main retirement plan types:
  - Defined benefit
  - Defined contribution
  - Hybrid

- **Retirement plan design** refers to the *framework* of a retirement plan
- Plan design is defined by such characteristics as
  - participation requirements (mandatory or optional);
  - required contributions by the employer and employees;
  - vesting requirements;
  - benefit levels;
  - timing and methods of benefit distribution; etc.

Plan Type vs. Plan Design

- Retirement plan type by itself does not consider key issues and factors, such as:
  - How much is contributed, and by whom
  - Benefit levels and timing of benefits eligibility
  - Who bears what risks, and how

- Retirement plan design describes vital plan features:
  - How much is contributed, and by whom
  - Benefit levels and timing of benefits eligibility
  - Who bears what risks, and how

- Plan design is where the action is

Key Considerations in Plan Design

What is the purpose for providing a retirement benefit?

- What are we trying to accomplish? Who are we serving?
- Employees? Employers? Taxpayers? Those who rely on public services?

How much benefit can we afford?

How much volatility can/should taxpayers tolerate in the cost of the plan?

How much should plan participants pay toward the cost of their benefit?

Should benefits be flexible, and if so, how flexible?

Plan Design is Vital

A retirement board's approval of monthly benefit payments is the fulfillment of a promise that was made years ago.

Creating a retirement plan design is to make the promise, which affects all future board decisions.

Plan design also affects plan participants, employers, and taxpayers

The OH SERS' legal authority to craft a pension promise is extraordinary.

Risk

There are many definitions of risk; all definitions involve *uncertainty* and *loss*

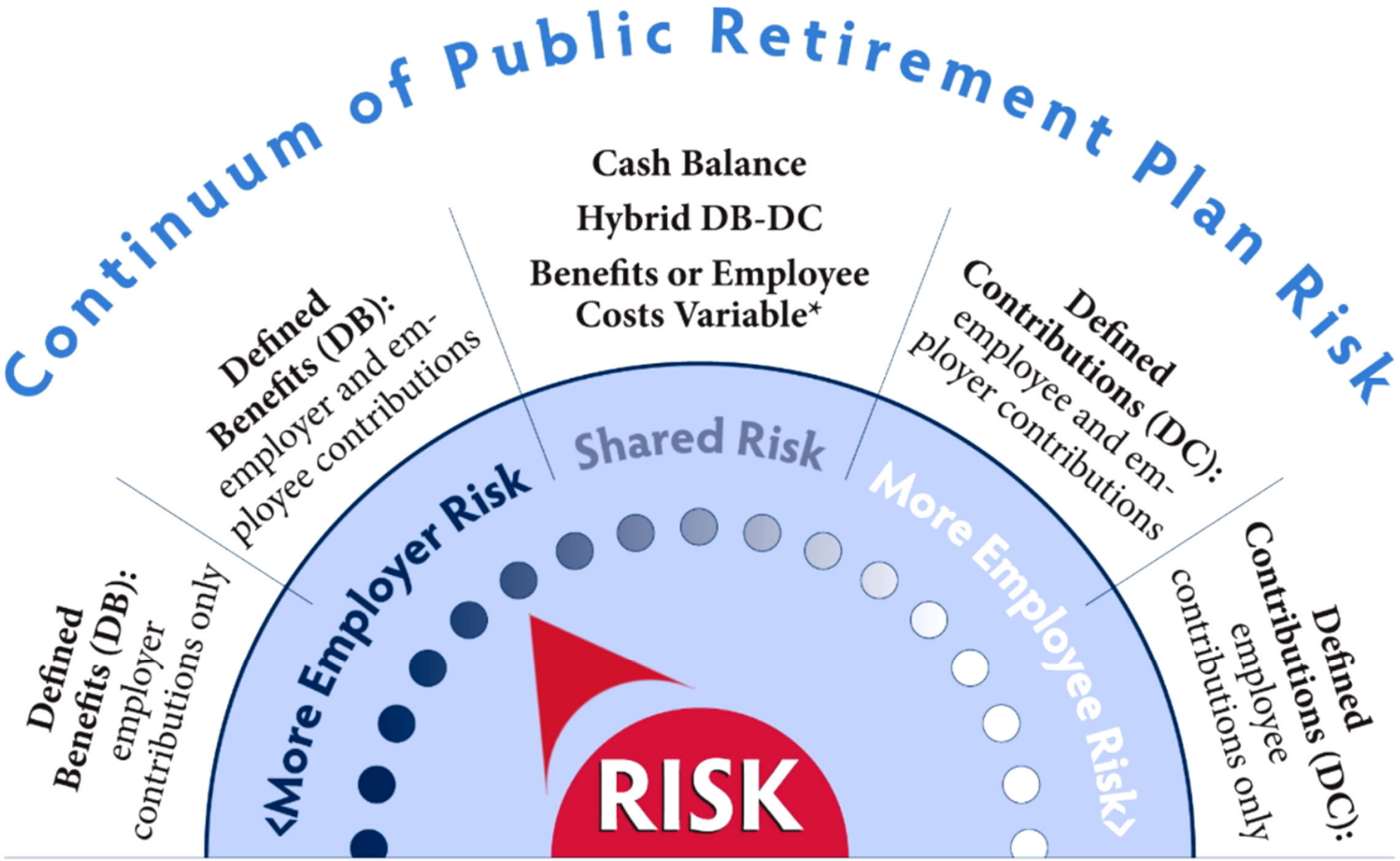
One definition: *The possibility of outcomes that differ from expectations*

