



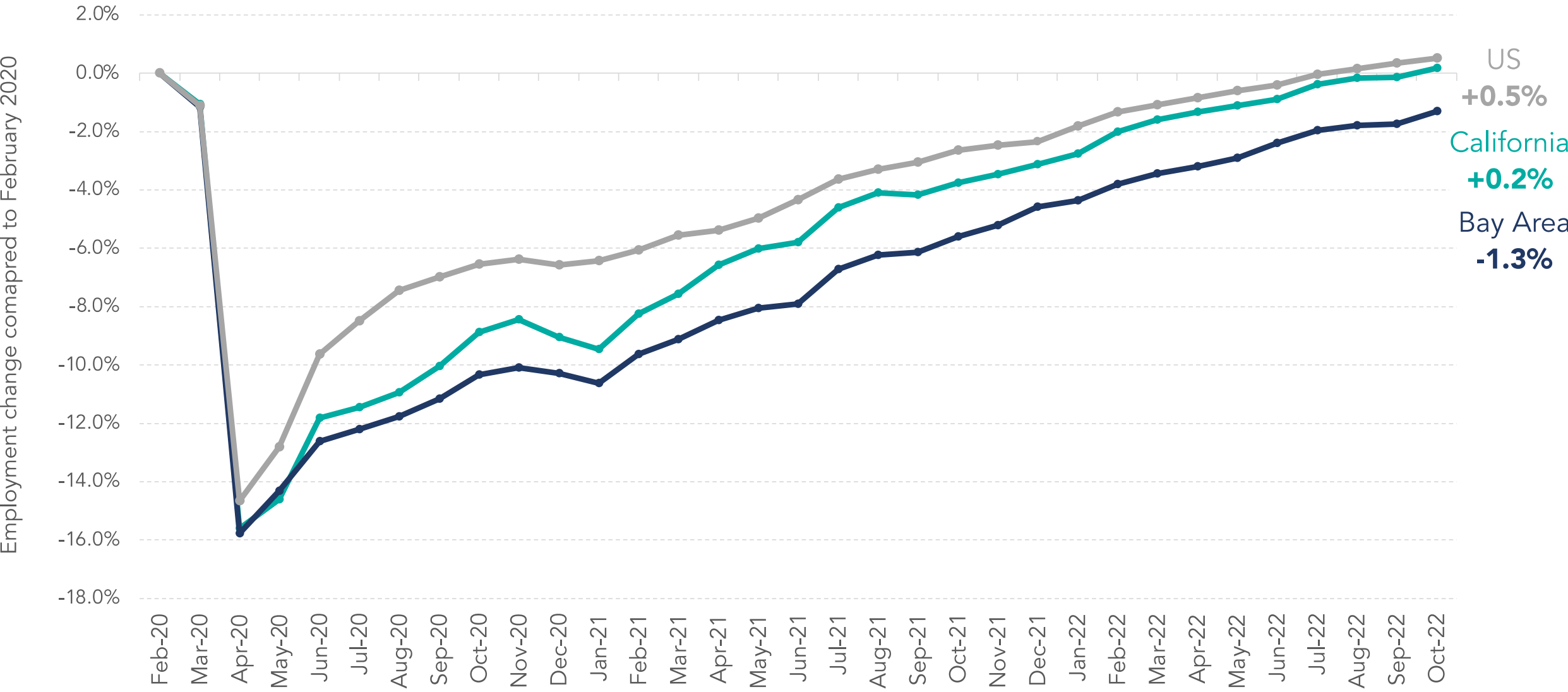
Bay Area Economy; Trends and Outlook 2022-2023

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Bay Area Council Economic Institute

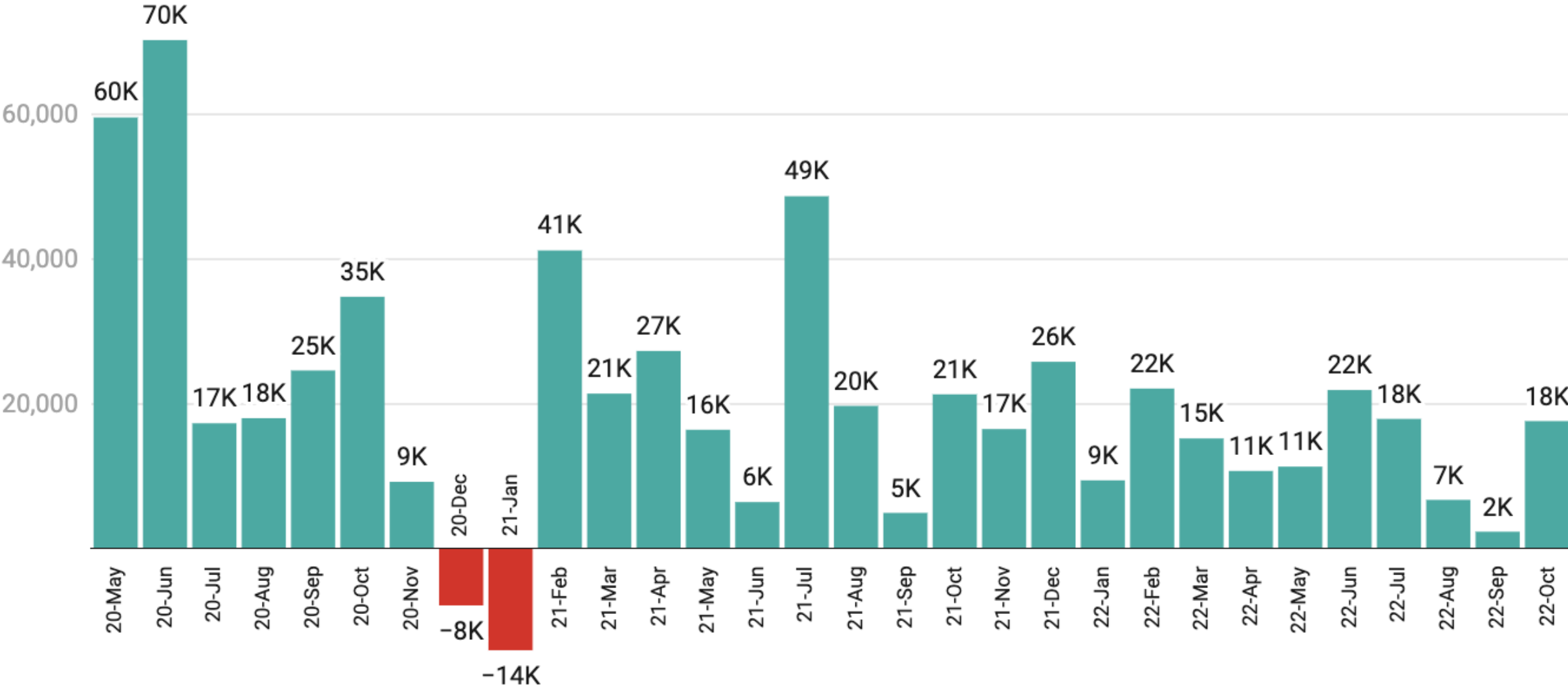


The Bay Area remains 54,000 jobs from its pre-pandemic peak, while the U.S. and California overall are fully recovered from pandemic-related job loss



