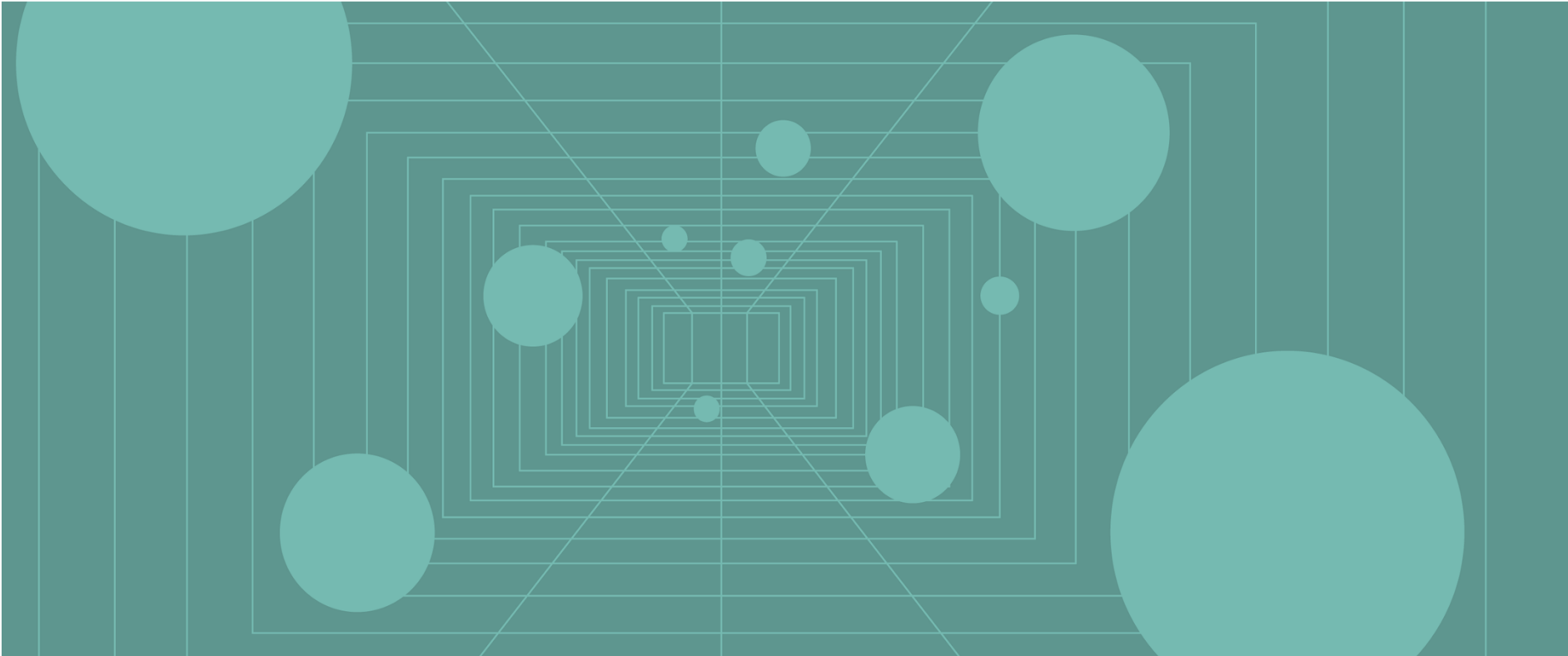


# DECADES OF DATA: CANADA

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.
- **Canadian equities (22.9%) advanced in 2019 to new all-time highs, in contrast to negative performance in 2018.** Canadian shares gained the most since calendar year 2009, with 2019's performance ranking in the 74th percentile of historical calendar year returns since 1914. Such strong performance for Canadian stocks is not necessarily uncommon. In fact, Canadian equities gained 22% or more in 30 out of 106 calendar years since 1914, more than one-quarter of the time. Additionally, Canadian stocks earned double-digit returns in 55 calendar years over that same timespan, more than half of the time. Strong performance in one year does not necessarily mean that performance will be better or worse in the subsequent year. In fact, in the initial calendar year following years with 22%+ market gains, Canadian stocks posted double-digit positive returns in 14 out of 29 years, while declining in just eight of those years, for an overall subsequent calendar year average of nearly 12%.
- **In the decade closed at the end of 2019, Canadian equities posted returns below their very long-term averages.** Investors in Canadian stocks have earned a nominal average annual compound return (AACR) of 6.9% over the past ten years. For the full period analyzed, Canadian equities (1914–2019) have fared better, posting a nominal AACR of 9.0%. Recent below-average performance for Canadian shares has been fairly common over the past couple decades. Since 2000, rolling monthly ten-year AACRs for Canadian stocks have been below the long-term AACR 61% 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 10.3% through February 2019, which was their strongest ten-year rolling return since the period ended August 2008, surpassing the long-run average. One major reason equities posted relatively stronger returns is that the worst months from the global financial crisis (GFC) fell out of the data set, as the ten-year window began when Canadian 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 Canadian stocks ranged from a low of 4.3% to a high of 8.2%, and benchmark government bonds ranged from 0.0% to 4.2%). The cash real return range (-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, and in their worst period bonds still managed to maintain purchasing power. Inflation in Canada has averaged 3.0% annually since 1914, in-line with the US and relatively low among other developed economies. Canadian benchmark government bonds and cash produced full-period AACRs of 5.8% and 4.2%, respectively, since 1914, which is a significantly narrower spread vis-à-vis inflation relative to stocks versus inflation.
- **Over the long term, Canadian equity investors have generally been compensated for the additional risk of holding stocks.** Since 1914, Canadian equity returns exceeded bond returns during 68% of all five-year periods, 75% of all ten-year periods, and 85% of all 25-year periods (calculated on a nominal basis using rolling monthly data). While equities tend to outperform in the long term, since 1914 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, earnings growth provided its highest return contribution in any decade since the 1970s, outpacing dividend reinvestment by 4x. Multiple contraction detracted from performance for the second consecutive decade and has marginally dragged on performance over the full period studied.

## Executive Summary (continued)

- **Starting valuations are a more useful indicator for long-term (ten+ years) subsequent equity returns; the relationship is 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 1984, our cyclically adjusted price-to-cash earnings (CAPCE) ratio for Canada has explained 39% of the variation in subsequent ten-year real returns, a moderate but imperfect guide to future returns. At December 31, 2019, Canadian equity valuations ended in the 68th percentile of historical observations, and from this valuation decile the median subsequent ten-year real return for Canadian equities has been roughly 6% 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 Canadian 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.
- **Canadian equity dividend yields are not statistically related to subsequent performance.** Canadian dividend yields explained only 2% of the variation in subsequent ten-year real AACRs over the past 50 years, which is a much weaker metric as opposed to normalized valuations. For example, from the 2019 year-end dividend yield of 3.1%, the range of subsequent Canadian equity real ten-year returns was about 15 percentage points, a wide range of outcomes for forecasting exercises based solely on dividend yields. While Canadian equity dividend yields are an important component of total return over time, dividend yields fail to capture the whole picture, as many other factors influence equity market returns.

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## Executive Summary (continued)

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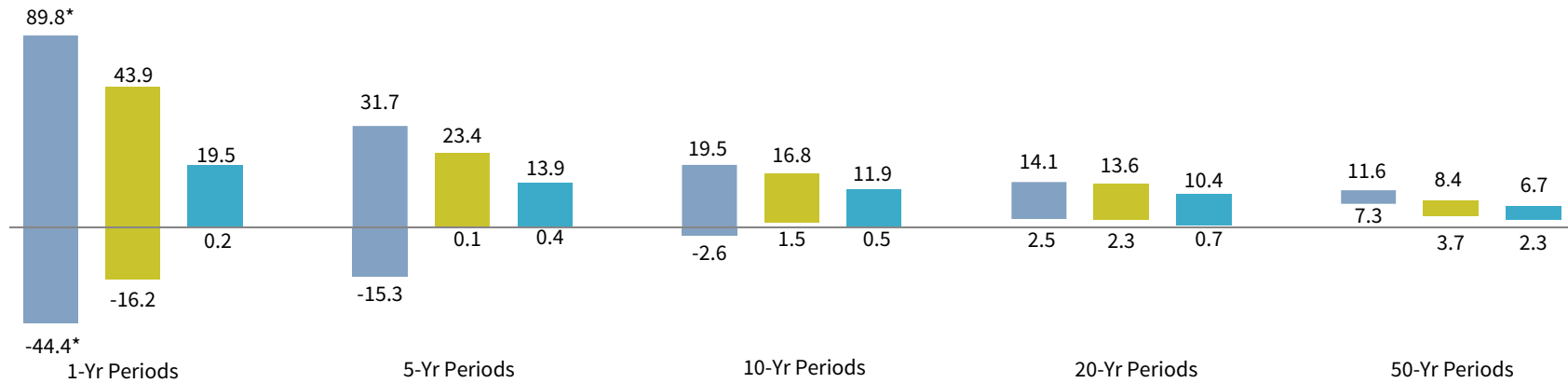
- **Subsequent nominal ten-year Canadian bond returns closely track the starting yield.** Canadian bond yields remained near historical lows at the end of 2019, implying that future long-term returns will likely be muted. In August 2019, Canadian ten-year government bond yields fell to their fifth lowest month-end levels on record at 1.16% (all-time lows were reached in late 2016 at 1.00%) and ended the year at 1.70%. There is no precedent of such low yield levels in Canada, but if the strong correlation between starting yields and subsequent performance observed since 1900 (correlation coefficient=0.95) is a guide, Canadian bonds could post weak returns in the ensuing ten years. The better news is that price inflation in Canada has moderated in recent years. Investors have benefitted from falling yields over the past nearly 40 years, with Canadian bonds returning 9.3% annualized since 1981. However, in today's low-yield environment, future return expectations 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 Canada, counter to what one would expect. The future relationship between these two variables is unclear as post-GFC bill yields in Canada fell to the lowest on record, reflecting the loose monetary policy stance.
- **The growth rate during Canadian economic expansions has slowed since the 1960s**, and the current expansion's average growth rate has been the lowest out of the four available expansionary periods. Likewise, current Canadian earnings per share levels remain 9% below their peak levels reached in January 2009. The Canadian 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

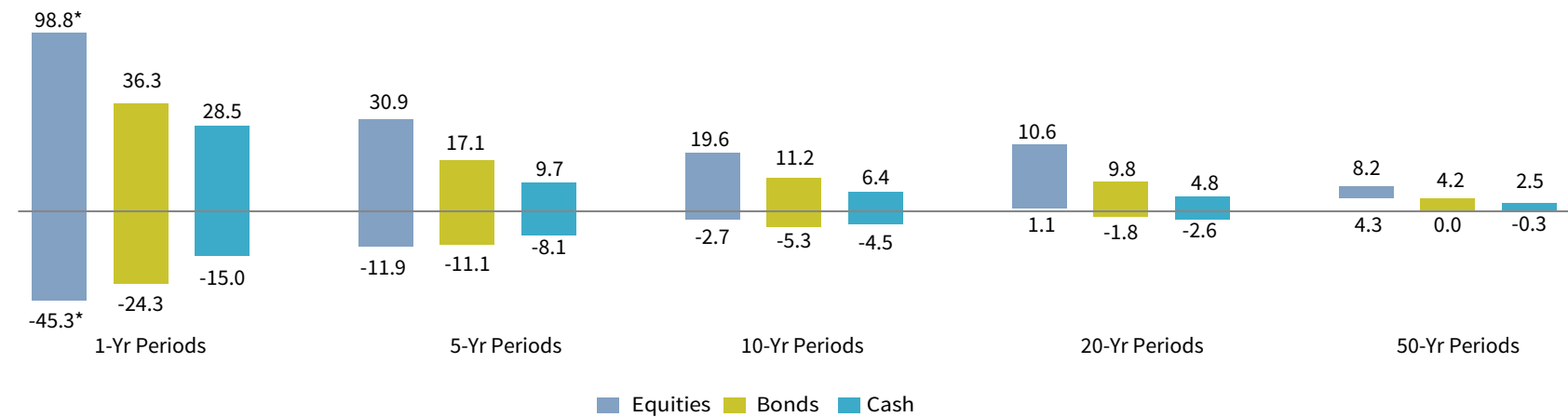
## RANGE OF EQUITY, BOND, AND CASH RETURNS FOR VARIOUS ROLLING MONTHLY TIME HORIZONS

1914–2019 • Average Annual Compound Return (%)

### Nominal Returns



### Real Returns



\* Axis capped for scaling purposes.

