



# Technology and Automation

**5/28/2021**

For Reg AC certification and other important disclosures, see [slide 18](#).

[www.Fundstrat.com](http://www.Fundstrat.com) | Bloomberg: RESP FSGA <<GO>>

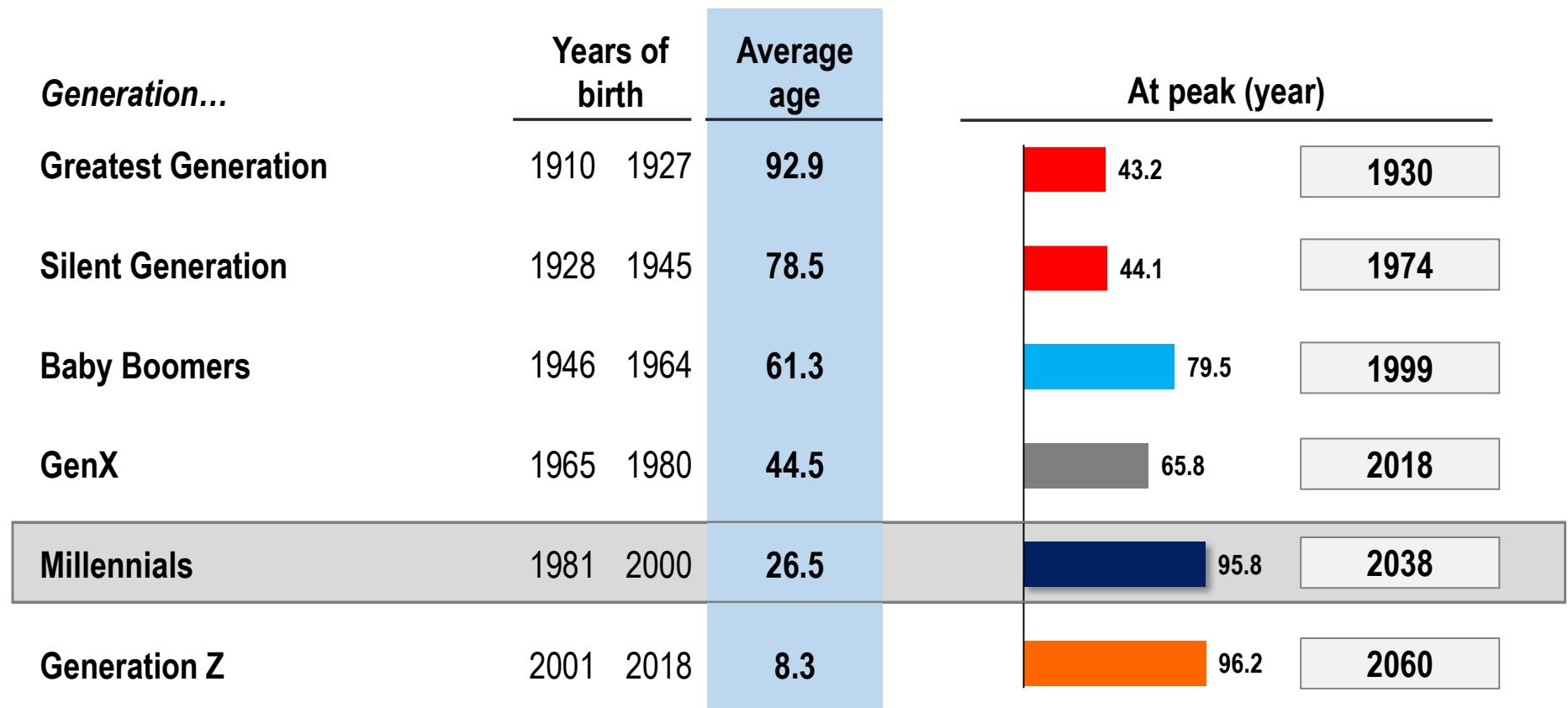
## DEMOGRAPHICS: Explains business cycles better than people realize...

Millennials are significant for two reasons: sheer size, both in the US and the rest of the world, and relatively young age.

- First, they are the largest single generation ever (larger than Boomers) at a population of 2.5 billion globally.
- Second, at an average age of 26.5, they are just entering their prime income years.

Figure: Total US Population divided by age groups

2017. Data provided by the DESA UN Data sets.



Source: Fundstrat. Peak population figures above include immigration. \*\*Reduced immigration will lead to a smaller overall size of GenZ.

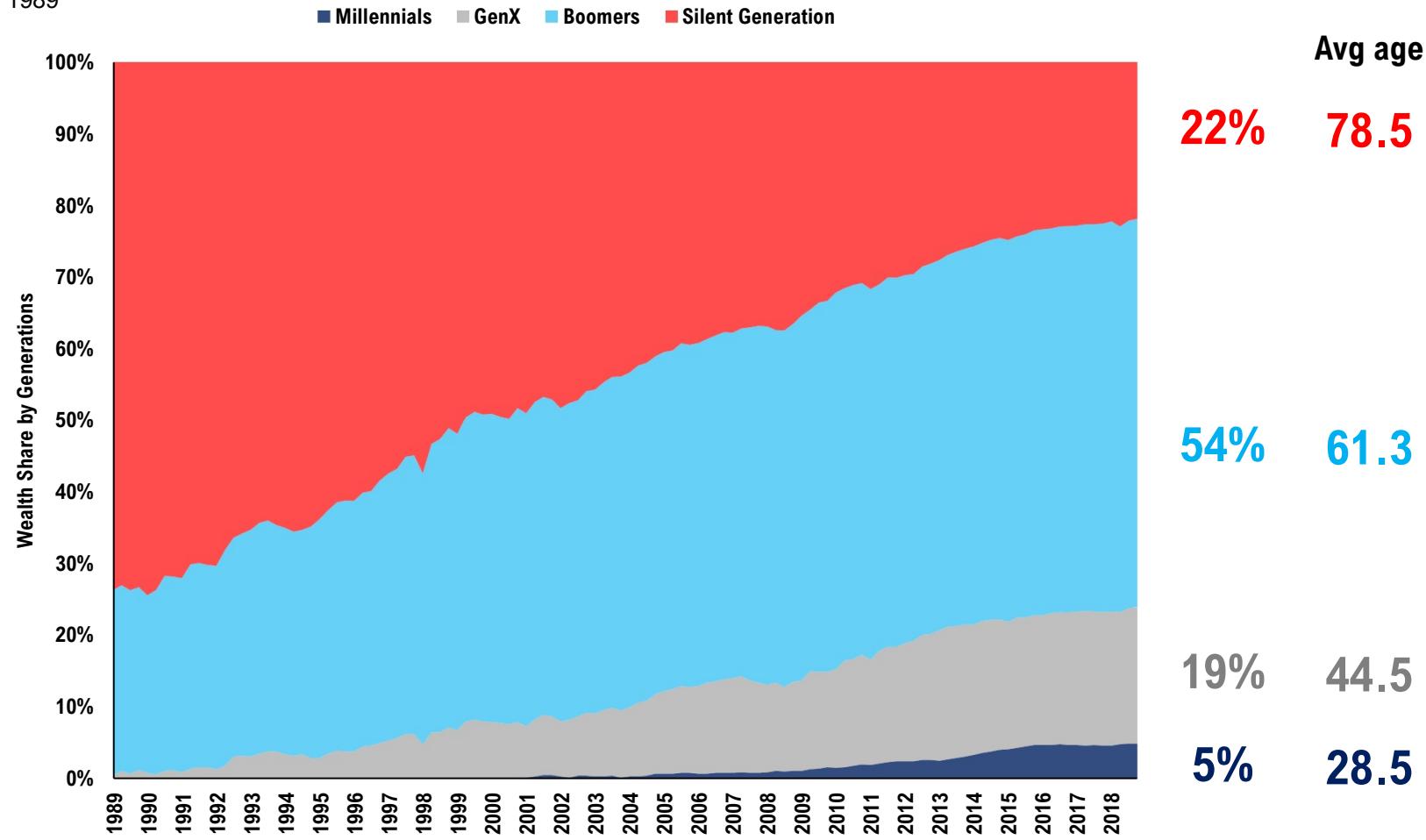
## WEALTH TRANSFER: Millennials set to inherit \$68 trillion in next 20 years

A study by Coldwell Banker ([Coldwell Banker report here](#)) shows Millennials are expected to inherit \$68T over the next 20 years.

- The latest Federal Reserve Survey of Consumer Finances shows that Boomers and Silent Generation control about 77% of the wealth. The Silent Generation controls \$22 trillion today and is an average age of 78.5 (oldest is 88.5)

Figure: Wealth share by generations

Since 1989



Source: Fundstrat, Federal Reserve DFA

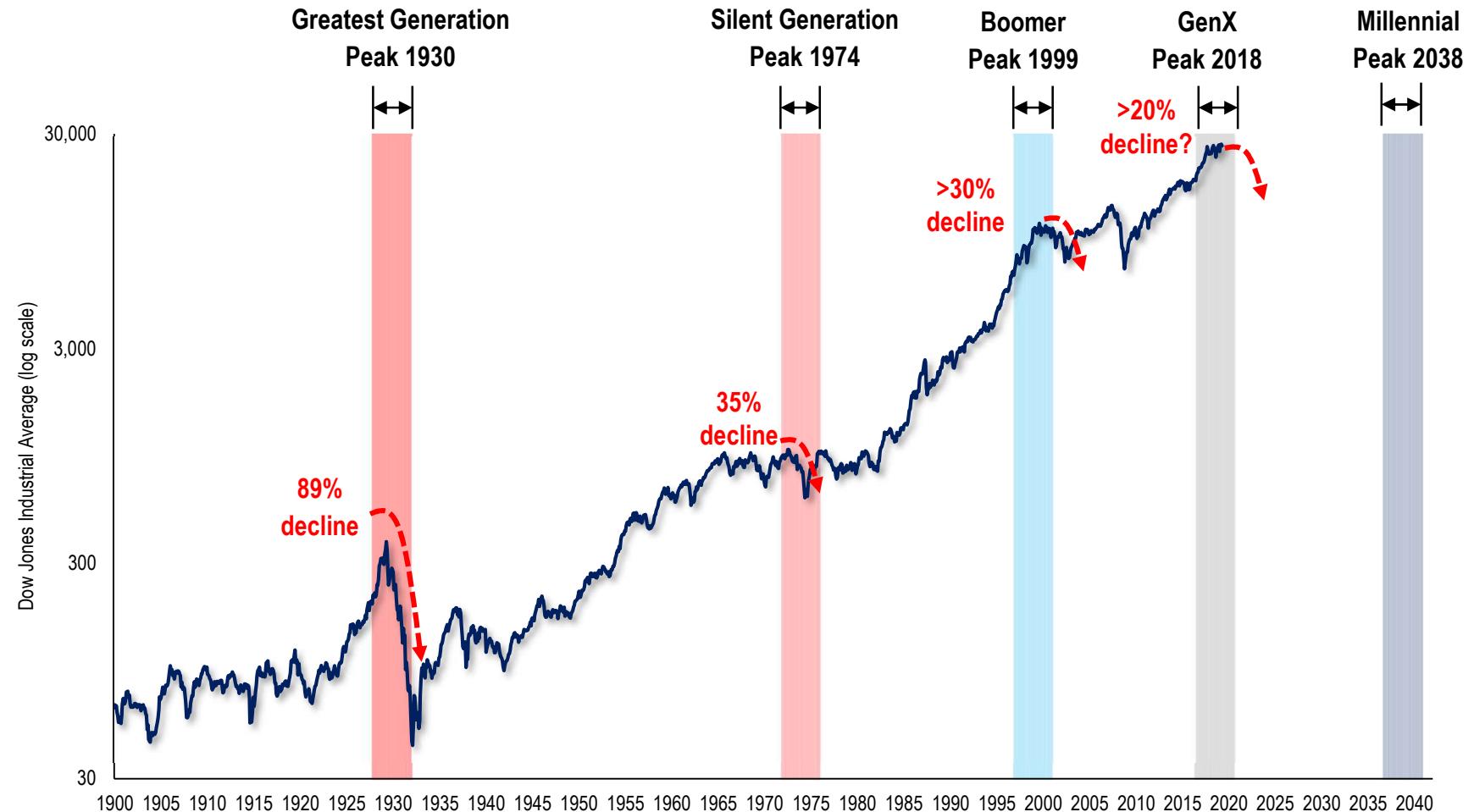
## DEMOGRAPHICS: Major market turning points with each generation's peak

Notably, equity markets tend to peak with each generation's peak. Notice this below.

- GenX is reaching the peak size of the cohort in 2018.

Figure: Dow Jones Industrials Average

Since 1900



Source: Fundstrat, Bloomberg

Disclaimer: Past performance does not guarantee future results

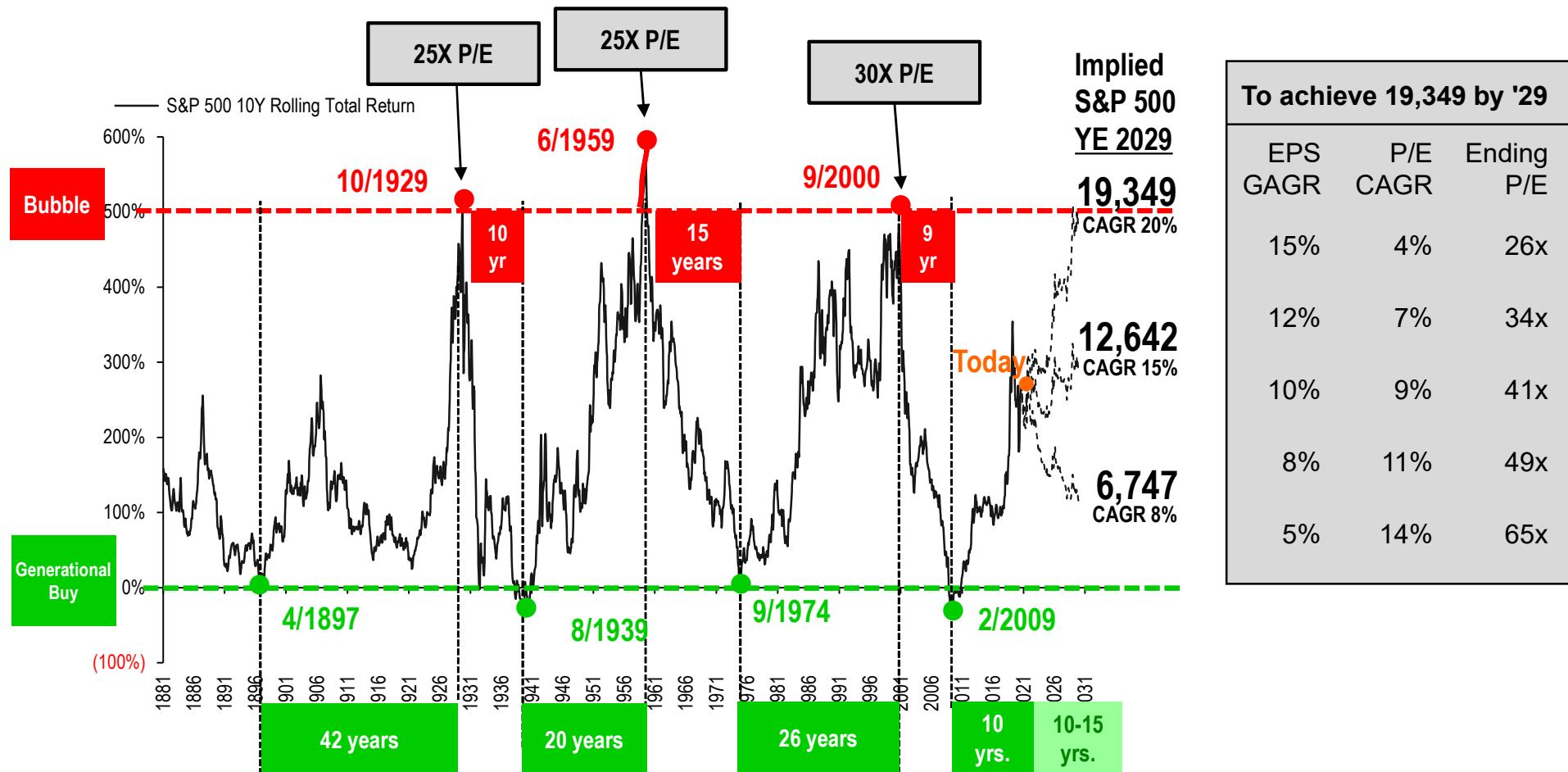
## Long-term bull markets see peak acceleration to 500% 10-yr returns

Long-term bull markets last 20-42 years and peak returns accelerate to cumulative gain 500%...

- *The current bull market has risen for 10 years and if the history plays out, S&P 500 could reach 19,000 YE 2029 vs. 3,000 now.*

Figure: 10-year rolling returns of the US equities

Since 1881



Source: Fundstrat, Bloomberg

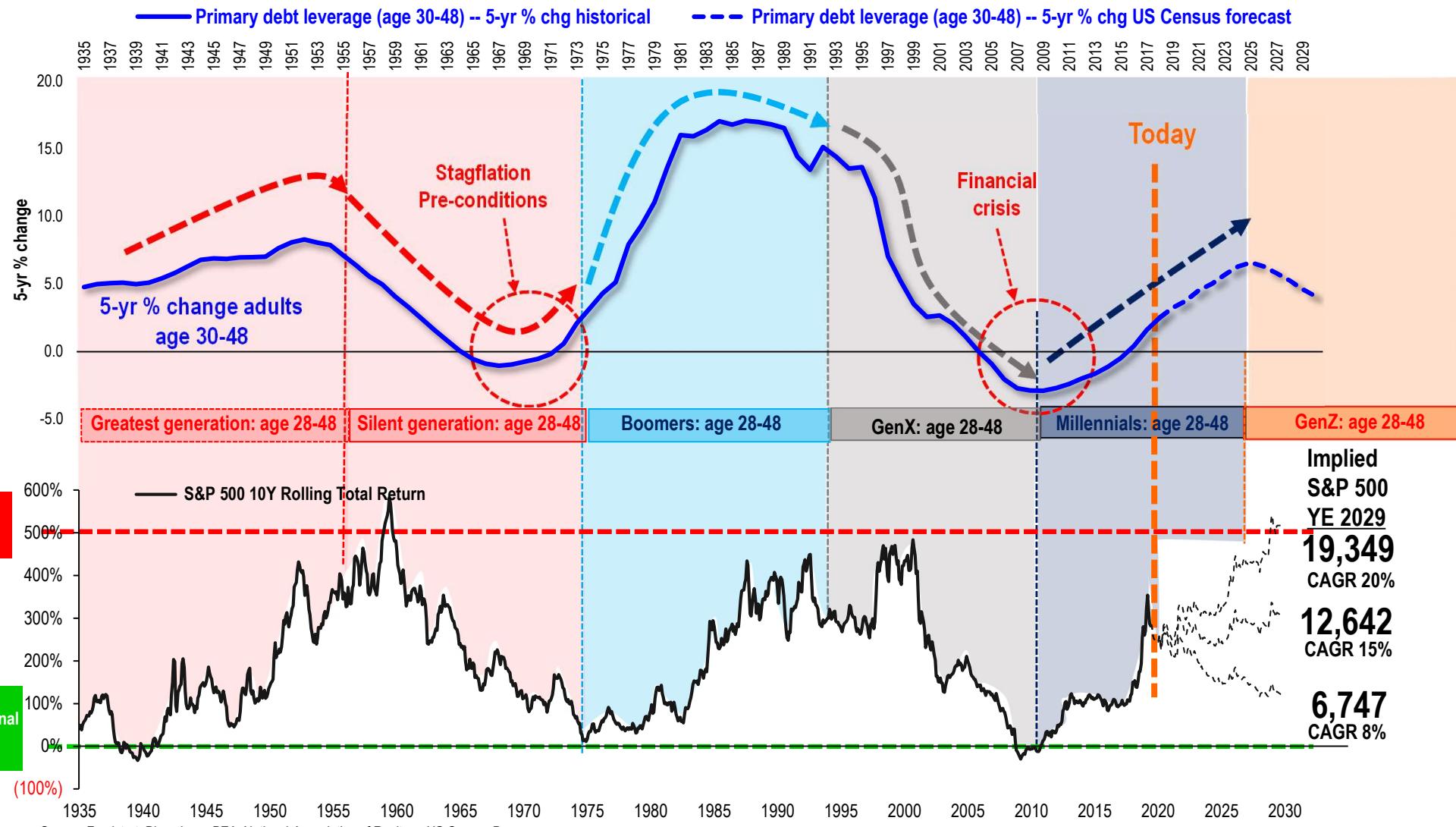
Disclaimer: Past performance does not guarantee future results

# STOCK: Like housing, equity markets also follow moves in adults age 28-48

We overlay the # of adults in "prime leverage age" (age 30-48) against the 10-year rolling total return of S&P 500 below.

