Leithner Letter No. 209-212:
26 March-26 June 2017

The Federal Reserve is a giant weapon that has no ammunition left. What I do worry about is: It was the Fed, the Fed, the Fed, the Fed for half of my tenure there [2005-2015]. Everybody was looking for the Fed to float all boats. In my opinion, they got lazy. Now we go back to fundamental analysis, the kind of work that used to be done, analysing whether or not a company truly on its own, is going to grow its bottom line and be priced accordingly, not expect the Fed tide to lift all boats. When the tide recedes we're going to see who's wearing a bathing suit and who's not. We are beginning to see that.

Richard Fisher (Former President, Federal Reserve Bank of Dallas)
Interview on CNBC (5 January 2016)

You know there's this old line from Daniel Kahneman: we have to believe – we are hard-wired to believe – and so … it's just as well to believe in something convenient. And I think the politicians find it convenient to believe that the central banks have it all under control. … But it's not true, because what we have been doing is both losing efficacy over time, that is to say that the efficiency of the transmission mechanism seems to me to be getting less and less, while the impact of the associated unintended consequences, the side effects of monetary policy, are becoming more and more evident. In the end this is really going to cause us problems. And of all the unintended consequences I could list, lulling the governments into a false sense of security is probably the most important.

… Everything is fine until inflationary pressures or something else shocks up the interest rates. And the minute they go up, it becomes obvious that government debt service has gone high enough so they will have no recourse but to have the central bank finance still more. And when that happens the writing is on the wall, the currency collapses and the inflation becomes essentially uncontrollable. This is a highly non-linear process that cannot be captured by the econometric models that are in widespread use. They are essentially linear.

William R. White
OECD Chair Warns "Our Entire System Is Unstable"
Zero Hedge (10 February 2016)

Economic Policy Uncertainty and Financial Market Volatility: Yet another Example of Complacency in the Face of Risk?

In Leithner Letter 200-204 (26 July - 26 October 2016) I reasoned to the conclusion that stock markets in the U.S. – and, by implication, Australia – have become greatly and perhaps dangerously overvalued.[1] Here I analyse two additional developments: first, around the world economic policy has become highly unsettled; second, and in sharp contrast, volatility in financial markets, and the fear that underpins it, seems implausibly low. Hence a key question – indeed, perhaps *the* key question for investors worthy of the name: can this combination of uncertainty, complacency and overvaluation persist indefinitely?

"I can't recall a time in recent history when there was so much uncertainty," reports David Taylor (China-US Trade War the Single Biggest Economic Threat to

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[1] Among other things, I analysed "CAPE" – the Cyclically-Adjusted Price-to-Earnings ratio, which is based upon the insights of Ben Graham and devised by Robert Shiller and his colleagues, since the late-19th century. According to Ambrose Evans-Pritchard (Donald Trump 'Could Send America into the Next Great Crash' Warns Nobel Laureate Robert Shiller, *The Financial Post*, 19 January 2017), "America should brace for a final blow-off surge in stock markets akin to the last phase of the dot-com boom or the 'Gatsby' years of the Roaring Twenties, followed by a cathartic crash and day of moral judgment, according to a Nobel prize-winning economist. [In an interview with Evans-Pritchard,] Prof Robert Shiller said the psychological 'narrative' behind Donald Trump is powerful and likely to carry Wall Street to giddy heights before the aging business cycle finally rolls over. 'I think there will be a Trump boom for a while. Stocks look high, but they are not yet super-high. In 2000 the [CAPE] was over 45 [its historical average since the 1870s is ca. 16, and it presently exceeds 27]' … [Shiller] believes the prospect of a Trump White House is a 'horrible nightmare,' calling the incoming president a dangerous adventurer bent on a nuclear arms race that will draw the world into a spiral of conflict. But nobody, he said, should underestimate the Trump effect on the 'animal spirits' of Americans. … 'There [was] a strong narrative to the Great Crash [of 1929-1930]. People saw it as the day of judgment on the 1920s, and I think we could see a repeat of that. The public will reject Trump's policies …' Shiller's Nobel colleagues doubt the Trump era will produce a boom at all. One after another lambasted him at the annual meeting of the American Economic Association last week, warning that his policy mix will add little net stimulus, further entrench inequality, and risk a calamitous trade war. So far, the markets do not seem to agree" (see also Robert Shiller, The Trump Effect Has Rallied U.S. Markets – but It's Based on Illusion, *The Guardian*, 19 January 2017).

Australia, ABC News, 10 January). "The world seems full of insecurity right now – no better represented than by the looming threat of a trade war between Australia's largest and third-largest trading partners." *The New York Times* agrees (see Davos Elite Fret about Inequality over Vintage Wine and Canapés, 18 January). It quotes an academic at Oxford University: "There's never been a better time to be alive, and yet we feel so … anxious. So many people feel that this is one of the most dangerous times." On the other hand, and as *The Australian Financial Review* ("The Certainty of Trump Uncertainty," 3 February) notes, "one of the peculiar aspects of the current uncertainty in financial markets is the complete [sic] lack of volatility." Justin Lahart ("What to Make of Market's Calm during Political Storm," *The Wall Street Journal*, 6 January 2017)[2] elaborates:

> To judge from the news headlines, the past year has been full of dangerous surprises. [In the first quarter of 2016] a thicket of debt, emerging market, dollar and commodity-price woes sent off recession warnings. Next, there was Britain's vote to leave the European Union. And then [came] the upending of the U.S. political status quo in the election of Donald Trump. Indeed, as measured by an economic policy uncertainty index developed by economists Scott Baker, Nick Bloom and Steven Davis, this counts as a perilous period.
>
> Yet the stock market … has been calmer than usual. … Last quarter, [it] posted its calmest performance in a decade. The decline in [the market's actual] volatility has been matched by a decline in [implied future volatility as measured by] the Chicago Board Options Exchange Volatility Index, or VIX. The VIX measures how much options do protect against volatility cost; right now those costs are low, suggesting investors aren't worried about what is coming down the pike.