Risk typically is considered in the context of negative outcomes, but positive outcomes are also possible

This discussion will focus on downside risk: the risk of outcomes that result in higher plan costs

Risk in a Public Pension Plan

- Traditionally, most risk associated with pension plans has been borne by employers
- This has been especially true among corporate pension plans
- Public sector pensions have placed more risk on plan participants
- A major trend among public pension reforms in recent years has been to shift risk from employers to employees


Continuum of Public Retirement Plan Risk
Defined Benefits (DB): employer contributions only
Defined Benefits (DB): employer and employee contributions
Cash Balance
Hybrid DB-DC
Benefits or Employee Costs Variable*
Defined Contributions (DC): employee and employer contributions
Defined Contributions (DC): employee contributions only
<More Employer Risk
Shared Risk
More Employee Risk>
RISK

Primary Risks in a Public Pension Plan

- Investment
- Inflation
- Demographic
  - Spiking
  - Mortality

Investment Risk

- Investment risk generally is the single greatest risk facing a pension plan
- Because a majority of revenue accrues in a public pension plan from investment earnings, an investment return shortfall can have a significant effect on plan cost and possibly benefits

Inflation Risk

- Inflation is a building block of actuarial assumptions pertaining to investment return, payroll growth, and salary growth
- Inflation also is tied to COLAs for many plans
- Inflation risk occurs when inflation is higher than expected
- High inflation can negatively affect any or all participants: employers, employees, and taxpayers

Demographic Risk

- Demographic risk pertains to outcomes resulting from participant behavior. For example:
  - Age to begin working
  - Age to terminate or retire
  - Incidence of disability
  - Rate and pattern of salary growth (spiking)
  - Age of death (mortality)

Who Bears What Risks: Employers

- Traditionally, employers have borne the major risks involved in sponsoring a pension plan:
  - Investment
  - Mortality
- These risks take the form of higher possible employer costs
- In a public pension plan, higher employer costs often are shared or passed on to taxpayers
- Employers also can bear non-financial risk through an impaired ability to attract and retain

Who Bears What Risks: Plan Participants

- In public pension plans, risk can be assigned differently to each of three participant groups:
  - Retirees and survivors
  - Active (working) members
  - Future hires
- Different risks affect each group differently

Examples of Risk-Sharing Among States and Local Government

- Plan types distribute risk differently:
  - DB plans are predominant
  - Some DC plans
  - Most hybrid plans are considered DB
- Generally, DB plans place most risk on employers, DC plans place most risk on employees, and hybrid plans distribute risk more evenly
- Public sector plan designs are changing to shift more risk to plan participants