Figure: Prime Leverage years: # adults age 30-48

Since 1935 per the US Census Bureau



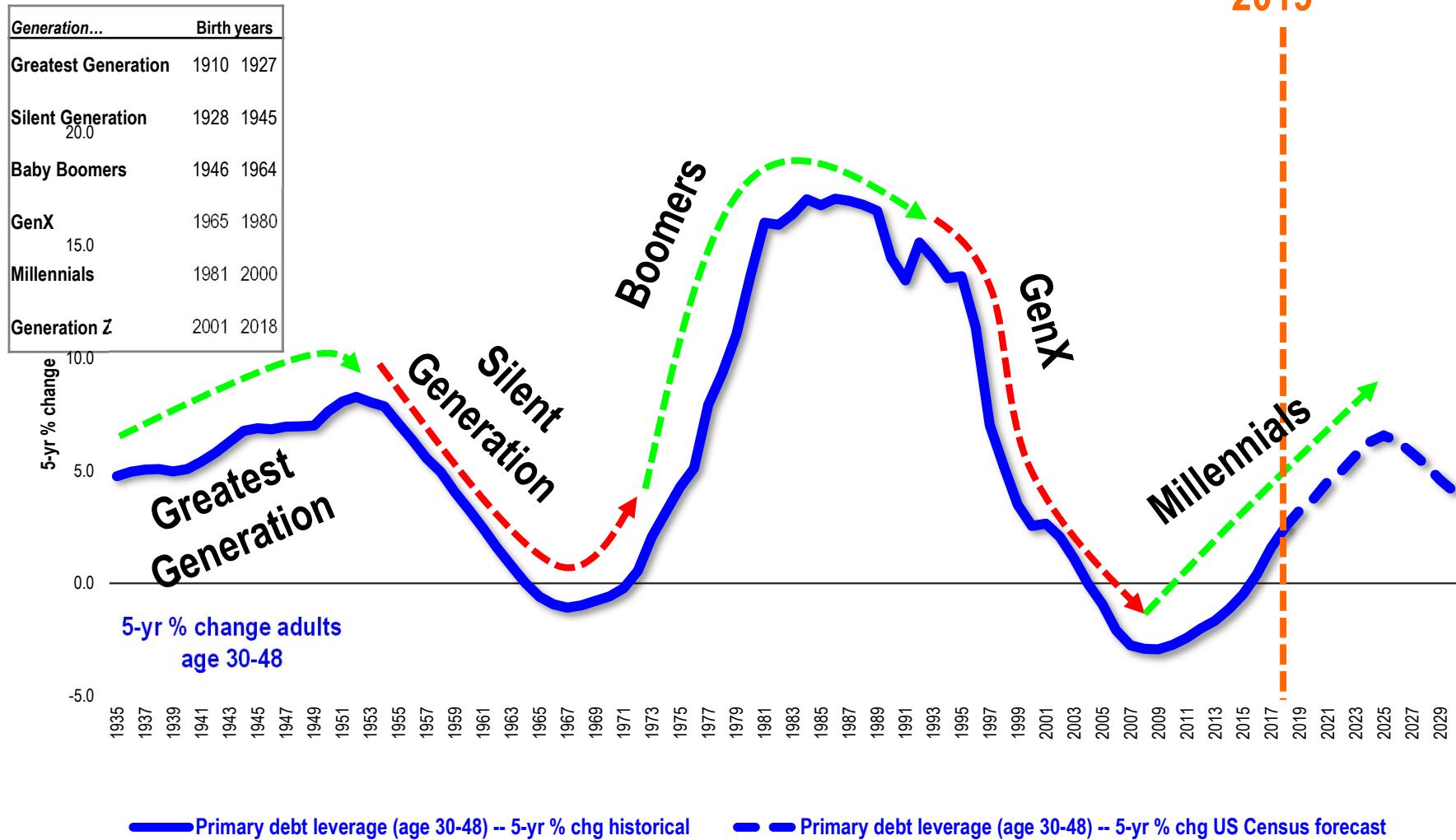
# LABOR SUPPLY: Prime skilled US adults age 30-48 inflecting up and surging

The number of adults in “prime leverage age” (age 30-48) is below, based on data from the US Census Bureau.

- This figure fell from 2001-2008 (is GFC not a surprise?) and as shown below, set to accelerate 2018 to 2026.

Figure: Prime Leverage years: # adults age 30-48

Since 1935 per the US Census Bureau



Source: Fundstrat, Bloomberg, BEA, National Association of Realtors, US Census Bureau

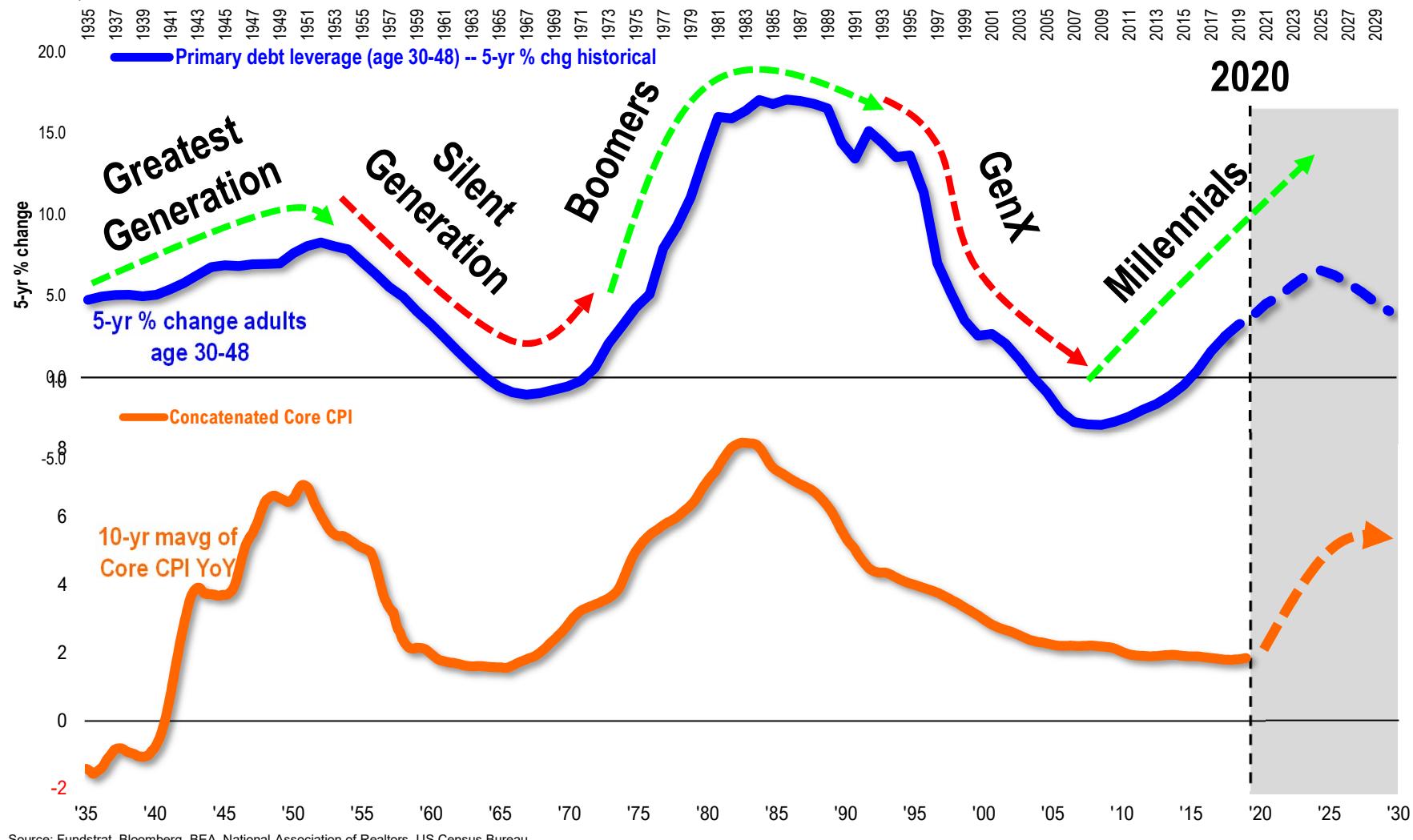
## INFLATION: pricing levels follow the population in prime leverage age...

We overlay the # of adults in "prime leverage age" (age 30-48) against the 10-year moving average of US Core CPI growth.

- As millennials enter their prime income/leverage age, the increasing demand could cause inflation to climb up.

Figure: Prime Leverage years: # adults age 30-48

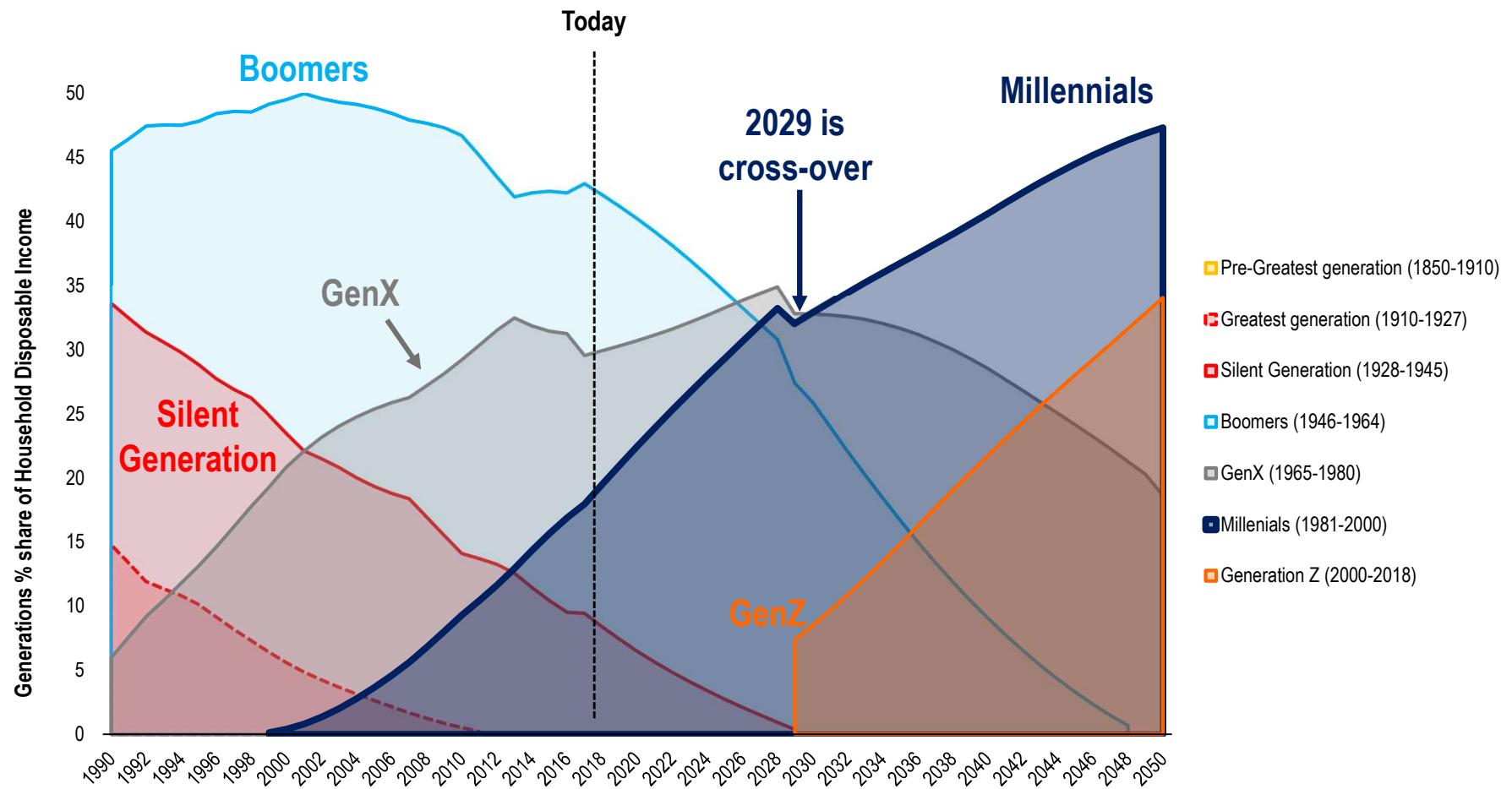
Since 1935 per the US Census Bureau



# And by 2029, Millennials to control the largest share of disposable income...

Figure: Percentage Share of Disposable Income of each generation

From 1990 to 2050



Source: Fundstrat. US Disposable income is nominal SAAR \$. The calculation is based on Federal Survey of Consumer Finance to determine median income by generation. The population data is using single age census data to determine number of millennials of working age. Using this population x income ratio x # millennials determines aggregate income. Income projections based on 2.0% Real GDP growth, 1% inflation and household disposable income share constant of 70%.

## Millennials are *largest share* of future purchases of major ticket items...

Figure: Share of Cumulative change over next 10 years

Per Fundstrat

|                        | Cumulative 2018-2028 |             |                 | Millennials share of 2018-2028 growth |
|------------------------|----------------------|-------------|-----------------|---------------------------------------|
|                        | Recent Figure        | Millennial  | Total US Market |                                       |
| Consumer spending      | \$8T                 | \$30T       | \$90T           | 33%                                   |
| Children born          | 4 million            | 45 million  | 46 million      | 98%                                   |
| Vehicles purchased     | 17 million           | 96 million  | 217 million     | 44%                                   |
| Housing starts (total) | 1.3 million          | 7.5 million | 18.8 million    | 40%                                   |
| Investment             | \$300 billion        | \$2.5T      | \$10T           | 25%                                   |

Source: Fundstrat. Car purchase: Running regression between "Estimated Total Motor Vehicles on the Road" and "US Population 16+", we got the relationship between two variables: Estimated Total Motor Vehicle on the Road = 1.0783 x US population 16+ - 13.0604 And  $r^2 = 0.9491$  And using this set of coefficients and the data from census population by year, we estimated the future total motor vehicle on the road until the year of 2028. Average age of cars is 14, we assume this will increase 0.025 every year. We use total motor vehicle on road divided by Average age of cars and get the Total New Car Sales of that year. Then we use Millennials Population (Age 18+) divided by Total Population (Age 18 – 65) to get the ratio that Millennials' car purchase within the Total New Car Sales. Home Sales (Home build): Running regression between "US New Privately Owned Housing Units Started by Structure – NHSPSTOT Index" and "Millennials Population (Age 25-45)" during 2008-2018, we got the relationship between two variables: New Units Started (in '000) = 17.08 x Millennials Pop (Age 25-45) (in mm) + 344.98 And  $r^2 = 0.7753$  And using this set of coefficients and the data from census population by year, we estimated the future New Units Started. Then we use Millennials Population (Age 25- 55) divided by Total Population (Age 18 – 65) to get the ratio that Millennials' New Home purchase to Total New Units started. Children Born: We use the Age 0 data in census population file as the newborn data, and found the distribution of newborn by Mother's age in Centers for Disease Control and Prevention ([https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66\\_01.pdf](https://www.cdc.gov/nchs/data/nvsr/nvsr66/nvsr66_01.pdf) page 18) as of the year of 2015. We assume the mother's age distribution will be the same for next 10 years as the one in the report. Based on the distribution, we break down the newborns in next 10 years by the mother's age. And based on that, we calculated how many of them are millennials' children.

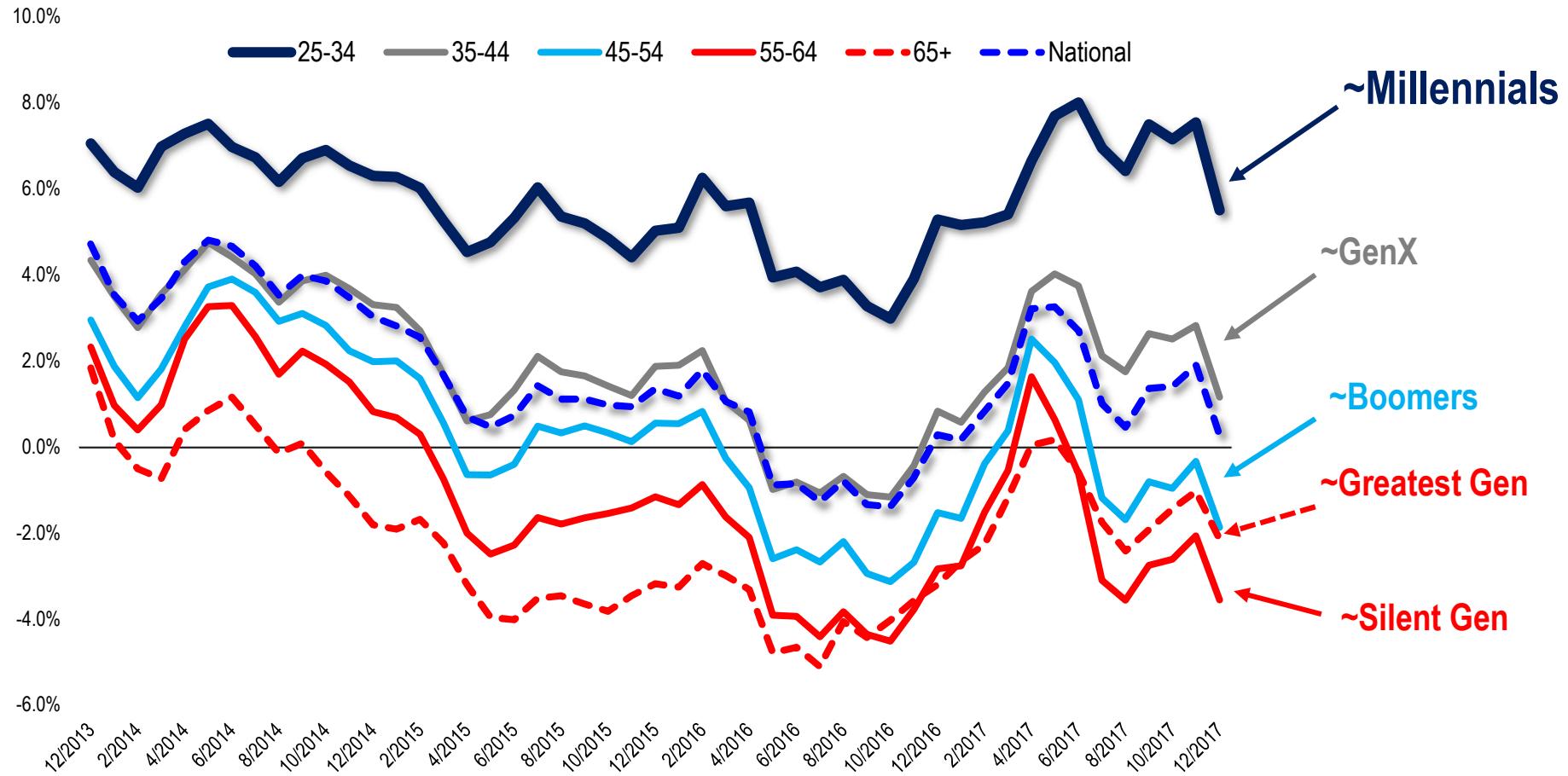
## Millennials Credit card spending *growing faster* than GenX or Boomers...

Credit card spending growth by age cohort is shown below. What is being measured is the year over year aggregate spending on Chase Credit cards.

- Millennials spending growth is far outstripping any other cohort. In fact, Boomers, Silent Generation and Greatest Generation are actually seeing declines.

Figure: Chase credit card spending growth based upon age cohort.