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

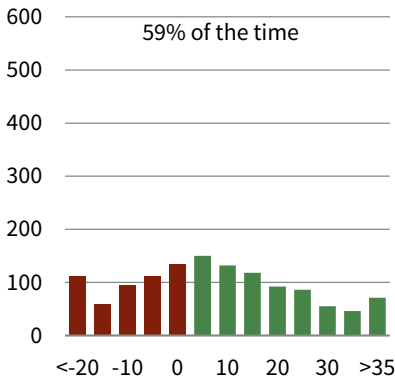
# Equities more likely to outperform bonds and cash as holding periods increase

## EXCESS RETURNS OF EQUITIES OVER BONDS AND CASH

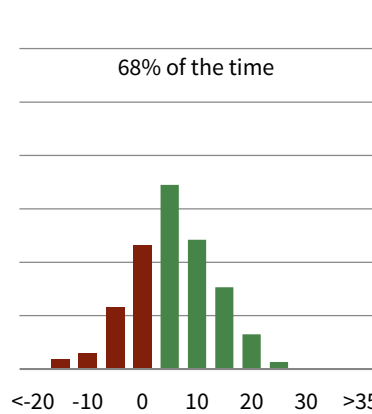
1914–2019 • Number of Rolling Monthly Periods

### 1-Yr Periods

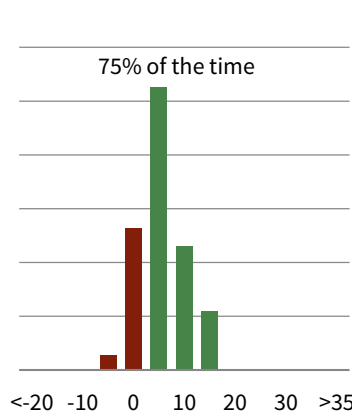
Equities have outperformed bonds



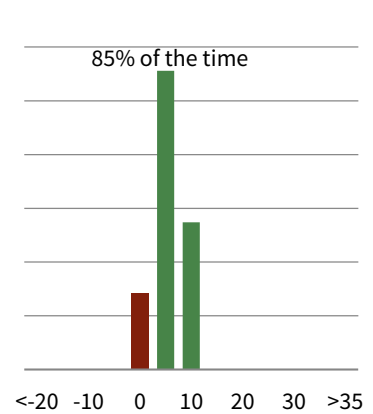
### 5-Yr Periods



### 10-Yr Periods

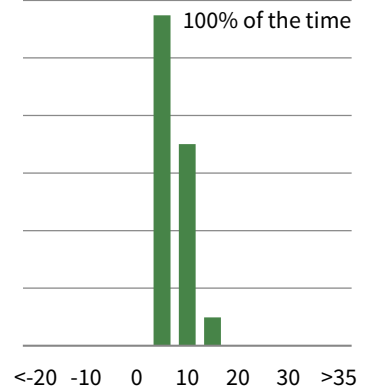
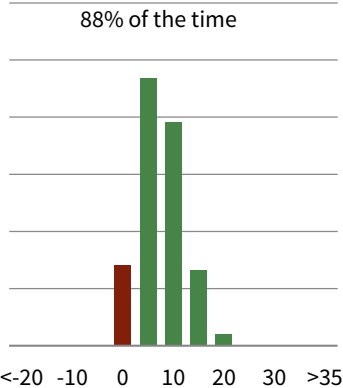
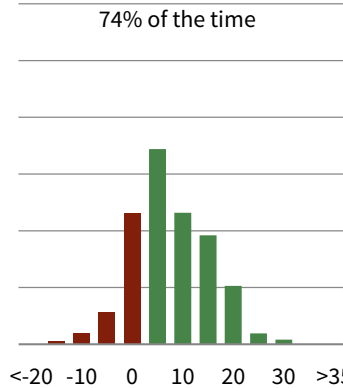
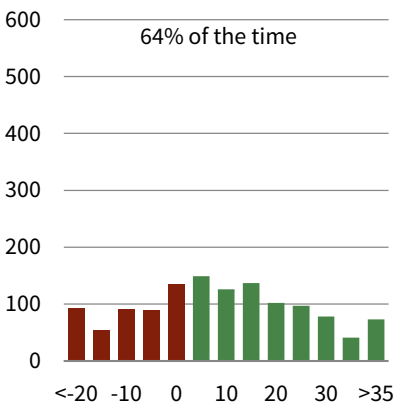


### 25-Yr Periods



AACR Differentials (ppts)

Equities have outperformed cash



AACR Differentials (ppts)

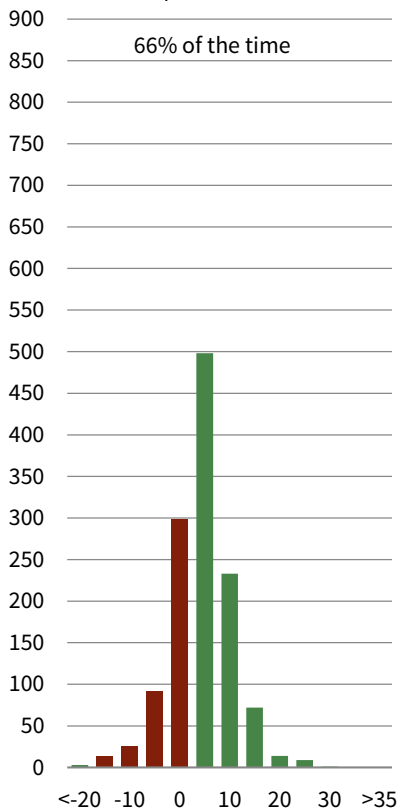
## Bonds outperformance over cash is similar over the intermediate and long term

### EXCESS RETURNS OF BONDS OVER CASH

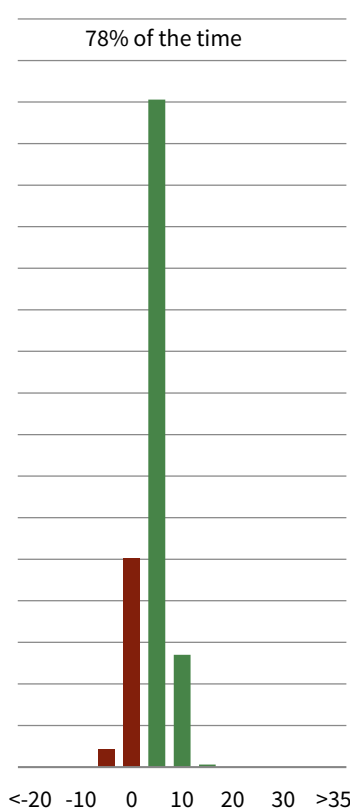
1914–2019 • Number of Rolling Monthly Periods

#### 1-Yr Periods

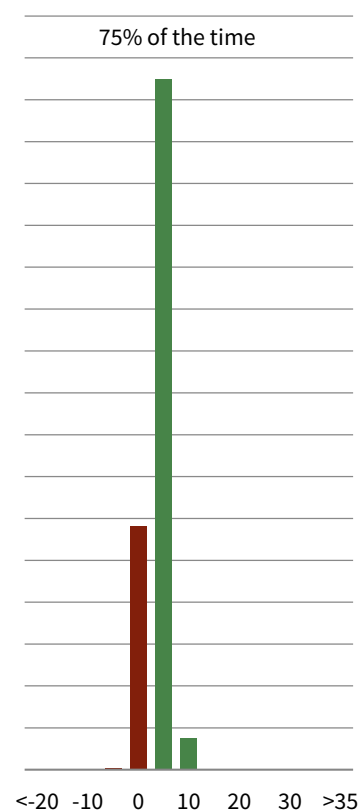
Bonds have outperformed cash



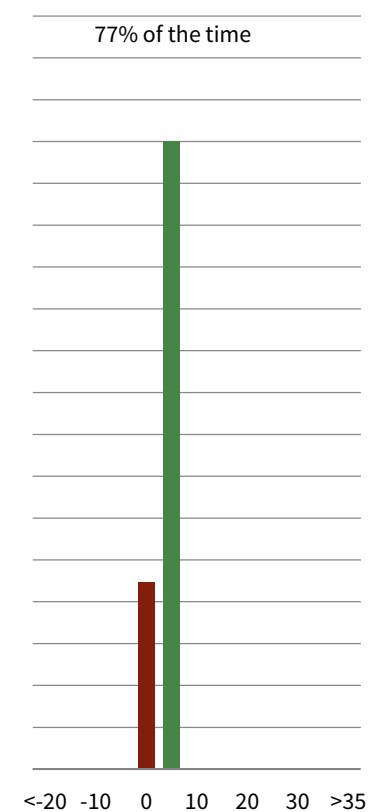
#### 5-Yr Periods



#### 10-Yr Periods



#### 25-Yr Periods



AACR Differentials (ppts)

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

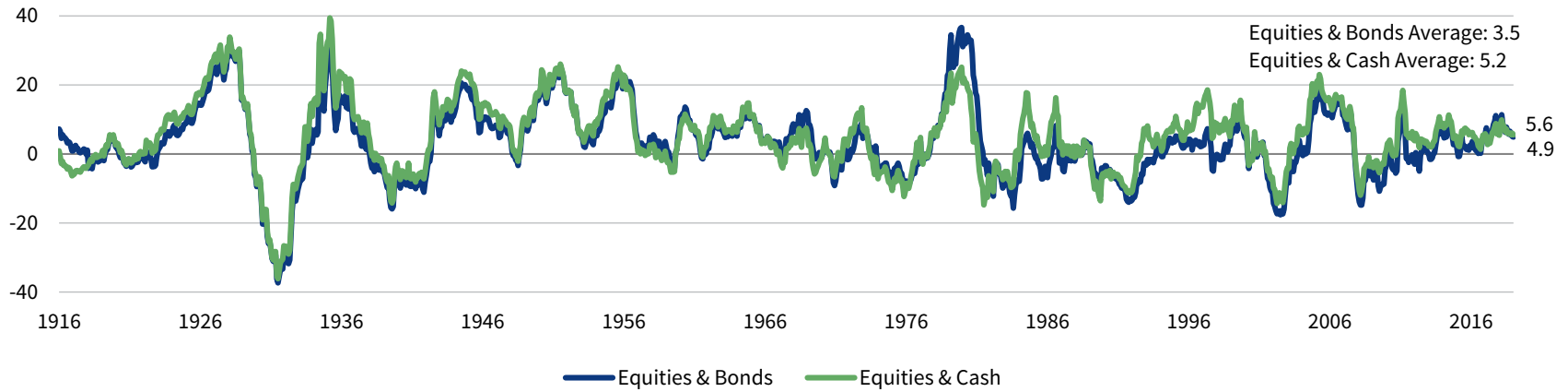
Notes: Buckets represent ranges of 5 percentage points each with the label denoting the high end of the range, inclusive. For example, the "0" bucket corresponds to the number of rolling monthly periods in which the excess return of bonds over cash was greater than -5 but equal to or less than zero.