Bay Area payroll employment numbers ticked up in October after three straight months of slowing growth – November data comes out next week

Monthly job change in the 9-county Bay Area

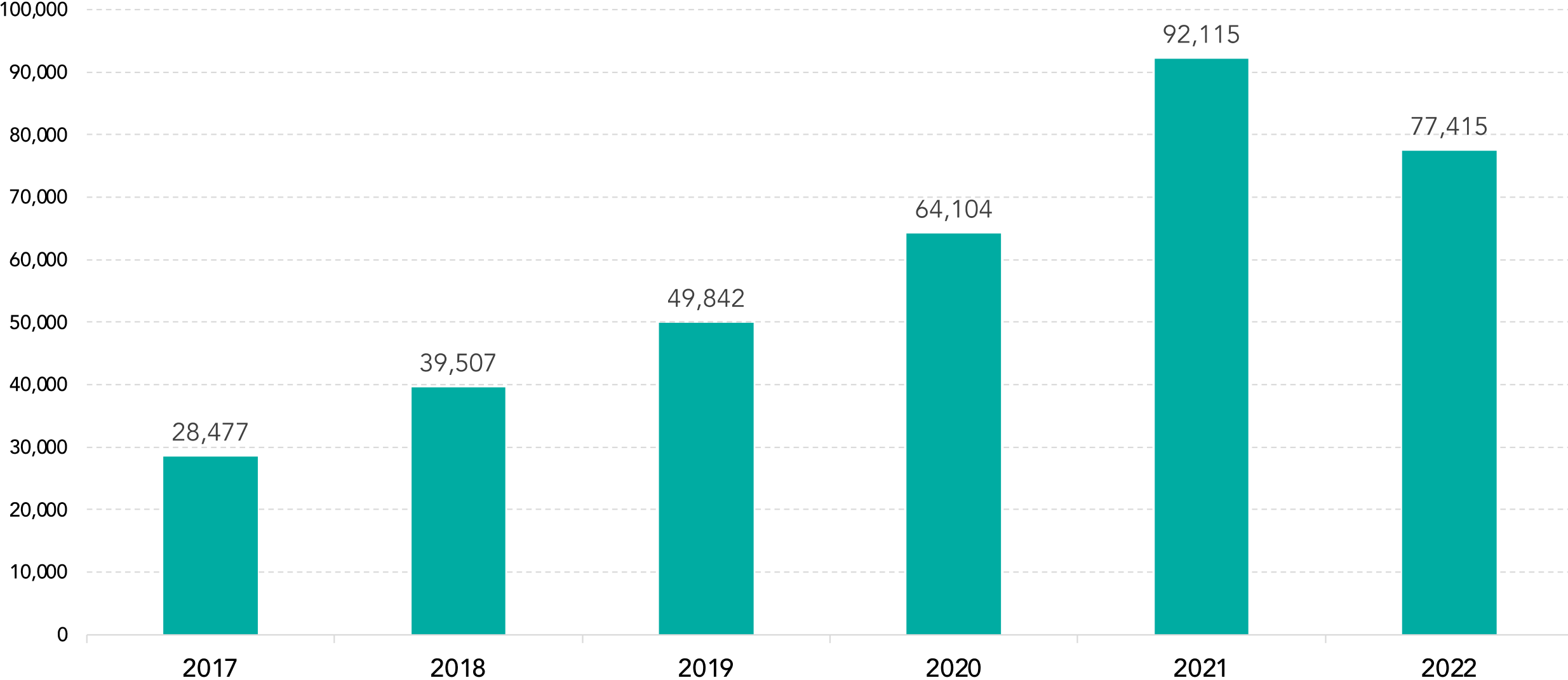


The region's tech employers are experiencing slow revenue growth and diminished profitability – in some cases for the first time in their histories

Year-over-Year Sales and Income Growth through Third Quarter

	Meta	Apple	Netflix	Alphabet	Salesforce
2022 Sales Growth	0%	8%	8%	13%	19%
2021 Sales Growth	46%	33%	20%	45%	23%
2022 Operating Income Growth	-34%	10%	-9%	0%	-7%
2021 Operating Income Growth	72%	64%	53%	122%	176%
YTD 2022 Stock Performance	-66%	-21%	-49%	-33%	-48%