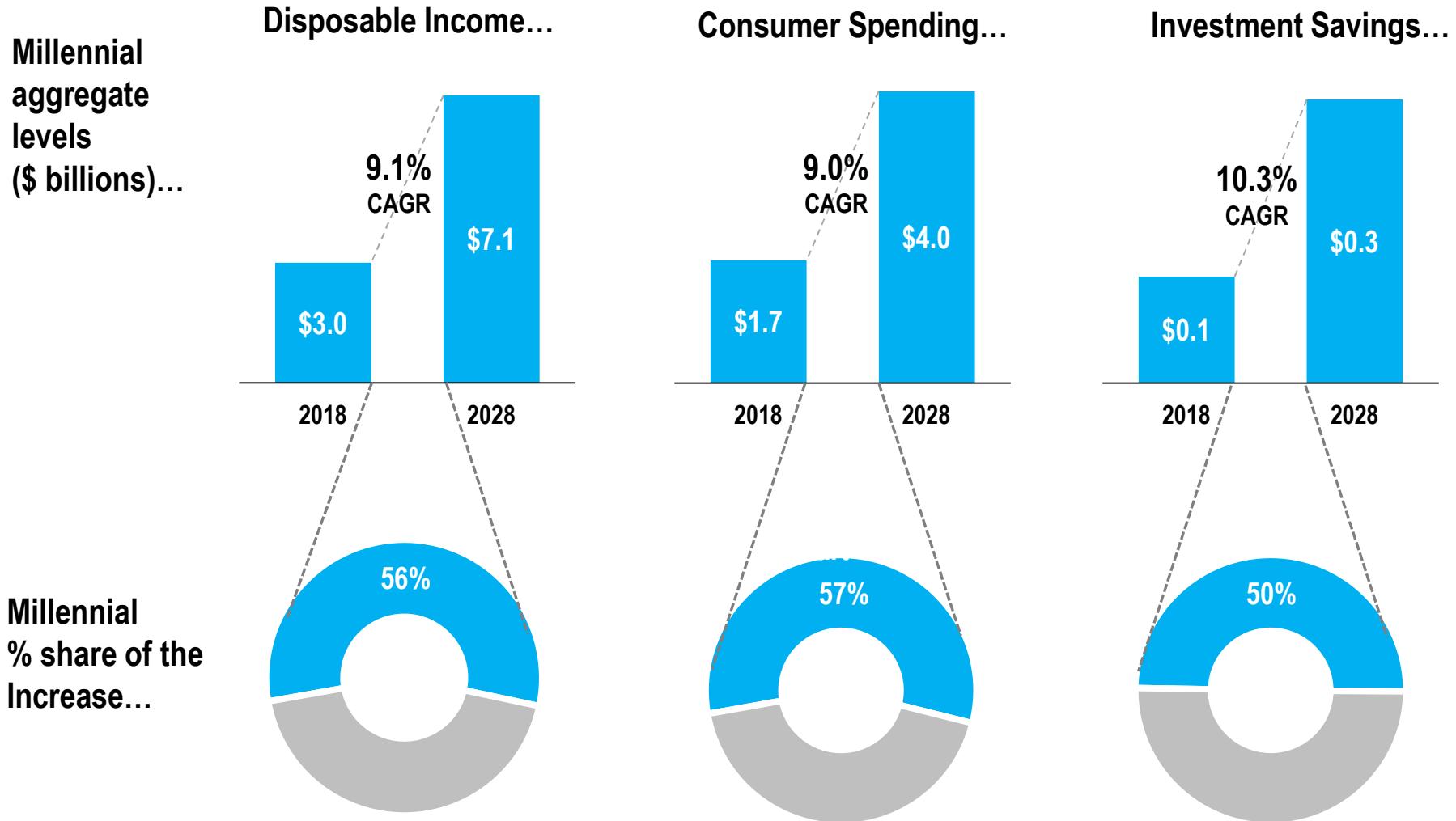
Per Chase Bank



Source: Fundstrat, Bloomberg

# Millennials >50% gains for annual Income, Spending and Savings 2018-2028

Figure: Millennials will power much of the increase in income, spending and savings  
Per Fundstrat

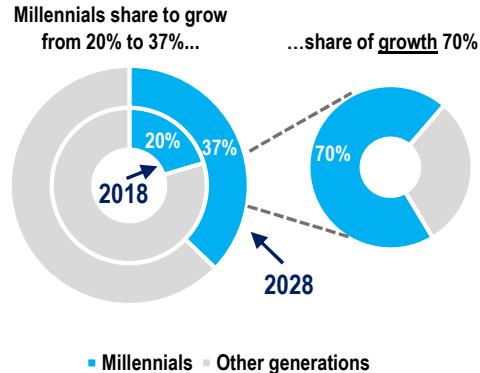


Source: Fundstrat. US Disposable income is nominal SAAR \$. The calculation is based on Federal Survey of Consumer Finance to determine median income by generation. The population data is using single age census data to determine number of millennials of working age. Using this population x income ratio x # millennials determines aggregate income. Income projections based on 2.0% Real GDP growth, 1% inflation and household disposable income share constant of 70%.

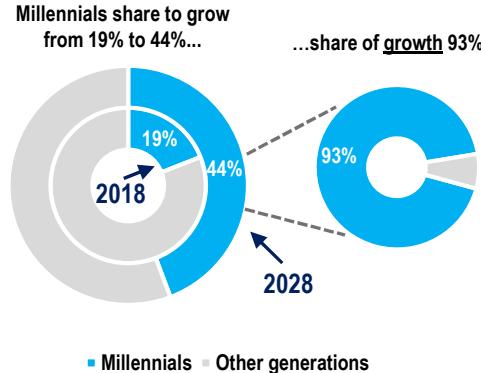
# Financial Services: Millennials to be 72% of expenditure growth

**Figure: Millennials share of Financial Services sub-categories and the overall share of sub-category growth**  
 Millennials are defined as born between 1981-1996

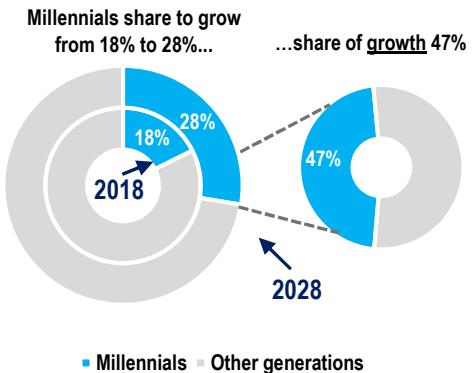
## Personal Insurance and Pensions



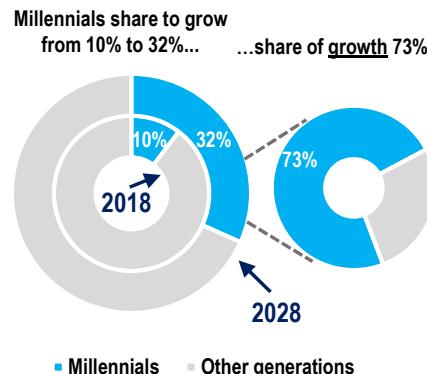
## Mortgage Interest and Charges



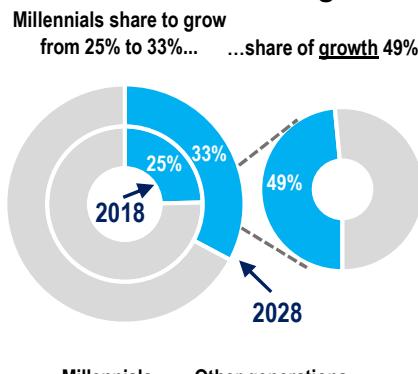
## Vehicle Insurance



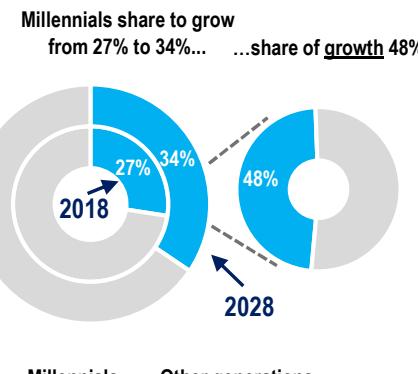
## Cash Contribution



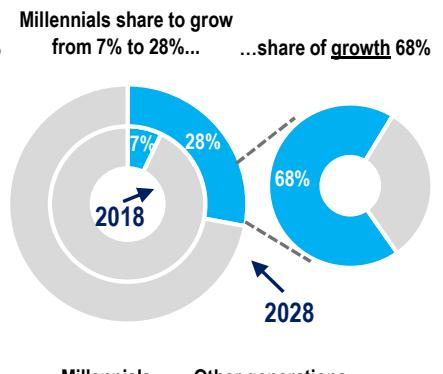
## Vehicle rental, leases, licenses, and other charges



## Vehicle Finance Charges



## Life and Other Personal Insurance

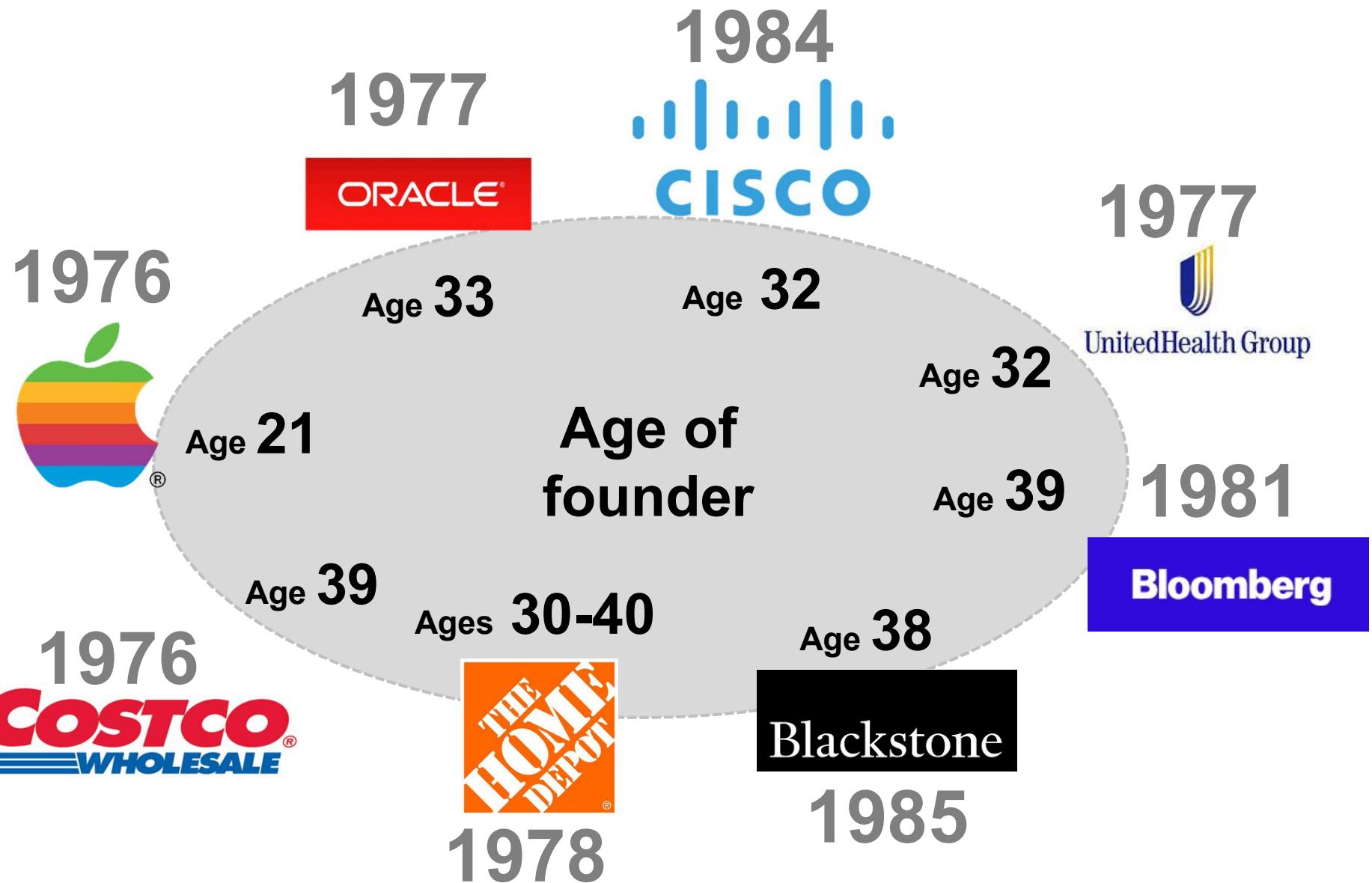


1. Source: Fundstrat, Bureau of Labor Statistics

2. Sub-categories listed from largest 2018 \$ value to smallest.

3. 2018 millennial share represents the respective sub-category's 2015 millennial wallet share applied to US 2018 est. millennial spending for the sub-category, as a percentage of 2018 est. US aggregate spending for the sub-category. 2028 millennial share is derived similarly using the respective sub-category's 2015 Gen X wallet share applied to US 2028 est. millennial spending for the sub-category as a percentage of 2028 est. US aggregate spending for the sub-category.

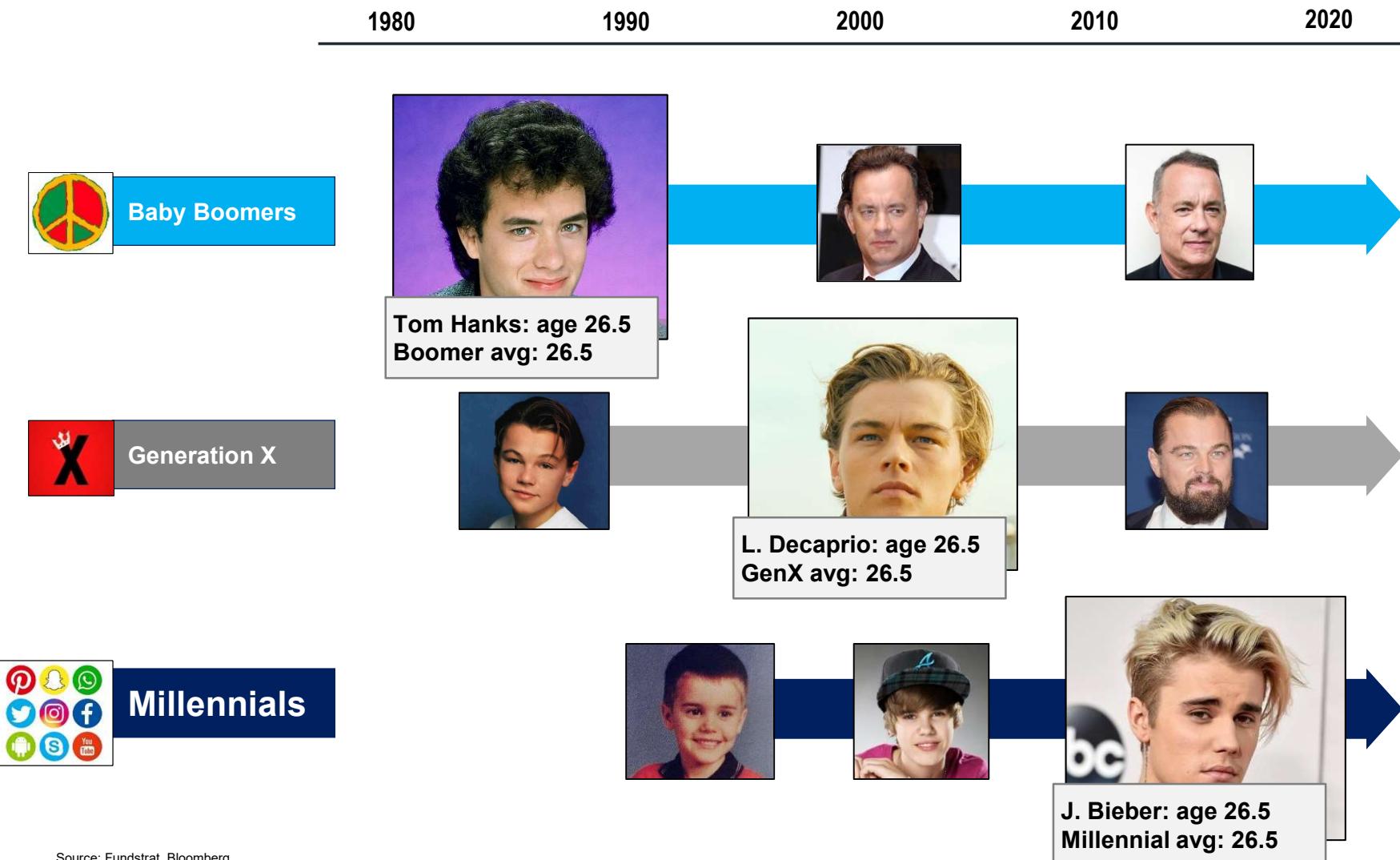
**YOUTH:** Founders were young when they started these Mega-caps



## DEMOGRAPHICS: Looking at the world through the eyes of a millennial...

**Figure: What did each generation look like in their 20s**

Fundstrat and public information



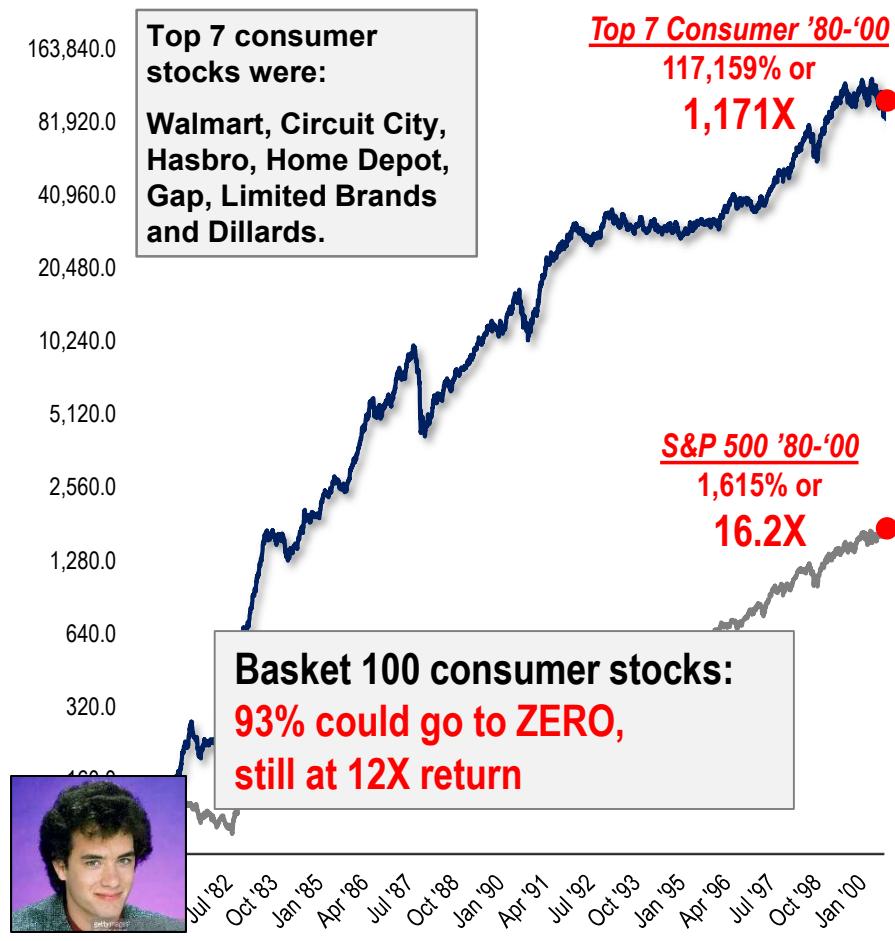
Source: Fundstrat, Bloomberg

## "Generational" Bets paid off for Boomers and for GenX



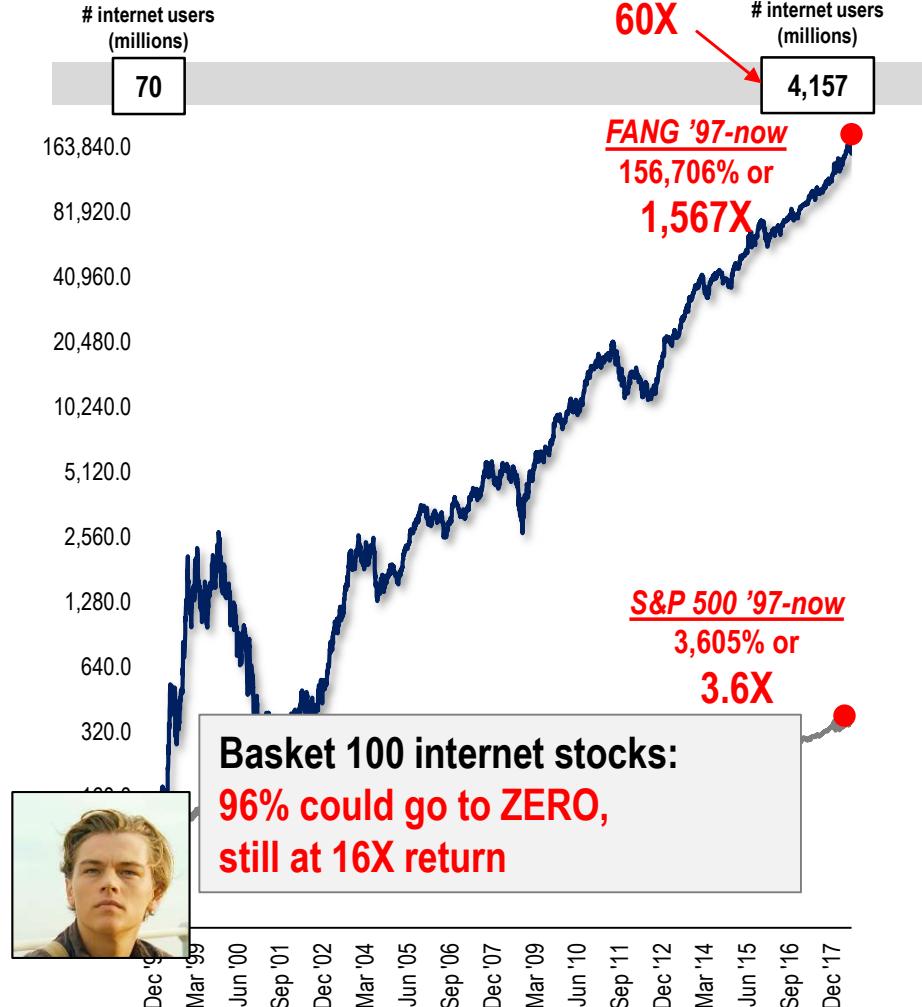
### BOOMER SPEND VS PARENTS: Consumer Stocks was right vector