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

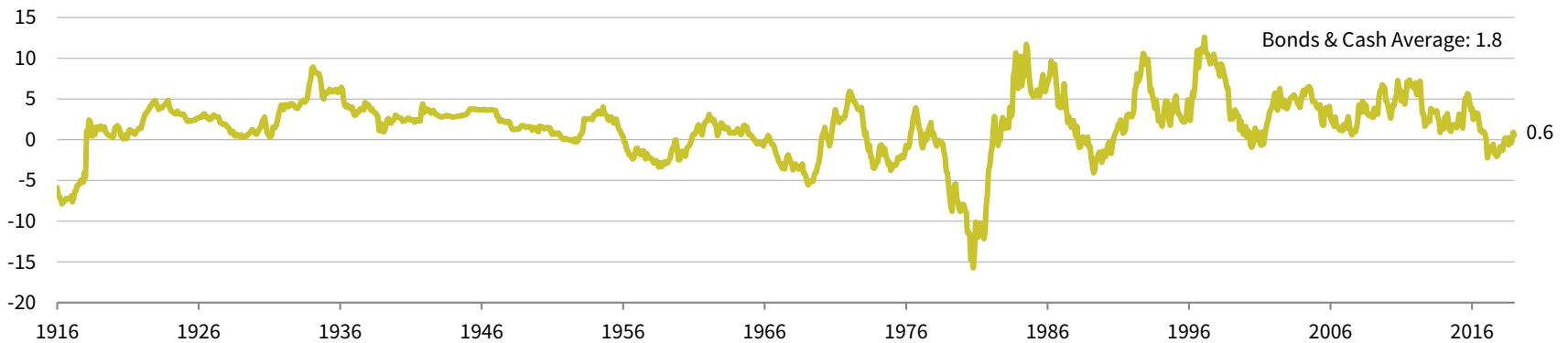
## AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN EQUITY, CASH, AND BOND RETURNS

1916–2019 • Percent (%)



## AACR OF ROLLING MONTHLY 3-YR RETURN DIFFERENTIAL BETWEEN BOND AND CASH RETURNS

1916–2019 • Percent (%)

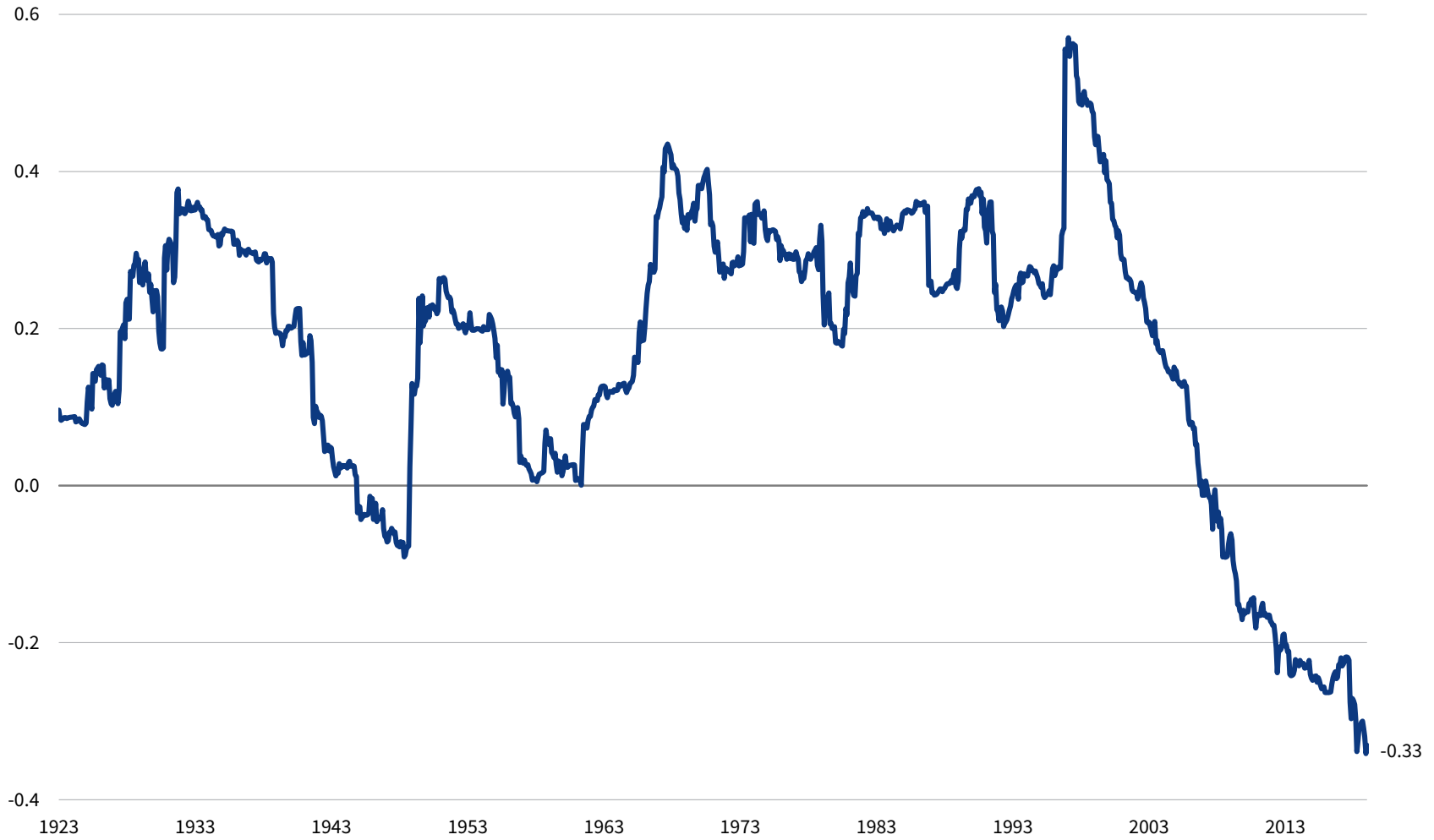


Sources: Global Financial Data, Inc. and Thomson Reuters Datastream.

## Stock and bond correlation reached an all-time low in 2019

### ROLLING 10-YR CORRELATIONS OF STOCK AND BOND RETURNS

December 31, 1923 – December 31, 2019 • Correlation Coefficient



Source: Global Financial Data, Inc.

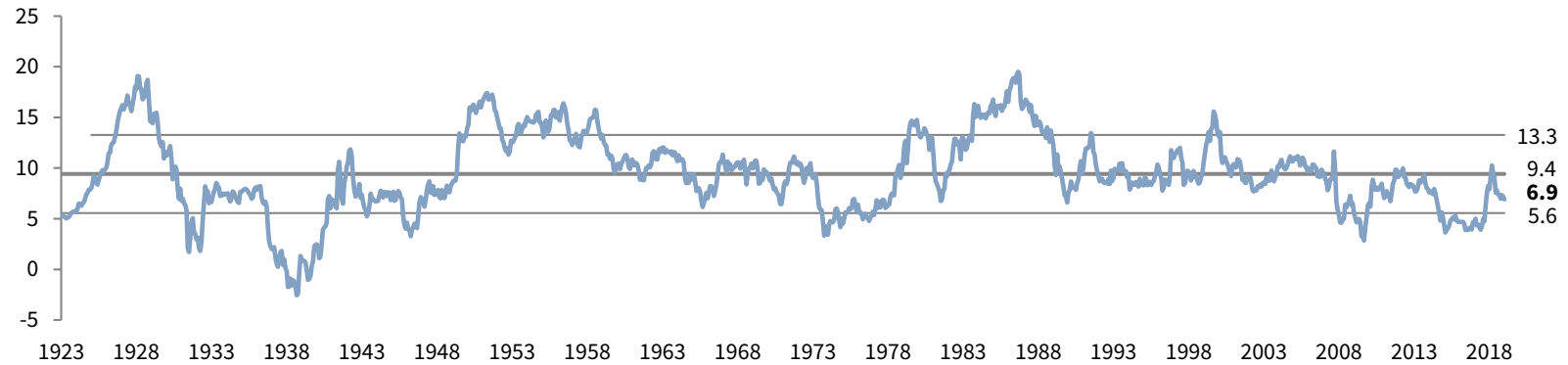
Notes: Data begin on January 31, 1914. All return data are monthly.

# Equity performance mean reversion is not a smooth process

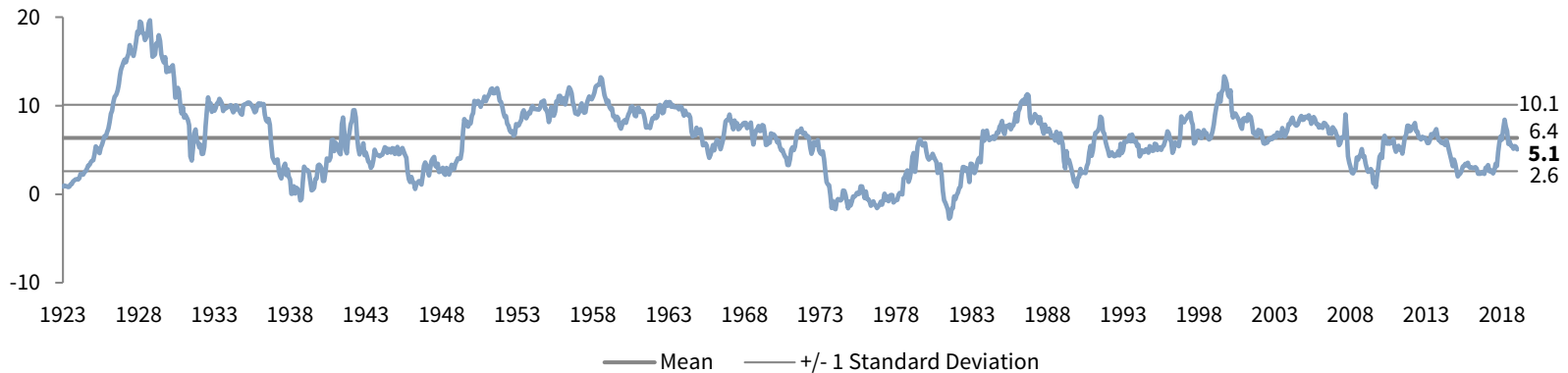
## ROLLING MONTHLY TOTAL RETURN 10-YR AACR

1923–2019 • Percent (%)

