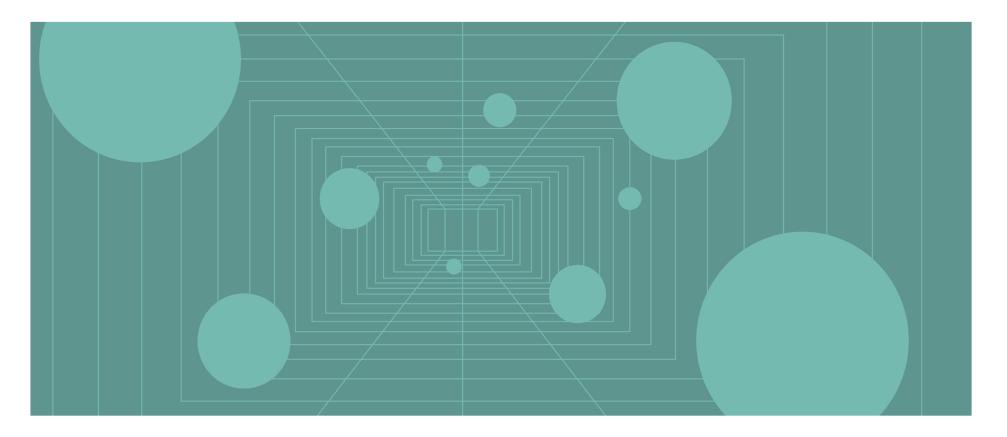
DECADES OF DATA: AUSTRALIA

1900–2019





Executive Summary

- Basing investment decisions on the extrapolation of capital market returns from recent, relatively short periods is a common mistake. Viable conclusions about long-term expected returns cannot be drawn from return data for periods shorter than several decades, and even then, investors should be mindful that long-term statistics are beginning- and end-point sensitive and that returns are more variable than commonly assumed. Still, consideration of shorter time periods within a longer-term context can provide a powerful framework for evaluating current market conditions.
- Australian equities (23.1%) advanced in 2019 to new all-time highs, in contrast to negative performance in 2018. Australian shares gained the most since calendar year 2009, with 2019's performance ranking in the 81st percentile of historical calendar year returns since 1912. Such strong performance for Australian stocks is not necessarily uncommon. In fact, Australian equities gained 23% or more in 21 out of 108 calendar years since 1912, nearly one-fifth of the time. Additionally, Australian stocks earned double-digit returns in 67 calendar years over that same timespan more than 60% of the time. Investors might reasonably expect a market pullback in the subsequent year following such strong returns; however, the data show that strong performance can continue. In fact, in the initial calendar year following 23%+ market gains, Australian stocks posted double-digit positive returns in ten out of 20 years, while declining in six of those years, for an overall subsequent calendar year average of nearly 12%.
- In the decade closed at the end of 2019, Australian equities posted returns below their very long-term averages. Investors in Australian stocks have earned a nominal average annual compound return (AACR) of 7.6% over the past ten years. For the full period analyzed, Australian equities (1912–2019) have fared better, posting a nominal AACR of 10.8%. Recent below-average performance for Australian shares has been common over the past couple decades. Since periods ended in late 1996, rolling monthly ten-year AACRs for Australian stocks have been below the long-term AACR 87% of the time. However, investors should bear in mind that rolling AACR analyses are sensitive to beginning- and end-point timing, even over ten-year periods. Monthly rolling ten-year AACRs reached 10.8% through February 2019, which was their strongest ten-year rolling return since the period ended January 2008, matching the long-run average. One major reason equity returns saw an uptick through the period ended February 2019 was that the worst months from the global financial crisis (GFC) fell out of the data set, as the ten-year window began when Australian equities hit a nadir in March 2009.

Executive Summary (continued)

- Equities are most likely to outpace inflation over long-term periods, generating positive inflation-adjusted returns at the lower end of the returns range. Over rolling 50-year periods, real AACRs for Australian stocks ranged from a low of 3.3% to a high of 9.9%, whereas the range for benchmark government bonds (-0.9% to 3.9%) and cash (-1.9% to 2.3%) indicated greater potential for diminished purchasing power over certain periods. However, equities never lost out to inflation over the very long term. Inflation in Australia has averaged 4.1% annually since 1912, roughly in-line with other developed economies. Australian benchmark government bonds and cash produced full-period AACRs of 6.6% and 4.7%, respectively, since 1912, which is a significantly narrower spread vis-à-vis inflation relative to stocks versus inflation.
- Over the long term, Australian equity investors have generally been compensated for the additional risk of holding stocks. Since 1912, Australian equity returns exceeded bond returns during 69% of all five-year periods, 76% of all ten-year periods, and 82% of all 25-year periods (calculated on a nominal basis using rolling monthly data). While equities tend to outperform in the long term, since 1912 there have been sustained periods of underperformance over rolling five-year periods, as volatile equities are prone to larger drawdowns than bonds. Such periods are a reminder of the ballast fixed income allocations provide to portfolios in terms of diversification.
- Earnings growth and dividend reinvestment, respectively, are the primary contributors to equity total return over time, while the effects of valuation mean reversion diminish the impact of multiple rerating. Earnings growth provided the highest degree of return contribution, on average, but can vary significantly from decade to decade relative to the steady stream of reliable income provided by dividends. In the decade closed at the end of 2019, dividend reinvestment provided the strongest return contribution on record but was still more than 250 basis points below contributions from earnings growth. Multiple contraction detracted from performance for the first time since the 1970s and has dragged on performance over the full period studied.

Executive Summary (continued)

- Starting valuations are a useful indicator for long-term (ten+ years) subsequent equity returns, but the relationship is somewhat weaker over shorter time horizons. Normalized valuations and subsequent returns have a decent relationship over long time periods (e.g., ten-year subsequent returns), but starting valuations alone do not completely explain subsequent returns—many factors can influence equity performance. Since 1979, our cyclically adjusted price-to-cash earnings (CAPCE) ratio for Australia has explained 64% of the variation in subsequent ten-year real returns, a moderately strong but imperfect guide to future returns. At December 31,2019, Australian equity valuations ended in the 78th percentile of historical observations, and from this valuation decile the median subsequent ten-year real return for Australian equities has been roughly 5% per annum.
- High- or low-valuation environments alone are not a catalyst for market reversals and may persist for several years; waiting for valuations to revert to mean can be an exercise in frustration. Low valuations provide what famed investment analyst Benjamin Graham called "a margin of safety." High valuations, on the other hand, typically price in lofty projections for the future, providing little room for error. Despite uncertainty regarding the timing of market reversals, the historical record for Australian equities is clear—periods of low valuations are followed by higher long-term subsequent returns, while periods of high valuations are followed by poorer long-term returns.
- Australian equity dividend yields are not as useful as normalized valuations in predicting subsequent performance. Australian dividend yields explained 35% of the variation in subsequent ten-year real AACRs over the past 50 years, which is a weaker metric as opposed to normalized valuations. For example, from the 2019 year-end dividend yield of 4.2%, the range of subsequent Australian equity real ten-year returns was about 10 percentage points, a wide range of outcomes for forecasting exercises based solely on dividend yields. While Australian equity dividend yields are among the highest relative to other developed regions, dividend yields fail to capture the whole picture, as many other factors influence equity market returns.