Figure: Comparative performance of Top 7 Consumer stocks  
1980 to 2000



### GenX FANG: Internet

Figure: Comparative performance of FANG  
1997 to now



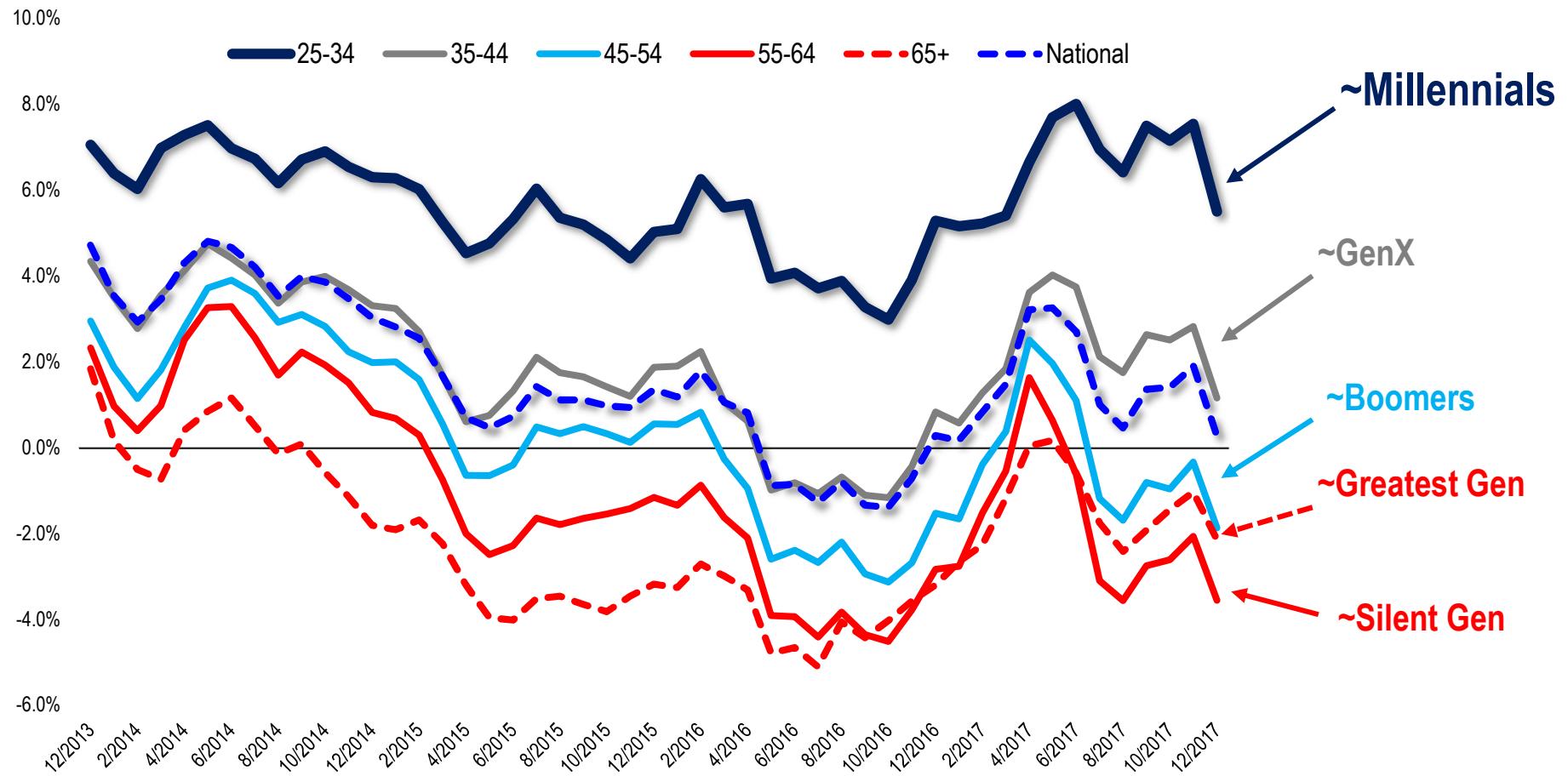
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Per Chase Bank



Source: Fundstrat, Bloomberg

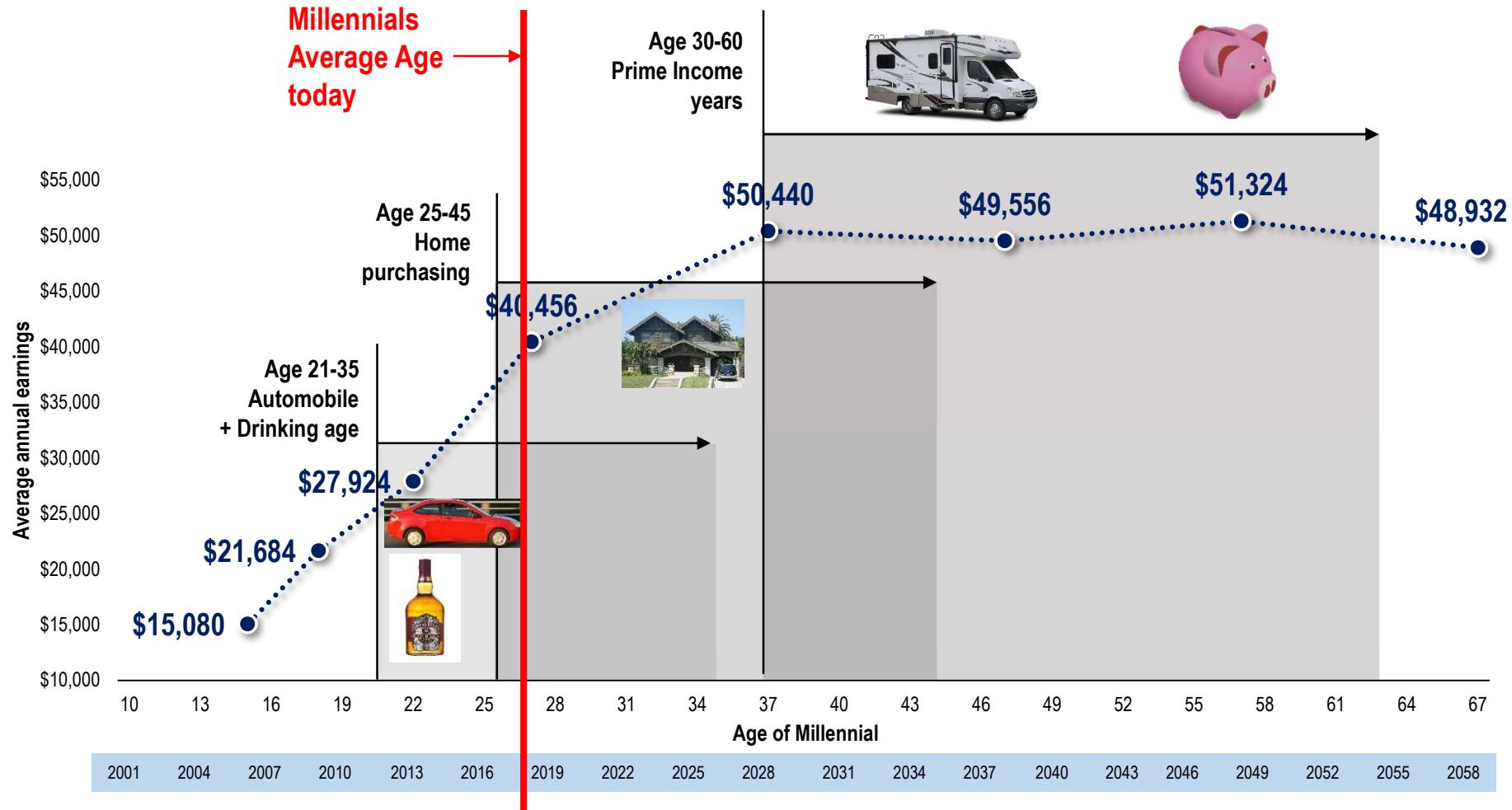
## Millennials average age is 26.5... still early in life cycle

The oldest millennials are 36 but the average age is 26.5. As shown below, this means the peak of millennials are driving the automobile market but just beginning to impact the housing market. And early in the investing market.

- As the following slides show, millennials are now the most important cohort to follow for several key segments.

Figure: Life cycle of Millennial spending and income

Survey of Consumer Finance for 2017 "real income" levels (born between 1981-2000)



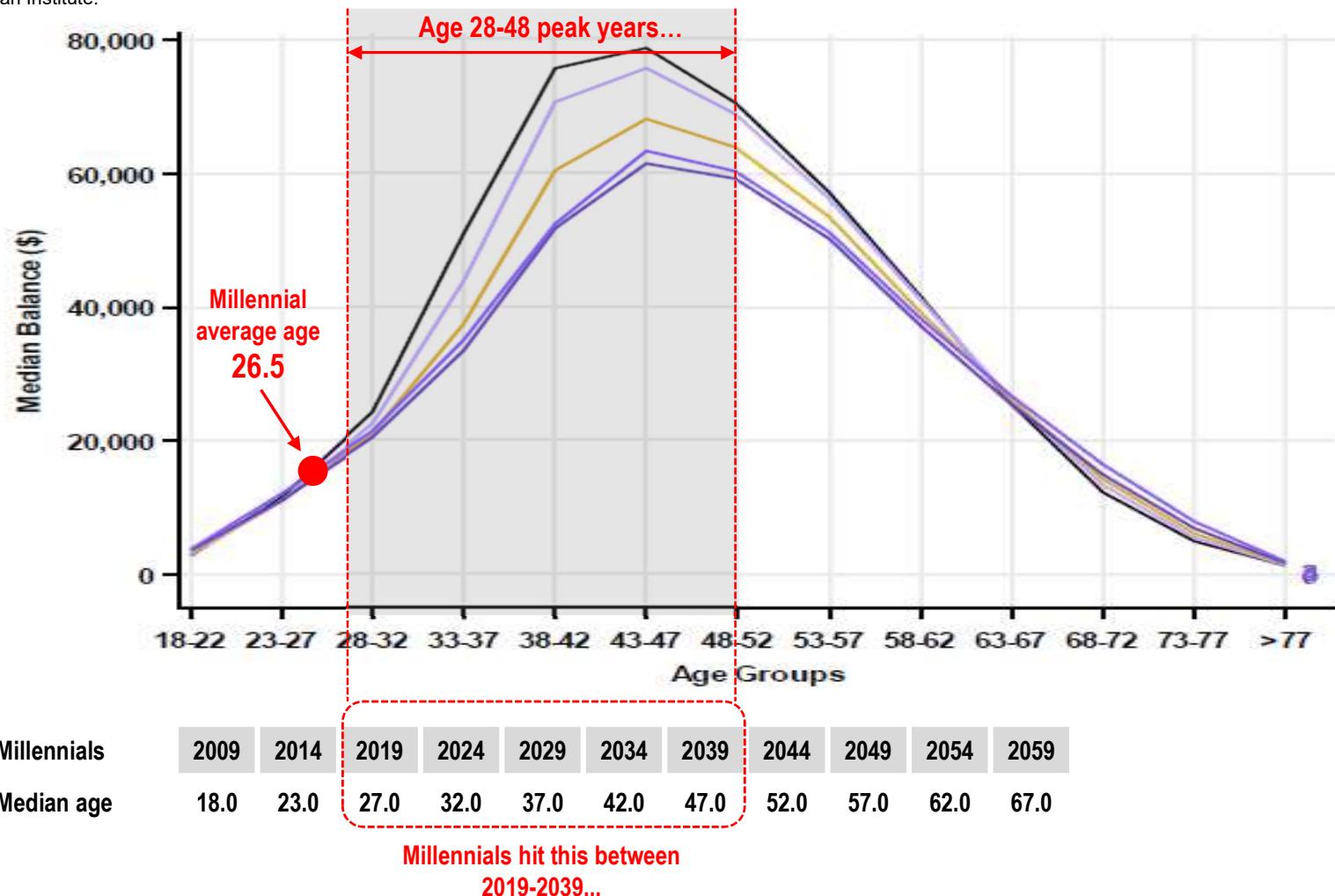
Source: Fundstrat, Bloomberg, Census Bureau

## LEVERAGE: Household debt *peaks* between ages 28-53, or 2019 to 2039...

- Millennials are about to become prime consumers of leverage. The Urban institute shows that leverage peaks between age 28-53. For Millennials, this is between 2019-2039.

Figure: Median debt balance by Age Group

US data. From Urban Institute.



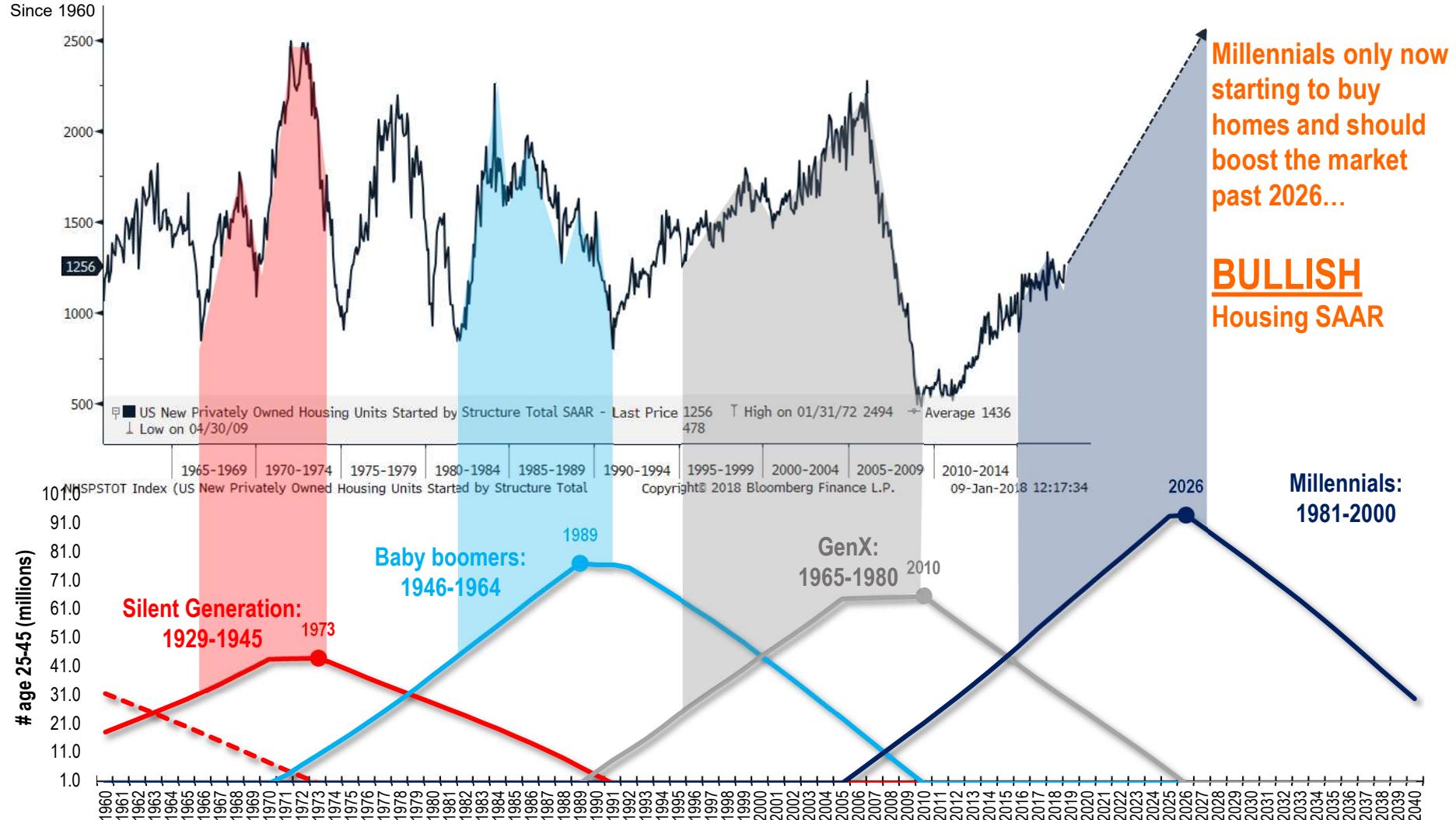
Source: Fundstrat, Bloomberg. <https://www.urban.org>

# Housing follow generations and implies peak starts 2029 or so...

We believe the prime market for homebuyers is age 25-45 and as shown below, this cohort size seems to explain housing cycles.

- If precedent generations are a template, housing starts should rise through 2029 towards 2.5 million starts.

Figure: Housing starts and comparative size of generations age 25-45. Starts reported in thousands.



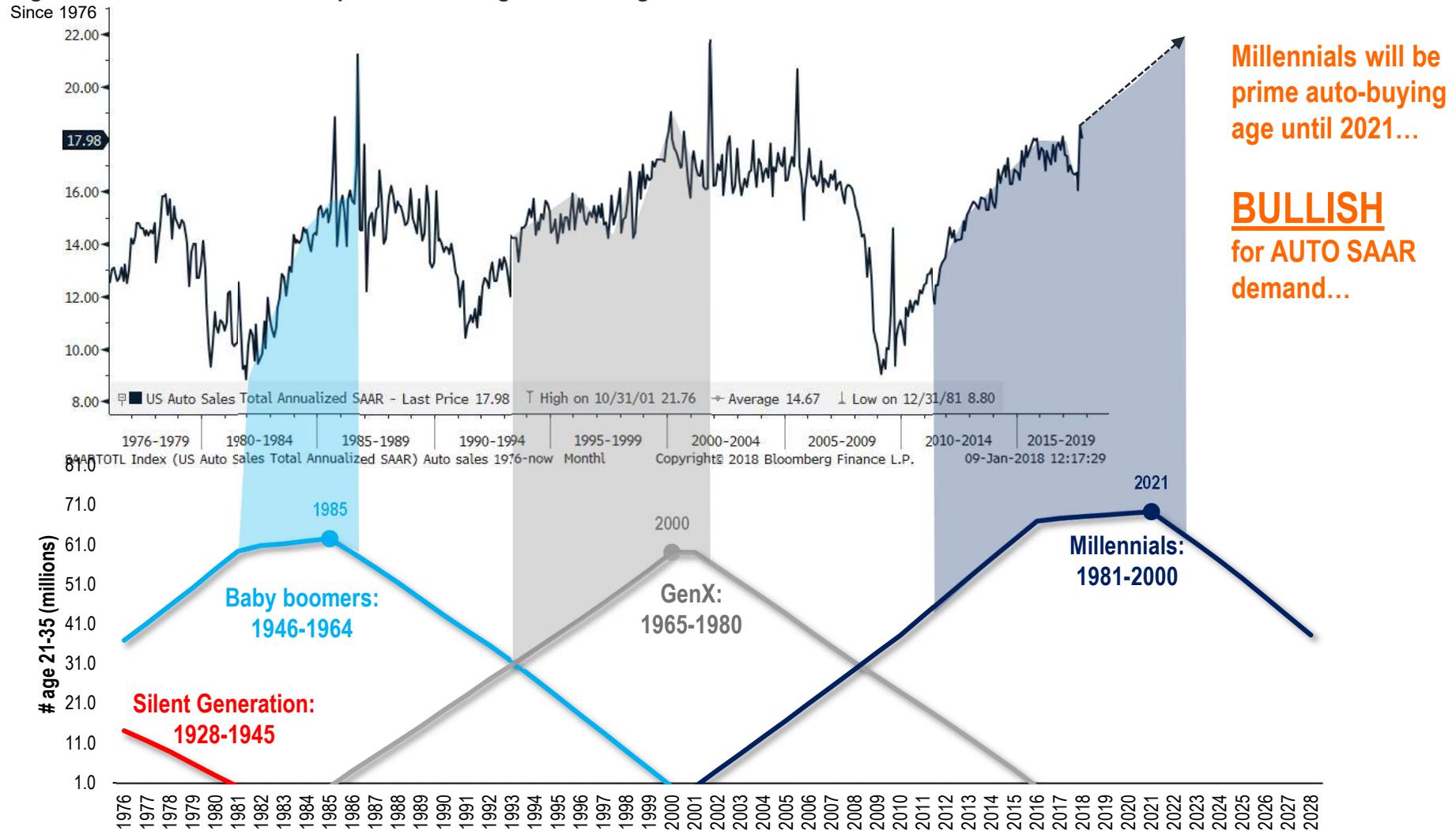
Source: Fundstrat, Bloomberg, Factset

# Auto SAAR cycles explained by generations... Millennials drive to 2021

Assuming that prime first time automobile buying age is 21-35, then as shown below, Auto SAAR cycles seem to follow generations.