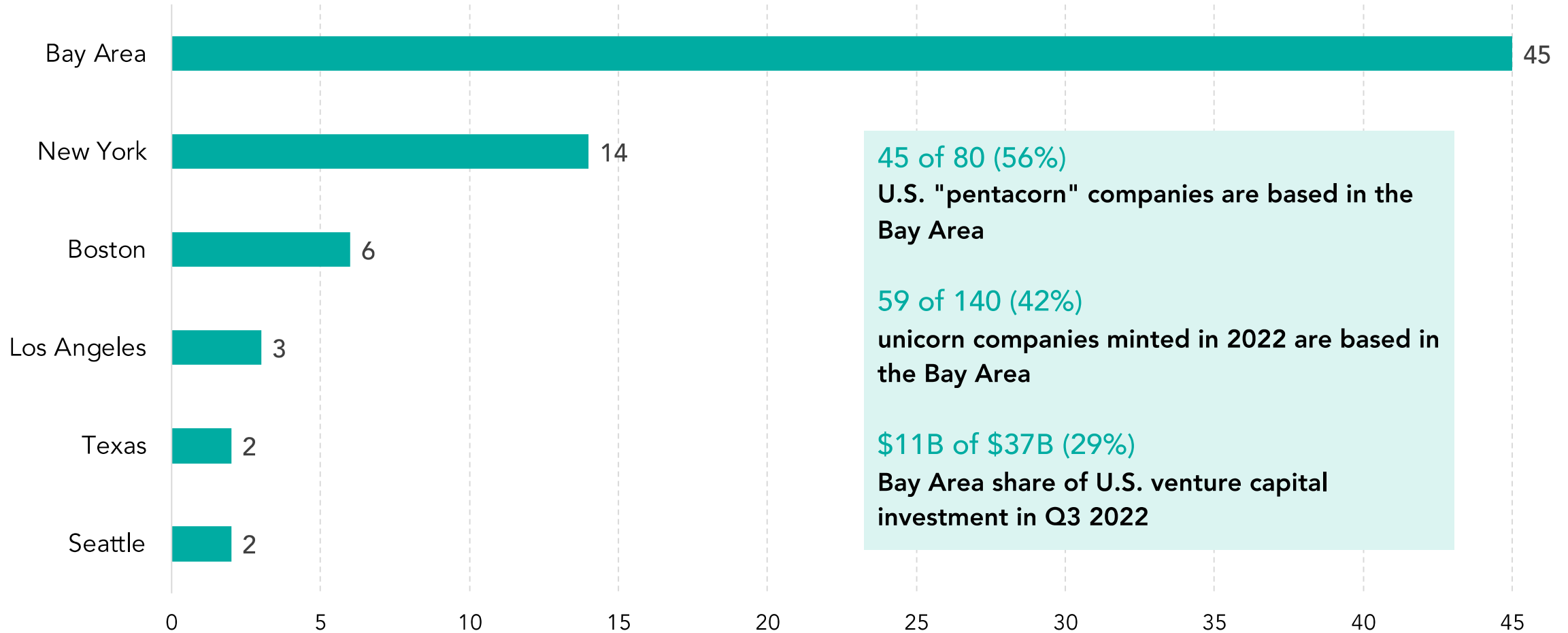
Combined global headcounts for the two major Bay Area-HQ'd companies (Meta and Twitter) that have recently announced significant layoffs



Source: Company annual financial reports
Analysis: Bay Area Council Economic Institute

Large tech companies are not the only players in the tech economy

Companies in IPO Pipeline with Valuations Over \$5 Billion (as of September 13, 2022)



Source: CB Insights

Analysis: Bay Area Council Economic Institute

Note: There is one \$5 billion company located in each of the following locations: Atlanta, Chicago, Jacksonville, Philadelphia, Pittsburgh, Raleigh, Sacramento, and San Diego.

If everyone says we're headed for a recession, will we eventually think ourselves into one?

**U.S. may skirt recession in 2023,
Europe not so lucky - Morgan Stanley**

**Jamie Dimon says inflation eroding
consumer wealth may cause recession
next year**

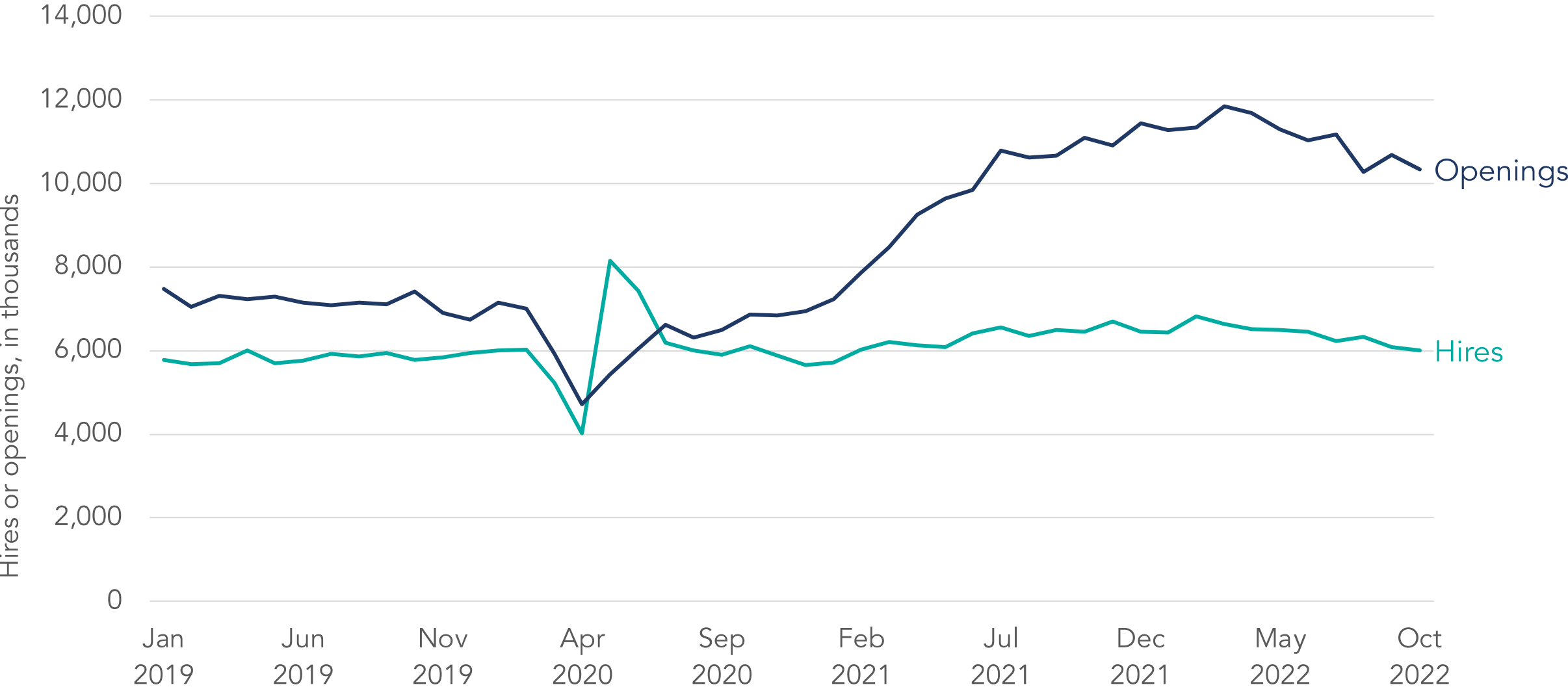
**Citi says US recession risk
has risen to 70%**

**Bank of America CEO predicts 'shallow'
recession: US consumer is 'resilient'**

Goldman CEO David Solomon Prepares for a Possible Recession

Chief executive says he expects stocks and residential real estate to be lower a year from now, and gives just a 35% chance for a 'soft landing'