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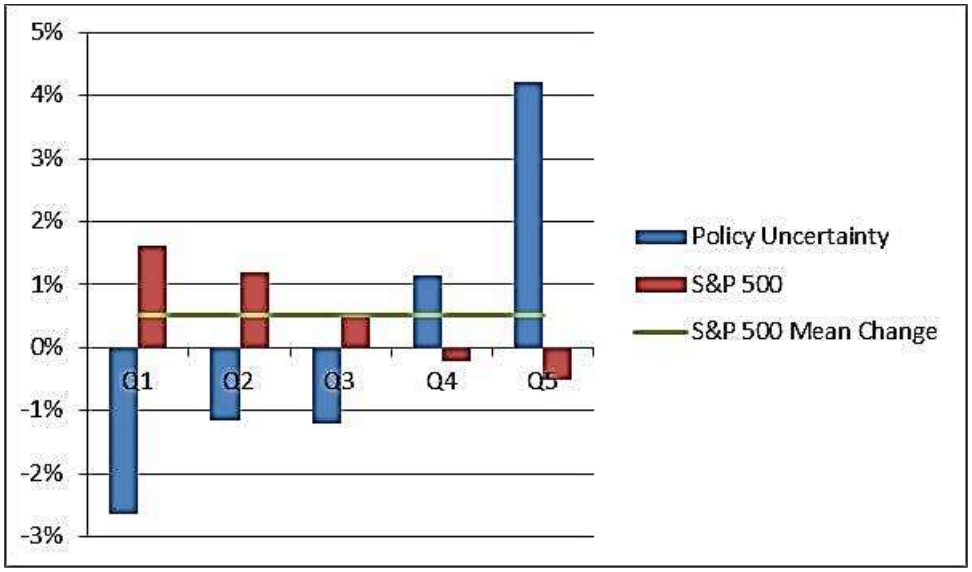
[2] "In the Wake of a Tumultuous Year, the Global Elite Face a World of Uncertainty" (*The Wall Street Journal*, 16 January 2017) goes further: "This year is different. As the world's financial, corporate and political elites gather this week for the annual meeting of the World Economic Forum in the Swiss mountain resort of Davos, the global economic order is teetering. The question is whether it can be rescued." The article concluded that this question's answer is "uncertain" (see also "Global Uncertainty Gets Brushed Off in the U.S. and Europe," *The Wall Street Journal*, 16 January 2017).

Why does the uncertainty of economic policy matter? As a rough rule, markets turn volatile when policy becomes uncertain; specifically, stocks' prices and markets' returns usually tumble. Since 1900 in the U.S., for example, the greater is the month-on-month increase of policy uncertainty the lower is the monthly return of the S&P 500 Index. Indeed, during the ca. 40% of months when EPU rises most (i.e., in quintiles 4 and 5 of Figure 1) the market's monthly return has been negative.[3]

Figure 1:
Economic Policy Uncertainty and the S&P 500, Monthly Percentage Changes Rank-Ordered into Quintiles by EPU, 1900-2016



Further, and as Figure 2 shows, the greater is EPU, the higher, on average, is the S&P 500's volatility (VIX).[4] The relationship between the market's volatility and

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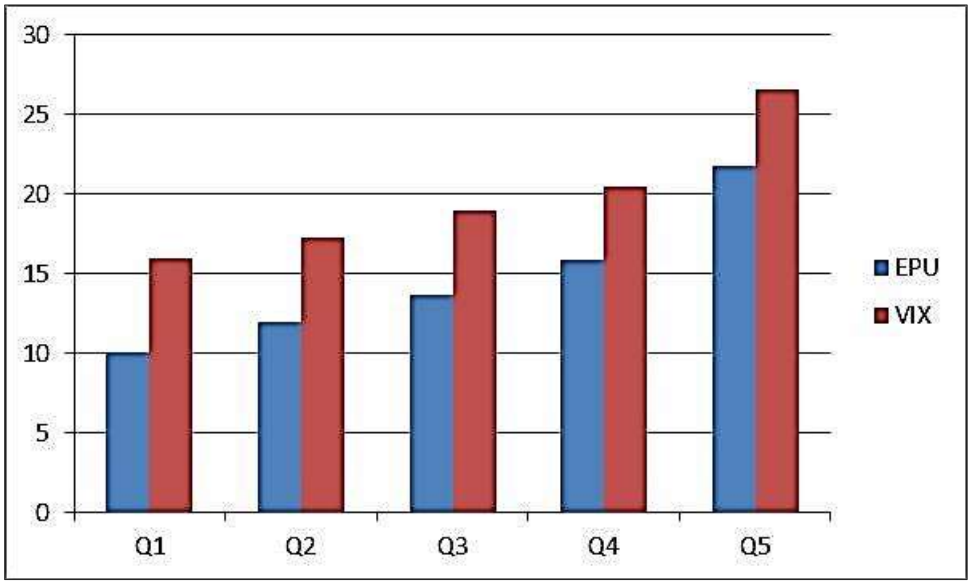
[3] I rank-ordered month-to-month percentage changes of Baker et al.'s measure of economic policy uncertainty (EPU, which I describe below) since January 1900. I then paired each observation with the corresponding percentage change of the S&P 500 Index; divided this rank-ordered array into five groups of ca. 280 observations per group; and computed each group's average month-to-month percentage change of EPU and S&P 500. In order to improve legibility, Figure 1 divides ECU's monthly percentage change by 10.

[4] I rank-ordered monthly observations of EPU; paired each observation with the corresponding month's measure of the Volatility Index (VIX, which I also describe below); divided this rank-

the S&P's returns is complex (and thus hard to summarise in a simple graph); its direction, however, is negative.

Figure 2:
EPU and VIX, S&P 500, Ranked by EPU, January 1990-December 2016



Why, given these long-term relationships, is economic policy uncertainty presently high and volatility low? Perhaps, Lahart muses, "stock market investors don't care all that much about politics, and since the recent round of uncertainty is political in nature (as opposed to the uncertainty surrounding the 2008 financial crisis), it isn't hitting stocks." Yet participants in financial markets clearly *do* heed political developments: witness the sharp upward movement of stocks and the sagging prices of bonds in the U.S. and elsewhere since Mr Trump's triumph at the polls. Why, then, although economic policy is apparently in flux, are financial markets so calm?[5] Lahart concludes: "investors aren't looking much further

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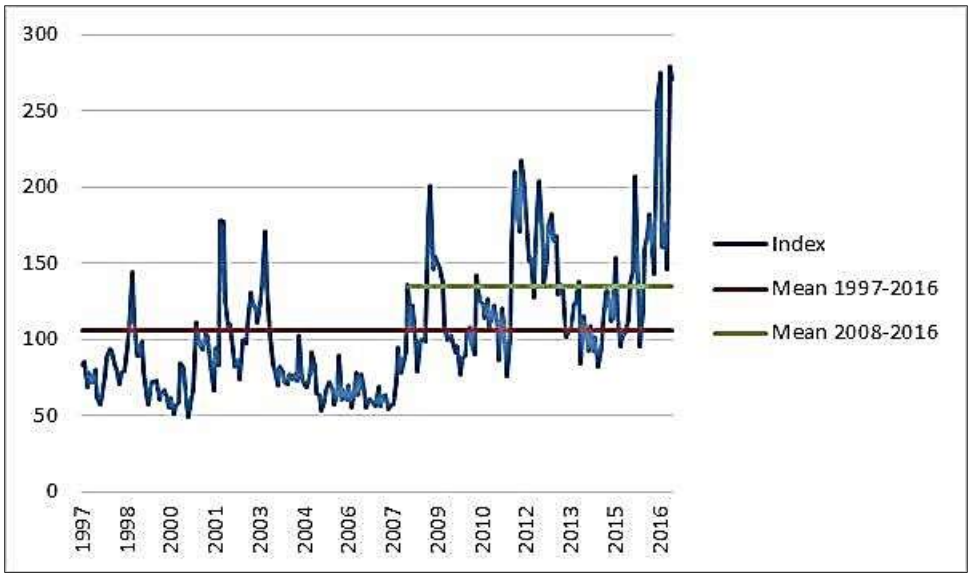
ordered array into five groups of ca. 65 observations per group; and computed the mean of each group's measure of EPU and VIX.