### Nominal Returns

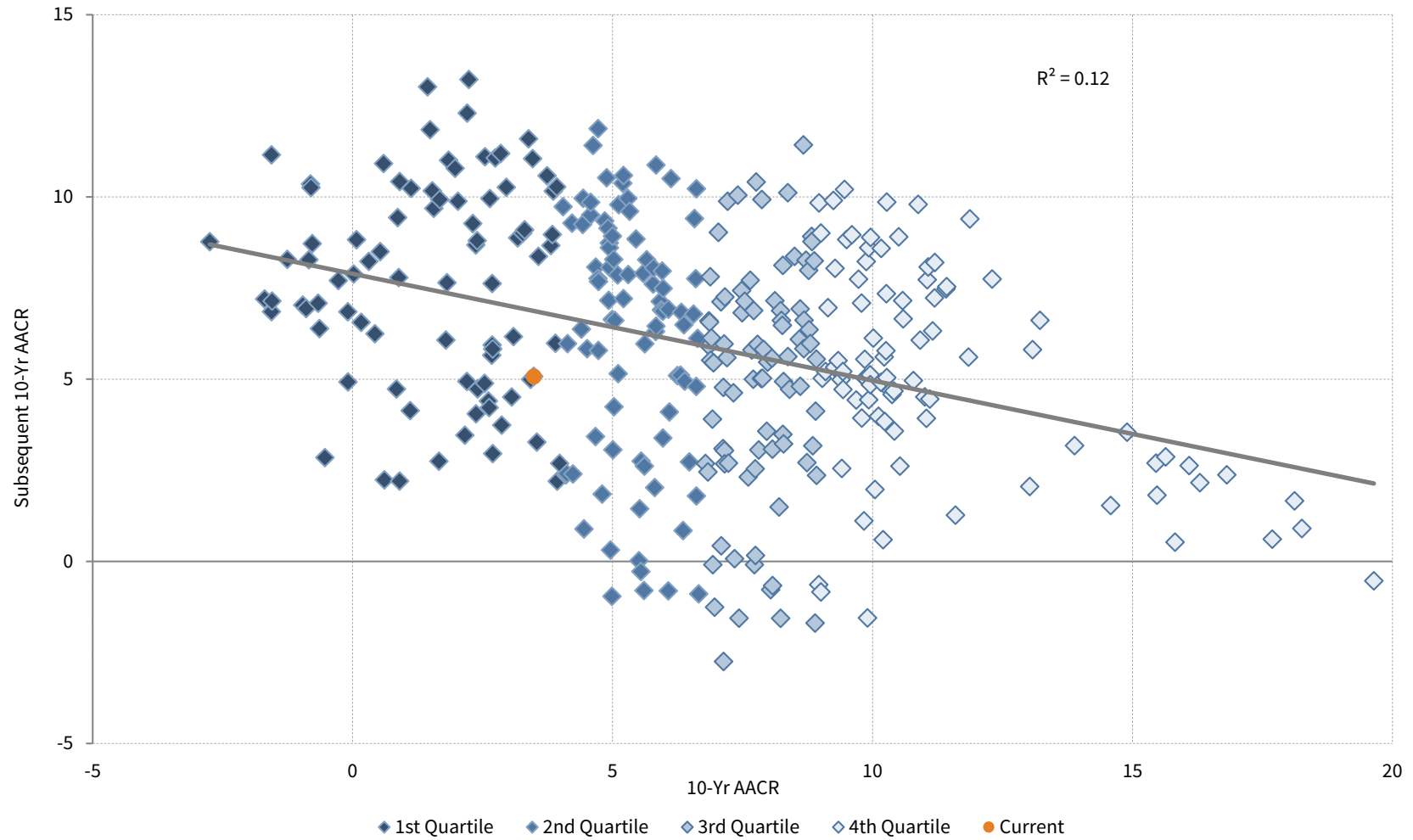


### Real Returns



## Weak but slightly inverse relationship between past and future performance

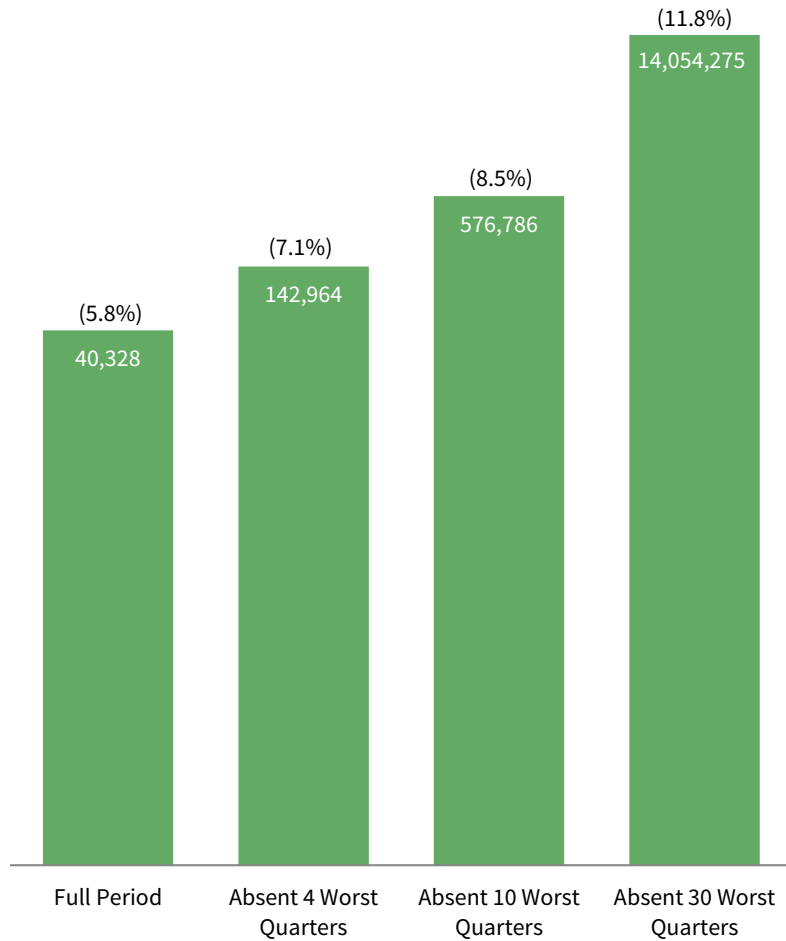
RELATIONSHIP BETWEEN ROLLING QUARTERLY 10-YR EQUITY REAL AACR AND SUBSEQUENT 10-YR EQUITY REAL AACR  
1914–2019 • Percent (%)



## Attempting to time the market carries significant risk

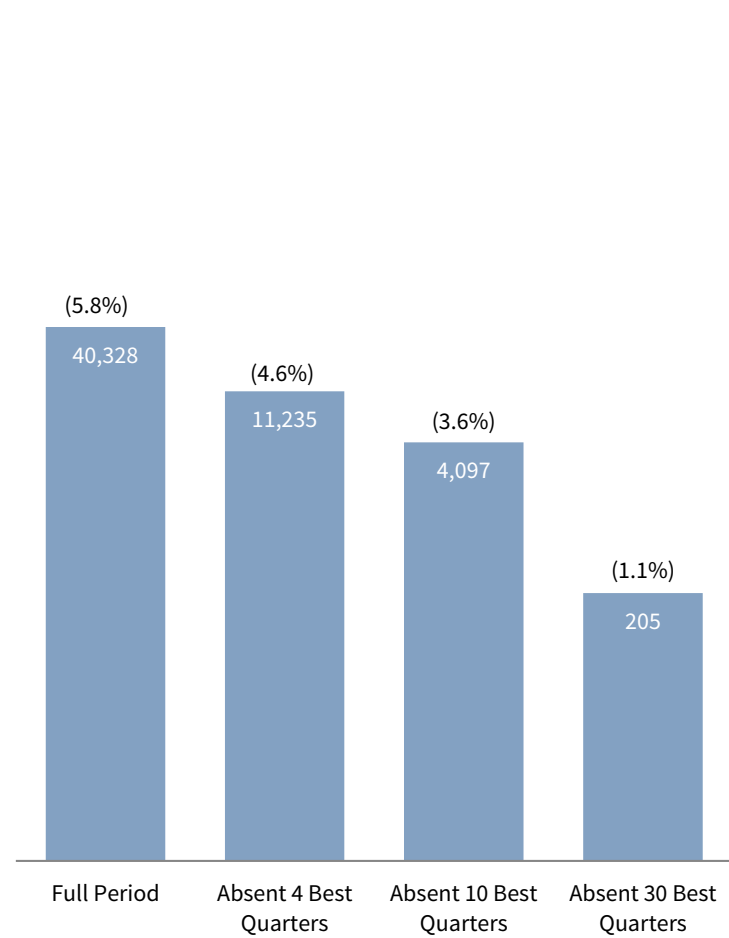
### CUMULATIVE REAL WEALTH ABSENT WORST QUARTERS

1914–2019 • January 1, 1914 = 100 • AACR (%) in Parentheses



### CUMULATIVE REAL WEALTH ABSENT BEST QUARTERS

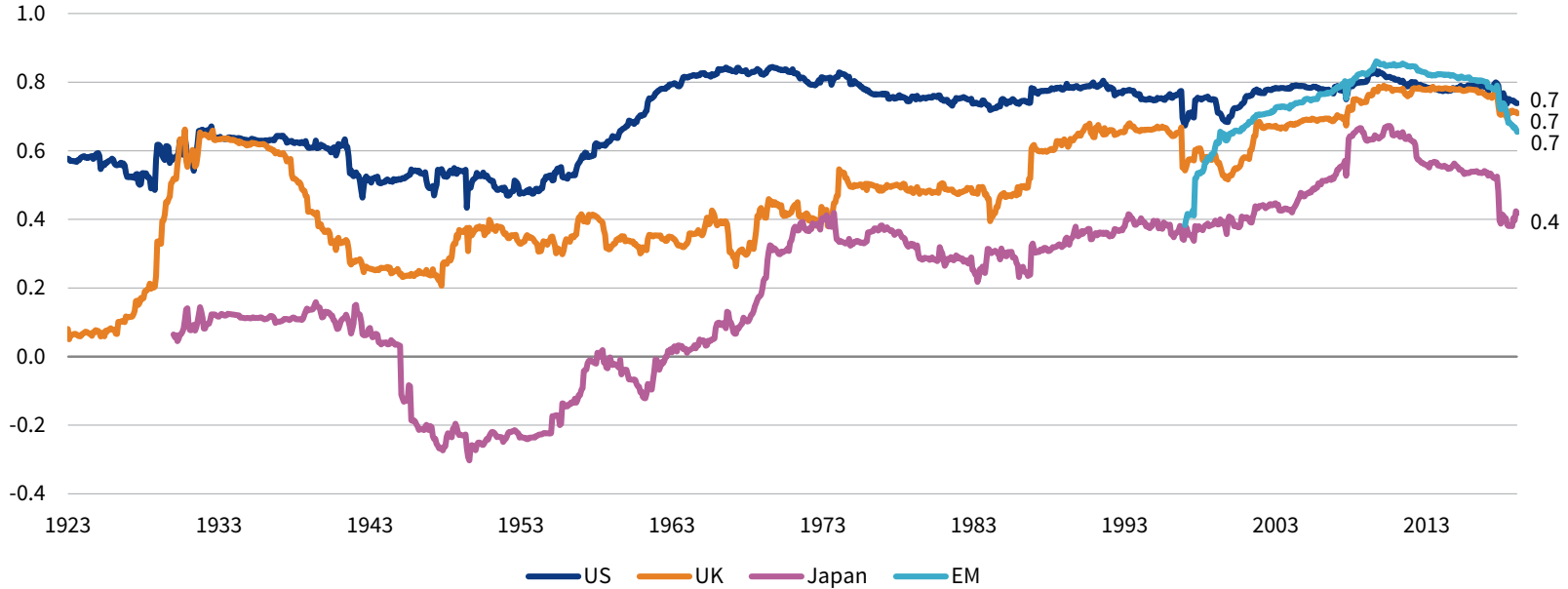
1914–2019 • January 1, 1914 = 100 • AACR (%) in Parentheses



# Interregional equity correlations have increased, but turned slightly lower in the past decade

## ROLLING 10-YR CORRELATIONS: CANADA EQUITY VS GLOBAL PEERS

December 31, 1923 – December 31, 2019 • Correlation Coefficient



### CORRELATION MATRIX

January 31, 1914 – December 31, 1969

	Canada	US	UK	Japan
Canada	1.00			
US	0.61	1.00		
UK	0.36	0.21	1.00	
Japan	-0.01	-0.02	0.01	1.00

### CORRELATION MATRIX

January 31, 1970 – December 31, 2019

	Canada	US	UK	Japan	EM
Canada	1.00				
US	0.76	1.00			
UK	0.58	0.62	1.00		
Japan	0.41	0.44	0.38	1.00	
EM	0.67	0.67	0.62	0.50	1.00

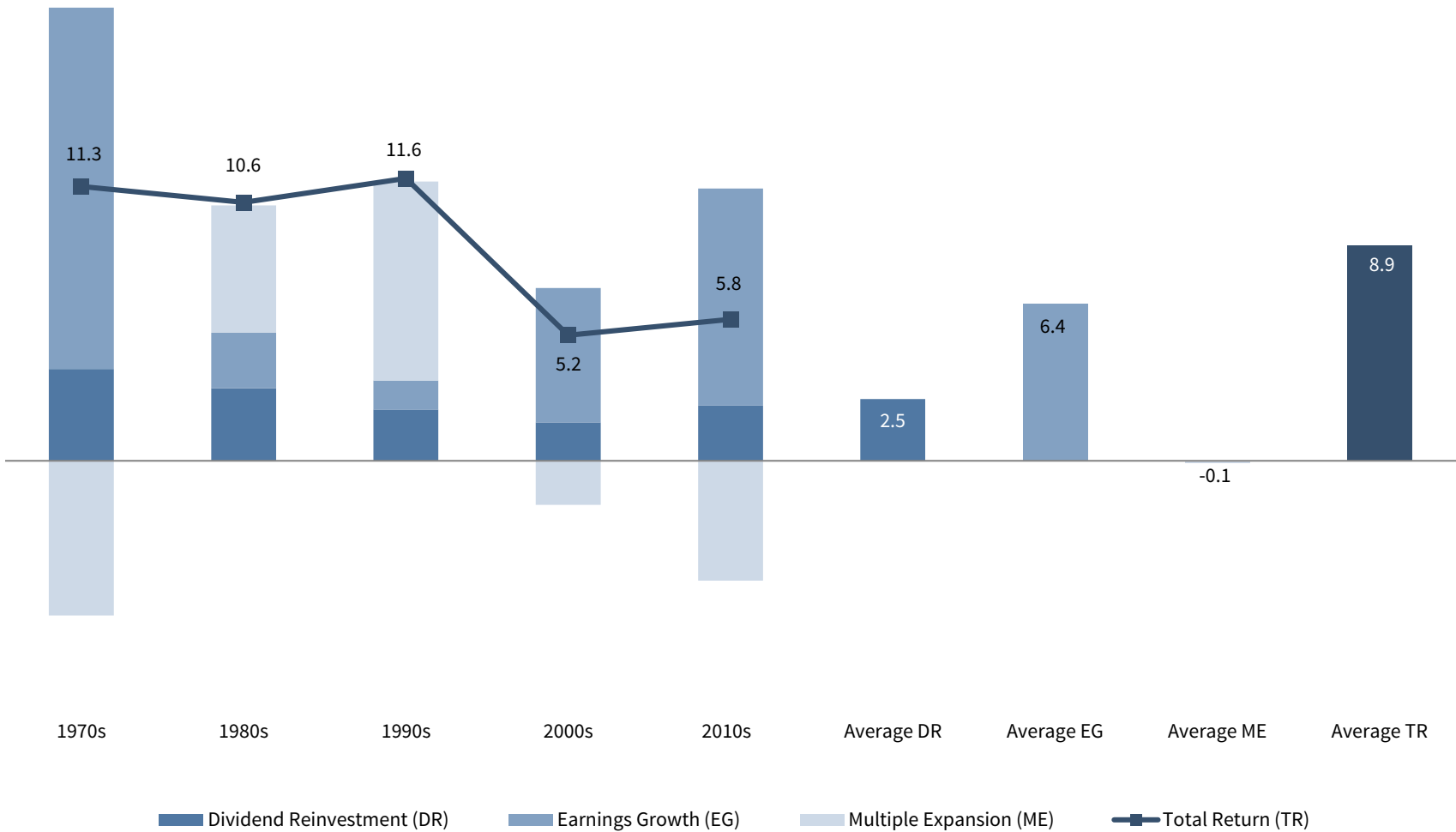
Sources: FTSE International Limited, Global Financial Data, Inc., MSCI Inc., Standard & Poor's, and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

Notes: Data for the Canada, US, and UK begin on January 31, 1914. 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.