- As shown below, the Millennials of prime auto buying age will grow through 2021—suggesting positive SAAR till then.

Figure: Auto SAAR and the comparative size of generations age 21-35



Source: Fundstrat, Bloomberg, Factset

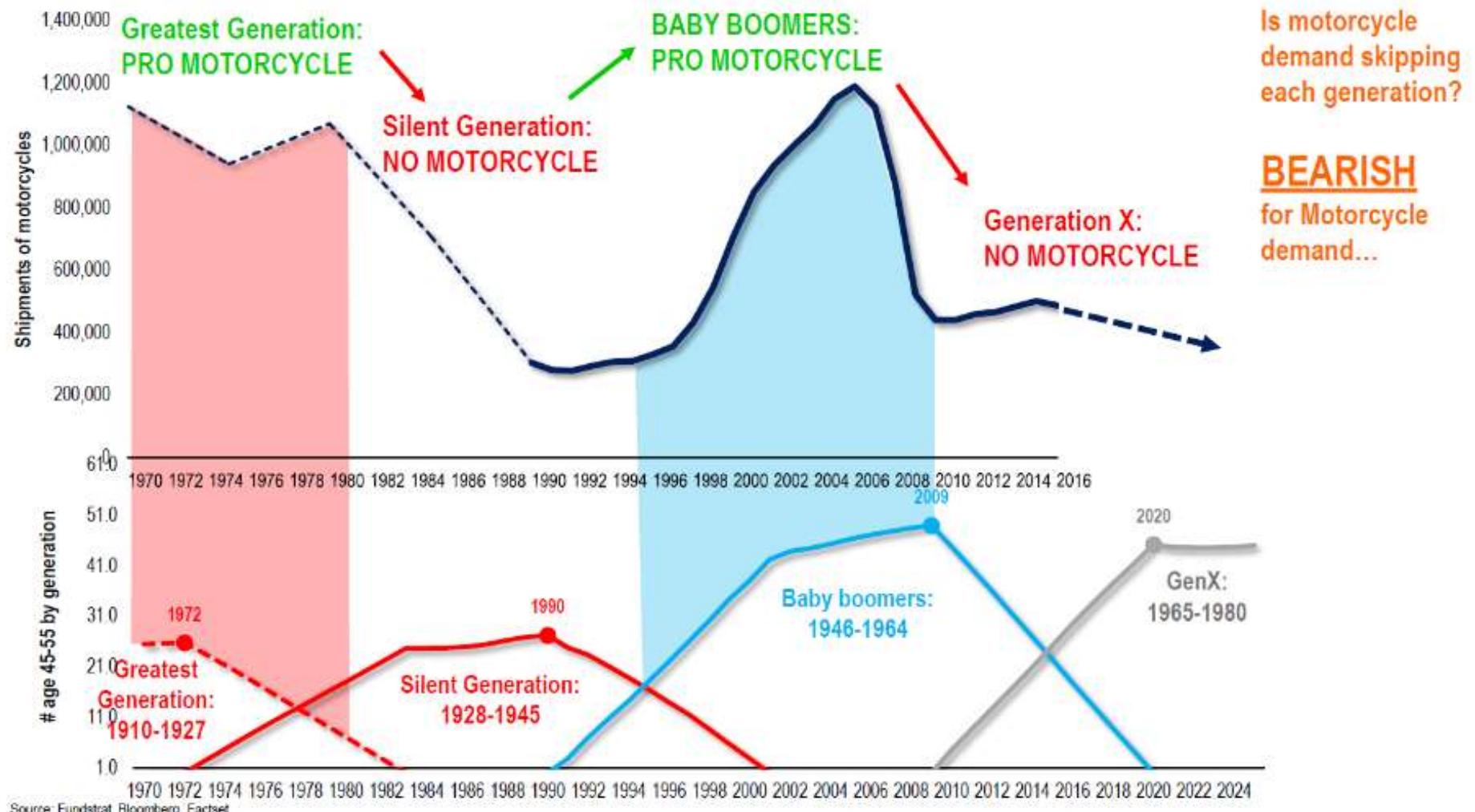
## **Motorcycles demand skips generations?**

Another example of demographics is the sales of motorcycles, which have generally not performed well since 2008.

- Assuming peak demand for motorcycles is nostalgia driven (late middle ages 45-55), demand peaked with boomers.

**Figure: Motorcycle Retail Shipments and the comparative size of generations at late middle-ages (age 45-55)**

Since 1970



Source: Fundstrat, Bloomberg, Factset

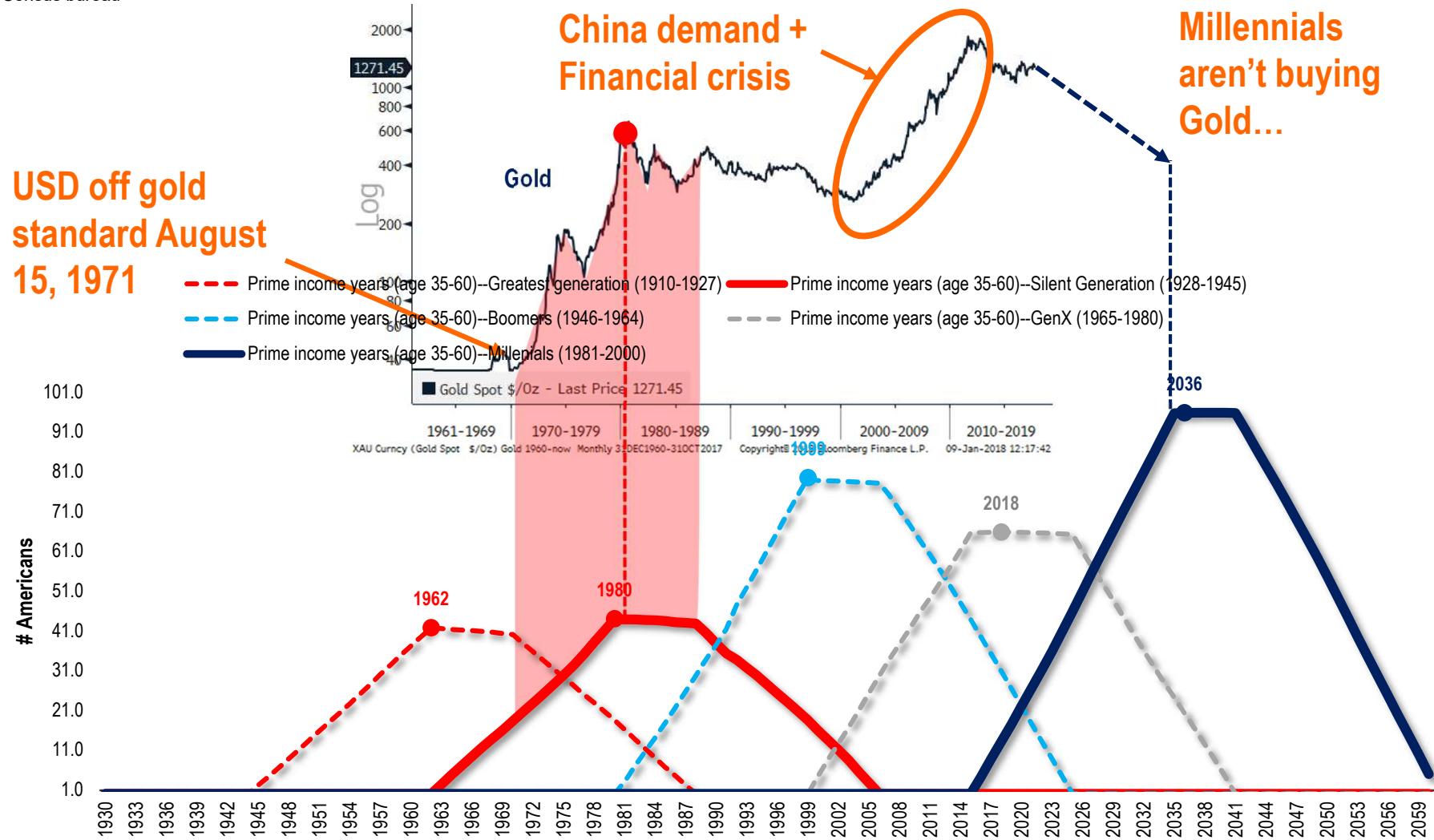
## Silent Generation bought *gold*...

As shown below, the Silent Generation was in their prime income years. The USD moved off the gold standard in 1971.

- As shown, this surge in gold and coincident generational prime income of "Silent Generation" means this generation is the key cohort of "gold bugs".

Figure: Comparative Gold prices and the prime income years of various generations

Census bureau

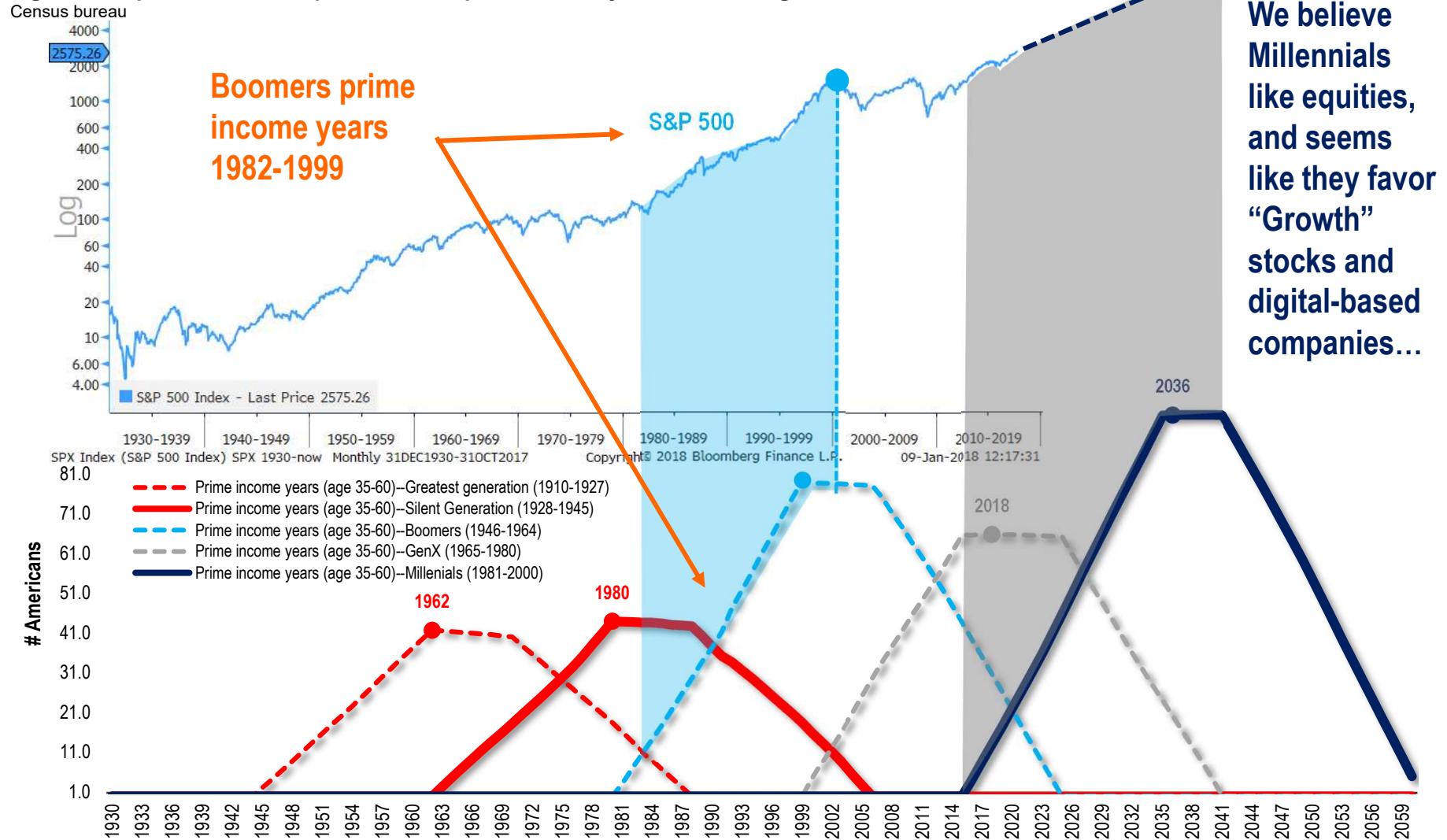


## Boomers bought equities... millennials like “Growth stocks”

The Baby boomers prime income years stretched from 1982 and peaked in 1999.

- Baby boomers prime income years stretched from 1982 and peaked in 1999, coinciding with equity market peak.

Figure: Comparative S&P 500 prices and the prime income years of various generations

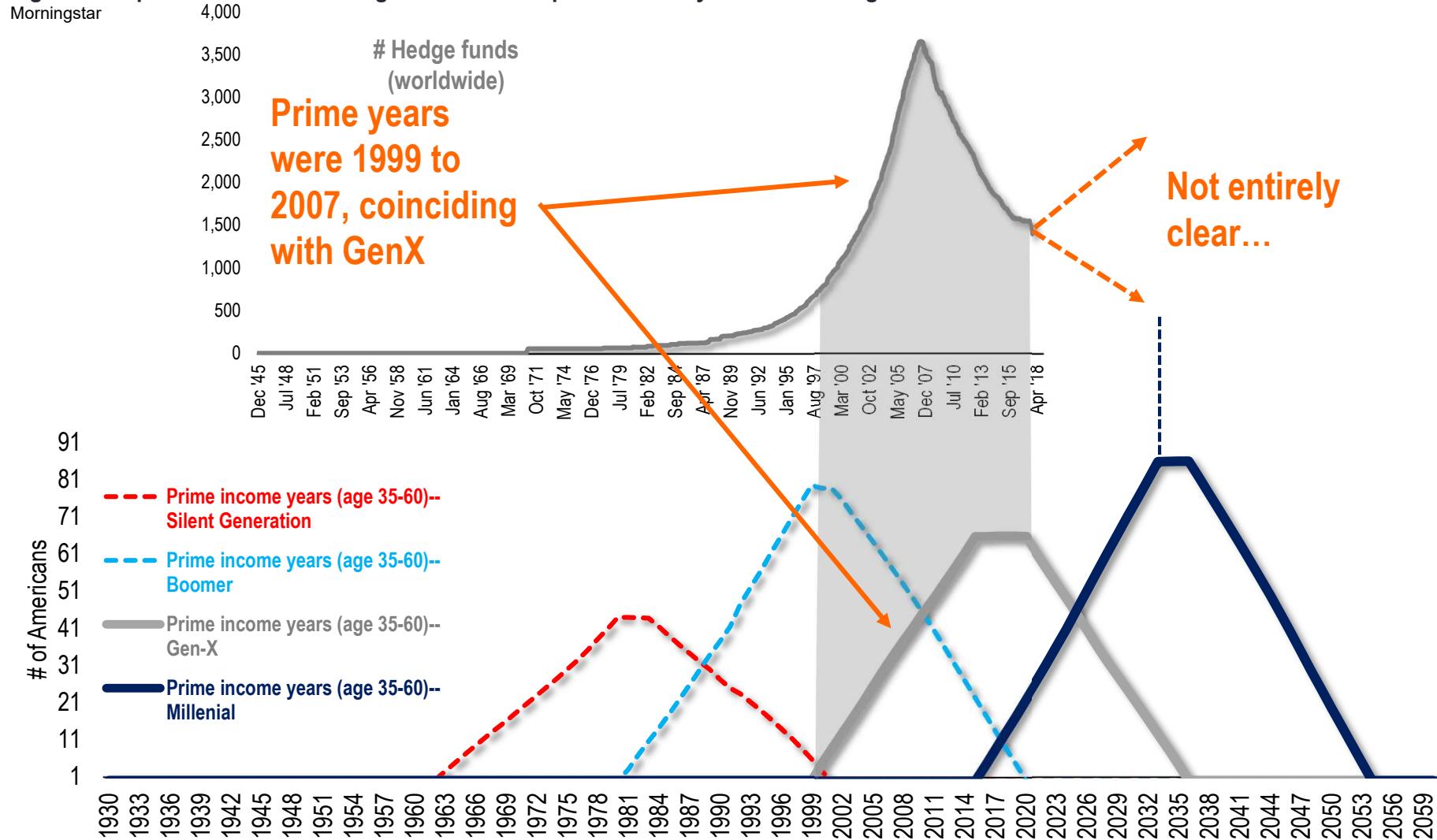


## GenX really liked Hedge funds...

The prime years for hedge funds (based on number) was 1990s to 2007. Since then, the number of funds has been declining.

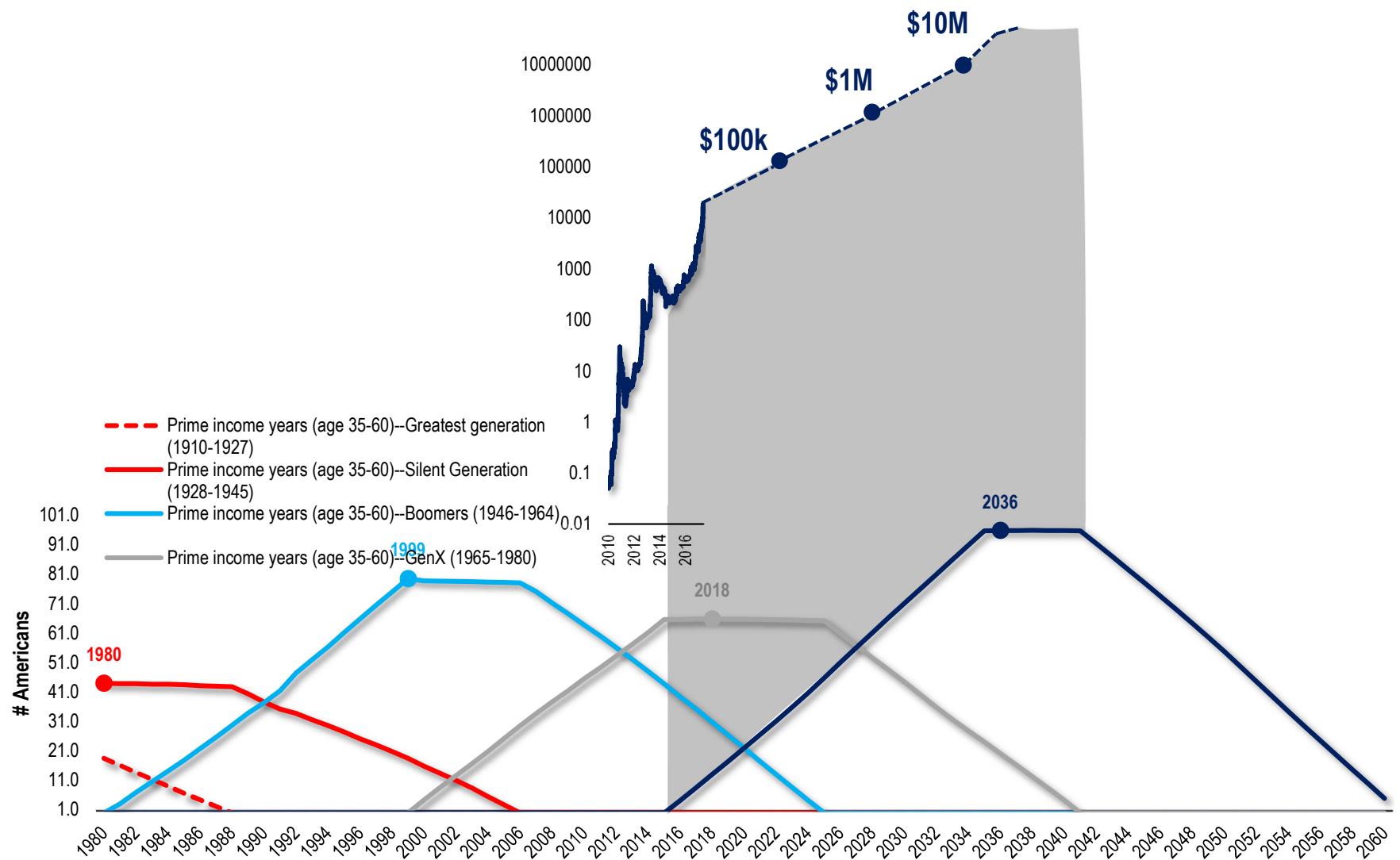
- The hedge fund industry is evolving and those with deep fundamental or a unique advantage will likely appeal to millennials..