[5] In Why Has U.S. Policy Uncertainty Risen Since 1960?, Baker, Bloom, Brandice Canes-Wrone Davis and Jonathan Rodden "consider two classes of explanations for this rise. The first stresses growth in government spending, taxes, and regulation. A second stresses increased political polarization and its implications for the policy-making process and policy choices. While the evidence is inconclusive, it suggests that both factors play a role in driving the secular increase in policy uncertainty over the last half century."

than the end of their noses, and it won't be until their noses run up against real trouble that they're likely to react."

Figure 3:
Policy Uncertainty, Global Index of 17 Nations,
Monthly Observations, January 1997-December 2016



Just how indeterminate has economic policy become? *The Donald is merely the latest in a series of "shocks."* "In the last five years," notes CNBC (Global Uncertainty About Economic Policy Is at Record Highs, 26 October 2016), "the global uncertainty index has been about 60% higher than in previous years, surpassing even the period around the 2008 housing crisis and recession."[6] Figure 3 plots Baker *et al.*'s global index of policy uncertainty.[7] Since 1997, it's averaged 106; since 2008, it's averaged 135; and during November and December 2016 it exceeded 270.

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[6] See also "Global Policy Uncertainty, a Drag on Growth, Is Higher Than in Crisis Years" (*The Wall Street Journal*, 13 October 2016); Uncertain Business (*The Economist*, 19 November 2016); and SocGen's 'Most Worrying Chart' Shows Markets Still Shrugging Off Political Risk (*Bloomberg*, 6 December 2016).

[7] The global index is a compendium of 17 national indices from Australia, Brazil, Canada, Chile, China, France, Germany, India, Ireland, Italy, Japan, Korea, the Netherlands, Russia, Spain, the UK and the U.S. The global index combines (via weighting by GDP) each country's index; each country-level index, in turn, derives from the three components described in the next footnote.

That's not just a record high: its 3.8 standard deviations above its mean since 1997 and 3.1 times its mean since 2008. From the point of view of global economic policy, the four most "unsettled" months since 1997 all occurred in 2016 (June, July, November and December). In statistical terms, the present uncertainty of policy significantly exceeds its long-term average; in plain English, it's now very – and perhaps perilously – high.

Around the world, ambiguity currently surrounds vital matters including:

1. *America's global role*: will Mr Trump's presidency generate a new order or intensify the pre-existing disorder? Can the U.S. Government continue to underpin the world's economic and financial systems, and to underwrite the West's military alliance? Even if it's able, will it remain willing to do so? In order to "make America great again," Mr Trump threatens trade wars (and continues the "currency war" that the Obama Administration commenced); will they beggar and destabilise other parts of the world?
2. *China's rise*: will it continue to occur peacefully? Or will events in the South China Sea or elsewhere take unexpected and even hostile turns?
3. *The European Union*: what form – hard, soft or other – will "Brexit" take? How will it affect Britain and Europe? Will other countries, such as France and Holland, leave? Will debt crises push still others, such as Greece, out the door? Can – indeed, should – the EU survive?
4. *Governments' finances*: when will budgets in Australia, the U.S. and elsewhere return to surplus, or at least to balance? Will economic growth provide the traction or must cuts of expenditure do the heavy lifting?
5. *Interest rates*: will central banks continue to suppress rates of interest at historically-unprecedented lows? Or, as the Fed and others have frequently hinted but repeatedly failed to do, will they lift – albeit slightly – the foot from the accelerator? What happens to real estate, stock and other markets if and when they do?

Measuring Economic Policy Uncertainty and Financial Market Volatility

According to their website (www.policyuncertainty.com), in order to measure "policy-related economic uncertainty" Scott Baker of Northwestern University, Nick Bloom (Stanford University) and Steven Davis (University of Chicago)

construct an index from three types of underlying components. One component quantifies newspaper coverage of policy-related economic uncertainty. A second component reflects the number of federal tax code provisions set to expire in future years. The third component uses disagreement among economic forecasters as a proxy for uncertainty.[8]

The Volatility Index (VIX), which is known colloquially as "the fear gauge," measures the implied volatility of "call" and "put" options. In plain English,

1. the higher are the premiums that buyers of "put" options are willing to pay (perhaps, among other things, because they fear that the prices of stocks they own will shortly fall), and/or
2. the higher are the premiums that buyers of "call" options are willing to pay (perhaps because they fear that the prices of stocks they don't own will shortly rise),

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[8] The American index's first component quantifies newspaper coverage of policy-related economic uncertainty. "From [selected] newspapers, we construct a normalized index of the volume of news articles discussing economic policy uncertainty." The second component "draws on reports by the Congressional Budget Office (CBO) that compile lists of temporary federal tax code provisions." In particular, "we create annual dollar-weighted numbers of tax code provisions scheduled to expire over the next 10 years, giving a measure of the level of uncertainty regarding the path that the federal tax code will take in the future." The third component uses disagreement among economic forecasters as a proxy for uncertainty. It draws on the Federal Reserve Bank of Philadelphia's Survey of Professional Forecasters. "Here, we utilize the dispersion between individual forecasters' predictions about future levels of the Consumer Price Index, federal expenditures, and State and Local Expenditures to construct indices of uncertainty about policy-related macroeconomic variables." Baker et al. have provided additional details in various research papers posted to their website.

As a related and more fundamental point, "regime uncertainty" refers to investors' tendency, in response to uncertainty about the government's current or future policy, to refrain from long-term financial commitments. Government intervention always harms the economy, but its effects tend to be worst when it occurs erratically. According to Robert Higgs, regime uncertainty helped to prolong the Great Depression. If the government's actions are predictable then – however much damage they cause – capitalists and entrepreneurs can anticipate, circumvent and thus to some extent mitigate them; but if agents of the state regularly issue unexpected and contradictory edicts then businesspeople cannot easily take defensive and protective action – never mind productive investment (also see A Warning to Trump From Friedrich Hayek, *Bloomberg*, 17 January 2017 and Regime Uncertainty, *The Speculative Investor*, 6 February 2017).