# Earnings growth has been the primary contributor to total return, followed by stable dividends

## BREAKDOWN OF TOTAL RETURN AACR OVER TIME

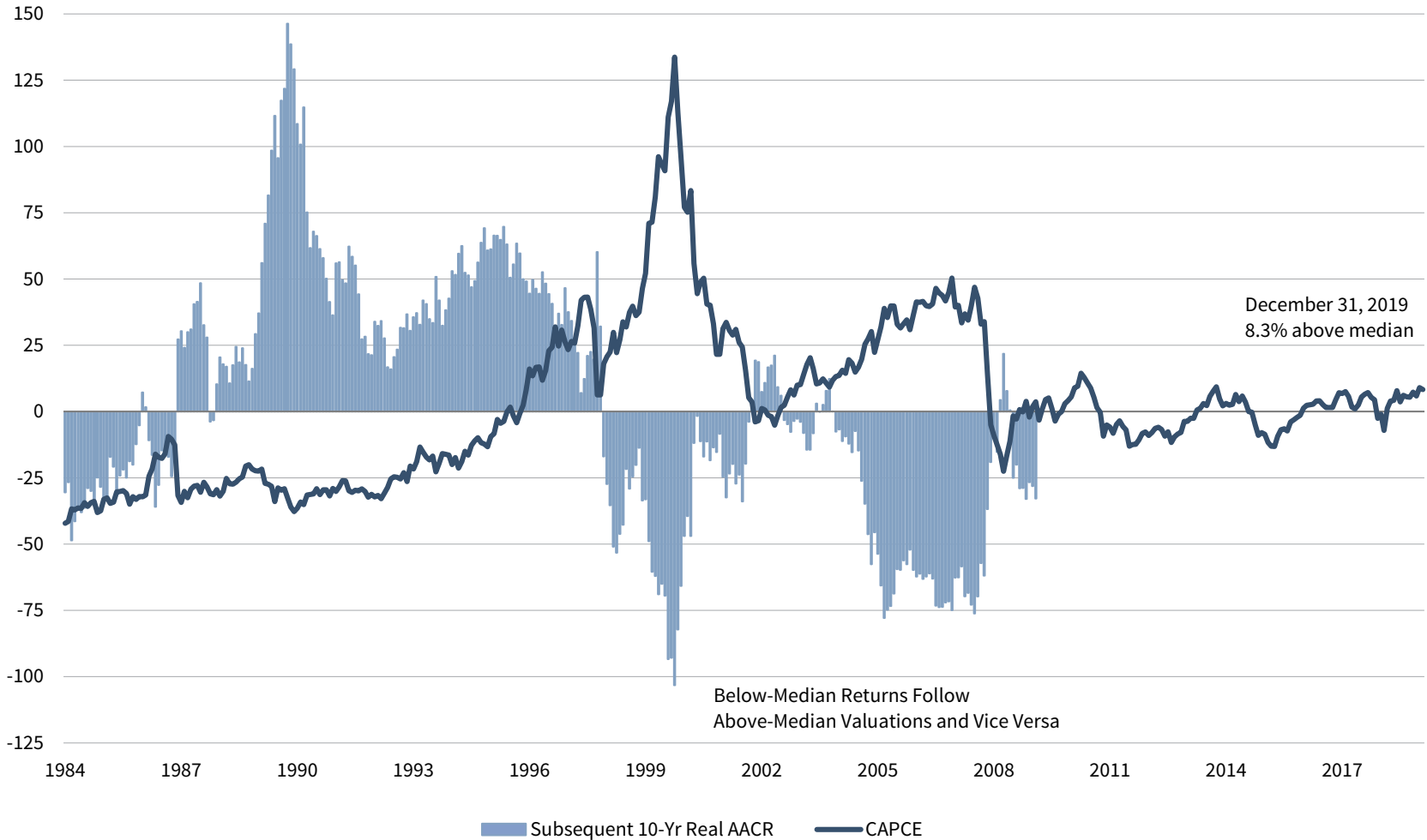
1970–2019 • Percent (%)



## High valuations imply weak subsequent returns, and vice versa

### CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS RATIOS AND SUBSEQUENT REAL 10-YR AACRS

November 30, 1984 – December 31, 2019 • Shown as Percent Above/Below Respective Long-Term Median (%)



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 6.0% since 1984. For example, the first data point shows that the real AACR for the period 1984-94 was 31% below the median ten-year real return.

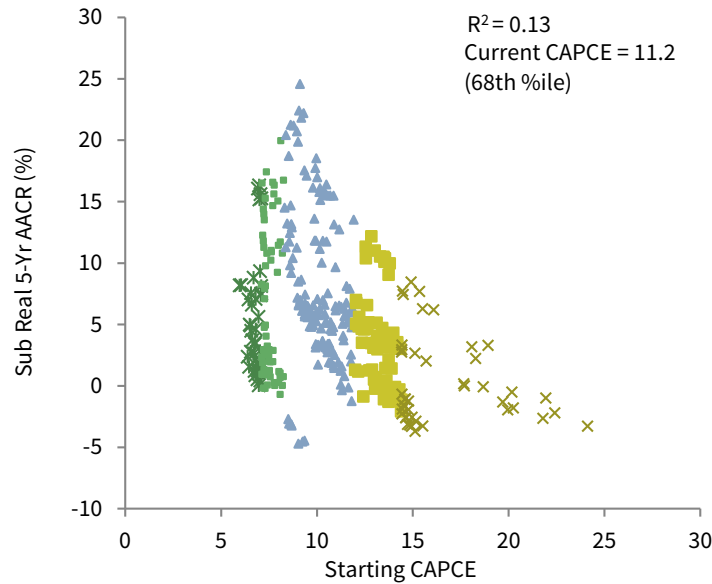


# Starting Canadian equity valuations are a more useful guide to longer-term returns

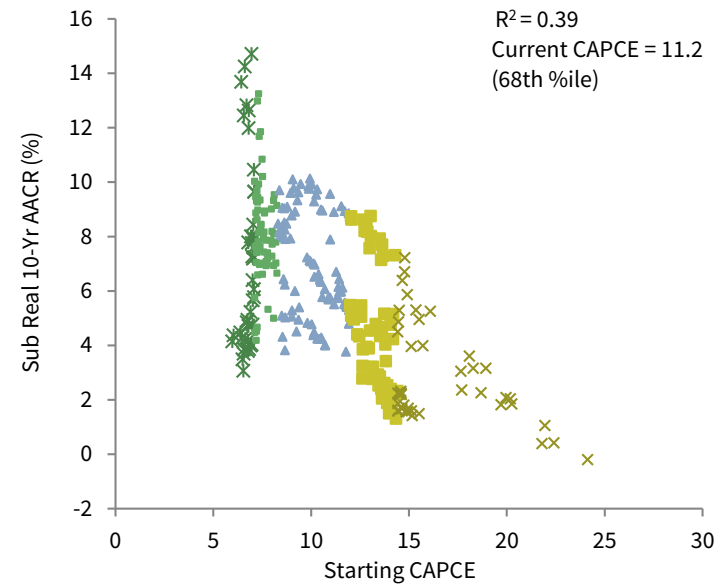
## RELATIONSHIP BETWEEN CYCLICALLY ADJUSTED PRICE-TO-CASH EARNINGS RATIOS AND SUBSEQUENT REAL 5- AND 10-YR AACRS

November 30, 1984 – December 31, 2019

### Initial Valuation and Subsequent 5-Yr AACR



### Initial Valuation and Subsequent 10-Yr AACR



P/CE Ratio Percentile	Starting Cyclically Adjusted Price-to-Cash Earnings Ratio			Subsequent Real 5-Yr AACR (%)			Starting Cyclically Adjusted Price-to-Cash Earnings Ratio			Subsequent Real 10-Yr AACR (%)		
	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
0-10	6.8	7.1	6.0	3.7	16.3	0.0	6.8	7.1	6.0	6.1	14.7	3.1
10-25	7.4	8.3	7.1	4.0	20.0	-0.7	7.4	8.3	7.1	7.9	13.2	4.2
25-75	10.1	12.0	8.3	6.3	24.6	-4.7	10.1	12.0	8.3	6.6	10.1	3.8
75-90	13.4	14.4	12.0	3.3	12.2	-2.1	13.4	14.4	12.0	4.4	8.8	1.3
90-100	15.1	24.1	14.4	-1.1	8.5	-3.7	15.1	24.1	14.4	2.2	7.2	-0.2
<b>Overall</b>	<b>10.1</b>	<b>24.1</b>	<b>6.0</b>	<b>4.8</b>	<b>24.6</b>	<b>-4.7</b>	<b>10.1</b>	<b>24.1</b>	<b>6.0</b>	<b>6.0</b>	<b>14.7</b>	<b>-0.2</b>

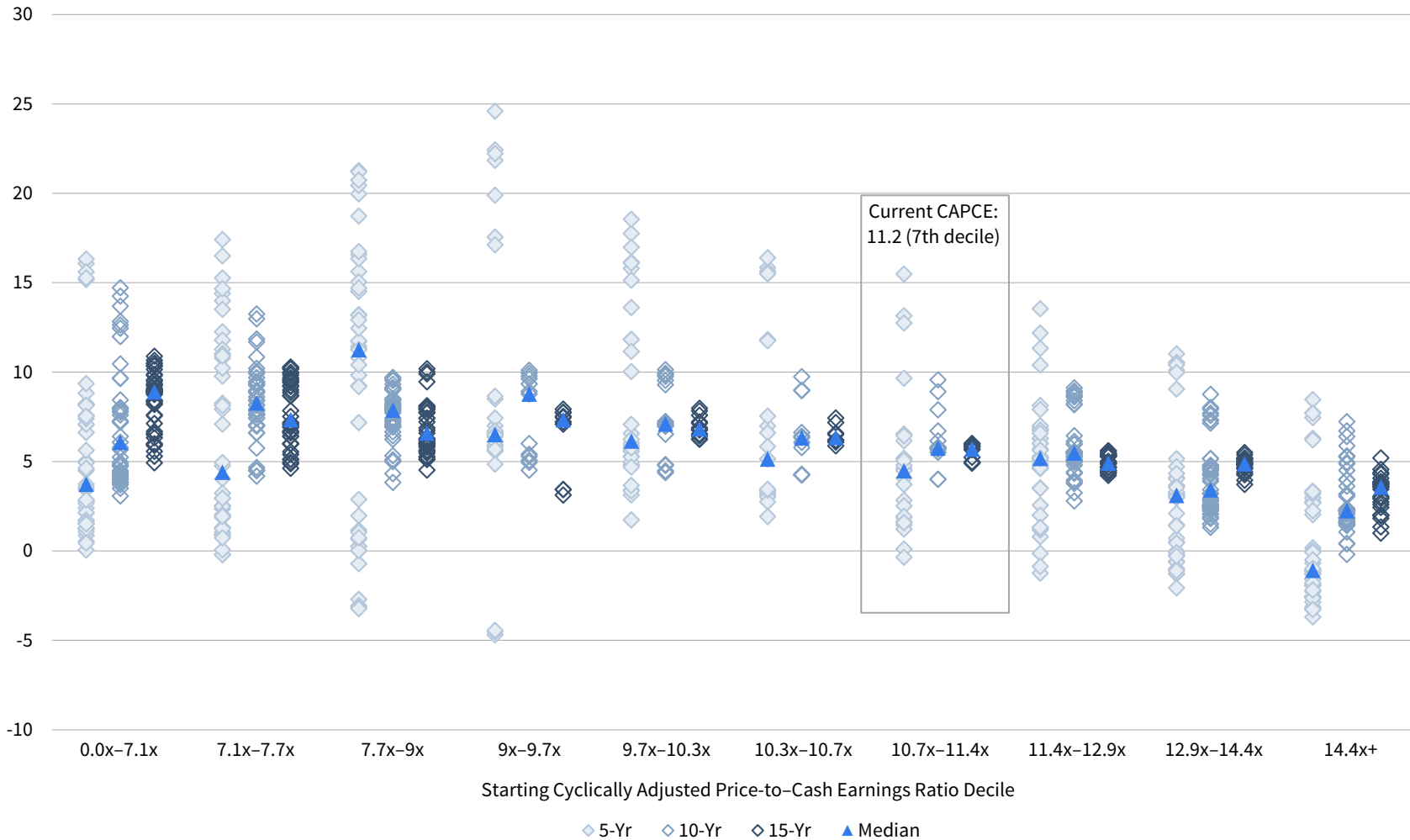
Sources: MSCI Inc. and Thomson Reuters Datastream. MSCI data provided "as is" without any express or implied warranties.