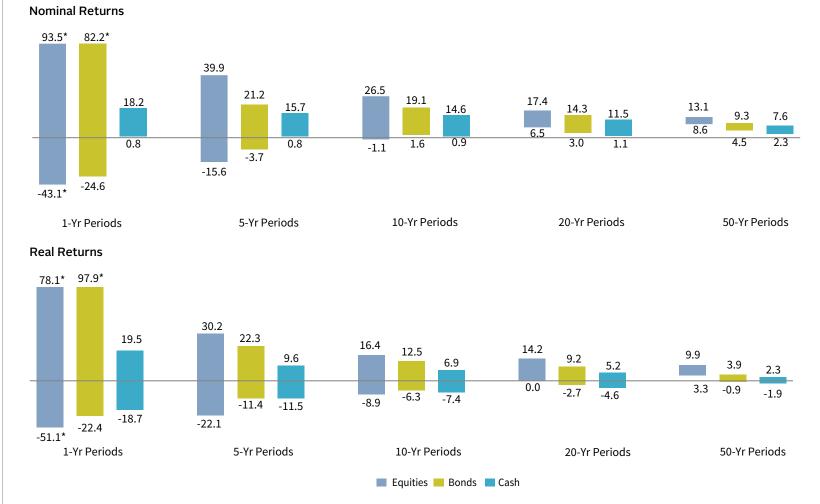
Executive Summary (continued)

- Subsequent nominal ten-year Australian bond returns closely track the starting yield. Australian bond yields remained near historical lows at the end of 2019, implying that future long-term returns will likely be muted. In August 2019, Australian ten-year government bond yields fell to their lowest month-end levels on record (0.91%) and ended the year at 1.37%. There is no precedent of such low yield levels in Australia, but if the strong correlation between starting yields and subsequent performance observed since 1900 (correlation coefficient=0.95) is a guide, Australian bonds could post weak returns in the ensuing ten years. The better news is that price inflation in Australia has moderated in recent years. Investors have benefitted from falling yields over the past 25+ years, with Australian bonds returning 10.5% annualized since 1982. However, in today's low-yield environment, expectations for future returns are decidedly low.
- Although rising interest rates are commonly viewed as detrimental to equity prices, this is not necessarily the case—the drivers of change in interest rates, rather than their outright levels or the amount of changes in the rates, are what impact equity returns. Stocks can rise amid rising bond yields if such yields reflect improving growth conditions or increasing consumer confidence. In fact, a weak, albeit positive, statistical relationship exists between short-term interest rates and subsequent ten-year equity returns in Australia, counter to what one would expect. The relationship deteriorates, however, when the high inflationary and bond yield environment of the late 1970s/early 1980s is excluded. The future relationship between these two variables is unclear, as current bill yields in Australia are the lowest on record, reflecting the current loose monetary policy stance.
- Australia's economy has been recession proof for nearly 30 years, even avoiding an official downturn in the aftermath of the GFC. Economic growth has slowed in recent years; however, with rolling three-year growth rates falling to current expansion lows. Despite persistent economic growth, current Australian earnings per share remain more than 20% below their peak levels reached in November 2007. The Australian equity market is highly exposed to financials and natural resources companies, which enjoyed a strong run prior to the GFC but have since lagged on weak commodity prices, low yields, and tighter banking regulations.

The range of investment returns narrows as holding periods increase

RANGE OF EQUITY, BOND, AND CASH RETURNS FOR VARIOUS ROLLING MONTHLY TIME HORIZONS

1912–2019 • Average Annual Compound Return (%)



* Axis capped for scaling purposes.

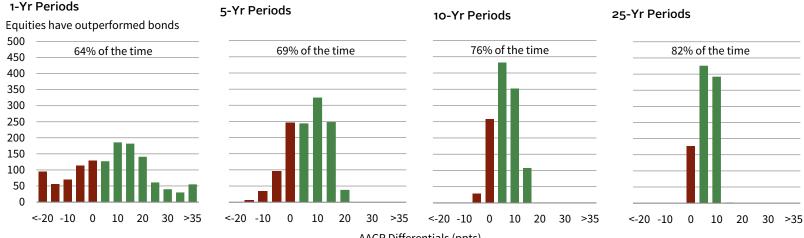
Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties

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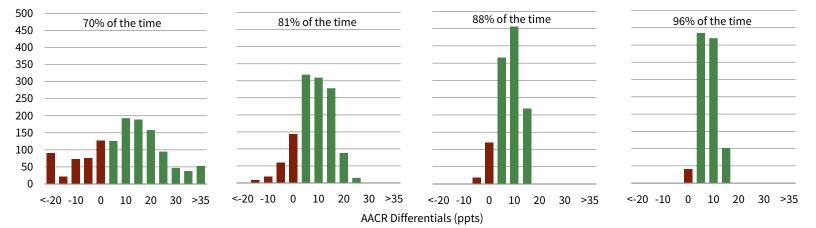
Equities more likely to outperform bonds and cash as holding periods increase

EXCESS RETURNS OF EQUITIES OVER BONDS AND CASH

1912–2019 • Number of Rolling Monthly Periods



AACR Differentials (ppts)



Equities have outperformed cash

Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Notes: Buckets represent ranges of 5 ppts each with the label denoting the high end of the range, inclusive. For example, the "0" bucket corresponds to the number of rolling monthly periods in which the excess return of equities over bonds/cash was greater than -5, but equal to or less than zero.