Job openings remain much higher than hires in the United States

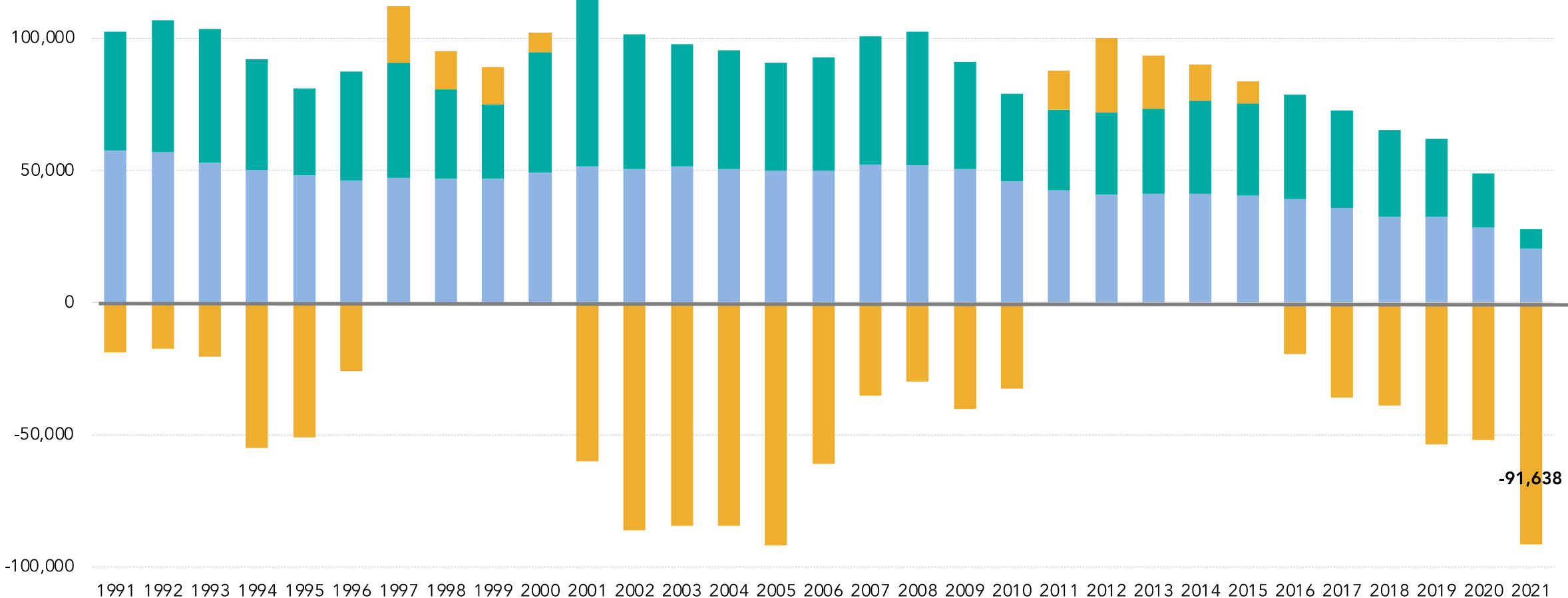


Source: Bureau of Labor Statistics (BLS) Job Openings and Labor Turnover Survey (JOLTS). Data are seasonally adjusted.
Analysis: Bay Area Council Economic Institute

The Bay Area's population has declined in 2020 and 2021 as a result of an increasingly negative trend in net domestic migration and very limited immigration from abroad

Bay Area Population Change (July Estimates)

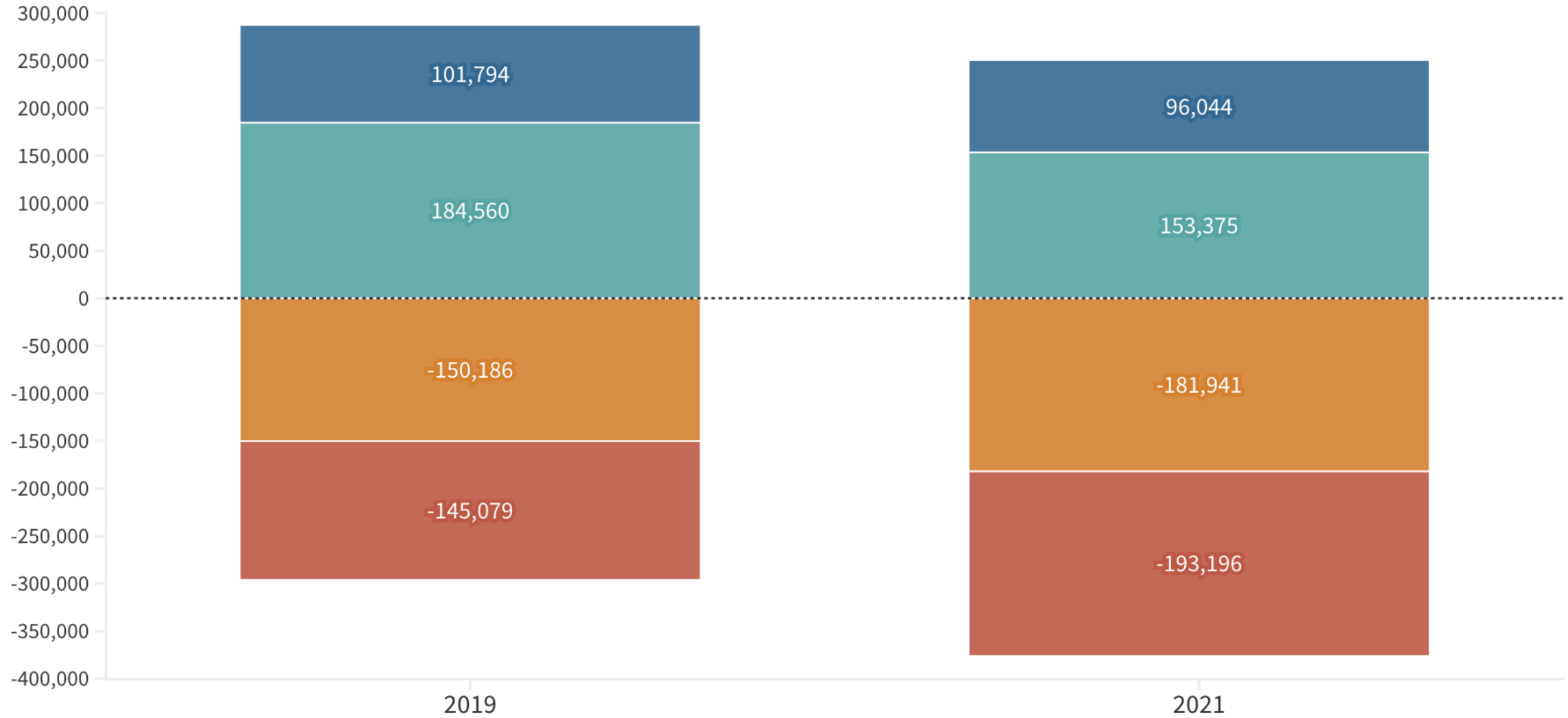
Net Births/Deaths Net International Net Domestic