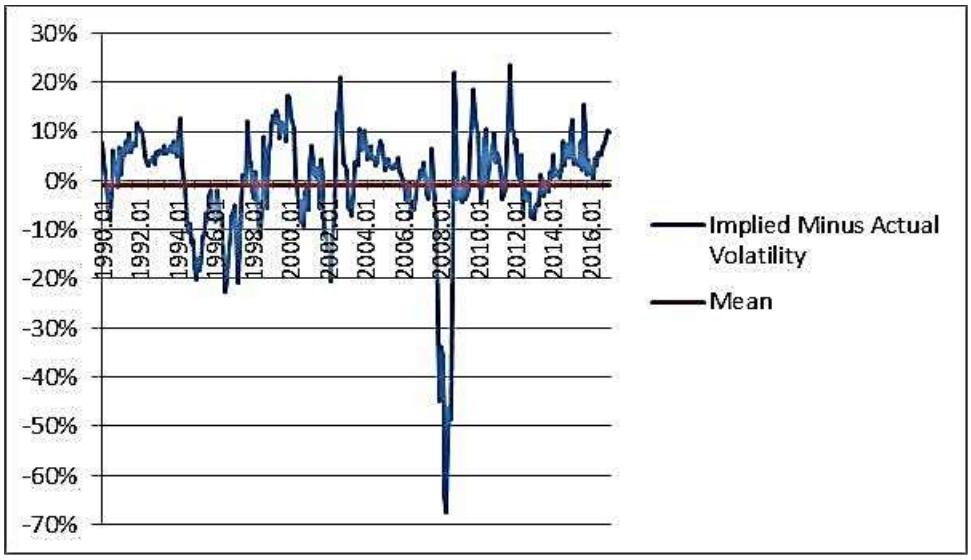
the higher is the implied volatility of the market in question – and the greater are market participants' fear and greed regarding the future. A VIX of 20 for the Standard & Poor's 500 Index on a given day, for example, implies that buyers and sellers of options over stocks – and, by inference, buyers and sellers of stocks as a whole – expect a movement of 20%, up or down, during the next year.

Two Points about VIX

"The last time VIX started the year [as low] as it has in 2017," writes James Mackintosh ("What the VIX Is Really Telling the Markets Now," *The Wall Street Journal*, 13 February 2017),

> was in 2007, shortly before the subprime crisis hit. Before that, it was 1994, a year when the U.S. Federal Reserve shocked markets and hedge funds blew up. The historical parallels are scary because when investors anticipate that volatility will be low, it can be sign of excessive complacency.

Figure 4:
S&P 500 Index, Implied (Net of Actual) Volatility, 1990-2016

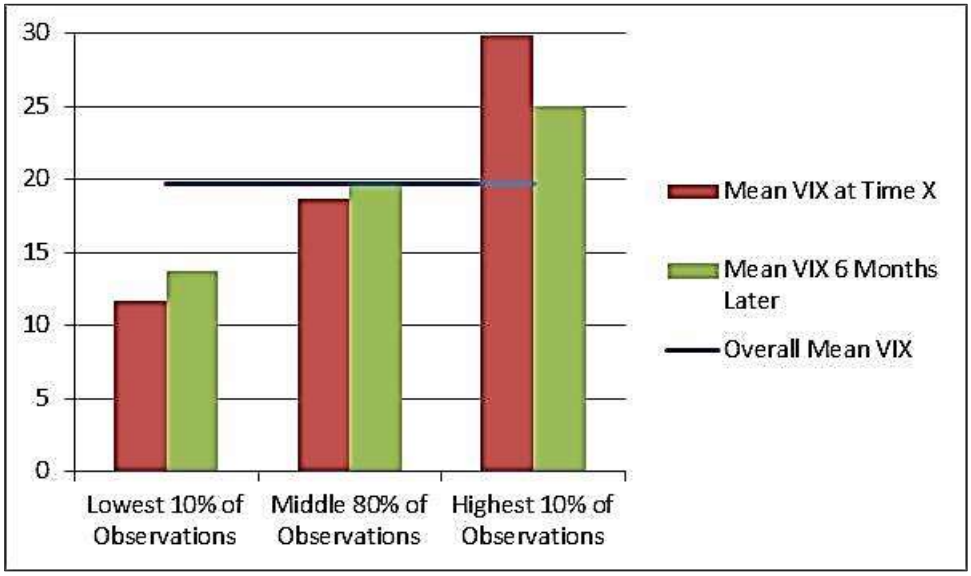


How well does VIX, a measure of implied volatility, anticipate actual volatility? Figure 4 plots monthly averages of VIX, expressed as percentages and net of the

S&P 500 Index's actual volatility (i.e., its maximum value less its minimum value, expressed as a percentage of its minimum value) during the subsequent twelve months. The good news is that, on average since 1990, VIX has anticipated subsequent volatility extremely well: its mean is 19.7% whereas the mean of actual (subsequent) volatility is 19.8%. Yet over extended periods VIX has predicted less well: during the first half of the 1990s, for example, it usually exceeded actual volatility; conversely, during the decade's second half actual volatility typically exceeded implied volatility. The bad news: on the eve of the Global Financial Crisis, VIX was as blind as most other market participants. Throughout 2007and into 2008, it implied an up-or-down movement of the S&P during the next twelve months of ca. 20%; at its maximum, subsequent volatility exceeded 80%.

A second point, which Figure 5 illustrates, is that VIX has tended, when it approaches extremes, subsequently to regress towards its mean. A very low (i.e., lowest decile of daily observations since 1990) observation today leads, on average, to a higher one six months hence; and a comparatively one high today (i.e., highest decile) is associated with a lower one six months later. For the "middle" 80% of observations, VIX fluctuates close to its mean.

Figure 5:
The Regression of VIX (S&P 500 Index, 1990-2016) to Its Mean



Uncertainty and Volatility in the U.S.

According to Baker *et al.*'s website,

> current levels of economic policy uncertainty are at extremely elevated levels compared to recent history. Since 2008, economic policy uncertainty has averaged about twice the level of the previous 23 years. A significant dynamic relationship exists between our economic policy uncertainty index and real macroeconomic variables. We find that an increase in economic policy uncertainty as measured by our index foreshadows a decline in economic growth and employment in the following months. … Moreover, since 2008, an increasingly large share of these large stock movements [has] been caused by policy-related events.