Figure: Comparative number of Hedge funds and the prime income years of various generations



## Millennials *LOVE* Bitcoin and Blockchain

Figure: Fundstrat FS CryptoFX 300 Index  
Morningstar



## LABOR: Global excess supply of labor is gone, first time since 1973

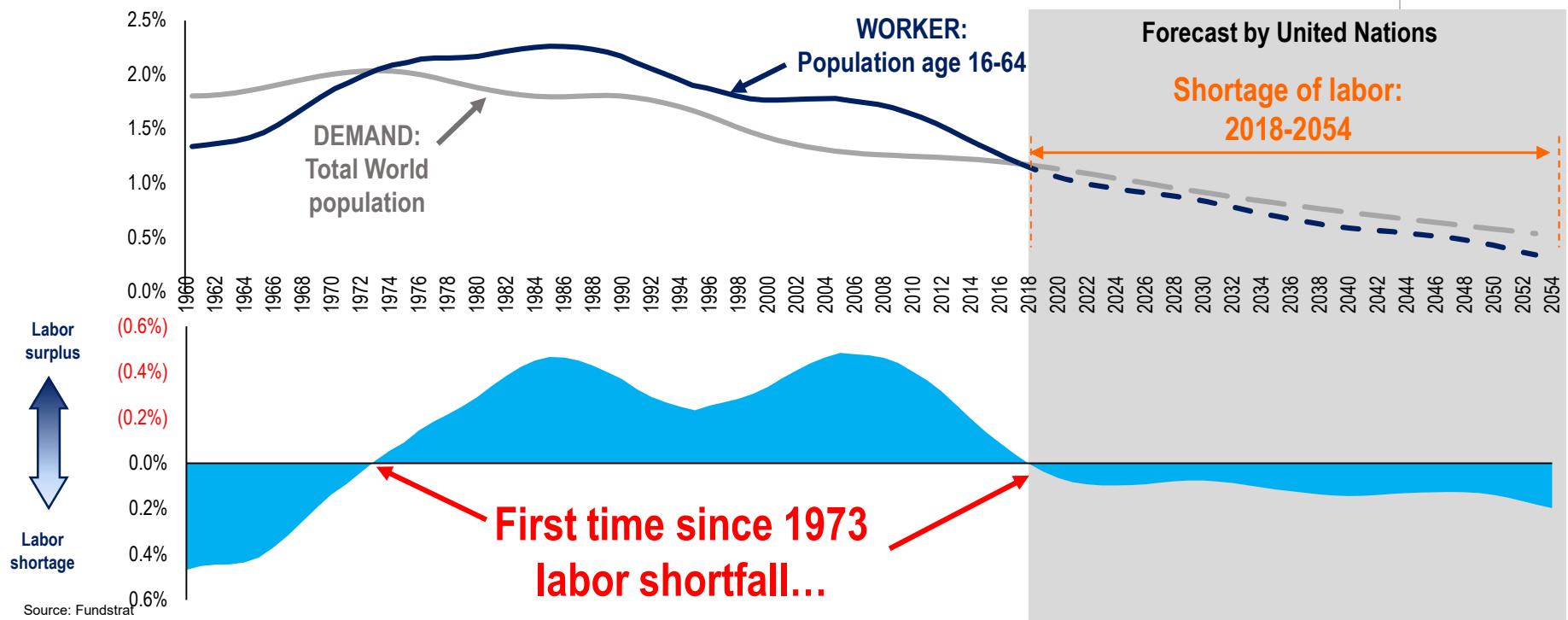
Global labor supply is falling into a deficit. This is shown below and is most acute in high income countries (4.9% labor)

- The decline in labor is widespread (except Africa and India, basically) and total shortfall is 43 million workers.

Figure: Spread between total population growth and workforce growth (age 16-64)

Per UN DESA

|                          | 2018      |           | 2028      |           | Delta     |         | CAGR    |         | % current<br>Shortage workforce |
|--------------------------|-----------|-----------|-----------|-----------|-----------|---------|---------|---------|---------------------------------|
|                          | Workforce |           | Workforce |           | Workforce | Total   | (16-64) | Total   |                                 |
|                          | Total     | (16-64)   | Total     | (16-64)   | Total     | (16-64) | Total   | (16-64) |                                 |
| World                    | 7,632,819 | 4,983,447 | 8,407,900 | 5,446,592 | 775,081   | 463,145 | 1.0%    | 0.9%    | (42,903) (0.9%)                 |
| World ex-Africa          | 6,344,899 | 4,264,461 | 6,778,314 | 4,501,749 | 433,416   | 237,288 | 0.7%    | 0.5%    | (78,025) (1.8%)                 |
| High-income countries    | 1,197,191 | 783,527   | 1,242,592 | 775,187   | 45,401    | (8,340) | 0.4%    | (0.1%)  | (38,054) (4.9%)                 |
| Mid/Low-income countries | 6,435,628 | 4,199,919 | 7,165,308 | 4,671,404 | 729,680   | 471,485 | 1.1%    | 1.1%    | (4,849) (0.1%)                  |



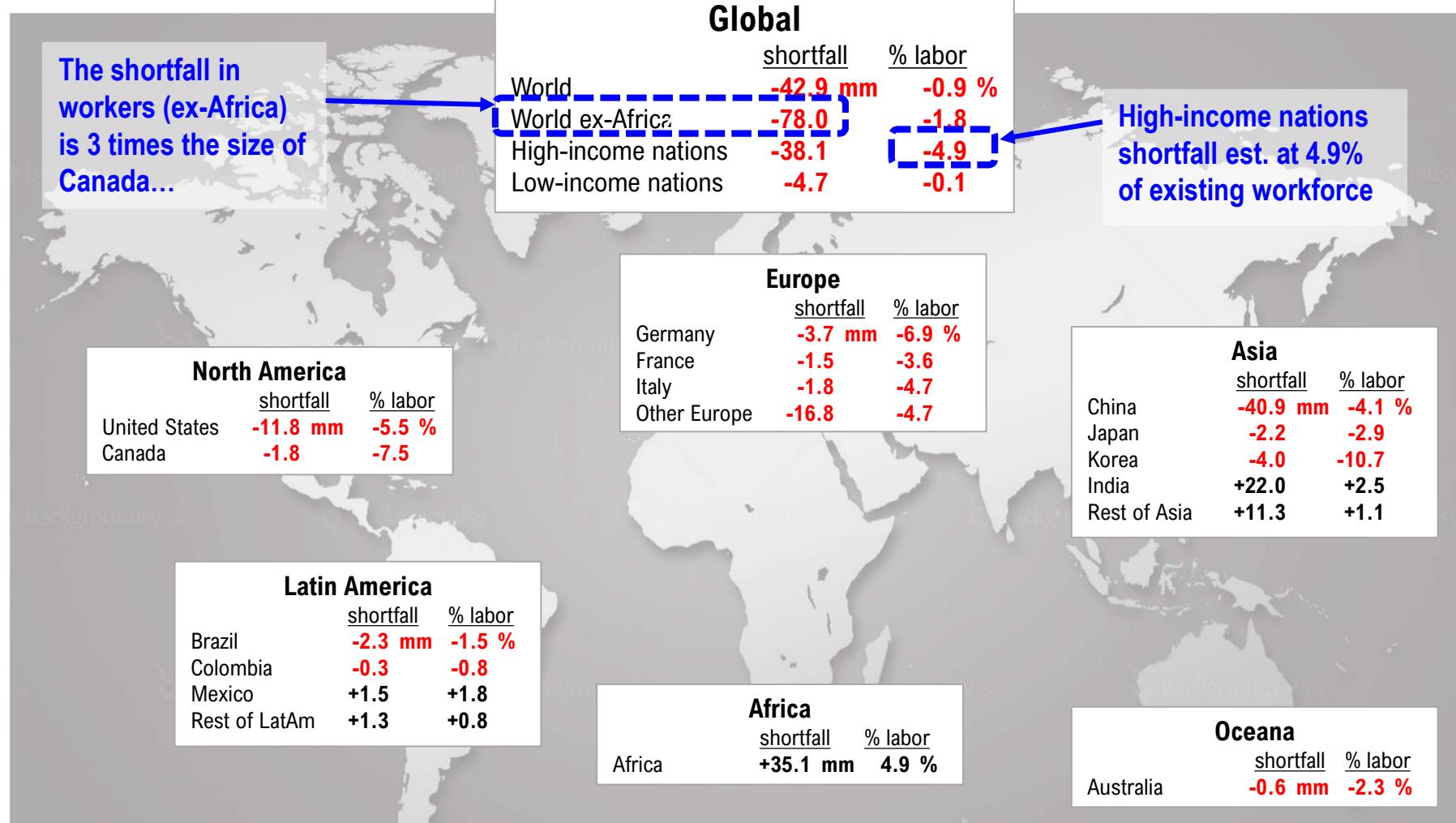
## LABOR SHORTAGE: 78 million shortfall by 2028, 3X size of Canada

The shortfall of workers is acute, reaching an estimated 78 million by 2028, which is roughly 3X the size of Canada.

- The greatest shortfall are in high-income nations with an estimated 4.9% shortfall of the workforce.

Figure: Projected shortfall in labor force by 2028 (age 16-64) by country

Per UN DESA



Source: Fundstrat, Bloomberg

AUTOMATION: Labor Shortage *drives demand* for ‘automation’

## ‘Demand for automation drive by necessity’

When there was  
“surplus labor”

### Suppliers:

China 

Asia 

India 

Africa 

When there is  
“labor shortage”

### Suppliers:

USA 

Japan 

China 

Germany 

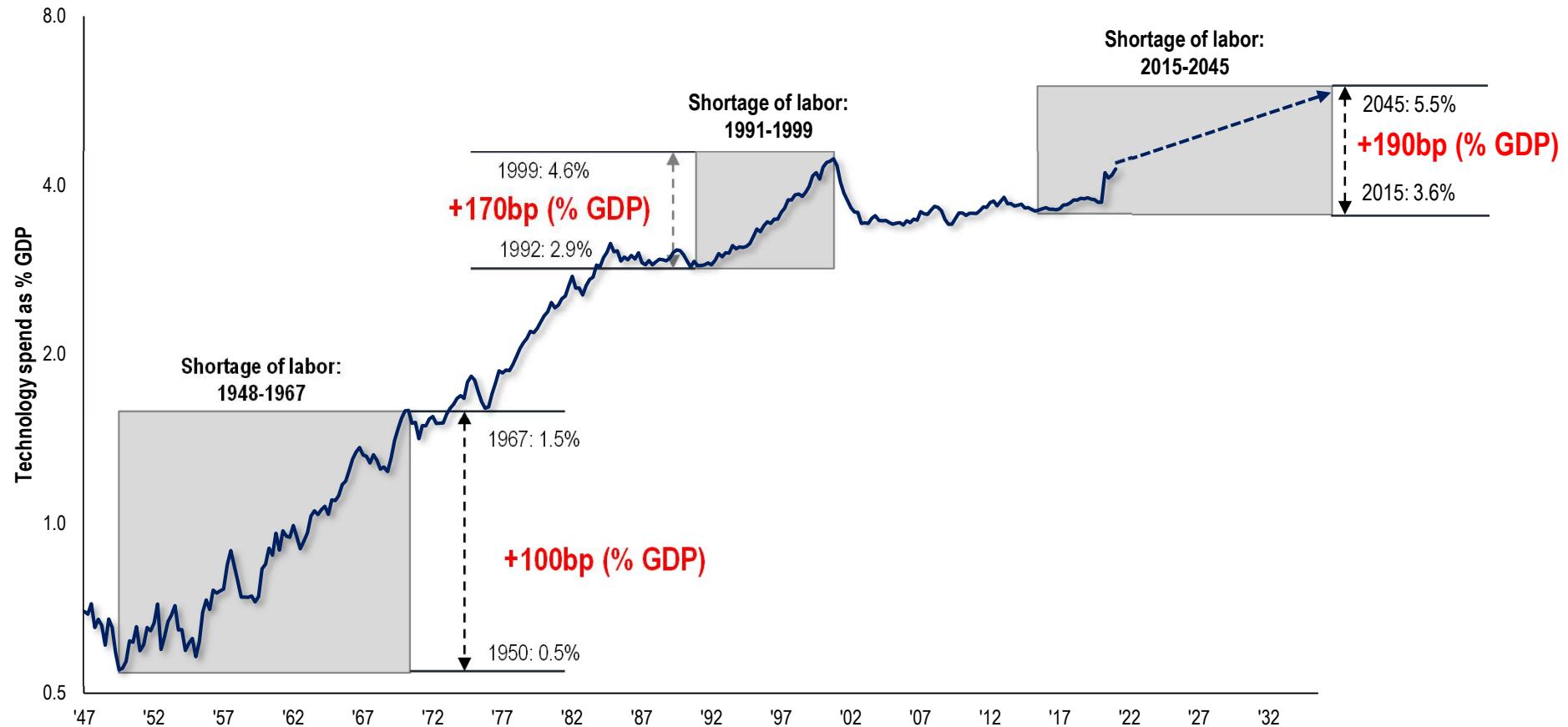
## Prior periods of labor shortage saw a surge in Technology spending...

Technology spend (as % GDP) is shown below and the shaded areas show the two prior periods of "labor shortage" (population outstripped worker growth).

- As shown, during both periods, Technology spend rose sharply as % GDP (+100bp, +170bp, respectively). This rise is not surprising—after all, companies meet production demands by automating.
- We believe Technology spend could rise to 5.5% of GDP from 3.6% in 2015 (when the shortage of labor started), given the large labor shortage developing.

**Figure: Technology spend as % GDP**

Starting in 1947. Based on the sum of GDP components of Information Processing plus software (as % GDP)



Source: Fundstrat, Bloomberg

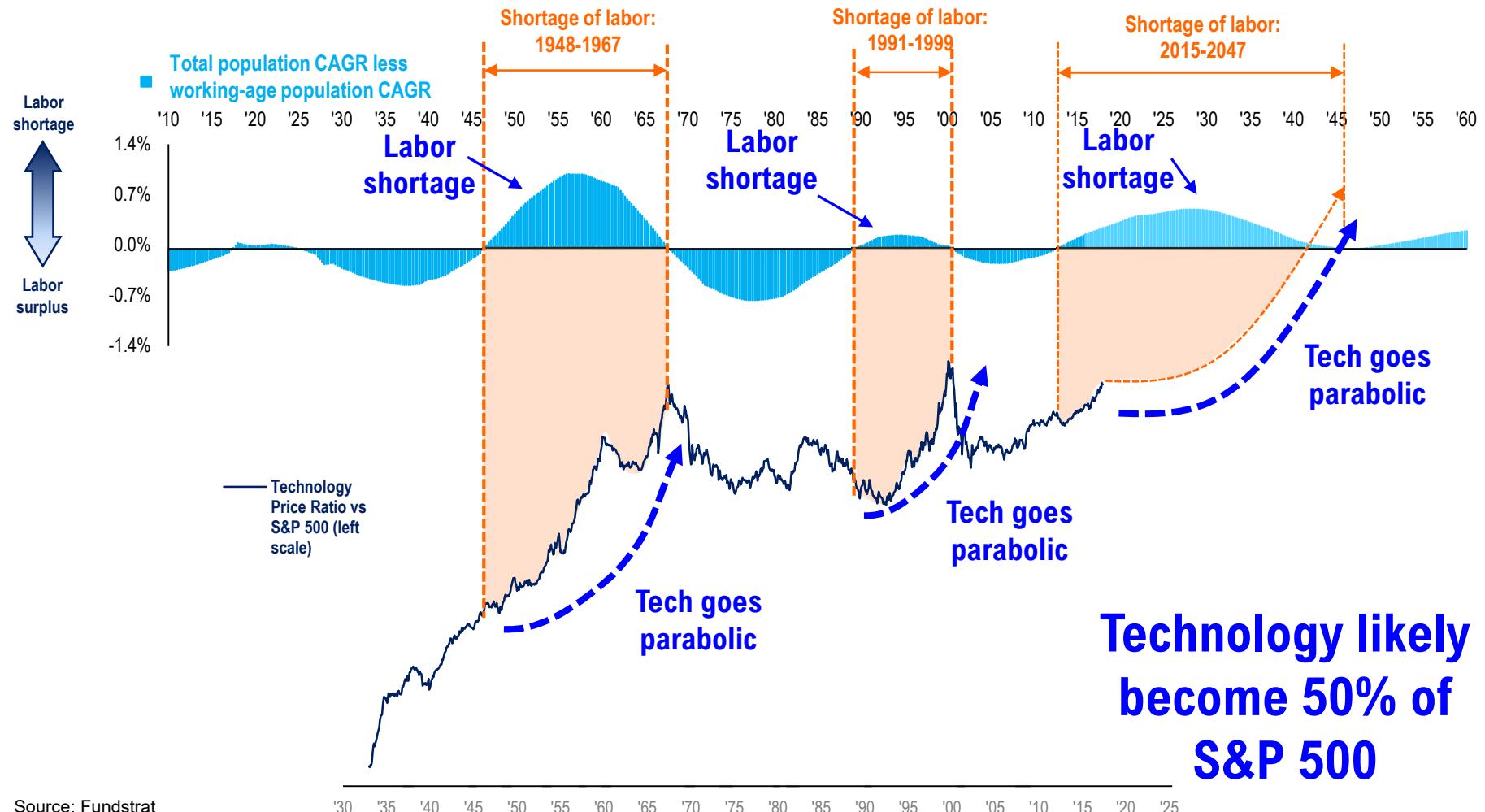
## AUTOMATION: Technology becomes 50% of S&P 500 weight

We have compared the performance of US Technology stocks (vs S&P 500) and indicated periods of labor shortage.

- The outperformance of Technology during periods of labor shortage is substantial—and we believe the forecasted 2015-2047 to benefit Technology stocks.

Figure: Comparative relative performance of US Technology stocks during periods of US labor shortage

Since 1930-now



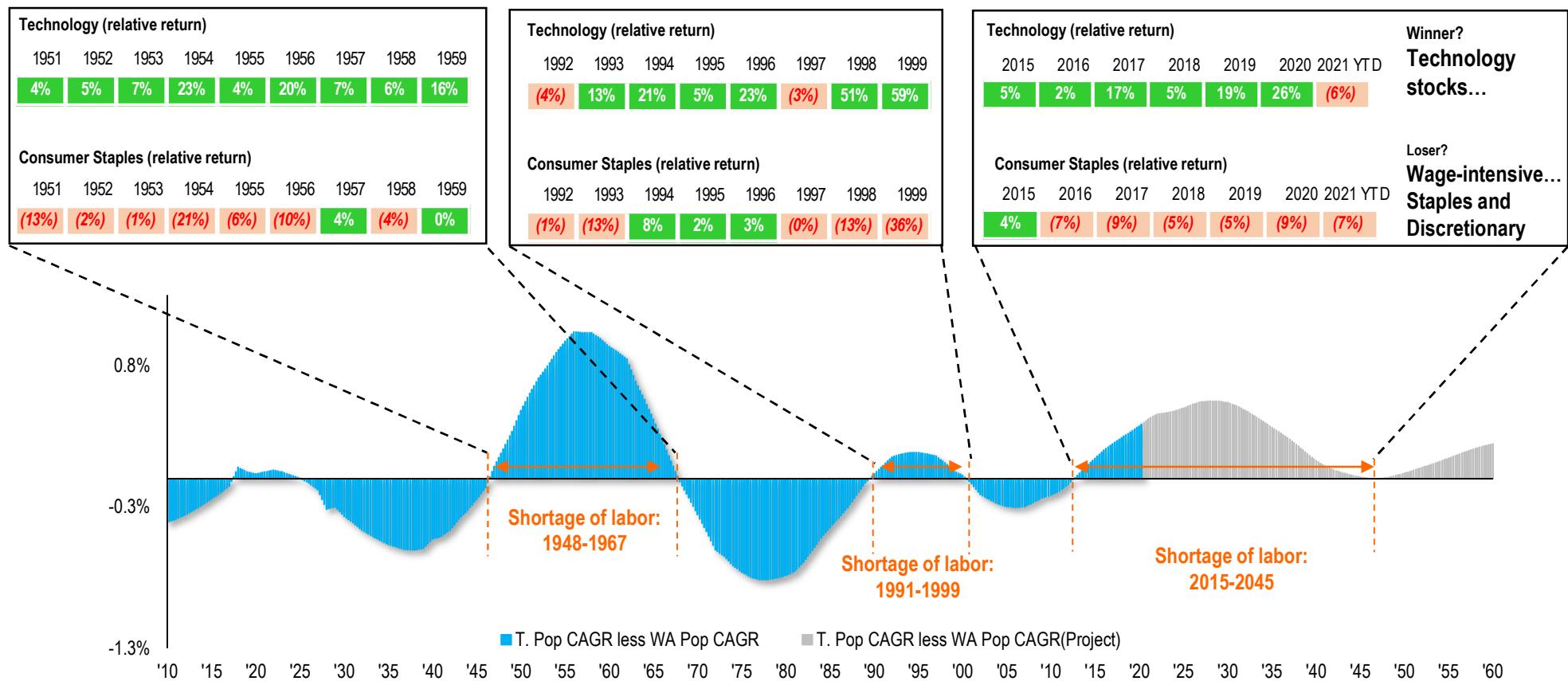
## Sectors: Technology outperforms, Staples underperforms...

We highlighted the comparative performance of Technology and Consumer Staples during the two precedent periods of labor shortage. The reason we highlighted these groups is these two sectors bar-bell sector performance. Best in those two periods and the two worst.