Source: California Department of Finance, Demographic Research Unit
 Analysis: Bay Area Council Economic Institute

Migration in and out of the Bay Area, 2019 vs. 2021

- Moved to Bay Area from out of state
- Moved to Bay Area from somewhere else in California
- Moved from Bay Area to somewhere else in California
- Moved out of state



Moves out of the Bay Area increased by more than 25% compared to 2019 levels

Median 2-bedroom rents in SF down from pre-pandemic levels, but remain much higher than peer cities

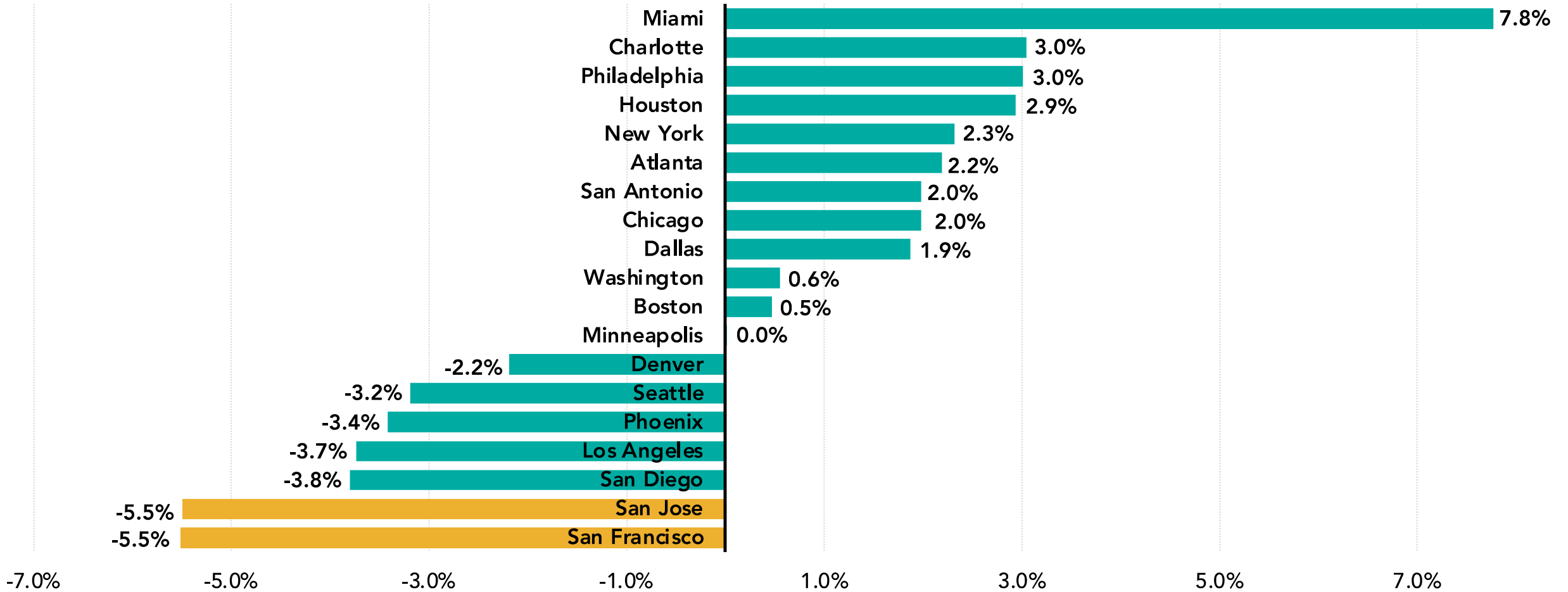
City	Pre-pandemic	Nov-22	Change
Austin, TX	\$1,444	\$1,805	25%
Dallas, TX	\$1,185	\$1,453	23%
Denver, CO	\$1,524	\$1,732	14%
New York City, NY	\$1,868	\$2,118	13%
Boston, MA	\$1,911	\$2,074	9%
Los Angeles, CA	\$2,047	\$2,193	7%
Chicago, IL	\$1,317	\$1,402	6%
San Jose, CA	\$2,401	\$2,479	3%
Seattle, WA	\$1,918	\$1,922	0%
San Francisco, CA	\$2,929	\$2,609	-11%