Figure 6:
Policy Uncertainty, U.S., Monthly Data, January 1900-December 2016

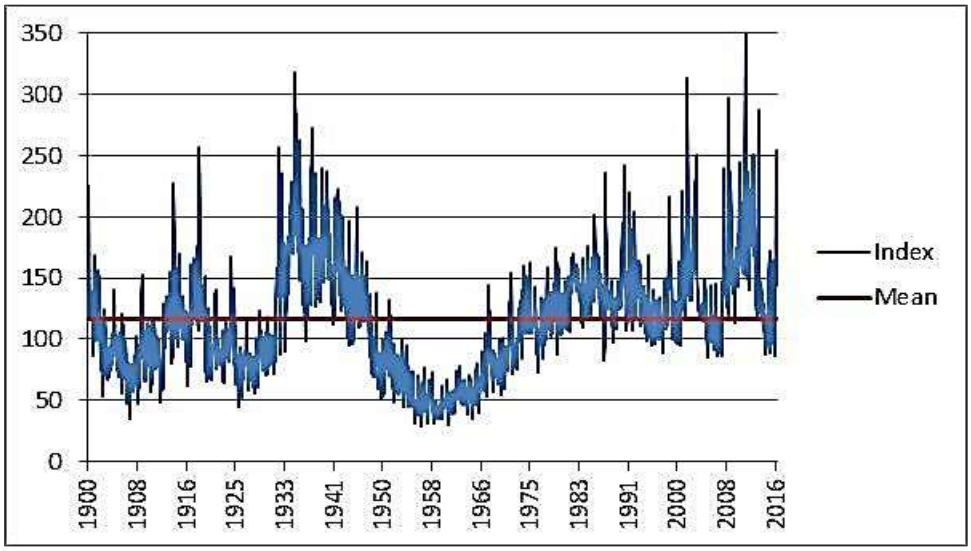


Figure 6 plots Baker *et al.*'s measure of economic policy uncertainty in the U.S. since 1900.[9] Before the Great Depression of the 1930s, it fluctuated but usually

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[9] "The newspapers included in our [American] index are *USA Today*, *The Miami Herald*, *The Chicago Tribune*, *The Washington Post*, *The Los Angeles Times*, *The Boston Globe*, *The San Francisco Chronicle*, *The*

remained below its average (116) for the entire series. During the Depression, it rose sharply and to a level well above the long-term average; it also occasionally spiked to near-record levels (most notably, above 300 in early-1935, when the Supreme Court declared that key components of Franklin Roosevelt's New Deal were unconstitutional). During the next quarter-century, uncertainty fell steadily and cumulatively drastically (i.e., to below 32 in October 1957 and again in September 1958); as a result, from the late-1940s until the late-1960s it remained well below its long-term average. Seldom since the early-1970s, in contrast, has it fallen much or for long below this average. It rose steadily from the mid-1950 to the late-1980s; since then, it's fluctuated at above-average levels and occasionally spiked sharply upwards. In late-2016, the uncertainty of economic policy significantly exceeded (2.8 × its standard deviation) its long-term mean.

Figure 7:
Policy Uncertainty, U.S., Monthly Data, January 1985-December 2016

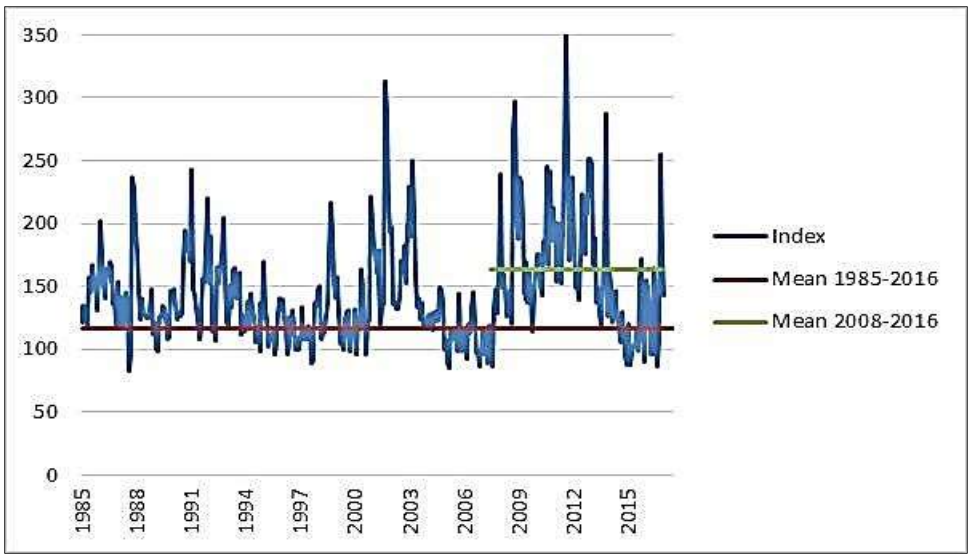
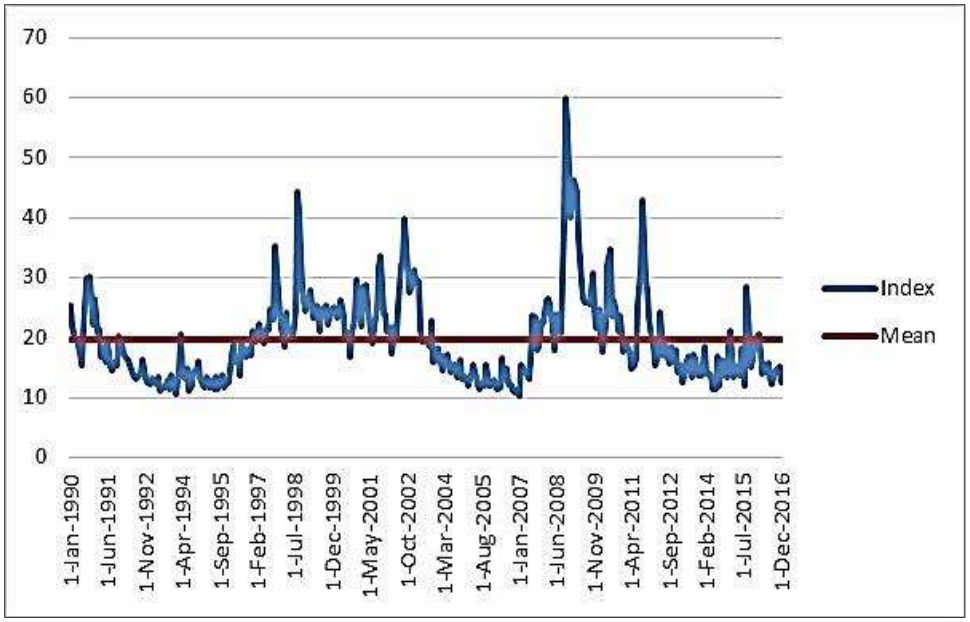


Figure 7 focusses upon the last 30 years. As time has passed, the uncertainty of economic policy has increased: since 1900, it's averaged 116; since 1985, it's averaged 145; and since 2008, it's averaged 163. Only on two extended occasions, one just before the Global Financial Crisis and the other during the two years to mid-

Dallas Morning News, *The New York Times* and *The Wall Street Journal*. From these papers, we construct a normalized index of the volume of news articles discussing economic policy uncertainty."