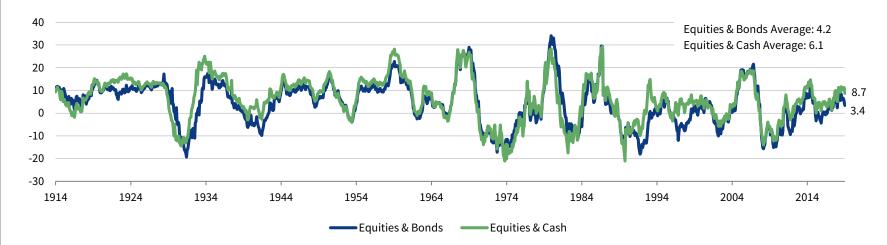
Australian bonds tend to outperform cash, particularly over longer periods EXCESS RETURNS OF BONDS OVER CASH 1912–2019 • Number of Rolling Monthly Periods 1-Yr Periods 5-Yr Periods 10-Yr Periods 25-Yr Periods Bonds have outperformed cash 900 86% of the time 65% of the time 74% of the time 79% of the time 800 700 600 500 400 300 200 100 0 <-20 -10 0 <-20 -10 0 10 20 30 >35 10 20 30 >35 <-20 -10 0 10 20 30 >35 <-20 -10 0 10 20 30 >35

AACR Differentials (ppts)

Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

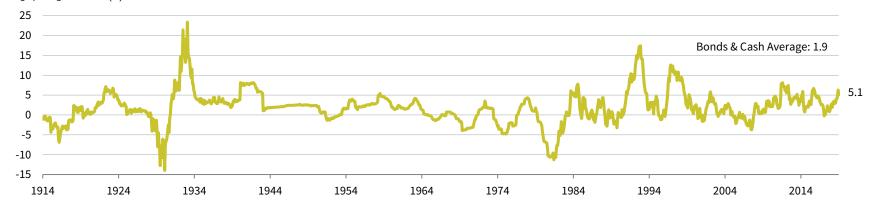
Notes: Buckets represent ranges of 5 ppts each with the label denoting the high end of the range, inclusive. For example, the "0" bucket corresponds to the number of rolling monthly periods in which the excess return of bonds over cash was greater than -5 but equal to or less than zero.

Equities outperform bonds and cash by a wide margin; bonds outperform cash to a lesser degree

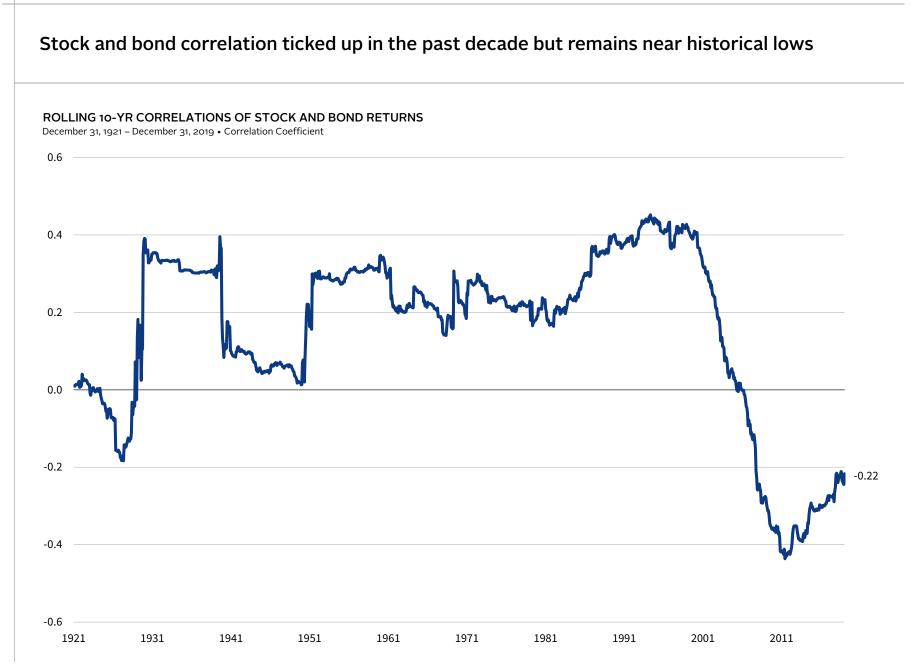


AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN EQUITY, CASH, AND BOND RETURNS 1914–2019 • Percent (%)

AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN BOND AND CASH RETURNS 1914–2019 • Percent (%)



Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.



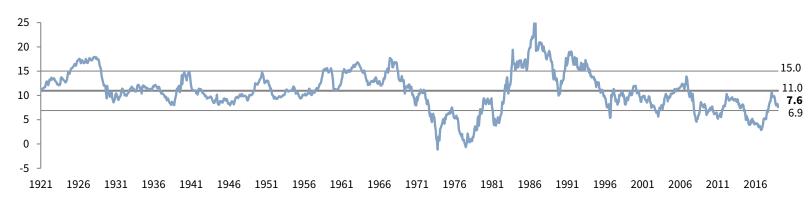
Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Notes: Data begin on January 31, 1912. All return data are monthly.

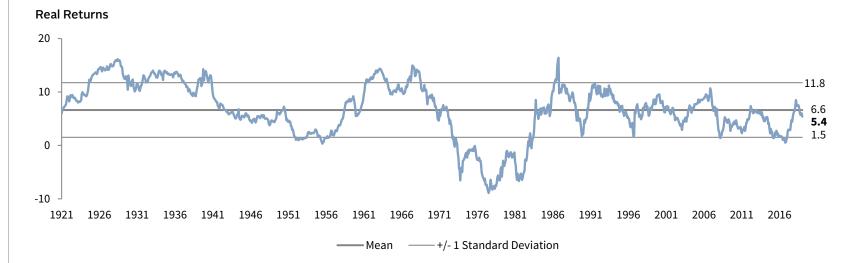
Equity performance mean reversion in Australia is not a smooth process

ROLLING MONTHLY TOTAL RETURN 10-YR AACR

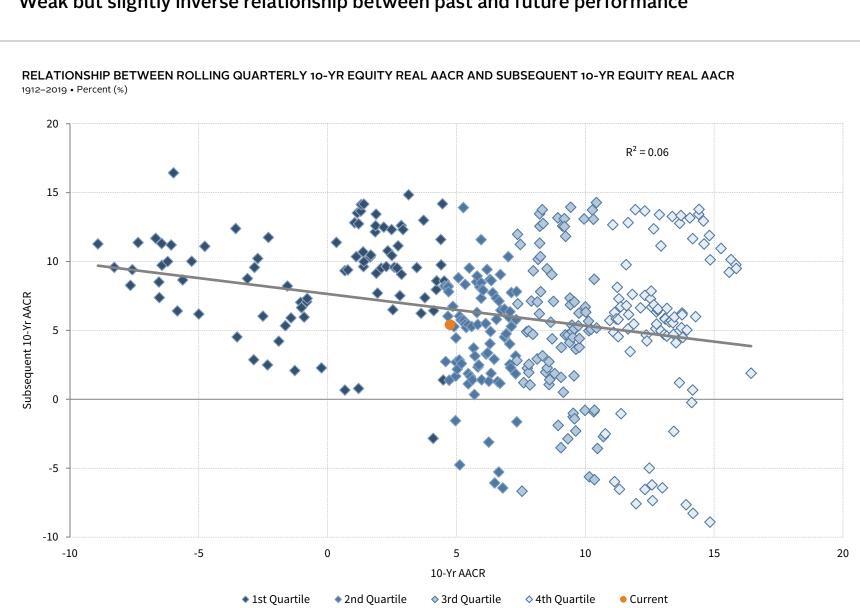
1921–2019 • Percent (%)