Source: Apartment List. **Note:** Pre-pandemic indicates February 2020

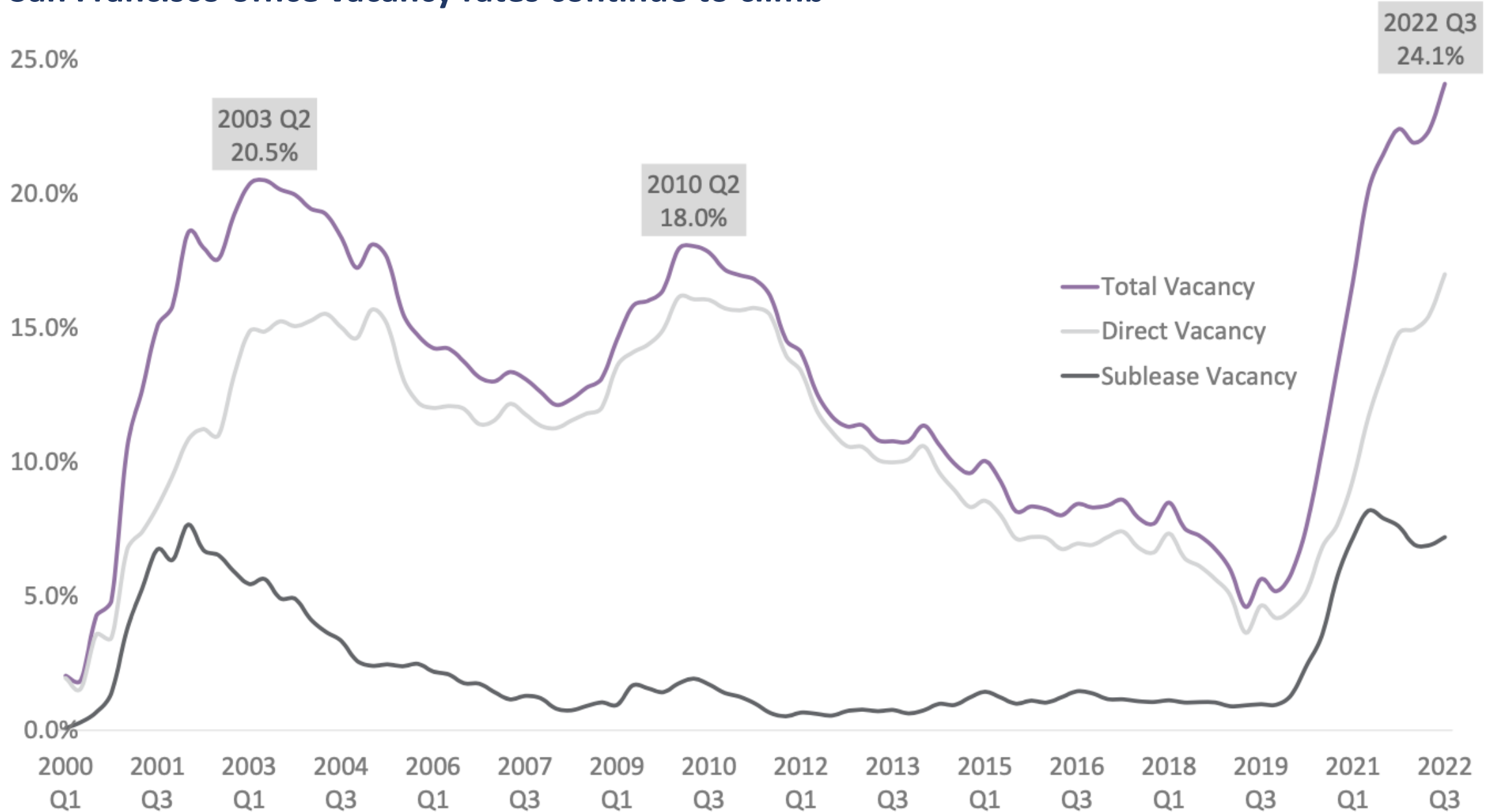
Analysis: Bay Area Council Economic Institute

Home prices have fallen in high-cost metro areas since May, as high mortgage rates have dampened demand

Zillow Home Price Value Change by Metro Area May 2022 to October 2022

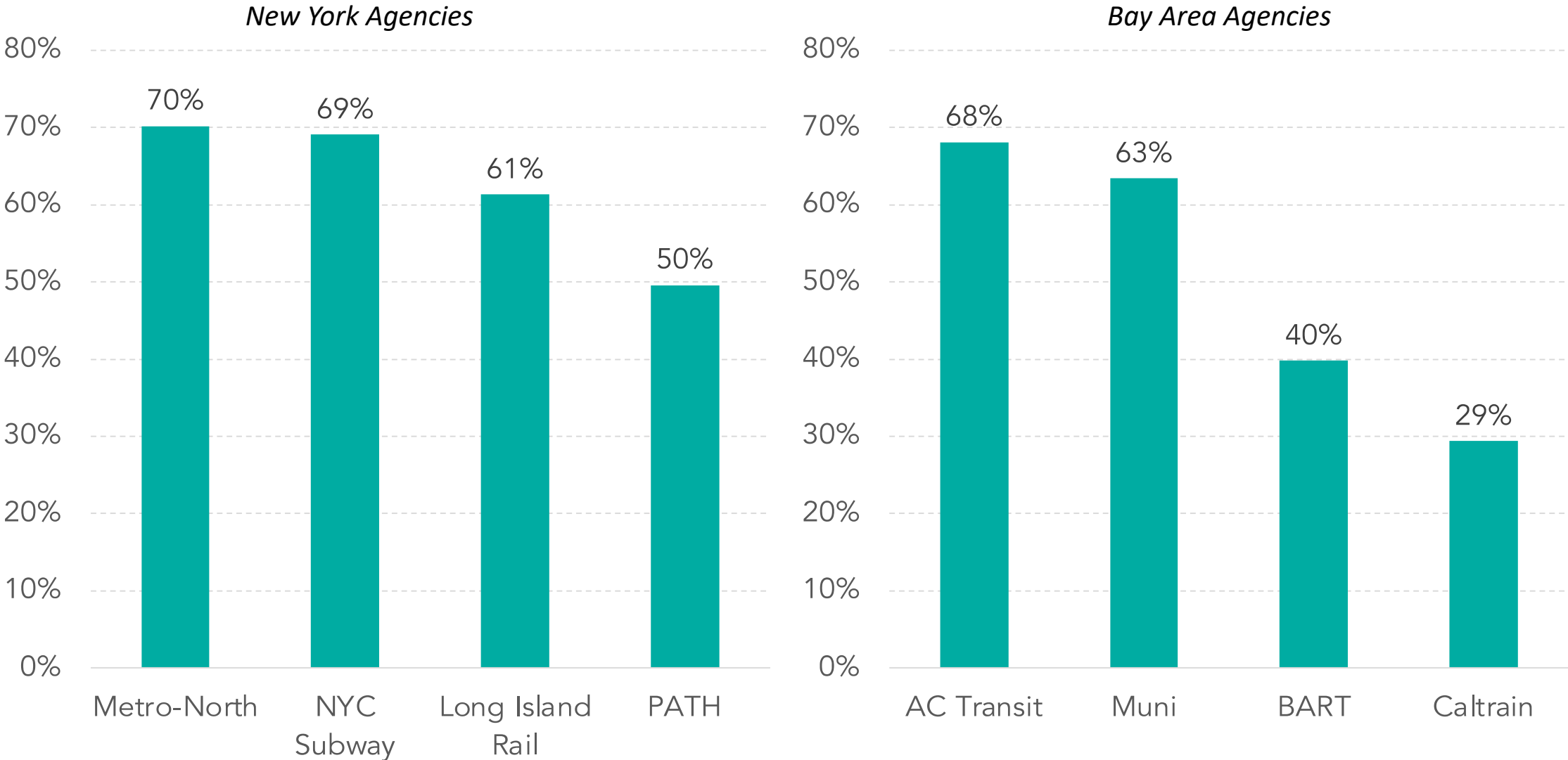


San Francisco office vacancy rates continue to climb



The Bay Area's commuter rail lines have struggled to regain ridership

November 2022 average weekly ridership as a share of pre-pandemic ridership (Nov 2019)