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

### DISTRIBUTION OF SUBSEQUENT REAL RETURNS FROM STARTING NORMALIZED VALUATION DECILES

November 30, 1984 – December 31, 2019 • Subsequent Real Return AACR (%)



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

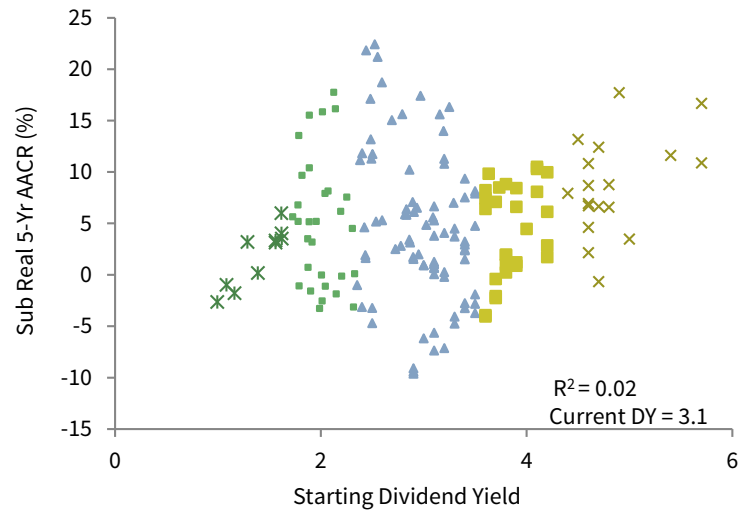
Notes: Data are monthly. The last full five-year period was January 1, 2015, to December 31, 2019, the last full ten-year period was January 1, 2010, to December 31, 2019, and the last full 15-year period was January 1, 2005, to December 31, 2019.

# Effectively no relationship between Canadian dividend yields and subsequent returns

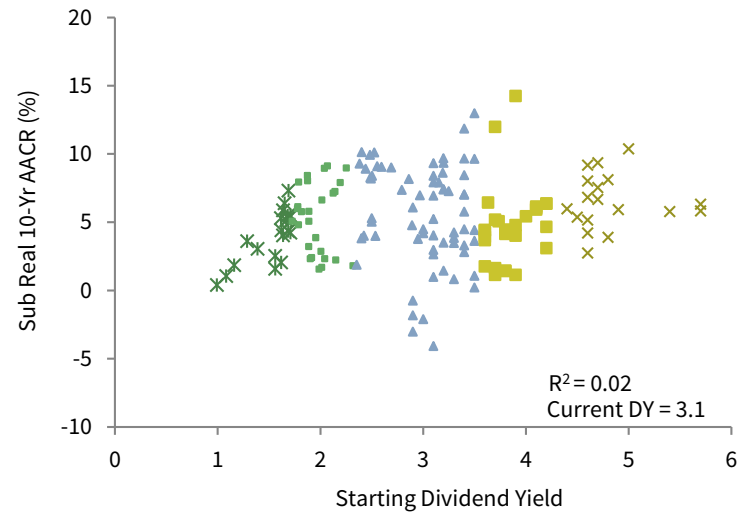
## RELATIONSHIP BETWEEN DIVIDEND YIELDS AND SUBSEQUENT REAL AACRS

Fourth Quarter 1969 – Fourth Quarter 2019

### Dividend Yield and Subsequent 5-YR AACR



### Dividend Yield and Subsequent 10-YR AACR

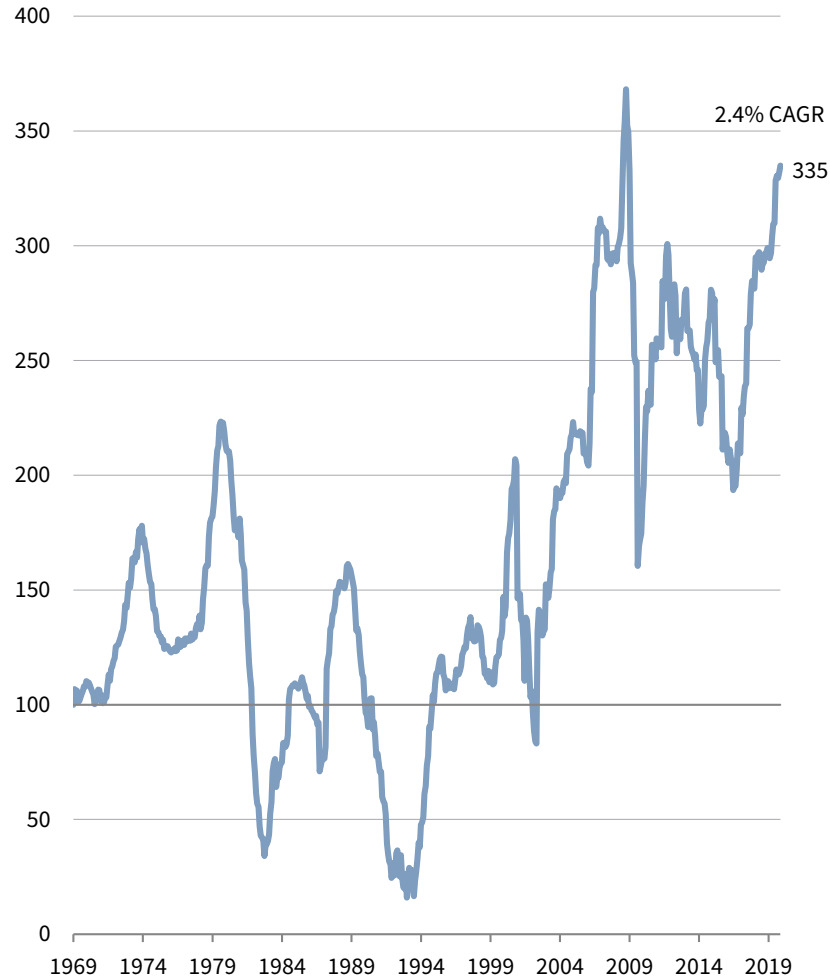


Dividend Yield Percentile	Starting Period Dividend Yield (%)			Subsequent Real 5-Yr AACR (%)			Starting Period Dividend Yield (%)			Subsequent Real 10-Yr AACR (%)		
	Median	High	Low	Median	High	Low	Median	High	Low	Median	High	Low
0-10	1.5	1.6	1.0	3.2	6.0	-2.6	1.6	1.7	1.0	4.3	7.3	0.4
10-25	2.0	2.3	1.7	5.2	17.8	-3.3	2.0	2.3	1.7	5.8	9.1	1.6
25-75	3.0	3.5	2.4	3.6	22.4	-9.6	3.1	3.5	2.4	5.8	13.0	-4.1
75-90	3.8	4.2	3.6	5.3	10.5	-4.0	3.8	4.2	3.6	4.4	14.3	1.1
90-100	4.7	6.1	4.4	8.7	20.4	-0.7	4.7	6.1	4.4	6.3	10.4	2.7
<b>Overall</b>	<b>3.0</b>	<b>6.1</b>	<b>1.0</b>	<b>4.5</b>	<b>22.4</b>	<b>-9.6</b>	<b>3.1</b>	<b>6.1</b>	<b>1.0</b>	<b>5.2</b>	<b>14.3</b>	<b>-4.1</b>

## Canadian real EPS levels remain below pre-GFC peak

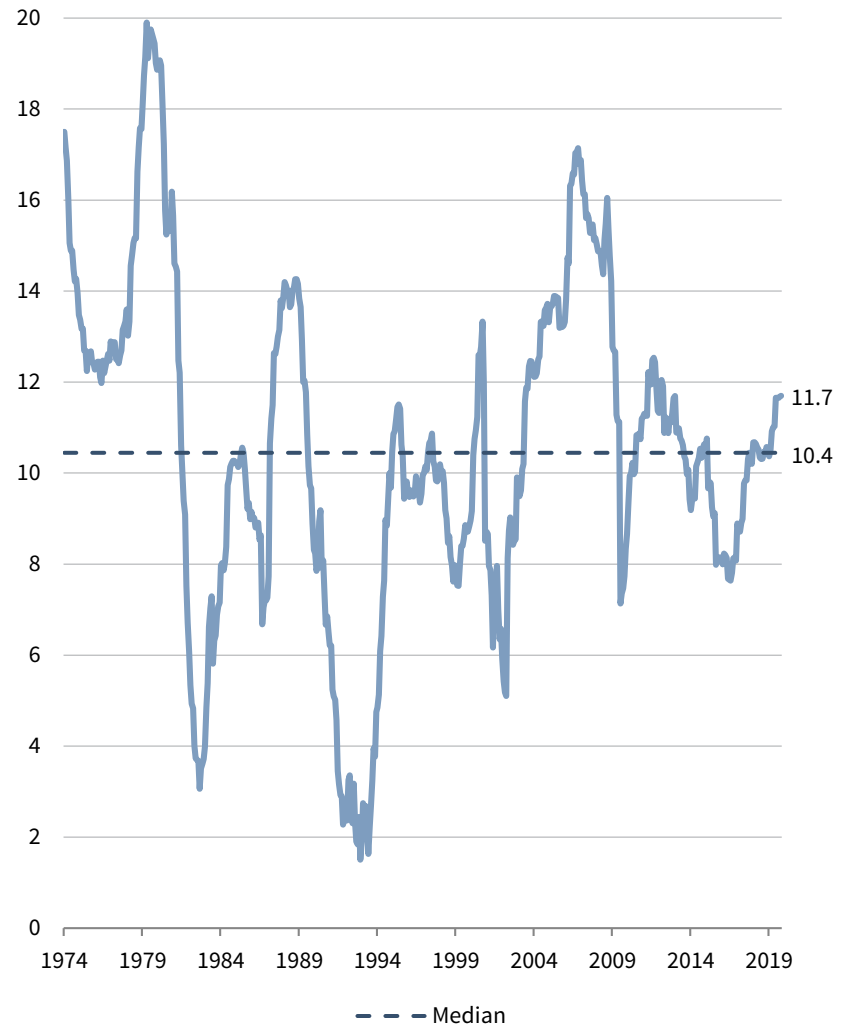
### REAL EARNINGS PER SHARE OVER TIME

December 31, 1969 – December 31, 2019 • December 31, 1969 Cumulative Wealth = 100