Examples of Risk-Sharing Among States and Local Government

- Plan design:
  - Two primary trends in pension plan reforms over the past decade:
    - Lower benefits, higher employee contributions
    - Shifting of risk to employees
- Broad types of risk-shifting:
  - Hybrid plans
  - Flexible employee contributions
  - Retirement benefits that adjust
  - Others

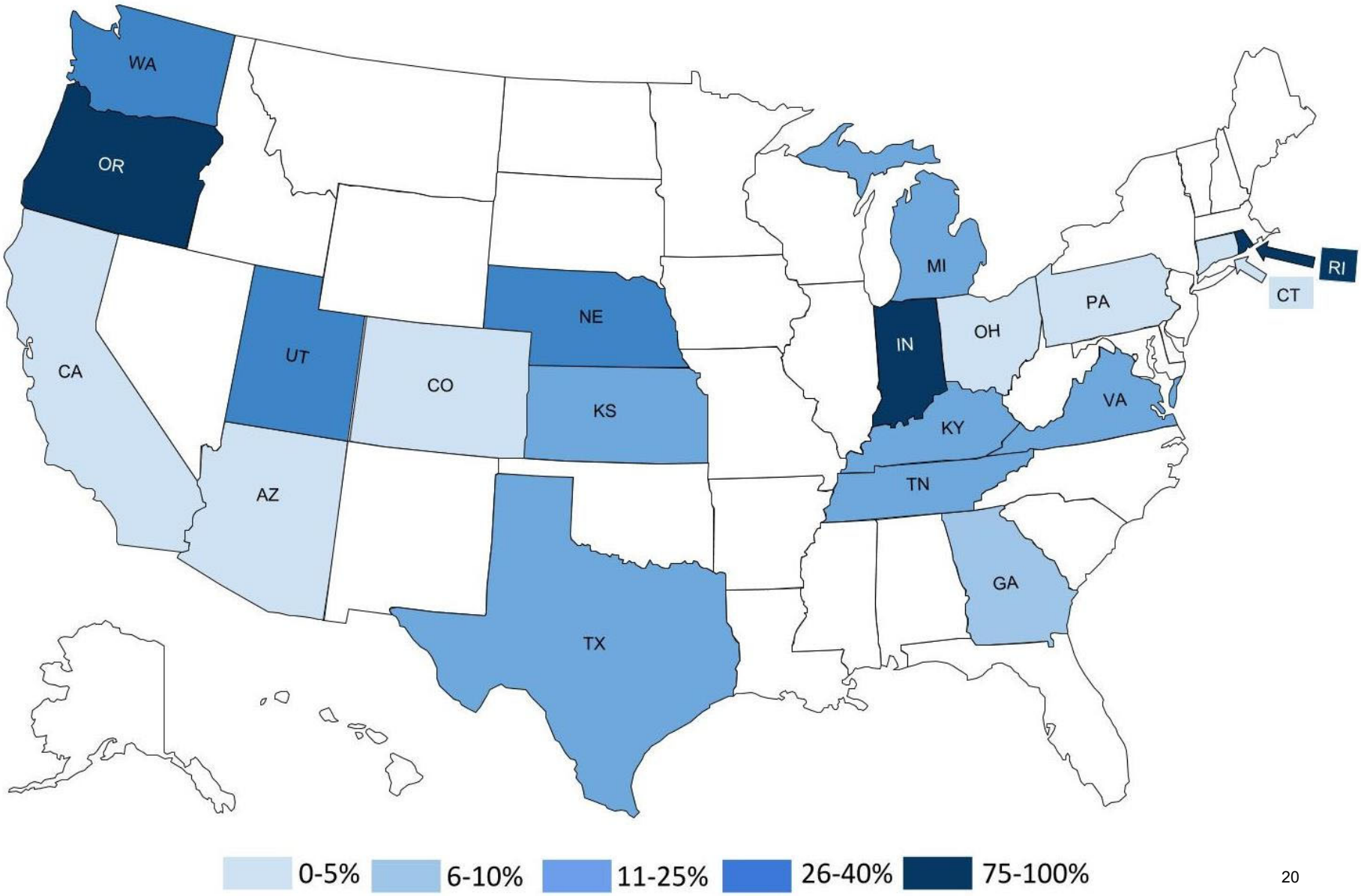
Hybrid Plans

- A hybrid plan is a retirement plan that contains elements of both DB and DC plans
- Two broad types:
  - DB-DC
  - Cash balance