2016, did it fall below the average since 1900. The sharpest spike – to an all-time high of 350 – occurred in August 2011. In that month Standard & Poor's revoked the U.S. Government's highest-possible (AAA) debt rating – which Uncle Sam had held since S&P commenced these ratings in the 1930s. The second-highest spike (313, somewhat higher than the maximum reached during the Great Depression) occurred in the immediate wake of the attacks on 11 September 2001; and the third-highest (297, roughly equal to the Depression-era maximum) occurred in October 2008, i.e., shortly after the collapse of Lehman Brothers. The fifth-highest since the Great Depression (254) occurred immediately after Donald Trump's election win in November 2016.

Figure 8:
Volatility Index ("VIX"), S&P 500 Index, Monthly Observations, January 1990-December 2016



If economic policy in the U.S. is presently unsettled, then what about the volatility of key financial markets like the S&P 500? Bloomberg and the Chicago Board of Exchange have measured VIX since January 1990; Figure 8 plots these data. During the past quarter-century the "fear gauge" has averaged 19.7. Its minimum monthly average (10) occurred on the eve of the Global Financial Crisis in January 2007; its maximum (60 in October 2008) marked the GFC's climax. Dur-

ing the recession of the early-1990s, VIX was relatively high. It then fell until late-1995; rose erratically for the next three years; fluctuated without trend but at an above-average level from 1997 to 2002; fell by three-quarters to 2007 and sky-rocketed during the GFC. Since early 2009 it has steadily – and cumulatively greatly – decreased, and almost continuously since 2012 it's remained below its long-term average. In December 2016, its value was 12.5. On the one hand, that's not significantly (i.e., 1 standard deviation) below its mean; yet in only 13% of the months since January 1990 has VIX been lower than it was at the end of last year – and in February 2017, albeit in daily observations rather than as a monthly average, VIX plumbed new all-time lows below 10.

Uncertainty and Volatility in Australia

Baker *et al*.'s website includes data that measure the uncertainty of economic policy in Australia since 1998; Figure 9 plots them.[10] As in the U.S., so too in Oz: uncertainty has increased over time; indeed, in 2016 it spiked to near-record levels. From 1998 to 2016, it averaged 101; since 2007, it's averaged 130. It attained an all-time maximum (337) in August 2011; very high level (287) also occurred in November of that year.

What explains these spikes? The downgrade of the U.S. Government's debt was likely a major cause; so too were other international events, such as the EU's debt crisis, as well as domestic politics.[11] Policy uncertainty in Australia scaled a near-

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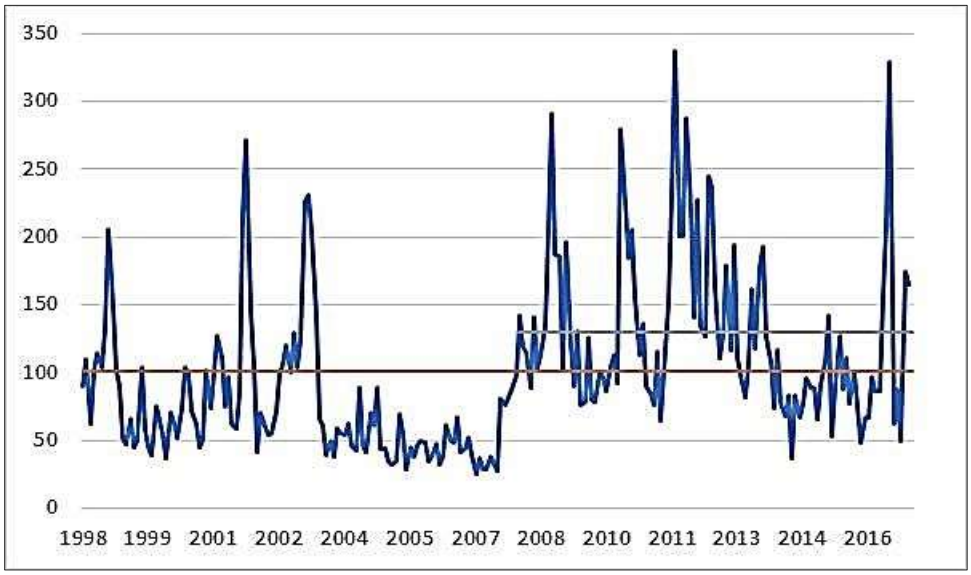
[10] The index's first component uses *The Daily Telegraph*, *The Courier Mail*, *The Australian*, *The Age*, *The Advertiser*, *The Mercury*, *The Sydney Morning Herald* and (from November 1999) *The Herald Sun* – but inexplicably omits *The West Australian* and *The Australian Financial Review*. "For each paper, we count the number of articles containing the terms 'uncertain' or 'uncertainty,' 'economic' or 'economy,' and one or more policy-relevant terms: regulation, 'Reserve Bank of Australia,' RBA, deficit, tax, taxation, taxes, parliament, senate, 'cash rate,' legislation, tariff [and] war."

[11] At the 2010 election, which produced the first "hung parliament" in more than 70 years, the prime minister, Julia Gillard, insisted that, if elected, her government would not introduce a "carbon tax." After the election the ALP signed an agreement with the Australian Greens which allowed the government to remain in power (and Gillard to continue as prime minister). In August 2011, the Government, with the support of the Greens and some cross-benchers in the Senate, nonetheless moved to implement such a tax. The Clean Energy Bill passed the Lower House in October 2011 and the Upper House in November of that year.

record level (329) in July 2016. A "double dissolution" election – a procedure permitted under the Australian Constitution in order to resolve a deadlock between the lower and upper houses of Parliament – occurred on the 2nd of that month. It was the first double dissolution since 1987 and also the first using a new voting system whose purpose was to decrease the number of cross-benchers in the Senate. After a week of counting votes, no party had won enough seats in the lower house to form a majority; the possibility of a "hung parliament" and resultant minority government, as had occurred in 2010, thus loomed large. By 8-9 July the Prime Minister, Malcolm Turnbull, secured confidence and supply from independent MPs; on 10 July, the Leader of the Opposition, Bill Shorten, acknowledged that the Liberal-National Coalition had secured enough seats to form a government and thus conceded defeat; hence Turnbull claimed victory later that day. Since mid-2016, uncertainty has reduced considerably; notably, however, the average for July-December 2016 (145) exceeds both the long-term (since 1998) mean as well as the mean since 2007.