Nominal Returns



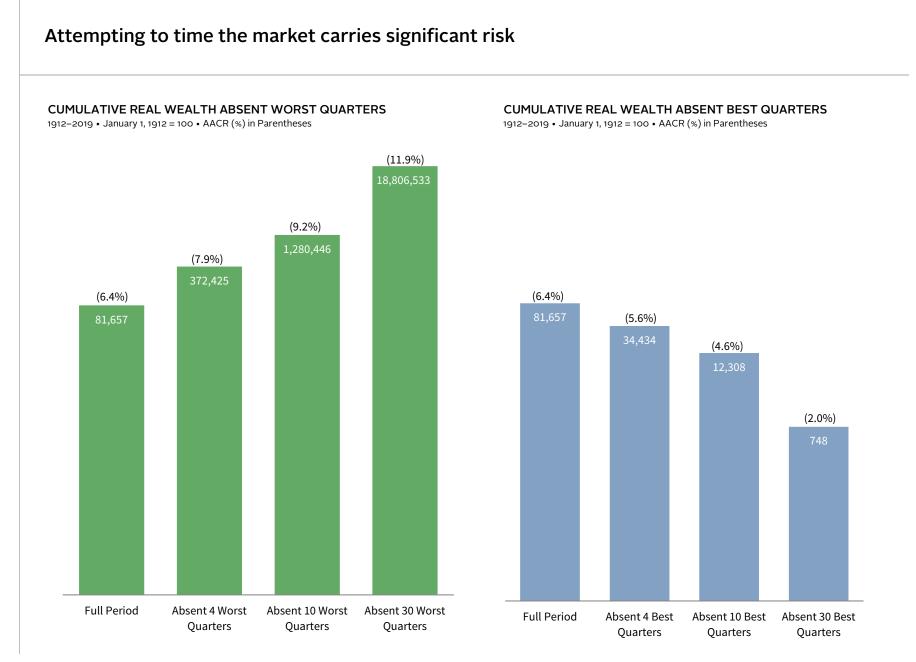


Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

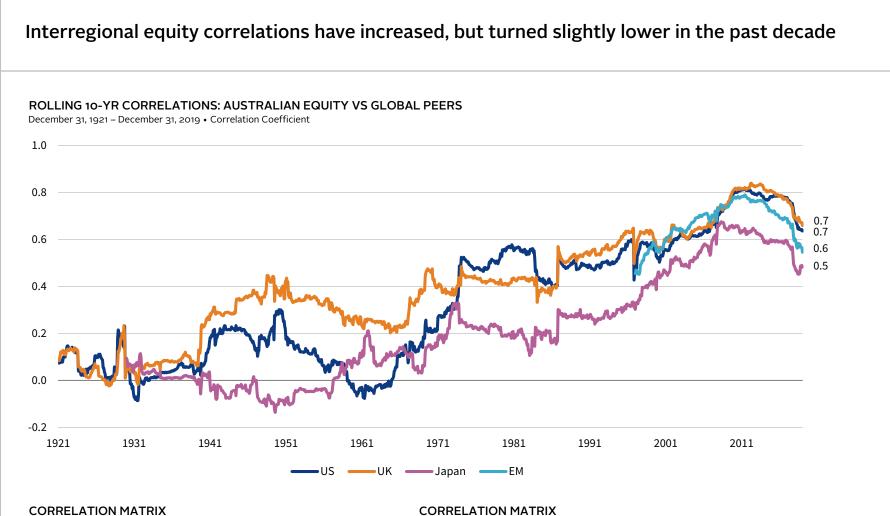


Weak but slightly inverse relationship between past and future performance

Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.



Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Note: Cumulative real wealth is shown on a logarithmic scale.



January 31, 1921 – December 31, 1969

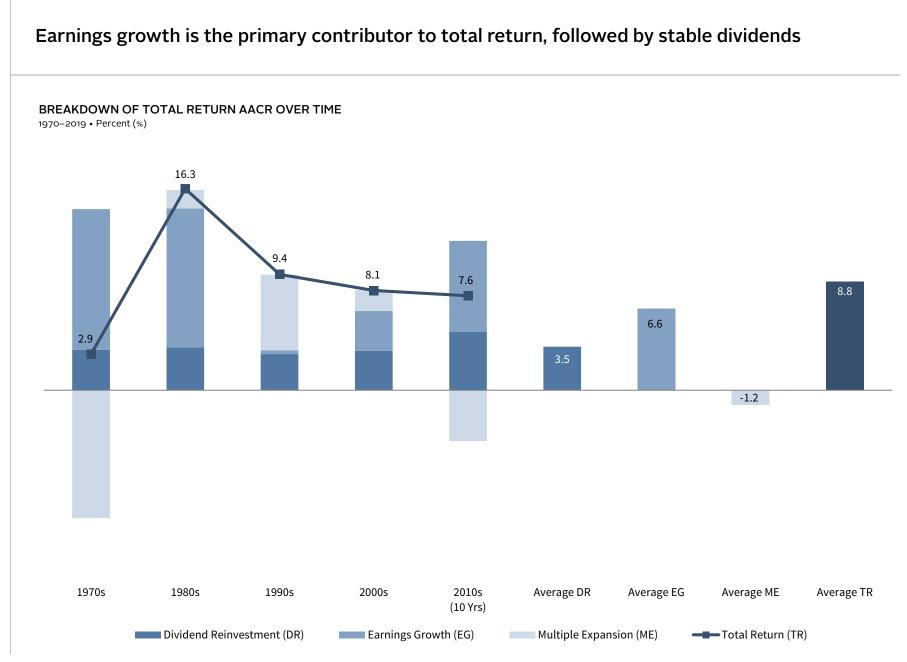
	Austalia	US	UK	Japan
Australia	1.00			
US	0.08	1.00		
UK	0.24	0.21	1.00	
Japan	0.02	-0.02	0.01	1.00