### RETURN ON EQUITY

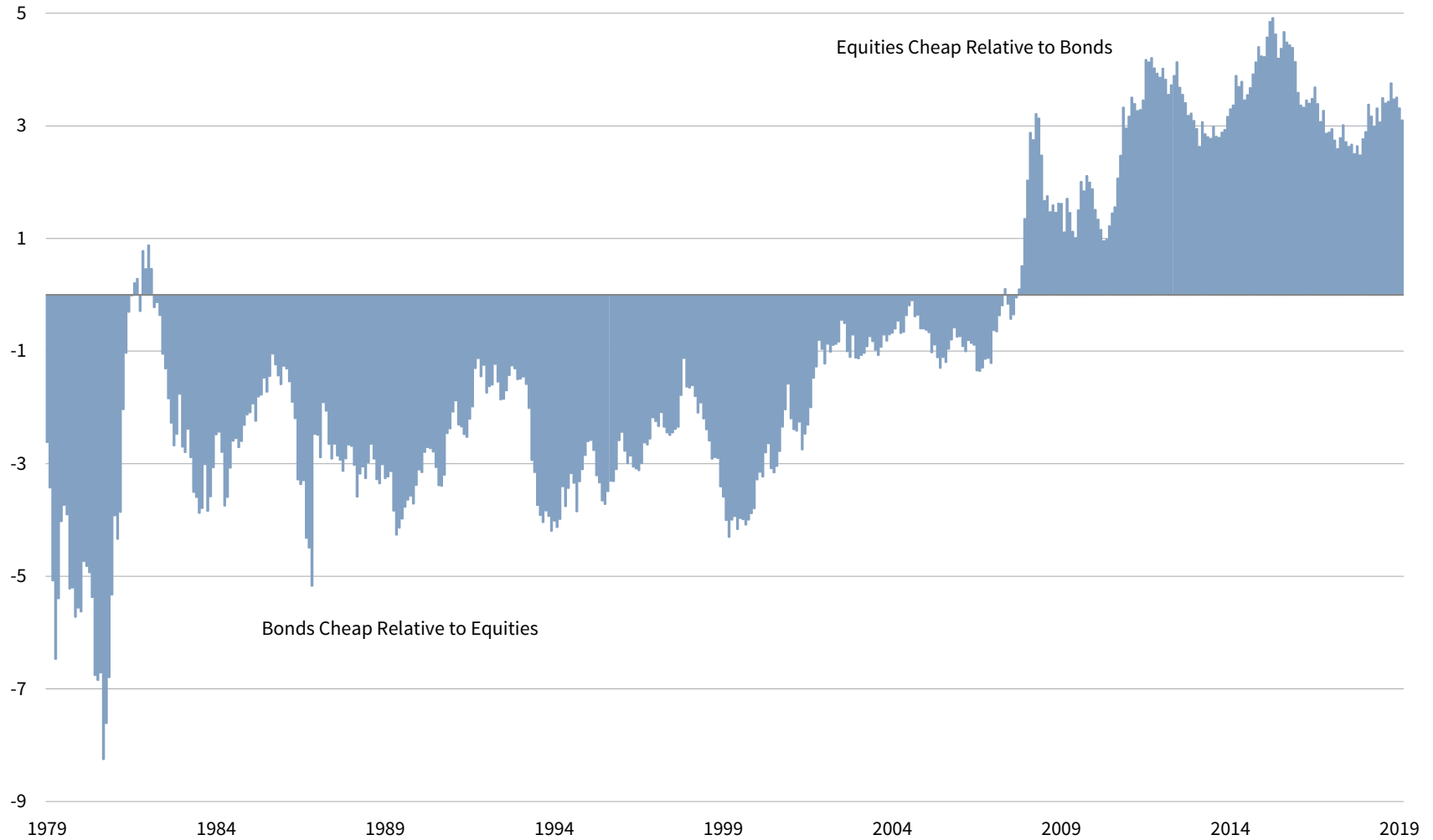
December 31, 1974 – December 31, 2019 • Percent (%)



## Post-GFC low-yield environment has made equities more attractive to bonds

### SHILLER EARNINGS YIELDS VERSUS 10-YR BOND YIELDS

1979–2019



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.

# Bond returns closely track the starting yield

RELATIONSHIP BETWEEN GOVERNMENT BOND YIELDS AND SUBSEQUENT 10-YR AACRS

1900–2019 • Percent (%)



Source: Global Financial Data, Inc.

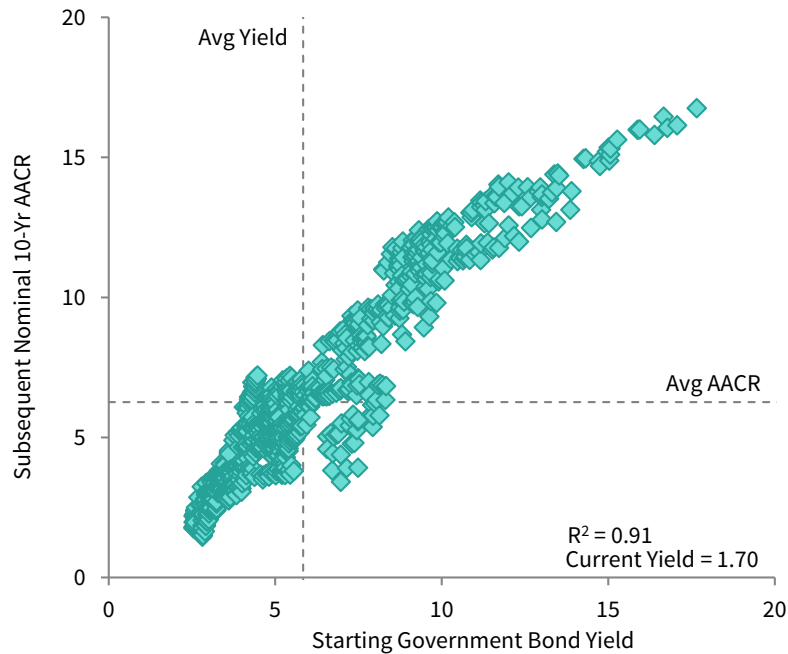
Notes: Data are monthly. The last full ten-year period was January 1, 2010, to December 31, 2019.

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

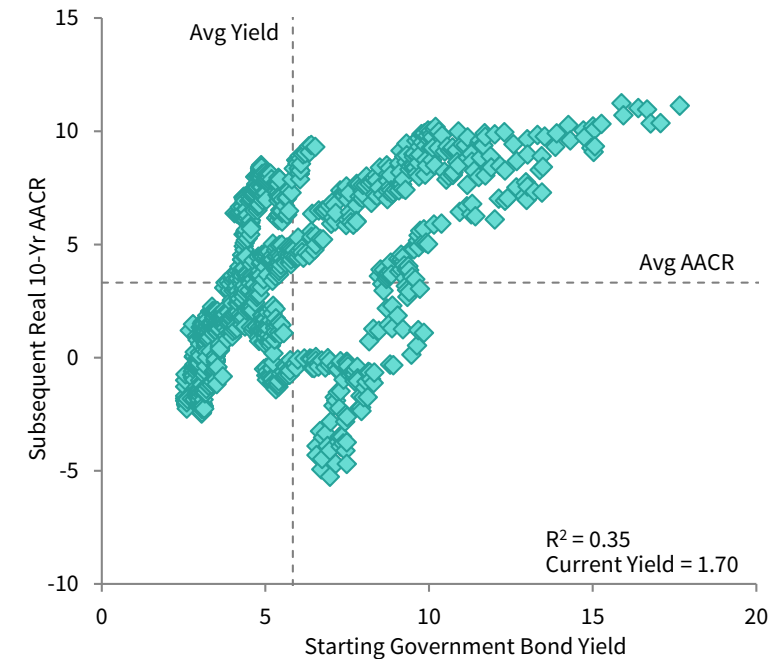
## RELATIONSHIP BETWEEN GOVERNMENT BOND YIELDS AND SUBSEQUENT 10-YR AACRS

1914–2019 • Percent (%)

### Nominal Returns



### Real Returns



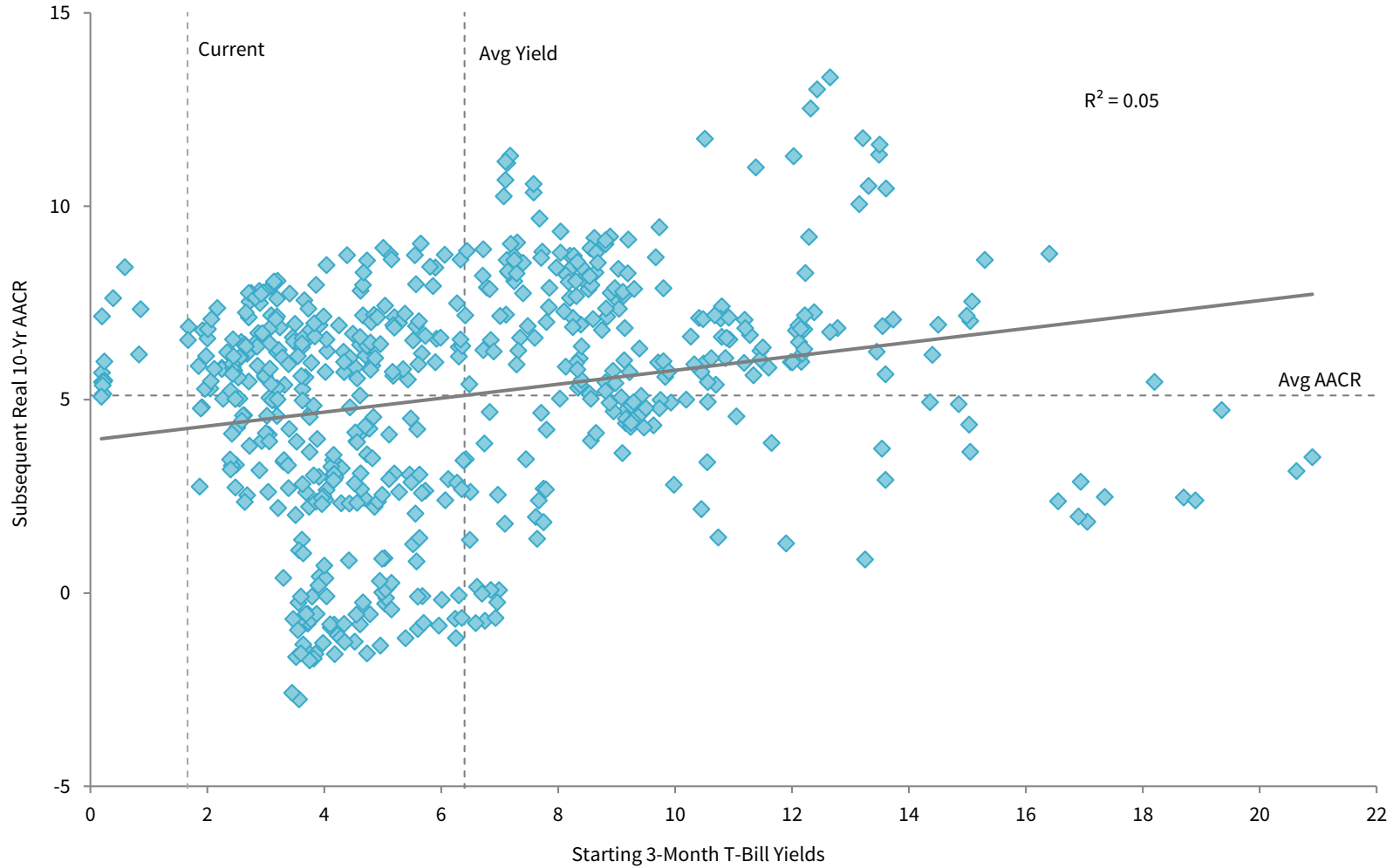
Yield	Starting Period Government Bond Yields			Subsequent Nominal 10-Yr AACR (%)			
	Mean	High	Low	Mean	High	Low	Std Dev
Quartiles							
First	3.14	3.65	2.55	2.94	4.53	1.46	0.66
Second	4.45	5.03	3.67	5.07	7.21	2.94	1.02
Third	5.81	7.44	5.03	5.90	9.34	3.42	1.19
Fourth	9.95	17.66	7.45	11.13	16.76	3.92	2.28
<b>Overall</b>	<b>5.84</b>	<b>17.66</b>	<b>2.55</b>	<b>6.26</b>	<b>16.76</b>	<b>1.46</b>	<b>3.33</b>

Yield	Starting Period Government Bond Yields			Subsequent Real 10-Yr AACR (%)			
	Mean	High	Low	Mean	High	Low	Std Dev
Quartiles							
First	3.14	3.65	2.55	-0.23	2.25	-2.47	1.42
Second	4.45	5.03	3.67	4.13	8.50	-0.83	2.45
Third	5.81	7.44	5.03	3.22	9.39	-5.26	3.68
Fourth	9.95	17.66	7.45	6.15	11.23	-4.70	3.67
<b>Overall</b>	<b>5.84</b>	<b>17.66</b>	<b>2.55</b>	<b>3.32</b>	<b>11.23</b>	<b>-5.26</b>	<b>3.75</b>