Figure 9:
Policy Uncertainty, Australia, Monthly Data, January 1998-December 2016



As in the U.S., then, so too in Australia: economic policy is presently highly indeterminate. Conversely, and also as in the U.S., the volatility of the ASX/S&P 200 is relatively low. Since 2000, the Australian Securities Exchange has compiled

various series of options prices; using monthly averages of daily observations, Figure 10 plots the Australian VIX. Before mid-2007, except during the days following the attacks on 11 September 2001, it usually remained below its long-term average (16.4). During the GFC, volatility spiked to its maximum (53.2 in November 2008; daily observations exceeded 65 early in March 2009). Thereafter VIX fell erratically but drastically: by late-2009 it had decreased to the series average; in 2010 and again in 2011 it spiked; and throughout 2011-2015 it fell and remained well below its long-term average. Early in 2016, which seemed to mark a possible nadir of the prices of commodities such as coal, iron ore and oil, VIX spiked to 21.8; during the rest of the year it slumped below its average (below 12 in August and slightly above 13 in December).

Figure 10:
Volatility of Options, ASX/S&P 200 Index, Monthly Averages, March 2000-December 2016

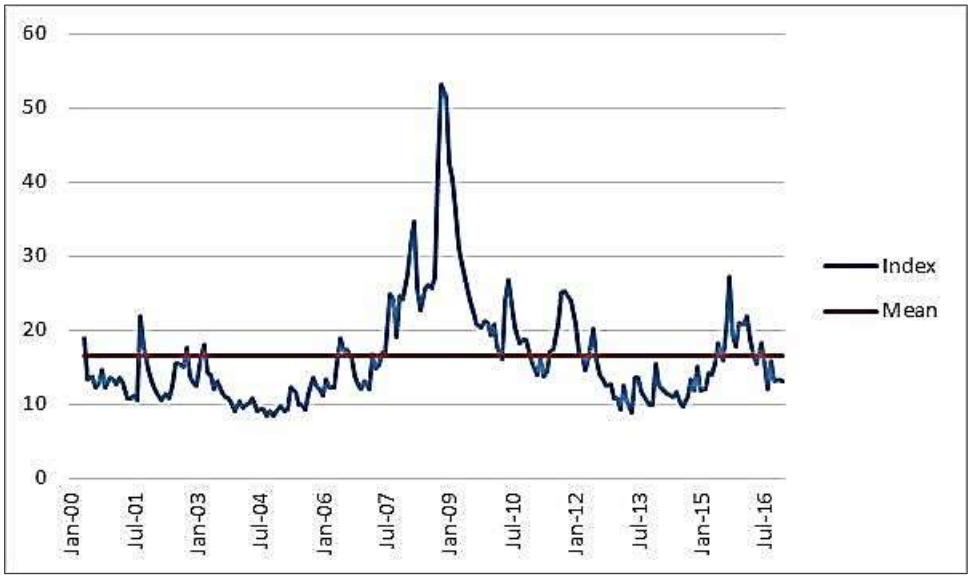


Figure 11 plots the dispersion (standard deviation) of daily observations of VIX. Since 2000, its day-to-day variability has vaulted on three occasions: first, immediately after the attacks on 11 September 2001; secondly, during the Global Financial Crisis; and thirdly and most recently, intermittently from August 2015 to June 2016. Since mid-2015, the overall (monthly) level of the fear index has fallen below its long-term average; at the same time, however, its day-to-day move-

ment has risen greatly. What does this imply? Echoing Justin Lahart's assessment of the current situation in the U.S., recently in Australian financial markets fear has become a very transitory phenomenon, i.e., one that lasts for a day or so, disappears just as suddenly and then recurs a few days later (see also Figure 12).

Figure 11:
Monthly Standard Deviations, Daily Observations of VIX, ASX/S&P 200 Index, March 2000-December 2016

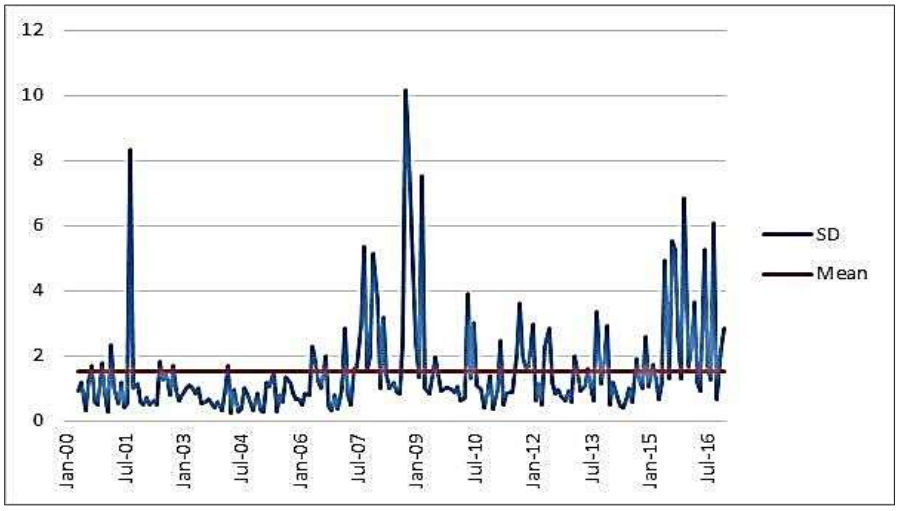
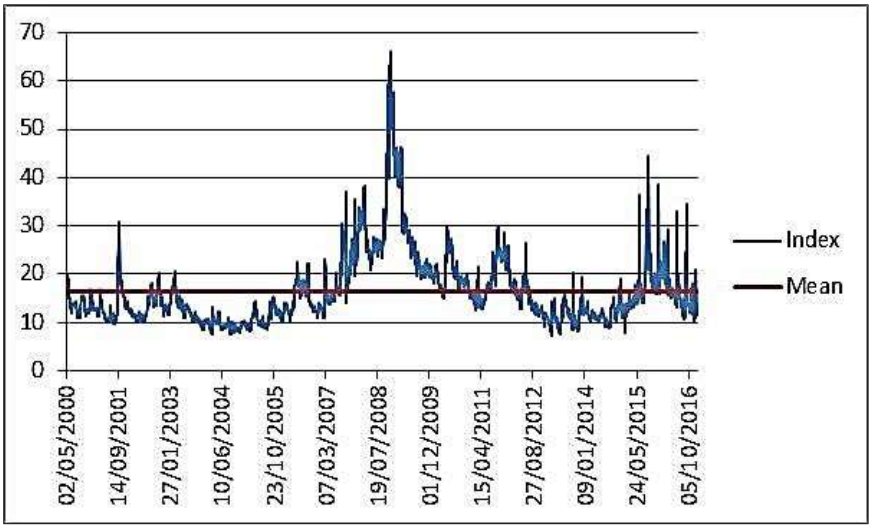