CORRELATION MATRIX

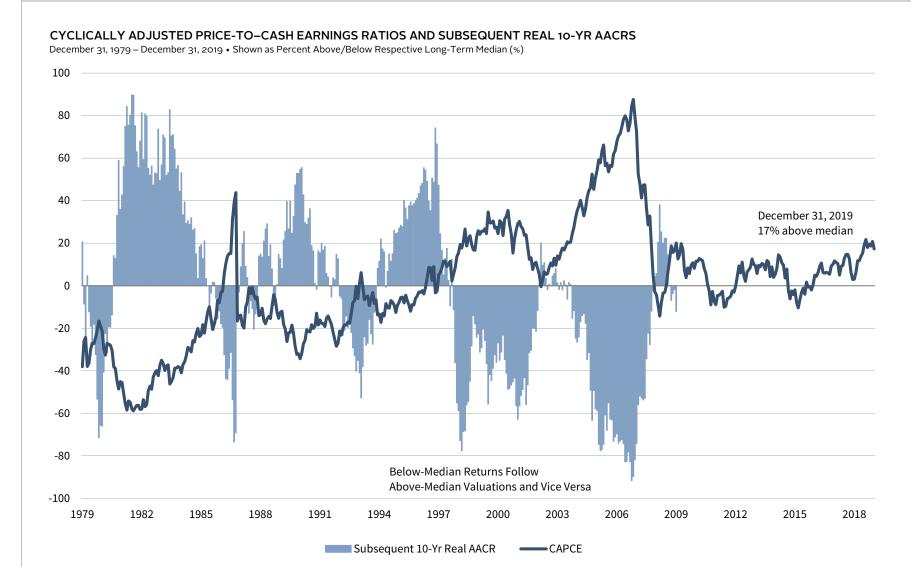
January 31, 197	70 – December :	31, 2019			
	Australia	US	UK	Japan	EM
Australia	1.00				
US	0.55	1.00			
UK	0.52	0.62	1.00		
Japan	0.34	0.44	0.38	1.00	
EM	0.58	0.67	0.62	0.50	1.00

Sources: FTSE International Limited, Global Financial Data, Inc., MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Data for Japan begin on January 31, 1921. Data for EM begin on January 31, 1988. All return data are monthly. EM returns are in USD terms. All other returns are in local currency.



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Note: Figures will not sum exactly to total return calculation due to the effect of combining cross terms.



High valuations imply weak subsequent returns and vice versa

Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

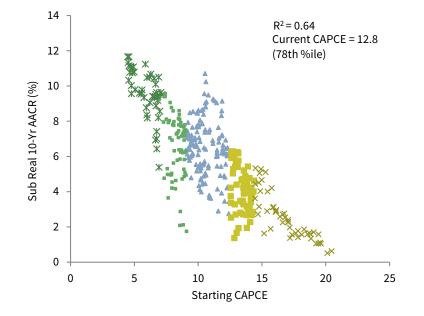
Notes: Chart shows percent above/below median for returns and valuations. Line shows point-in-time cyclically adjusted price-to—cash earnings (CAPCE) ratios. Bars are based on monthly data and show subsequent rolling ten-year real average annual compound returns (AACRs) as a percentage above/below the long-term median ten-year real return of 6.1% since 1979. For example, the first data point shows that the real AACR for the period 1979–88 was 20.6% above the median ten-year real return.

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Starting valuations are a useful guide in setting long-term return expectations

RELATIONSHIP BETWEEN CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS RATIOS AND SUBSEQUENT REAL 5- AND 10-YR AACRS December 31, 1979 – December 31, 2019

Initial Valuation and Subsequent 5-Yr AACR 35 $R^2 = 0.47$ Current CAPCE = 12.8 30 Ж (78th %ile) 25 Sub Real 5-Yr AACR (%) 20 15 10 5 0 -5 -10 0 5 10 15 20 25 Starting CAPCE

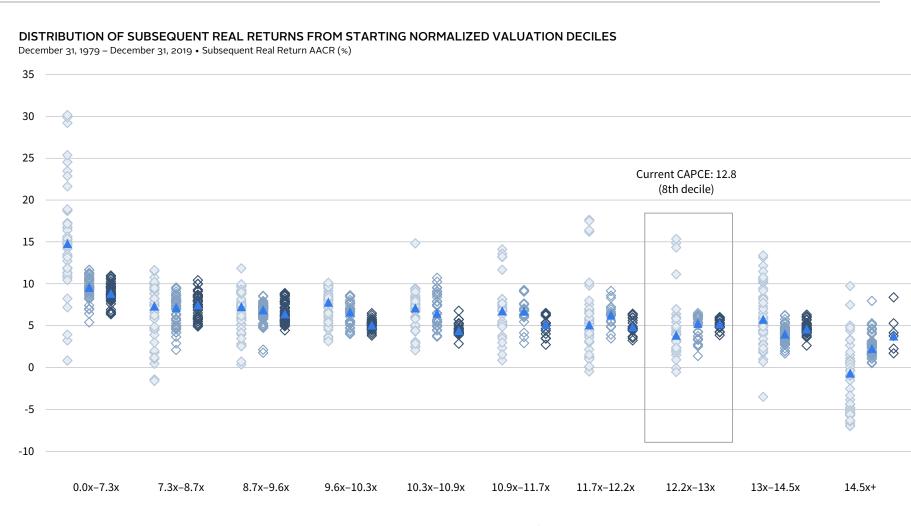


Initial Valuation and Subsequent 10-Yr AACR

Starting Cyclically Adjusted			Subsequent Real 5-Yr AACR (%)			Starting Cyclically Adjusted Price-to–Cash Earnings Ratio			Subsequent Real 10-Yr AACR (%)			
P/CE Ratio Price-to-Cash Earnings Ratio												
Percentile	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
0-10	6.1	7.2	4.5	14.8	30.2	0.8	6.1	7.2	4.5	9.6	11.7	5.4
10-25	8.5	9.1	7.3	7.3	11.6	-1.6	8.5	9.1	7.3	7.1	9.6	1.8
25-75	10.6	12.5	9.1	6.7	17.6	-0.5	10.4	12.4	9.1	6.5	10.7	2.8
75–90	13.5	14.4	12.6	5.1	14.3	-3.5	13.5	14.4	12.6	4.2	6.3	1.4
90-100	16.7	20.5	14.5	-0.4	7.7	-7.0	16.7	20.5	14.5	2.3	5.3	0.5
Overall	10.6	20.5	4.5	6.5	30.2	-7.0	10.3	20.5	4.5	6.1	11.7	0.5

Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Data are monthly. The last full five-year period was January 1, 2015, to December 31, 2019, and the last full ten-year period was January 1, 2010, to December 31, 2019.