- The outperformance of Technology is logical, reflecting the need to replace workers with automation. The losers, in our view, are those companies/sectors which are heavily reliant on labor for value-added.

**Figure: Relative Performance of Technology and Consumer Staples during periods of labor shortages**

Since 1950



Source: Fundstrat, Bloomberg

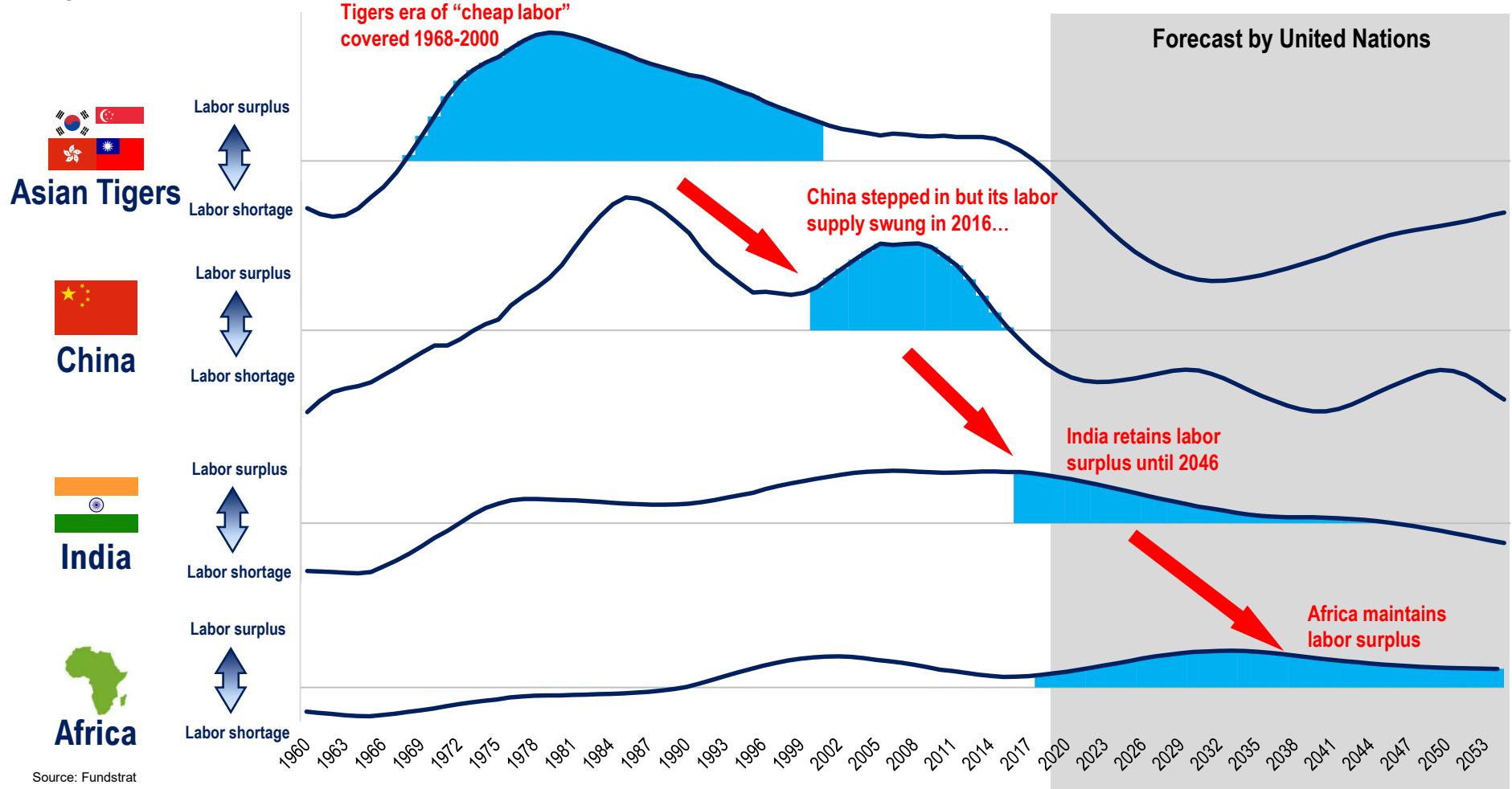
## LABOR: From Tigers to China to India (until 2046) and Africa

China and the Four Asian Tigers (Hong Kong, Korea, Singapore and Taiwan) entered labor shortage recently.

- In the chronology below is the progress of labor supply. The Tigers were the first, followed by China joining in the 2000s, and now we're seeing a shift in India. India's labor surplus will start to diminish in 2019, but won't enter labor shortage until 2046. Africa will maintain its labor surplus through the forecasted period.

Figure: Spread between total population growth and workforce growth (age 16-64)

Per UN DESA



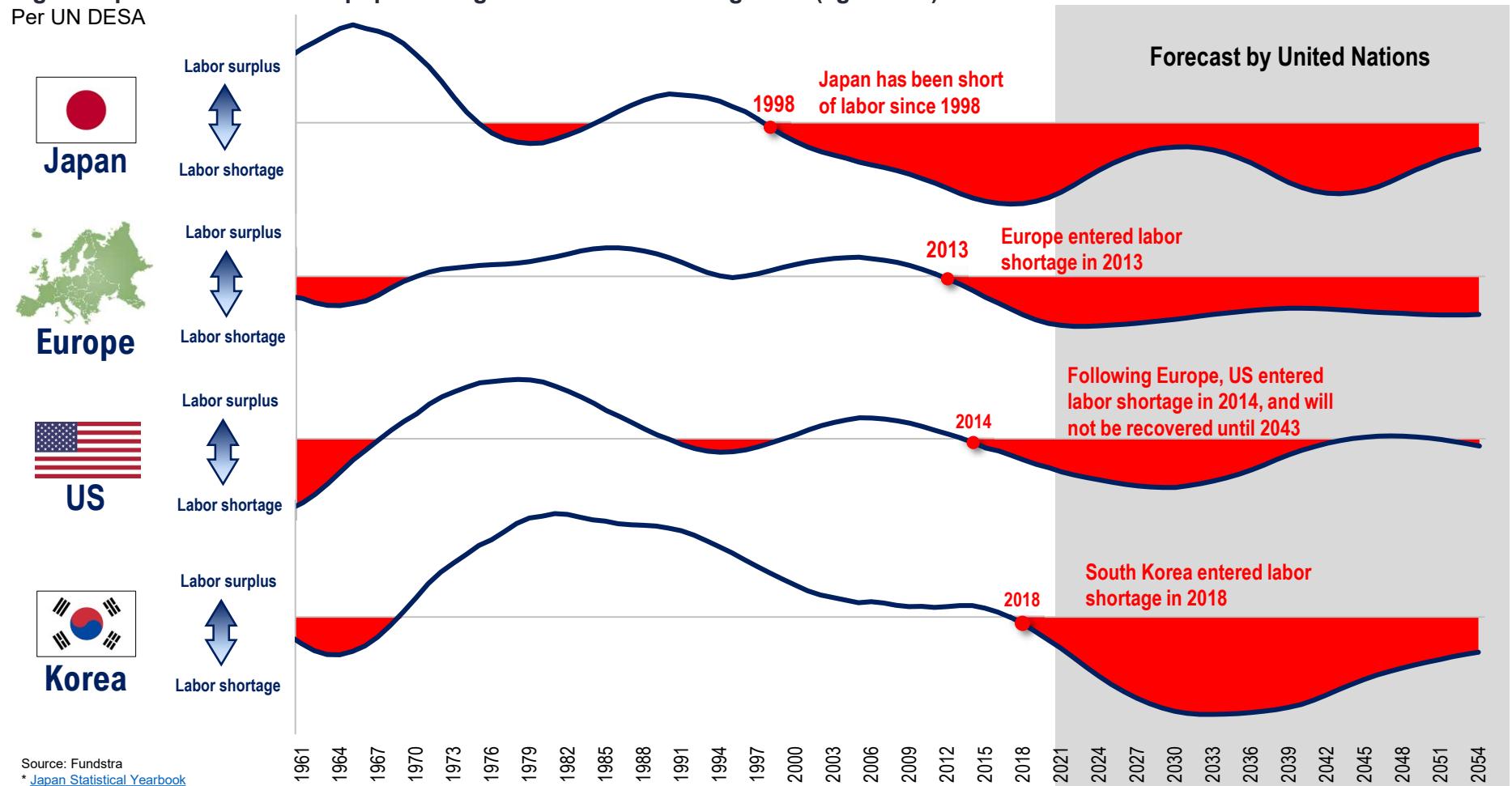
## LABOR SHORTAGE: From Japan to Europe and US to Korea

With ~1/3\* of its population aged 65 or above, Japan has been in labor shortage since late '90s. Europe and US, the major developed regions, have been short of labor since 2013 and 2014, respectively. Korea, one of the Asian Tigers that used to provide abundant labor force, also entered labor shortage in 2018.

- In the chronology below is the progress of labor supply. With both aging population and low birth rates, the labor condition in Japan, Europe and Korea will persist through the forecasted period. US is relatively better, but still will maintain labor shortage until 2043.

Figure: Spread between total population growth and workforce growth (age 16-64)

Per UN DESA



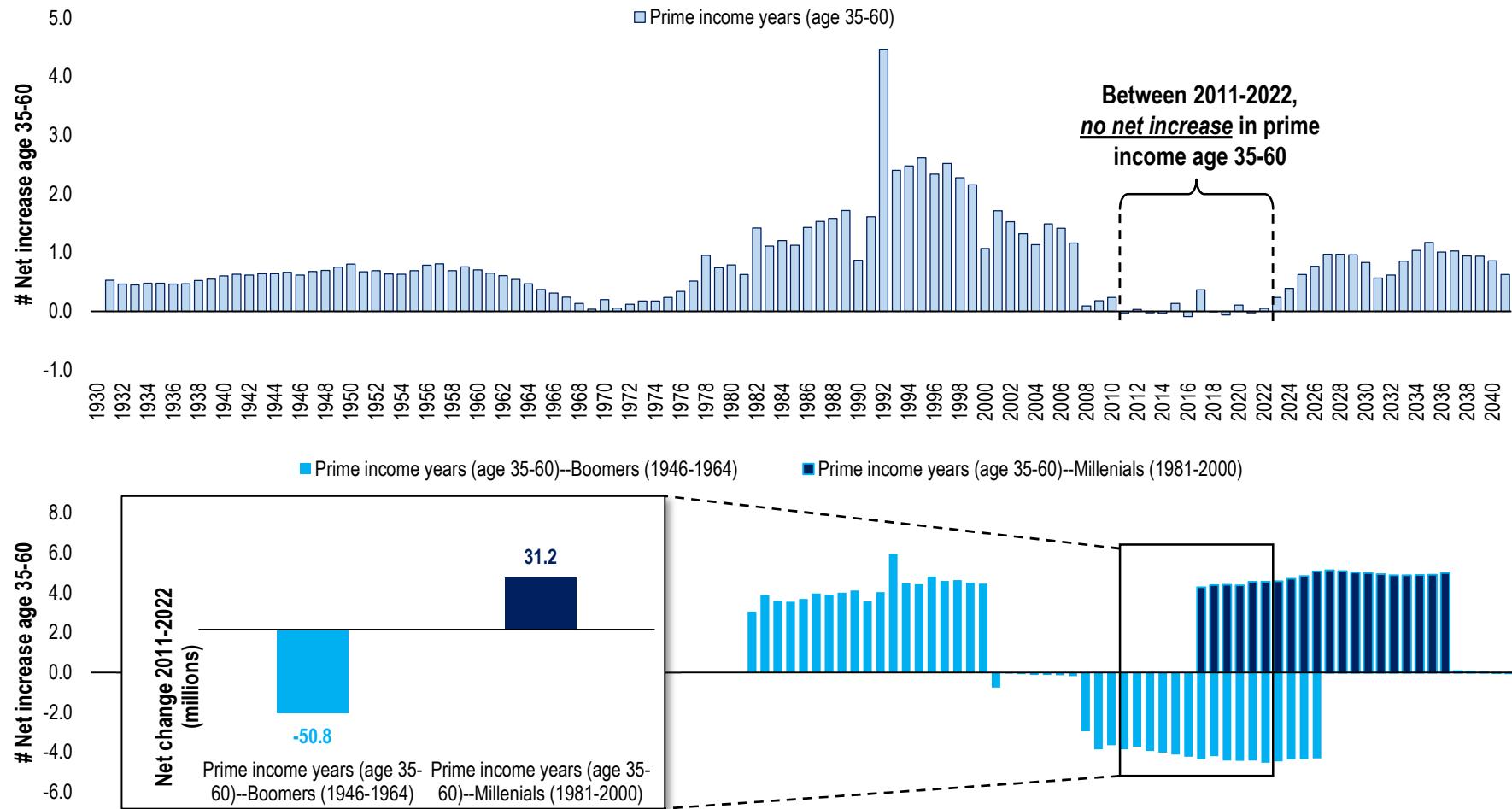
## No growth in workforce: 2011-2022: Millennials *replacing* boomers

The potential workforce is actually not growing between 2011-2022 as there is a large offset between Boomers retiring and the replacement of those by millennials.

- But as the bottom chart shows, this net effect is fading after 2022, when the workforce begins to grow again.

Figure: Number of adults entering prime earning age (35-60)

Number in millions



Source: Fundstrat, Bloomberg, Factset

## Estimate \$425b annual spend to automate 8.3mm labor shortfall...

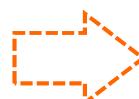
By comparing the projected growth rate of the US population versus that of working age, we can estimate the implied “shortfall” of the pool of age 16-64, and hence, the potential labor shortage.

- Over the next decade, the US Census bureau projects the US population to expand by 7.5% to 355mm but that the age 16-64 population will rise by only 1.2%. As shown below, if age 16-64 grew by 7.5% (vs 1.2%), that is a difference of 13 million—using a 63% participation rate, this implies an 8.3mm shortfall of workers.
- Businesses likely invest in “capital” (automation) to offset this labor shortfall—assuming a labor parity cost of \$50,000 per work replaced, this implies ~\$415 billion expansion of technology spend (above trend) to replace workers.

Figure: Comparative forecasts of Total US population and age 16-64

Census bureau

|   | 2020        | 2030E       | Cumulative |      |       |
|---|-------------|-------------|------------|------|-------|
|   |             |             | Δ          | Δ%   | CAGR  |
| US Population: Total                        | 330,537,225 | 355,315,582 | 24,778,357 | 7.5% | 0.73% |
| US Population: age 16-64                    | 208,572,479 | 210,989,197 | 2,416,718  | 1.2% | 0.12% |
| <b>Shortfall analysis:</b>                  |             |             |            |      |       |
| Implied Pop (16-64) to match overall growth |             | 224,207,884 | 15,635,405 | 7.5% | 0.73% |
| Implied shortfall of Pop age 16-64          |             | 13,218,687  |            |      |       |
| Participation rate (forecast)               |             | 63%         |            |      |       |
| Implied Labor shortfall                     |             | 8,327,773   |            |      |       |



8.3mm workers needed  
x \$50,000 labor parity/ year  
= \$415B “automation” capex/ year

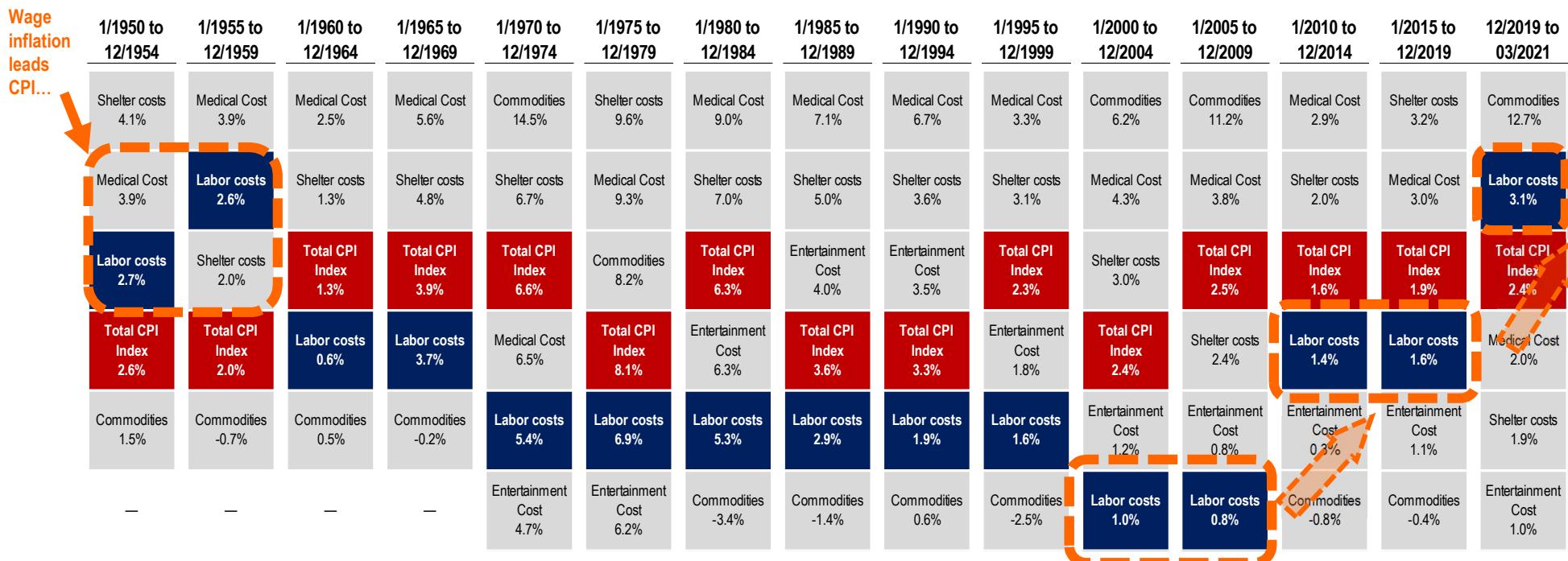
Source: Fundstrat, US Census Bureau

# Labor is driving (what little) inflation similar to 1950s...

We have highlighted the inflation rate of various economic components, relative to CPI and labor inflation is highlighted in the blue box.

- As shown below, since 2000, labor costs have generally been benign relative to CPI and it is only recently that labor costs are inching relatively higher—this was last seen in the 1950s and at that time, labor markets constrained (worker shortages).

Figure: CPI since 1950



Source: Fundstrat, Bloomberg, BLS

## AUTOMATION/ AI: Identifying suppliers and beneficiaries

We have established criteria to identify both suppliers of AI/automation and companies lever

- The screening criteria is shown below and does rely heavily on qualitative factors.