# Higher cash yields associated with higher equity returns historically, but relationship is weak

## RELATIONSHIP BETWEEN TREASURY BILL YIELDS AND SUBSEQUENT REAL 10-YR EQUITY AACRS

January 31, 1960 – December 31, 2019 • Percent (%)

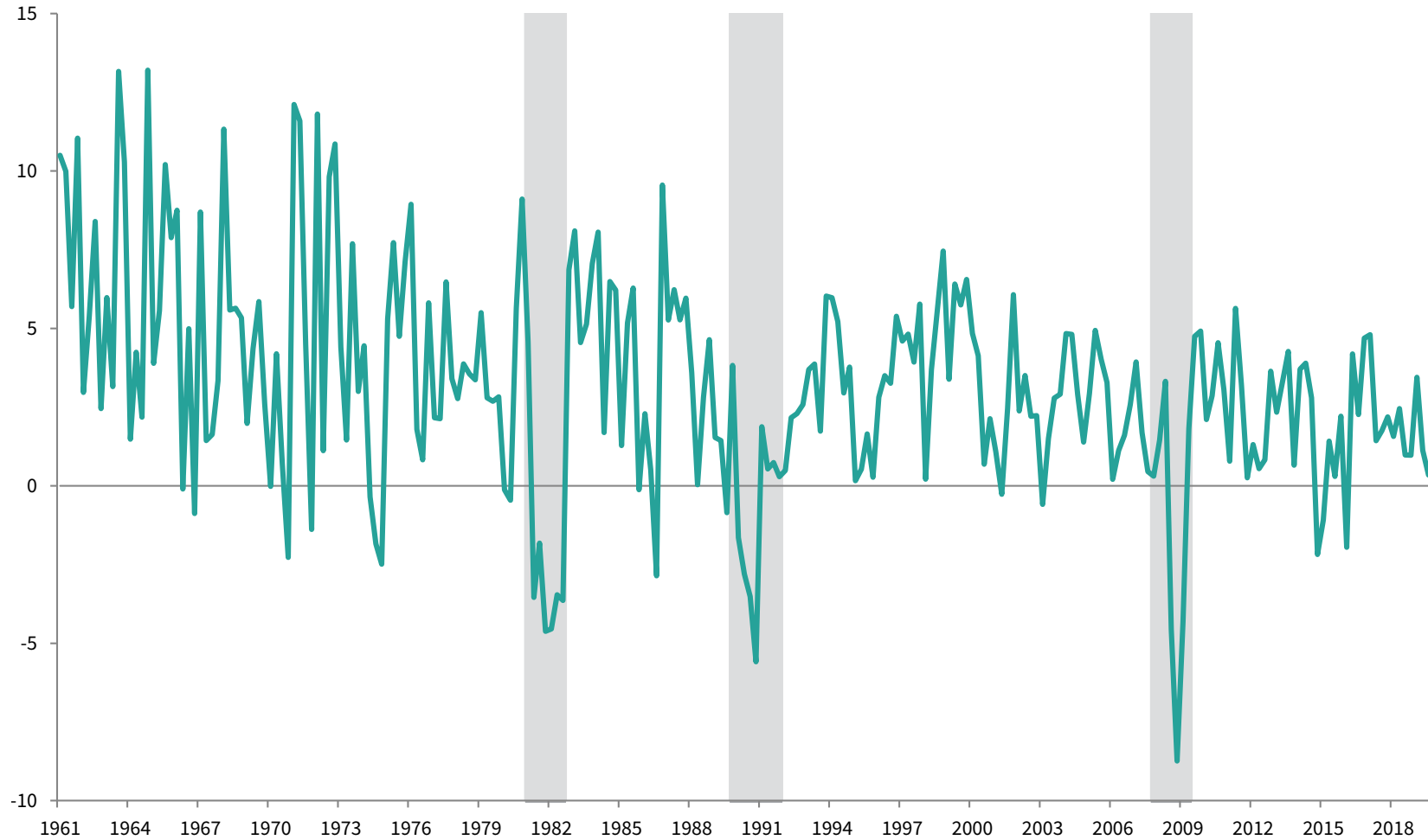




## Average growth this cycle has been weakest since the early 1960s

### CANADA REAL GDP

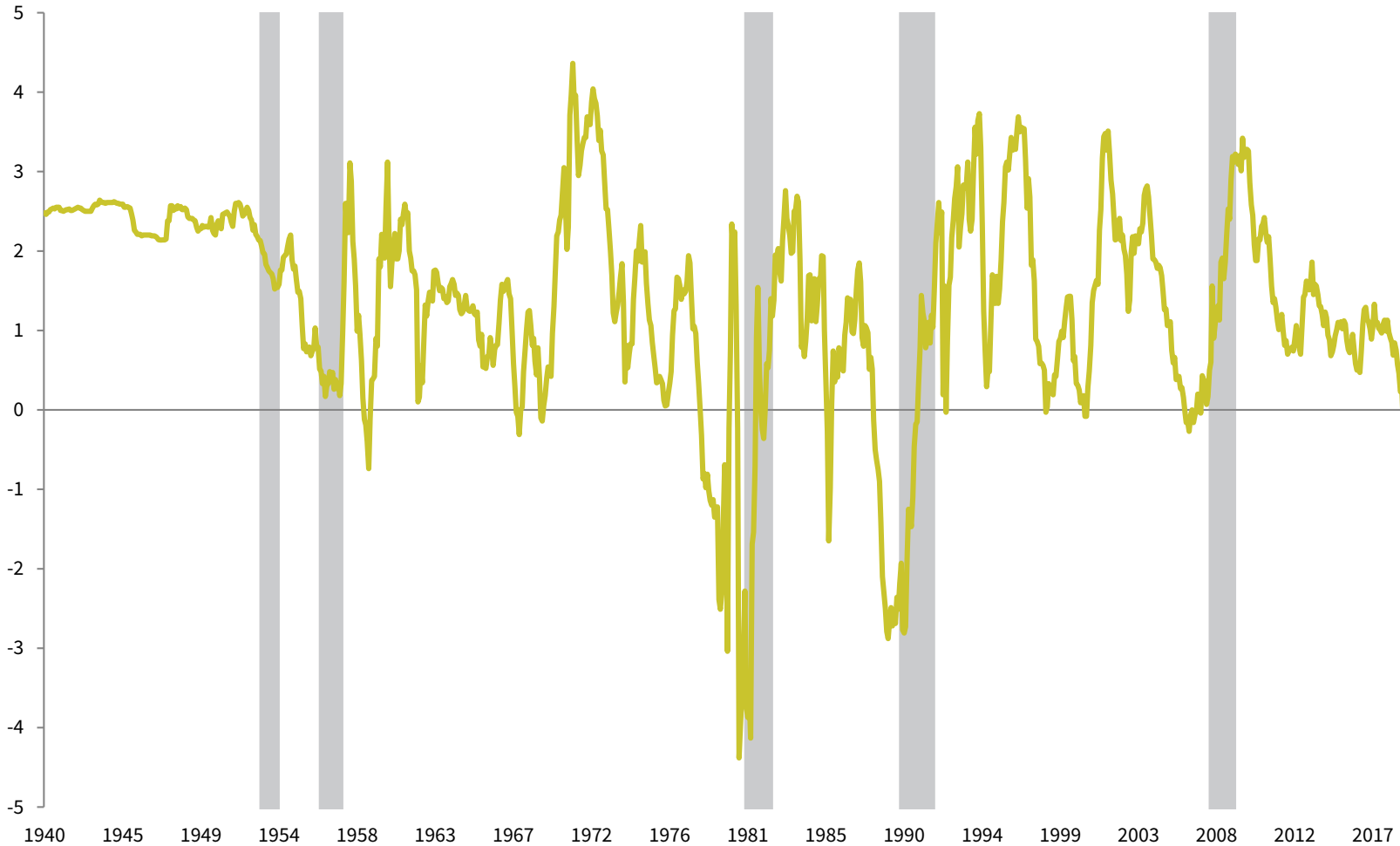
1961–2019 • Annualized, Quarter-Over-Quarter (%)



## Canadian yield curve can invert before recessions, but beware numerous false signals

### 10-YR/3-MONTH YIELD SPREAD

1940–2019 • Percent (%)

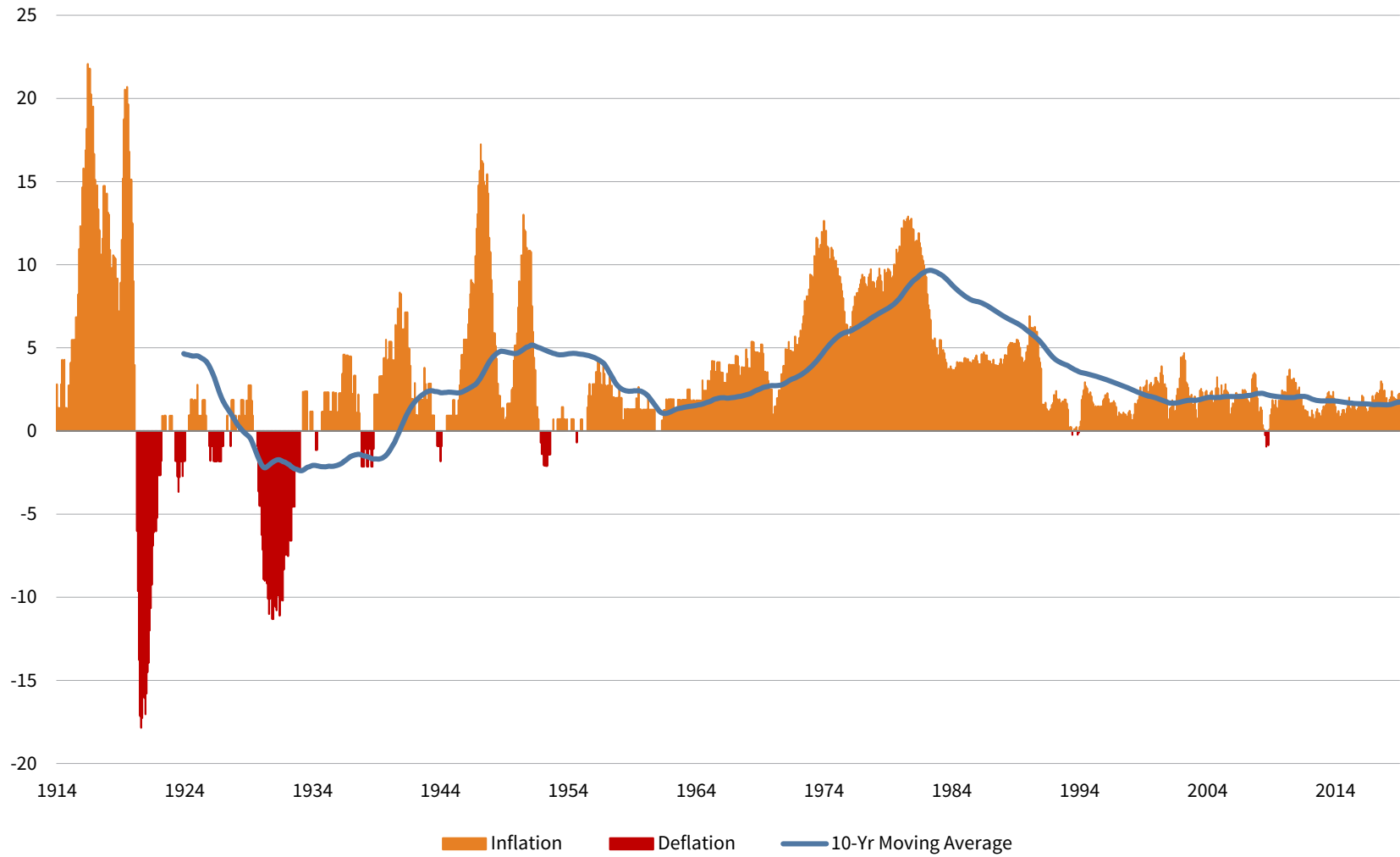


Sources: Economic Cycle Research Institute and Global Financial Data, Inc.

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

# Inflation stabilized and trended downwards in recent decades versus more volatile history

**CANADA INFLATION**  
1914–2019 • Year-Over-Year (%)





**CAMBRIDGE  
ASSOCIATES**

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