Hybrid Plans

- **DB-DC**
  - Also known as a combination hybrid
  - Features a traditional defined benefit plan with a (usually) mandatory defined contribution plan. The DB plan benefit is more modest.
  - Employer and employee contributions to both the DB and DC plan vary.
- **Cash balance**
  - Unified plan with pooled assets.
  - A guaranteed annual rate of return accrues to notional account balances; more may accrue if investment returns are strong.
  - Actual benefit level is uncertain until actual retirement
  - Benefit is annuitized, as with a typical DB plan

State-sponsored Hybrid Plans and Relative Participation Rates



Other Types of Risk-Sharing Plan Features

- Flexible employee contribution rates
- Adjustable benefits
- Variable cost-of-living adjustments
- Others

Flexible Employee Contribution Rates

- Plans in **Arizona, Nevada, and Wisconsin** require employees to share equally in the total contribution rate
- **Maine PERS**: 55/45 employer/employee split, with upper limits
- **Iowa PERS**: 60/40 employer/employee split
- **California** requires new hires since 1/1/14 to pay at least half of the normal cost
- Many employees in **Montana and North Dakota** contribute at a rate that will decline when their plan funding level reaches a designated threshold
- *Linking the employee contribution rate to the plan's actual cost exposes employees to all the plan's risks*

Flexible Benefits

- **Michigan Public Schools Retirement System** includes a plan design feature that increases the age of normal retirement when the experience of the plan is found to have increased mortality by more than one year
- The **New Brunswick, Canada** plan provides a plan design feature with two components: a core benefit that is virtually certain to be paid, and a second component whose benefit depends on the plan's investment and actuarial experience
- For **Houston, Texas** employees, when the plan's cost varies by more than five percent of pay from a starting "target" rate, a series of prescribed adjustments are made to benefits, contribution rates, and actuarial methods and assumptions

Other Risk-Sharing Plan Designs

- **Utah** limits its employer contribution rate to 10 percent of employee pay (12 percent for public safety workers)
- If the plan cost rises above 10 percent, the employee pays the difference
- When the plan cost is below 10 percent, the difference goes into a DC account for the employee
- Employees may elect or switch to a DC plan at any time
- Employers must make an additional contribution to amortize the unfunded liability in place when this plan was established in 2011

Other Risk-Sharing Plan Designs

- A stacked retirement plan provides defined benefit coverage only for a limited portion of salary, such as the first $50,000.
- Any salary above that level may or may not be covered by a retirement benefit
- This plan has not been implemented by a public sector, to my knowledge