**Figure: Automation/ AI stock list criteria**

Per Fundstrat

| Factor type   | Criteria                  | Rationale  |
|---------------|---------------------------|--|
| Suppliers     | AI                        | High exposure to AI and AI-related products<br>Provides components needed to implement AI  |
|               | Automation                | Producer of autonomous or robotic equipment<br>Supplier of components for autonomous or robotics   |
| Beneficiaries | Qualitative               | Current business will leverage AI/ Automation<br>Labor skills required are more likely to be automated<br>Labor demographics more easily substituted by AI/ automation |
|               | Leverage labor efficiency | Market cap per employee lower than 3-yrs ago<br>Employee hiring outpaced Sales + EPS growth  |
| Quantitative  | Operating leverage        | EBIT margins declining compared to 3-years ago   |
|               | DQM Quantitative Model    | Ranked Quintile 1  |

Source: Fundstrat, Bloomberg, FactSet

\* Cash to Net Income ratio is calculated by using the sum of Cash, Cash Equivalents, LT Investment (unrestricted) divided by Net Income

# AUTOMATION PART I: The suppliers

We identified 48 stock ideas from our quant model that are related to the adoption of AI and/or automation technology

- The 31 stocks listed below are the producers or the suppliers of AI and/or automation products which have high exposure to the adoption of AI and/or automation technology.**

**Figure: AI/ Automation Stock list**

Per Fundstrat

|                                | Company information         |                              |                  |                 |                                |                                       | Fundamentals & Valuation           |                |                           |                                   |                                 |              |            |  |
|--------------------------------|-----------------------------|------------------------------|------------------|-----------------|--------------------------------|---------------------------------------|------------------------------------|----------------|---------------------------|-----------------------------------|---------------------------------|--------------|------------|--|
|                                | Ticker                      | Company name                 | Current Price    | Mkt cap (\$ mm) | YTD perf (relative to S&P 500) | Analyst Ratings                       |                                    |                |                           | 2021E sales growth <sup>(3)</sup> | 2021E EPS growth <sup>(3)</sup> | P/E ('21E)   | ROE        |  |
|                                |                             |                              |                  |                 |                                | FC Mean (5=Buy 1=Sell) <sup>(1)</sup> | Mean implied upside <sup>(2)</sup> | Dividend Yield | Short interest % of float |                                   |                                 |              |            |  |
| Auto Parts & Equipment         | 1 APTV                      | AptivPlc                     | \$151.22         | \$40,898        | 3.9%                           | 4.14                                  | 10%                                | 0.3%           | 1.1%                      | 20%                               | 96%                             | 39.9x        | 7%         |  |
|                                | 2 GNTX                      | Gentex Corp                  | \$35.62          | \$8,604         | -7.2%                          | 3.55                                  | 9%                                 | 1.4%           | 1.5%                      | 18%                               | 42%                             | 17.8x        | 20%        |  |
|                                | 3 SRI                       | Stoneridge Inc               | \$30.25          | \$822           | -12.1%                         | 4.33                                  | 37%                                | —              | 2.0%                      | 20%                               | 1811%                           | 58.9x        | -4%        |  |
| Automobile Manufacturers       | 4 TSLA                      | Tesla Inc                    | \$629.77         | \$606,677       | -22.9%                         | 3.26                                  | -2%                                | —              | 5.2%                      | 57%                               | 95%                             | nm           | 7%         |  |
| Consumer Electronics           | 5 GRMN                      | Garmin Ltd                   | \$142.34         | \$27,350        | 6.8%                           | 3.60                                  | -1%                                | 1.9%           | 1.3%                      | 12%                               | 6%                              | 26.1x        | 20%        |  |
| Aerospace & Defense            | 6 CW                        | Curtiss-Wright Corp          | \$125.19         | \$5,125         | -4.5%                          | 4.60                                  | 21%                                | 0.6%           | 1.6%                      | 4%                                | 6%                              | 17.1x        | 12%        |  |
|                                | 7 MOG/A                     | Moog Inc-Class A             | \$89.61          | \$2,874         | 0.9%                           | 4.50                                  | 13%                                | —              | 1.7%                      | -1%                               | 1728%                           | 17.5x        | -0%        |  |
|                                | 8 TDY                       | Teledyne Technologies Inc    | \$417.99         | \$19,453        | -5.5%                          | 5.00                                  | 19%                                | —              | 6.5%                      | 6%                                | 6%                              | 37.0x        | 13%        |  |
| Agricultural & Farm Machinery  | 9 DE                        | Deere & Co                   | \$361.02         | \$112,617       | 22.0%                          | 4.04                                  | 12%                                | 1.0%           | 1.0%                      | 28%                               | 105%                            | 20.3x        | 34%        |  |
| Electrical Components & Equipm | 10 AME                      | Ametek Inc                   | \$135.41         | \$31,269        | -0.2%                          | 4.50                                  | 10%                                | 0.6%           | 0.6%                      | 16%                               | 15%                             | 29.7x        | 14%        |  |
|                                | 11 EMR                      | Emerson Electric Co          | \$95.94          | \$57,535        | 7.2%                           | 4.04                                  | 8%                                 | 2.2%           | 1.2%                      | 8%                                | 13%                             | 24.5x        | 26%        |  |
|                                | 12 RBC                      | Regal Beloit Corp            | \$141.73         | \$5,758         | 3.3%                           | 4.71                                  | 24%                                | 0.9%           | 1.7%                      | 10%                               | 35%                             | 18.2x        | 9%         |  |
|                                | 13 ROK                      | Rockwell Automation Inc      | \$263.99         | \$30,643        | -6.9%                          | 3.24                                  | 5%                                 | 1.7%           | 1.8%                      | 11%                               | 20%                             | 28.5x        | 130%       |  |
| Industrial Conglomerates       | 14 ROP                      | Roper Technologies Inc       | \$451.14         | \$47,477        | -7.5%                          | 3.86                                  | 3%                                 | 0.5%           | 1.2%                      | 15%                               | 18%                             | 30.0x        | 10%        |  |
| Industrial Machinery           | 15 LECO                     | Lincoln Electric Holdings    | \$128.69         | \$7,662         | -1.4%                          | 3.46                                  | 6%                                 | 1.6%           | 1.3%                      | 16%                               | 35%                             | 22.9x        | 31%        |  |
|                                | 16 PH                       | Parker Hannifin Corp         | \$309.37         | \$39,926        | 1.4%                           | 4.24                                  | 15%                                | 1.3%           | 1.3%                      | 4%                                | 38%                             | 20.7x        | 22%        |  |
| Application Software           | 17 ADSK                     | Autodesk Inc                 | \$287.46         | \$63,259        | -18.0%                         | 4.00                                  | 11%                                | —              | 0.9%                      | 15%                               | 21%                             | 58.7x        | —          |  |
|                                | 18 SNPS                     | Synopsys Inc                 | \$254.69         | \$38,859        | -13.9%                         | 4.71                                  | 20%                                | —              | 1.0%                      | 10%                               | 16%                             | 39.6x        | 17%        |  |
| Communications Equipment       | 19 CSCO                     | Cisco Systems Inc            | \$52.97          | \$223,226       | 6.2%                           | 4.03                                  | 5%                                 | 2.8%           | 1.0%                      | 1%                                | -0%                             | 16.5x        | 27%        |  |
| Electronic Equipment & Instrum | 20 FLIR                     | Flir Systems Inc             | \$57.34          | \$7,565         | 18.7%                          | 3.00                                  | -2%                                | —              | 2.6%                      | 1%                                | -4%                             | 24.2x        | 13%        |  |
|                                | 21 ZBRA                     | Zebra Technologies Corp-Cl A | \$501.47         | \$26,834        | 18.3%                          | 4.00                                  | 3%                                 | —              | 0.8%                      | 20%                               | 33%                             | 29.4x        | 31%        |  |
| Semiconductor Equipment        | 22 MKSI                     | Mks Instruments Inc          | \$188.30         | \$10,424        | 13.0%                          | 4.60                                  | 24%                                | 0.5%           | 1.0%                      | 24%                               | 47%                             | 17.2x        | 18%        |  |
| Semiconductors                 | 23 AVGO                     | Broadcom Inc                 | \$471.87         | \$192,666       | -4.4%                          | 4.53                                  | 9%                                 | 3.1%           | 1.0%                      | 12%                               | 21%                             | 17.5x        | 18%        |  |
|                                | 24 MXIM                     | Maxim Integrated Products    | \$102.19         | \$27,424        | 3.1%                           | 3.13                                  | -6%                                | —              | 4.7%                      | 18%                               | 39%                             | 32.5x        | 41%        |  |
|                                | 25 NVDA                     | Nvidia Corp                  | \$647.08         | \$403,131       | 11.8%                          | 4.62                                  | 8%                                 | 0.1%           | 1.1%                      | 46%                               | 57%                             | 41.2x        | 33%        |  |
|                                | 26 QCOM                     | Qualcomm Inc                 | \$134.71         | \$151,953       | -23.7%                         | 4.33                                  | 26%                                | 2.1%           | 1.9%                      | 48%                               | 86%                             | 17.3x        | 153%       |  |
|                                | 27 XLNX                     | Xilinx Inc                   | \$127.60         | \$31,369        | -22.1%                         | 3.27                                  | 8%                                 | 1.2%           | 4.2%                      | 13%                               | 29%                             | 37.7x        | 25%        |  |
| Technology Hardware, Storage & | 28 AAPL                     | Apple Inc                    | \$124.80         | \$2,082,533     | -18.1%                         | 4.42                                  | 25%                                | 0.7%           | 0.6%                      | 29%                               | 56%                             | 24.4x        | 103%       |  |
|                                | 29 IMMR                     | Immersion Corporation        | \$8.67           | \$268           | -35.3%                         | 5.00                                  | 56%                                | —              | 4.7%                      | 24%                               | 85%                             | 13.0x        | 14%        |  |
| Health Care Equipment          | 30 ISRG                     | Intuitive Surgical Inc       | \$845.56         | \$100,125       | -8.8%                          | 3.91                                  | 2%                                 | —              | 1.0%                      | 22%                               | 32%                             | 63.3x        | 13%        |  |
| Interactive Media & Services   | 31 GOOG                     | Alphabet Inc-Cl C            | \$2,414.99       | \$1,602,511     | -11.0%                         | 5.00                                  | 12%                                | —              | 0.9%                      | —                                 | —                               | #N/A         | 24%        |  |
|                                | <b>Average</b>              |                              | <b>\$188,222</b> | <b>-2.5%</b>    |                                | <b>4.07</b>                           | <b>12%</b>                         | <b>1.3%</b>    | <b>2.0%</b>               | <b>18%</b>                        | <b>150%</b>                     | <b>29.0x</b> | <b>29%</b> |  |
|                                | <b>Median</b>               |                              | <b>\$31,319</b>  | <b>-2.9%</b>    |                                | <b>4.09</b>                           | <b>9%</b>                          | <b>1.2%</b>    | <b>1.3%</b>               | <b>16%</b>                        | <b>35%</b>                      | <b>25.3x</b> | <b>18%</b> |  |
|                                | <b>% of stocks positive</b> |                              |                  | <b>44%</b>      |                                |                                       | <b>87%</b>                         |                |                           | <b>97%</b>                        | <b>94%</b>                      |              | <b>93%</b> |  |

Source: Fundstrat, Factset, Bloomberg

## AUTOMATION PART II: The beneficiaries

We identified 48 stock ideas from our quant model that are related to the adoption of AI and/or automation technology

- The 17 stocks listed below could benefit from AI and/or automation technology. All of them have increasing market cap and positive earnings growth, however, have deteriorating net income per employee and weakening EBIT margin over the past 3 years.**

**Figure: AI/ Automation Stock list**

Per Fundstrat

|                                |    | Company information |                            |                      | Analyst Ratings |                                |                                       |                                    |                |                            | Fundamentals & Valuation          |                                 |            |       |      |
|--------------------------------|----|---------------------|----------------------------|----------------------|-----------------|--------------------------------|---------------------------------------|------------------------------------|----------------|----------------------------|-----------------------------------|---------------------------------|------------|-------|------|
|                                |    | Ticker              | Company name               | Current Price        | Mkt cap (\$ mm) | YTD perf (relative to S&P 500) | FC Mean (5=Buy 1=Sell) <sup>(1)</sup> | Mean implied upside <sup>(2)</sup> | Dividend Yield | Short interest % off float | 2021E sales growth <sup>(3)</sup> | 2021E EPS growth <sup>(3)</sup> | P/E ('21E) | ROE   |      |
| Apparel, Accessories & Luxury  | 1  | CPRI                | Capri Holdings Ltd         | \$56.97              | \$8,621         | 23.5%                          | 4.00                                  | 11%                                | --             | 3.0%                       | 26%                               | 104%                            | \$56.97    | 14.7x | -3%  |
| Automotive Retail              | 2  | AAP                 | Advance Auto Parts Inc     | \$190.02             | \$12,433        | 8.5%                           | 4.12                                  | 13%                                | 1.3%           | 5.0%                       | 3%                                | 21%                             | \$190.02   | 18.4x | 14%  |
| Department Stores              | 3  | KSS                 | Kohls Corp                 | \$55.79              | \$8,792         | 25.0%                          | 3.75                                  | 13%                                | 1.9%           | 6.3%                       | 20%                               | 444%                            | \$55.79    | 13.4x | 8%   |
| Distributors                   | 4  | GPC                 | Genuine Parts Co           | \$131.47             | \$18,994        | 18.8%                          | 3.00                                  | -6%                                | 2.5%           | 1.2%                       | 7%                                | 15%                             | \$131.47   | 21.7x | 2%   |
| General Merchandise Stores     | 5  | DG                  | Dollar General Corp        | \$203.69             | \$48,113        | -15.3%                         | 4.48                                  | 15%                                | 0.9%           | 1.4%                       | 1%                                | -6%                             | \$203.69   | 20.3x | 40%  |
|                                | 6  | TGT                 | Target Corp                | \$227.90             | \$112,748       | 17.0%                          | 4.50                                  | 7%                                 | 1.4%           | 1.1%                       | 7%                                | 28%                             | \$227.90   | 18.8x | 47%  |
| Home Furnishings               | 7  | BSET                | Bassett Furniture Inds     | \$30.67              | \$304           | 40.6%                          | 5.00                                  | 8%                                 | 1.7%           | 2.1%                       | 21%                               | 268%                            | \$30.67    | 17.4x | -5%  |
|                                | 8  | ETH                 | Ethan Allen Interiors Inc  | \$29.14              | \$734           | 35.5%                          | 3.67                                  | 27%                                | --             | 4.5%                       | 16%                               | 331%                            | \$29.14    | 13.0x | 9%   |
| Home Improvement Retail        | 9  | LOW                 | Lowe's Cos Inc             | \$195.57             | \$138,247       | 9.7%                           | 4.59                                  | 15%                                | 1.3%           | 1.0%                       | 1%                                | 23%                             | \$195.57   | 18.0x | 628% |
| Internet & Direct Marketing Re | 10 | AMZN                | Amazon.Com Inc             | \$3,227.95           | \$1,627,932     | -13.0%                         | 4.96                                  | 32%                                | --             | 1.1%                       | 27%                               | 32%                             | \$3,227.95 | 58.5x | 32%  |
| Restaurants                    | 11 | DENN                | Denny's Corp               | \$17.62              | \$1,130         | 7.9%                           | 4.11                                  | 16%                                | --             | 3.5%                       | 35%                               | 451%                            | \$17.62    | 41.9x | —    |
| Specialty Stores               | 12 | TSCO                | Tractor Supply Company     | \$182.02             | \$20,979        | 17.3%                          | 3.78                                  | 6%                                 | 1.1%           | 5.7%                       | 9%                                | 7%                              | \$182.02   | 24.8x | 53%  |
| Electrical Components & Equipm | 13 | POWL                | Powell Industries Inc      | \$34.22              | \$400           | 3.9%                           | 3.00                                  | -4%                                | --             | 3.1%                       | -11%                              | -97%                            | \$34.22    | nm    | 2%   |
| Industrial Conglomerates       | 14 | CSL                 | Carlisle Cos Inc           | \$192.52             | \$10,048        | 11.1%                          | 4.50                                  | 12%                                | 1.2%           | 3.2%                       | 9%                                | 54%                             | \$192.52   | 21.3x | 13%  |
| Industrial Machinery           | 15 | DOV                 | Dover Corp                 | \$150.76             | \$21,698        | 7.3%                           | 3.94                                  | 6%                                 | 1.4%           | 0.8%                       | 12%                               | 23%                             | \$150.76   | 21.6x | 23%  |
| Research & Consulting Services | 16 | HURN                | Huron Consulting Group Inc | \$54.87              | \$1,239         | -19.1%                         | 5.00                                  | 28%                                | --             | 2.0%                       | 4%                                | 17%                             | \$54.87    | 21.7x | 4%   |
| Hypermarkets & Super Centers   | 17 | COST                | Costco Wholesale Corp      | \$379.87             | \$167,956       | -11.3%                         | 4.28                                  | 6%                                 | 0.8%           | 1.0%                       | 14%                               | 14%                             | \$379.87   | 36.2x | 28%  |
|                                |    |                     |                            | Average              |                 | \$129,433                      | 9.8%                                  | 4.16                               | 12%            | 1.4%                       | 2.7%                              | 12%                             | 102%       | 23.9x | 56%  |
|                                |    |                     |                            | Median               |                 | \$12,433                       | 9.7%                                  | 4.12                               | 12%            | 1.3%                       | 2.1%                              | 9%                              | 23%        | 20.8x | 13%  |
|                                |    |                     |                            | % of stocks positive |                 | 76%                            |                                       | 88%                                |                |                            |                                   | 94%                             | 88%        |       | 88%  |

Source: Fundstrat, Factset, Bloomberg,

# AUTOMATION: Descriptions of AI/ Automation suppliers

Below is the descriptions of the AI/ automation suppliers and component suppliers

**Figure: AI/ Automation Stock list**

Per Fundstrat

| Ticker | Company Name              | Company Description  |
|--------|---------------------------|--|
| APTV   | Aptiv Plc                 | Aptiv PLC manufactures and distributes vehicle components such as connector wires, safety restraint systems, pin headers, and underwater towed arrays.                                 |
| GNTX   | Gentex Corp               | Gentex Corporation designs, manufactures, and markets products that use electro-optic technology. The Company's product lines include automatic-dimming rearview mirrors.              |
| SRI    | Stoneridge Inc            | Stoneridge, Inc. designs and manufactures engineered electrical and electronic components, modules, and systems.   |
| TSLA   | Tesla Inc                 | Tesla Inc. designs, manufactures, and sells high-performance electric vehicles and electric vehicle powertrain components.   |
| GRMN   | Garmin Ltd                | Garmin Ltd. designs, develops, manufactures, and markets hand-held, portable, and fixed mount GPS-enabled products and other navigation, communications, and information               |
| CW     | Curtiss-Wright Corp       | Curtiss-Wright Corporation designs, manufactures, and overhauls precision components and systems.  |
| MOG/A  | Moog Inc-Class A          | Moog Inc. manufactures precision motion control components and systems.  |
| TDY    | Teledyne Tech. Inc        | Teledyne Technologies Inc. provides electronic subsystems and instrumentation such as digital imaging products and software, monitoring instrumentation.                               |
| DE     | Deere & Co                | Deere & Company manufactures and distributes a range of agricultural, construction, forestry, and commercial and consumer equipment.   |
| AME    | Ametek Inc                | AMETEK, Inc. is a global manufacturer of electronic instruments and electromechanical devices and a supplier of electrical interconnects, specialty metals, technical motors and       |
| EMR    | Emerson Electric Co       | Emerson Electric Co. designs and manufactures electronic and electrical equipment, software, systems, and services.  |
| RBC    | Regal Beloit Corp         | Regal Beloit Corporation designs, manufactures, and sells electric motors and controls such as gearboxes, automotive transmissions, rotary cutting tools, automatic transfer switches. |
| ROK    | Rockwell Automation Inc   | Rockwell Automation, Inc. produces industrial automation products such as control systems, motor control devices, sensors, and industrial control panels.                              |
| ROP    | Roper Technologies Inc    | Roper Technologies, Inc. manufactures and distributes industrial controls, fluid handling, pumps, medical and scientific devices, analytical instrumentation products, RFID            |
| LECO   | Lincoln Electric Holdings | Lincoln Electric Holdings, Inc. designs and manufactures welding and cutting products such as arc welding power sources, wire feeding systems, robotic welding packages.               |
| PH     | Parker Hannifin Corp      | Parker-Hannifin Corporation manufactures motion control products, including fluid power systems, electromechanical controls, and related components.                                   |
| ADSK   | Autodesk Inc              | Autodesk, Inc. supplies PC software and multimedia tools that are used across industries for architectural/mechanical design and visualization applications.                           |
| SNPS   | Synopsys Inc              | Synopsys, Inc. supplies electronic design automation solutions to the global electronics market.   |
| CSCO   | Cisco Systems Inc         | Cisco Systems designs, manufactures, and sells IP-based networking and other products related to the communications and IT industry and provide services associated with it.           |
| FLIR   | Flir Systems Inc          | FLIR Systems, Inc. designs, manufactures, and markets thermal imaging and broadcast camera systems for a variety of applications.  |
| ZBRA   | Zebra Tech. Corp          | Zebra Technologies Corporation designs and manufactures advanced data capture devices, such as laser, 2D and RFID scanners and readers, and specialty printers.                        |
| MKSI   | Mks Instruments Inc       | MKS Instruments, Inc. develops, manufactures, and supplies instruments and components used to control and analyze gases in semiconductor.  |
| AVGO   | Broadcom Inc              | Broadcom Inc. designs, develops, and markets digital and analog semiconductors.  |
| NVDA   | Nvidia Corp               | NVIDIA Corporation designs, develops, and markets three dimensional (3D) graphics processors and related software.   |
| QCOM   | Qualcomm Inc              | QUALCOMM Incorporated manufactures digital wireless communications equipment.  |
| XLNX   | Xilinx Inc                | Xilinx, Inc. designs, develops, and markets complete programmable logic solutions.   |
| IMMR   | Immersion Corp.           | Immersion Corporation offers touch feedback technology solutions in mobile devices, automotive touchscreen and touchpads, medical training equipment, gaming consoles.                 |
| ISRG   | Intuitive Surgical Inc    | Intuitive Surgical, Inc. design, manufactures, and markets surgical systems.   |
| VAR    | Varian Med. Sys. Inc      | Varian Medical Systems, Inc. designs, manufactures, sells, and services medical equipment.   |
| GOOG   | Alphabet Inc-C1 C         | Alphabet Inc. through its subsidiaries, provides web-based search, advertisements, maps, software applications, mobile operating systems, consumer content, enterprise solutions.      |

Source: Fundstrat, Bloomberg

# Disclosures

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## **Analyst Industry/Sector Views**

Positive (+): The analyst expects the performance of his industry/sector coverage universe over the next 6-18 months to be attractive vs. the relevant broad market benchmark, being the S&P 500 for North America.

Neutral (N): The analyst expects the performance of his or her industry/sector coverage universe over the next 6-18 months to be in line with the relevant broad market benchmark, being the S&P 500 for North America.

Negative (-): The analyst expects his or her industry coverage universe over the next 6-18 months to underperform vs. the relevant broad market benchmark, being the S&P 500 for North America.

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