Source: American Public Transportation Association

Analysis: Bay Area Council Economic Institute

Issues and Outlook

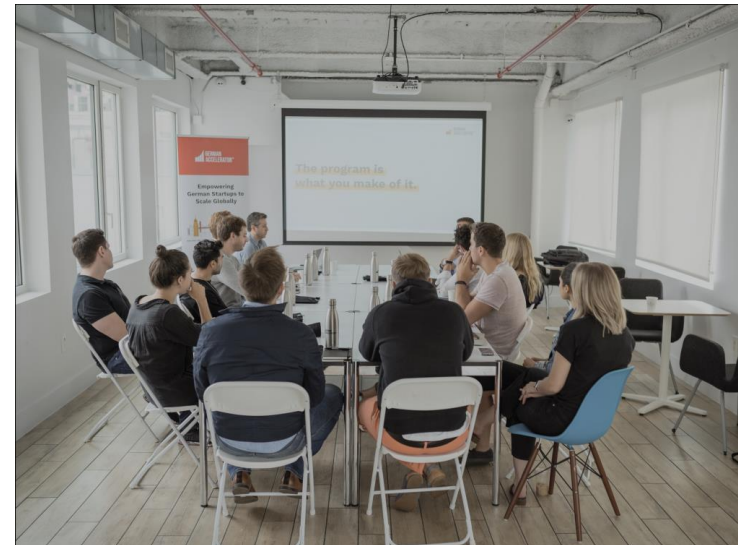
- Fiscal health of public transit (COVID funding ends in 2024)
- Expect state deficit: 25%
- Expected SF city deficit: \$100+million over several years
- Recession likely but not there yet
- Deeper perspective: 2021 was an extraordinary year
 - Home values increased 25% during pandemic
 - Massive venture outlay in 2021 (\$105B in 2021, up from \$52B in 2020)
 - Massive tech hiring in 2021 (Meta cutting 11,000, but hired 27,000 in 2020-21 and 15,000 in Q1-3 2022)
- Return to trend?

Global Technology Footprint in the Bay Area Has Held Steady and Continues to Grow

- Nearly all overseas companies maintained their budgets and presence
- New companies arrived
- Accelerator cohorts return
- Tech diplomacy
- Digital drives

European Incubators, Accelerators and Government Innovation Offices

- ABC Accelerator Silicon Valley (Slovenia)
- AICEP (Portugal)
- ART-ER, Emilia-Romagna in Silicon Valley (Italy)
- AWEX (Belgium)
- Bulgarian Innovation Hub (Bulgaria)
- Catalonia Exponential (Spain)
- CzechInvest (Czech Republic)
- Desafia San Francisco (Spain)
- DWIH – German Center for Research and Innovation
- EIT Digital/EIT Hub Silicon Valley (EU)
- Enterprise Ireland (Ireland)
- Estonian Investment Agency (Estonia)
- Flanders Investment and Trade (Belgium)
- French Tech Hub (France)
- German Accelerator (Germany)
- Innovation Centre Denmark (Denmark)
- Innovation Norway (Norway)
- Invest in Bavaria (Germany)
- Investment & Development Agency of Latvia (Latvia)
- Italian Center for Innovation and Culture
- London & Partners
- Mind the Bridge (Italy)
- Netherlands in the US (Netherlands)
- Nordic Innovation House (Nordic Region)
- Northern Germany Innovation Office (Germany)
- Open Austria (Austria)
- Schoolab (France)
- Science Foundation Ireland
- Silicon Valley Italian Hub (Italy)
- Spain Tech Center (Spain)
- Startup Basecamp
- Swissnex in San Francisco (Switzerland)
- The Refiners (France)
- Vinnova (Sweden)



European Corporate Innovation and Research Offices

- A3 by Airbus (France)
- ABB Silicon Valley Campus (Sweden)
- Alliance Innovation Lab Silicon Valley - Renault/Nissan/Mitsubishi
- Altada (Ireland)
- Audi Innovation Research San Francisco (Germany)
- Aviva InsurTech (UK)
- AXA Lab, Silicon Valley (France)
- BMW Technology Office (Germany)
- Bosch Research & Technology Center North America (Germany)
- Bouygues Group Winnovation (France)
- Brembo Labs (Italy)
- Capgemini Applied Innovation Exchange (France)
- Daimler Business Innovation/Lab1886
- Dassault Systems US West Coast headquarters (France)
- DB Schenker Human and Machines
- Deutsche Bank Labs Silicon Valley (Germany)
- E.ON Innovation
- EDF Innovation Lab (France)
- Enel Innovation Hub (Italy)
- Free Electrons
- GlaxoSmithKlein (UK)
- Infineon Innovation Center
- Kaercher
- Luxotica, San Francisco Office (Italy)
- Mercedes-Benz Research & Development North America (Germany)
- Merck Silicon Valley Innovation Hub
- Munich Re Silicon Valley Outpost (Germany)
- Nestle Silicon Valley Innovation Outpost (Switzerland)
- Novartis (Switzerland)
- Novo Nordisk
- Orange Silicon Valley (France)
- Pearson, startup engagement program at RocketSpace (UK)
- Porsche Digital (Germany)
- PWC Center for Technology & Innovation (UK)
- Roche
- Royal Bank of Scotland Silicon Valley Solutions (UK)
- SAP Innovation Center Silicon Valley (Germany)
- Schneider Silicon Valley Innovation Center (France)
- Sennheiser Silicon Valley Technology & Innovation Center (Germany)
- Siemens, next47 Catalyst (Germany)
- Swisscom Silicon Valley Outpost (Switzerland)
- Valeo, Silicon Valley office (France)
- Volkswagen Automotive Innovation (Germany)
- Volvo Cars R&D Silicon Valley Technology Center (Sweden)
- Zeiss Innovation Center (Germany)