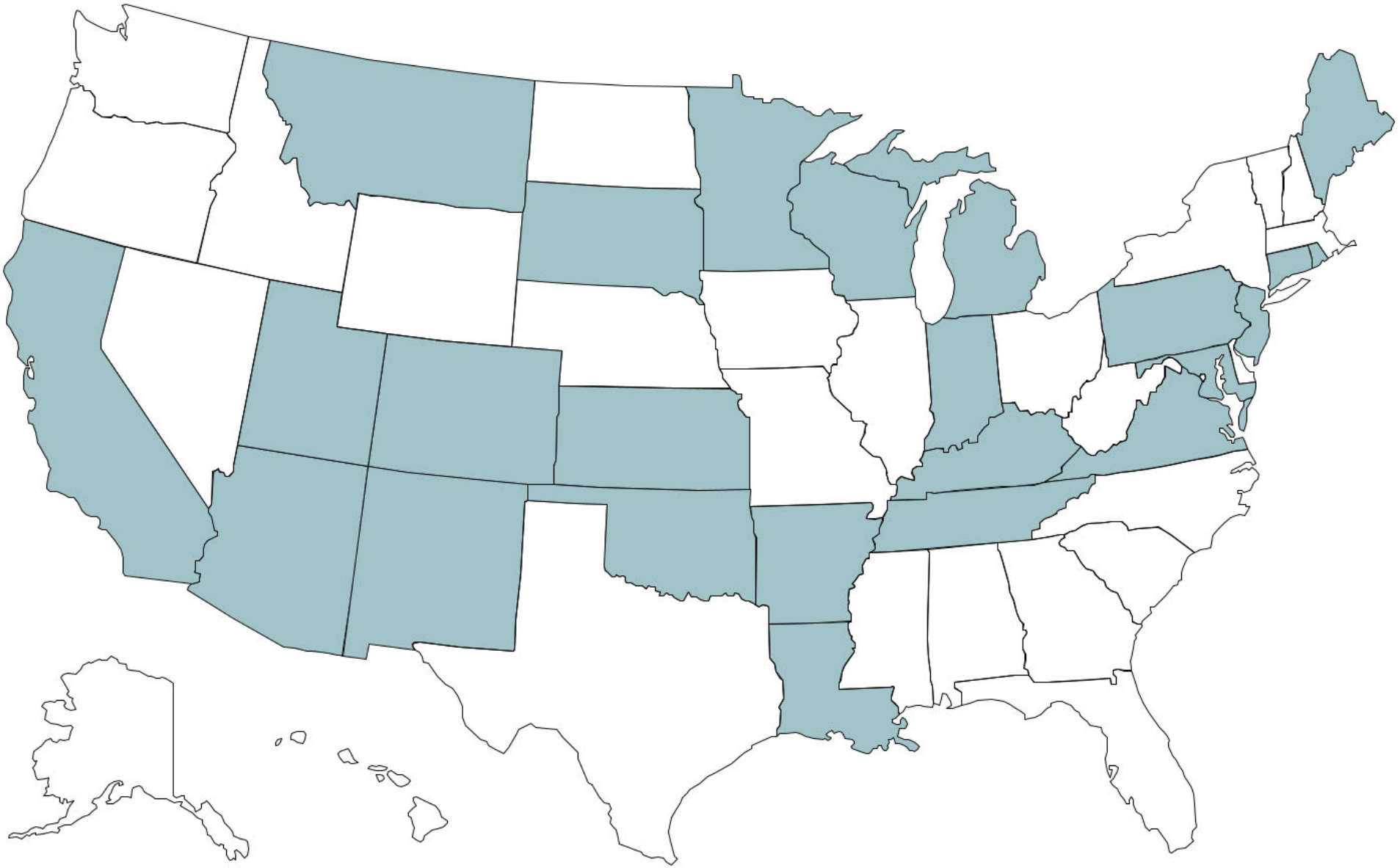
Risk-Sharing Through COLAs

- A COLA that does not cover the full cost of inflation places inflation risk with participants
- A COLA that is tied to investment performance is sharing investment risk with retirees
- Basing a COLA on the plan's funding level is exposing retirees to all the plan's risks

Examples of Risk-Sharing Through COLAs

- Delay the date of eligibility for a COLA based on a certain age or waiting period following retirement
- Tie COLA to investment performance
- Linked to the plan funding level
- Capped, or limited to a certain portion of benefit, such as $13,000 or $20,000 annually
- Simple, rather than compounded, COLA

States Implementing New or Modifying Existing Risk-Sharing Plan Designs Since 2009



Effects of Risk-Sharing on Plan Cost, Cost Volatility, and Liability Growth

- Risk-sharing can reduce employer plan costs and cost volatility in two ways:
  - By shifting some of the cost to employees
  - By reducing costs by lowering benefit levels

- Risk-sharing may or may not reduce a plan's unfunded liability, depending on the plan design and to whom the change is applied

Effects of Risk-Sharing on Liabilities

- As with other plan design changes, the effect on unfunded liabilities of implementing a risk-sharing feature will depend on certain factors, especially:
  - Whose benefit is exposed to risk and to what extent
- OH SERS benefit levels are modest for the vast majority of annuitants:
  - The median annual benefit is less than $10,000
  - The annual benefits for more than 80 percent of annuitants is under $20,000
- The larger the benefit, the greater the opportunity to lower volatility and reduce costs by risk-sharing

End of Presentation