Starting normalized valuations are more meaningful as holding periods increase

♦ 5-Yr ♦ 10-Yr ♦ 15-Yr ▲ Median

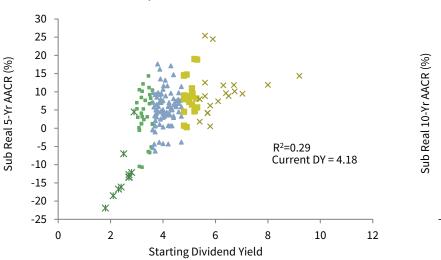
Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

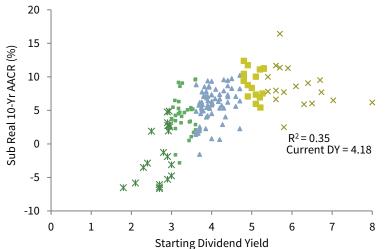
Notes: Data are monthly. The last full five-year period was January 1, 2015, to December 31, 2019, the last full ten-year period was January 1, 2010, to December 31, 2019, and the last full 15-year period was January 1, 2005, to December 31, 2019.

Dividend yields exhibit positive relationship with subsequent returns, but statistical fit is weak

RELATIONSHIP BETWEEN DIVIDEND YIELDS AND SUBSEQUENT REAL AACRS

Fourth Quarter 1969 – Fourth Quarter 2019





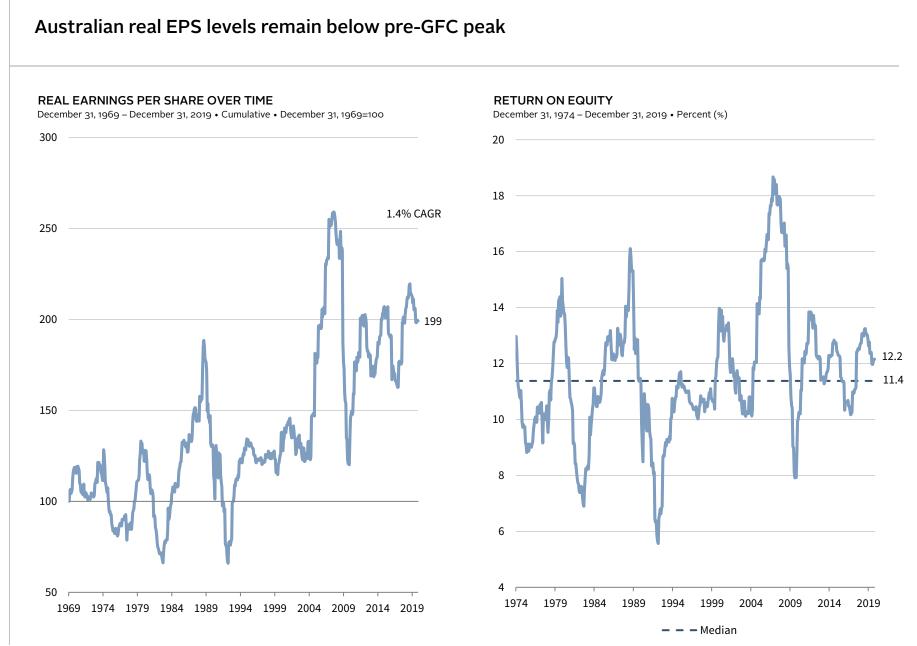
Dividend Yield and Subsequent 10-YR AACR

Dividend Yield	Starting Period Dividend Yield (%)			Subsequent Real 5-Yr AACR (%)		Starting Period Dividend Yield (%)			Subsequent Real 10-Yr AACR (%)			
Percentile	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
0-10	2.6	2.9	1.8	-13.4	4.5	-21.9	2.9	3.0	1.8	-2.4	4.9	-6.7
10-25	3.2	3.6	3.0	3.6	14.3	-10.7	3.2	3.6	3.0	4.4	9.6	-2.8
25-75	4.0	4.7	3.6	5.4	17.6	-6.3	4.0	4.7	3.6	6.2	10.2	-1.6
75–90	5.1	5.3	4.8	8.8	30.2	0.3	5.1	5.3	4.8	9.4	12.4	5.4
90-100	5.9	9.2	5.4	9.5	25.4	0.5	5.9	9.2	5.4	8.0	16.4	2.5
Overall	4.0	9.2	1.8	5.4	30.2	-21.9	3.9	9.2	1.8	6.0	16.4	-6.7

Dividend Yield and Subsequent 5-YR AACR

Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

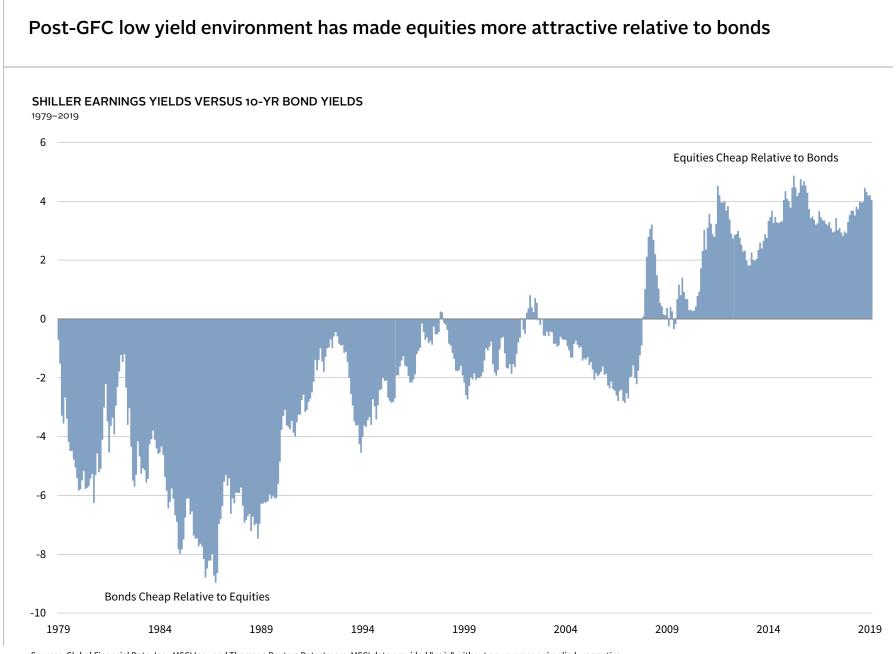
Notes: Data are quarterly. The last full five-year period was first quarter 2015 through fourth quarter 2019. The last full ten-year period was first quarter 2010 through fourth quarter 2019. Outliers are not shown on graph but are included in R².



Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

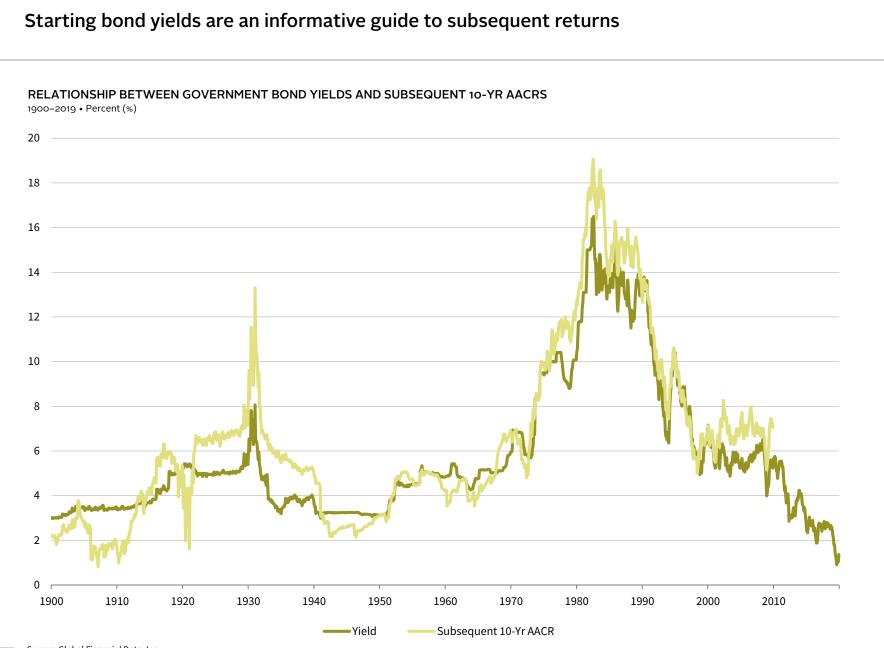
Note: Real earnings per share and return on equity are based on the MSCI Australia Index.

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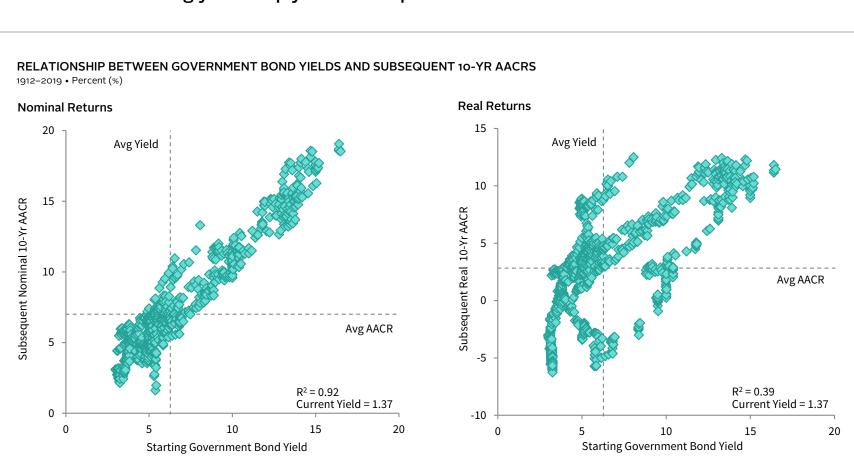
Sources: Global Financial Data, Inc., MSCI Inc., and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties. Notes: Data are monthly. Chart shows the spread between the normalized earnings yields and ten-year bond yields calculated as earnings yield minus bond yield. Normalized earnings yields are based on the Shiller P/E ratio.

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Source: Global Financial Data, Inc.

Notes: Data are monthly. The last full ten-year period was January 1, 2010, to December 31, 2019.

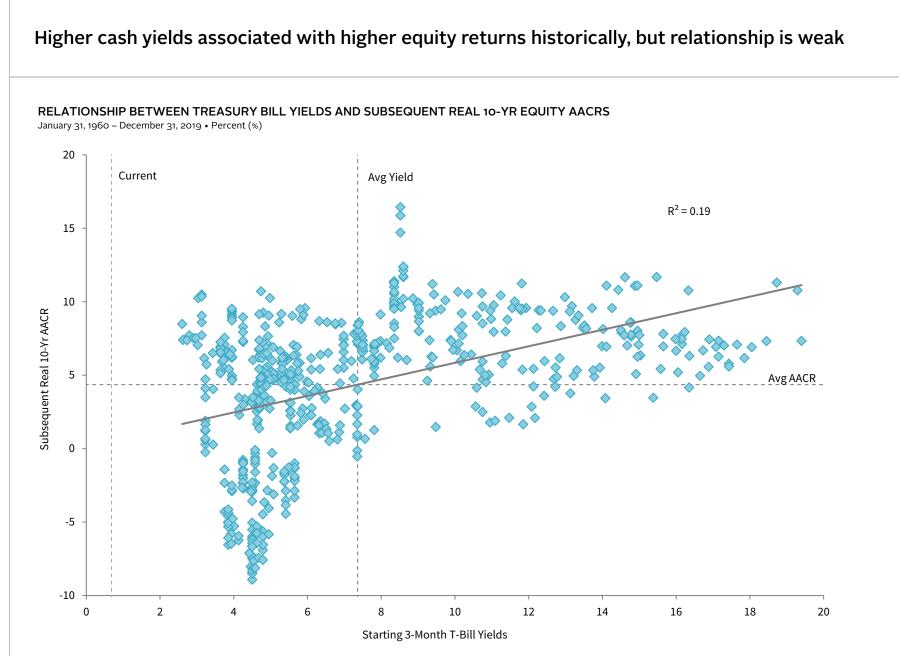


All-time low starting yields imply low subsequent returns for bonds

Starting Period Subsequent Nominal **Starting Period** Subsequent Real Yield Government Bond Yields 10-Yr AACR (%) **Government Bond Yields** 10-Yr AACR (%) Quartiles Mean High Low High Low Std Dev Mean High Low High Low Std Dev Mean Mean First 3.49 4.27 2.99 3.93 6.31 2.15 1.28 3.49 4.27 2.99 -1.32 3.37 -6.27 3.12 Second 4.82 5.10 7.42 3.53 1.01 4.82 5.10 8.88 -3.41 3.35 4.28 5.43 4.28 3.61 Third 4.03 5.72 6.85 5.11 6.35 10.96 1.62 1.40 5.72 6.85 5.112.49 10.54 -5.72 Fourth 11.04 16.50 6.85 12.32 19.06 6.47 3.11 11.04 16.50 6.85 6.54 12.49 -3.82 4.22 Overall 6.27 16.50 2.99 7.01 19.06 1.62 3.70 6.27 16.50 2.99 2.83 12.49 -6.27 4.65