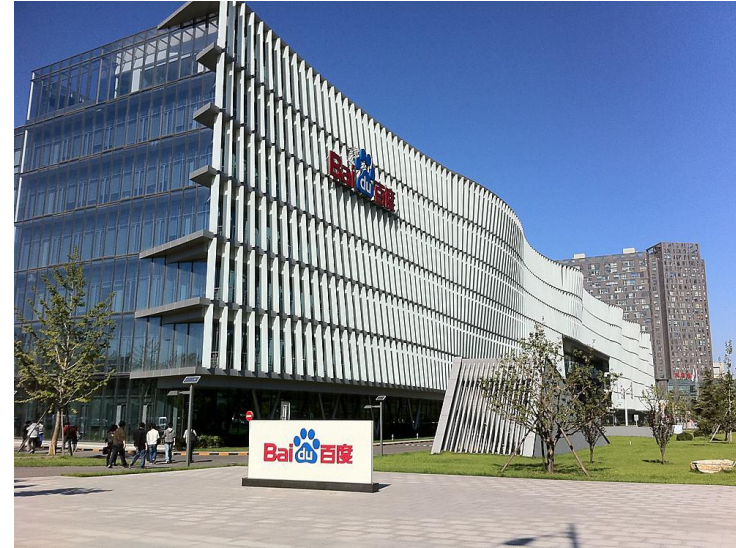
European Corporate Venture Funds

- ABB Technology Ventures (Sweden)
- Airbus Ventures (Europe)
- AXA Strategic Ventures (France)
- BASF Venture Capital (Germany)
- BBVA Propel Venture Partners (Spain)
- BMW i Ventures (Germany)
- Deutsche Telekom Capital Partners (Germany)
- HELLA Ventures (Germany)
- Nokia Growth Partners (Finland)
- Robert Bosch Venture Capital (Germany)
- Sapphire Ventures (Germany)
- Shell Ventures (Netherlands)
- Sky Startup Investments & Partnerships (UK)
- Telefonica Digital (Spain)
- Total Energy Ventures (France)
- Vodafone Ventures (UK)
- Volvo Group Venture Capital (Sweden)



Chinese Corporate and Government Innovation Centers

- Alibaba Group
- Baidu
- Dragon Group International
- Hanhai Silicon Valley Innovation Center
- Mindray
- New Silicon Valley Offshore Center
- New Silicon Valley Offshore Incubator (China)
- NIO (US Headquarters)
- Tencent
- Xuzhou Silicon Valley Science & Technology Exchange Center
- ZGC Innovation Center @ Silicon Valley
- Zhejiang Innovation Center



Chinese Venture Funds

- Amino Capital
- Baidu Ventures-Comet Labs Partnership
- Hone Capital
- New Horizon Capital
- Pivotal bioVenture Partners
- Shenzhen Capital Group
- Shenzhen Valley Ventures
- Tsing Capital SAIC Capital
- WestSummit Capital
- ZhenFund



Japanese Corporate Innovation and Research Offices

- AGC Group
- AISIN AW
- ANA
- All Nippon Airways
- Asahi Kasei
- Astellas Pharma
- Canon
- Dai Nippon Printing
- Dai-ichi Life
- Daikin Open Innovation Lab Silicon Valley
- Daiwa Capital Markets
- Daiwa Securities Group
- Denso Silicon Valley Innovation Center
- East Japan Railway Company
- Fast Retailing Digital Innovation Center
- Fuji Xerox
- Fuji Film
- Fujitsu
- Hitachi
- Hokuodo DY Media
- Honda
- IHI Corporation
- Itochu
- Japan Airlines (JAL)
- Japan Post
- JSR
- JTB
- Kajima Corporation
- Kaneka
- Kawasaki Heavy Industries
- KDDI
- Koito Manufacturing
- Konica Minolta
- Kose
- Kubota
- Marubeni
- Meiden
- Mitsubishi
- Mitsui
- Mizuho
- MS&AD
- Murata
- NEC
- Nomura
- Nissan
- Nitto Denko
- NSK
- NSSC
- NTT Comware
- NTT One Vision Center

Japanese Corporate Innovation and Research Offices (Cont.)

- NTT Data
- NTT Docomo
- NTT Research
- Obayashi
- Olympus
- Omron
- Osaka Gas
- Panasonic
- Rakuten
- Recruit Holdings
- RICOH
- Shimizu
- Softbank
- Sojitz
- Sompo Digital Lab
- Sony
- Sumitomo Corporation
- Sumitomo Electric
- Sumitomo Life Insurance
- SMBC Group
- Suzuki Motor
- Takeda Pharmaceutical
- TDK

- Terumo
- Tokio Marine
- Tokyo electron
- Tokyo Gas
- Toyota
- Yamaha Motor
- Zenrin



Japanese and Japan-Related Corporate Venture Firms

- Accario Ventures (Tokyo Gas)
- Conductive Ventures (Panasonic)
- DNX Ventures
- Digital Garage
- Geodesic Capital
- Itochu Technology Ventures
- KDDI Open Innovation
- NTT DOCOMO Capital
- Panasonic
- Pegasus Tech Ventures
- Presidio Ventures (Sumitomo)
- Scrum Ventures
- Softbank
- SPARX
- Takeda Ventures
- Toyota AI Ventures
- World Innovation Lab
- Yamaha Motor Venture



Korean Accelerators and Corporate Innovation and Research Offices

- Coupang
- Hanwha
- Hyundai CRADLE
- Samsung
- Korea Innovation Center



Indian Corporate Innovation, Venture, and Research Offices

- Tech Mahindra
- WiPro Ventures
- WiPro Innovation Center
- Infosys Center for Emerging Technology Solutions
- TCS Customer Collaboration Center



Other International Incubators, Accelerators, and Corporate Innovation Offices

- Australian Landing Pad
- BIRD Foundation (Israel)
- Block 71 (Singapore)
- Canada House Sponsored by C100
- Canada Technology Accelerator
- Dynamico (Phillipines)
- ITRI (Taiwan)
- Plug and Play (Mexico)
- Royal Bank of Canada



Sovereign Wealth Funds

- Temasek (Singapore)
- GIC (Singapore)
- Korea Venture Investment Corporation
- Korean Investment Corporation
- Kazanah (Malaysia)



Conclusion

- While the past high growth in two-way investment is unlikely to return, China will remain an important trade and investment partner.
- As two-way investment opportunities shrink and political tensions with tensions continue, Bay Area technology companies are seeking greater diversification in both their supply chains and investment opportunities.
- The Bay Area remains an important destination for global technology investment and the leading global center for entrepreneurship, technology development, innovation.