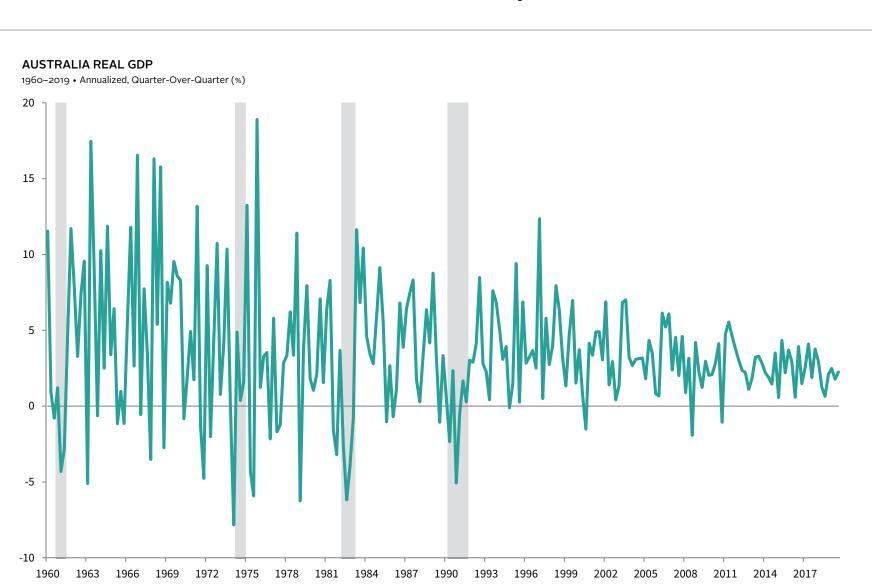
Sources: Global Financial Data, Inc. and Thomson Reuters Datastream.

Notes: Data are monthly. The last full ten-year period was January 1, 2010, to December 31, 2019.



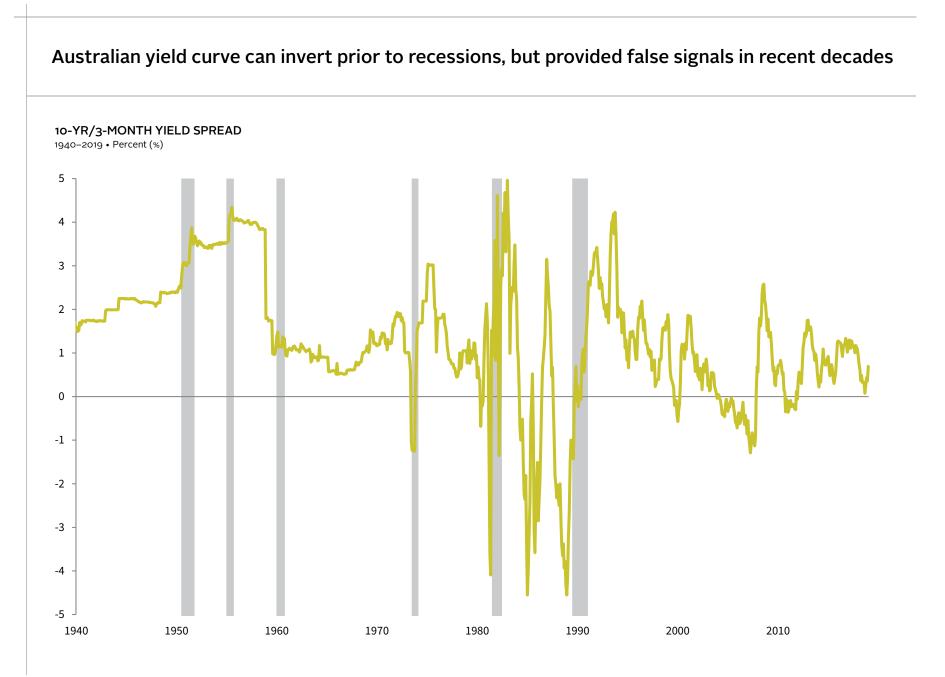
Sources: Global Financial Data, Inc. and Thomson Reuters Datastream.

Notes: Data are monthly. The last full ten-year period was from January 31, 2010, to December 31, 2019.



Australia has avoided economic downturns since the early 1990s

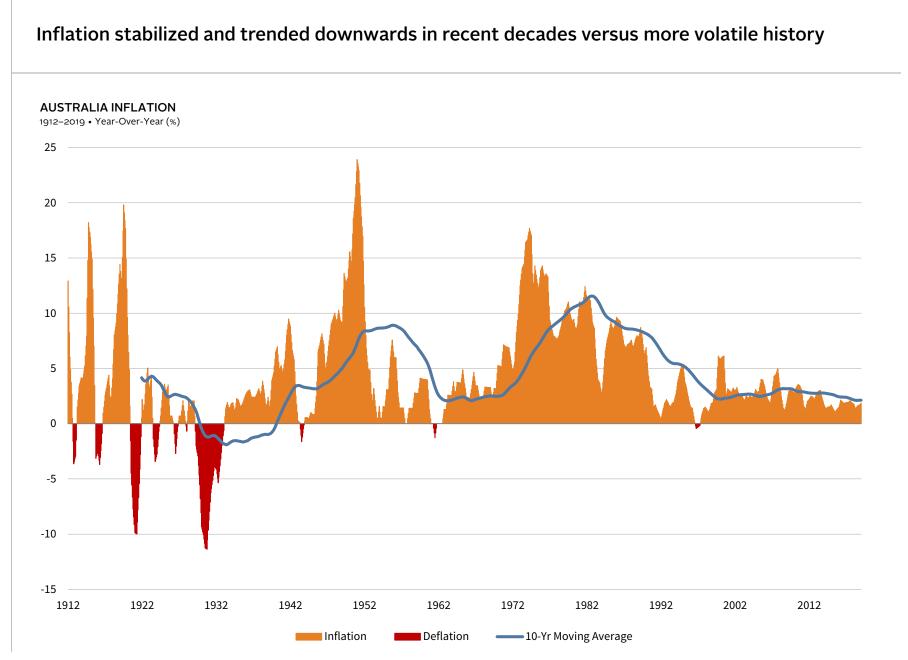
Sources: Australian Bureau of Statistics, Economic Cycle Research Institute (ECRI), and OECD. Notes: Gray bars are recessions defined by ECRI business cycle peak-to-trough dates. Fourth quarter GDP data are based on OECD estimates.



Sources: Economic Cycle Research Institute (ECRI) and Global Financial Data, Inc.

Notes: Data are monthly. Gray bars are recessions defined by ECRI business cycle peak-to-trough dates.

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Sources: Global Financial Data, Inc. and Thomson Reuters Datastream.

Notes: Data are monthly. Moving average begins ten years after the first monthly observation. Inflation data reported on a quarterly basis. Intra-quarter monthly values are interpolated using beginning- and end-of-quarter levels.



Contributors to this report include Stuart Brown, Sean Duffin, Gabriel Fontana, Ilona Vdovina, and Graham Landrith.

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