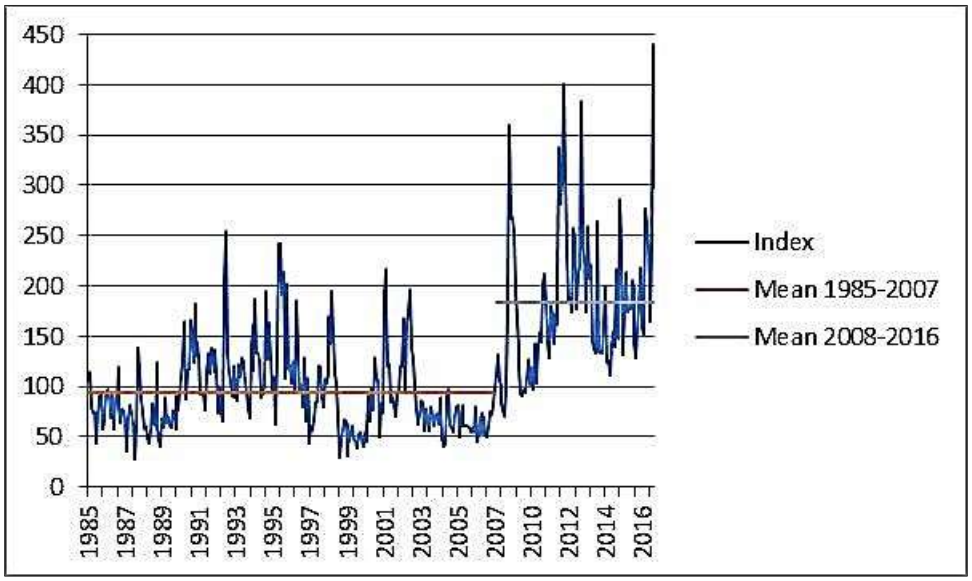
Figure 12:
Volatility of Options, ASX/S&P 200 Index, Daily Observations, March 2000-December 2016



Uncertainty and Volatility in Canada

Baker *et al*.'s website also includes data that measure the uncertainty of economic policy in Canada since 1985 (Figure 13).[12] As in Australia and the U.S., so too in The Great White North: uncertainty has increased over time. Indeed, late in 2016 it spiked to a record. From 1985 to 2007, it averaged 94; since 2008, it's averaged 183. Uncertainty attained an all-time maximum (440) in November 2016; high levels also occurred in November 2011 (400) and November 2012 (383). Domestic economic and political events don't seem to explain these spikes; instead, global events (such as the GFC in 2008-2009, America's loss of its AAA-rating and various twists and turns of the EU debt crisis in 2011-2012, and Donald Trump's election in November 2016) are among the likely causes.

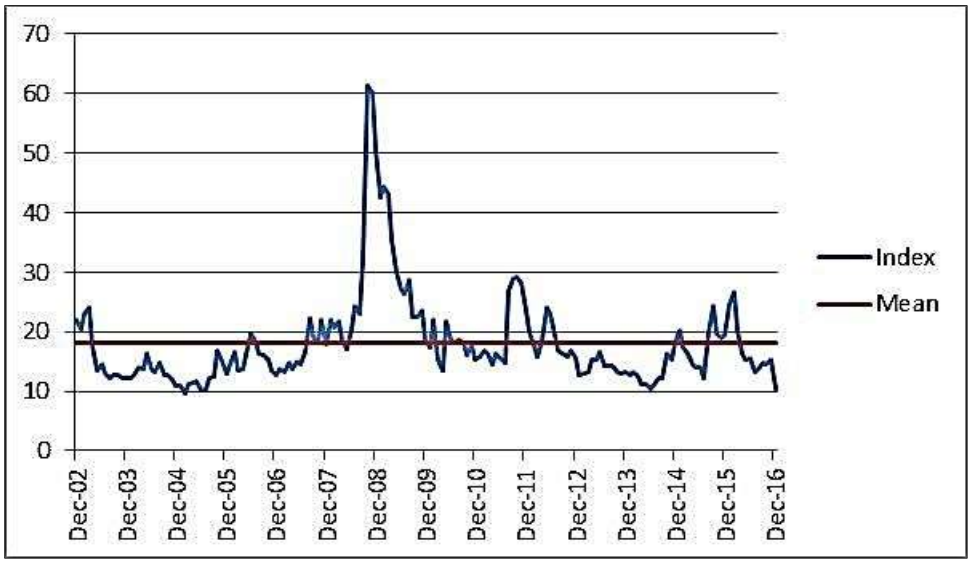
Figure 13:
Policy Uncertainty, Canada, Monthly Data, January 1985-December 2016



[12] The Canadian index comprises five newspapers: *The Gazette* (Montreal), *The Vancouver Sun*, *The Toronto Star*, *The Ottawa Citizen*, and *The Globe and Mail* (Toronto) plus articles from the Canadian Newswire; strangely, however, it excludes all French-language newspapers as well as publications in the Prairie West and Atlantic Provinces. "We utilise the number of news articles containing the terms uncertain or uncertainty, economic or economy, as well as policy relevant terms (scaled by the smoothed number of articles containing 'today'). Policy relevant terms include: 'policy,' 'tax,' 'spending,' 'regulation,' 'central bank,' 'budget,' and 'deficit.'"

As in Australia and the U.S., then, so too in Canada: economic policy is presently – by historical standards – highly indeterminate. Conversely, and also as in these other countries, the volatility of the major stock market index (i.e., the TSX/S&P 60) is very low. Figure 14 plots the Canadian VIX (see "A VIX for Canada," S&P Indices, 14 October 2010). Since 2002, this "fear gauge" has averaged 18.1. Before mid-2007, it usually remained below this long-term average. During the GFC, it spiked to its maximum (above 60 for October 2008 and to a daily maximum of 88 on 20 November 2008). Thereafter VIX fell drastically: by late-2009 it had fallen below the series average; in 2011 it spiked towards 30; and throughout 2012-2014 it fell steadily and well below its long-term average (to a near-record of 10.4 in June 2014). In mid-2015 and early-2016 it spiked; since then, however, it's slumped well below its average (to 10.3 for December 2016 and an all-time low, 6.7, on 16 December 2016).

Figure 14:
Volatility of Options, TSX/S&P 60 Index, Monthly Means, December 2002-December 2016

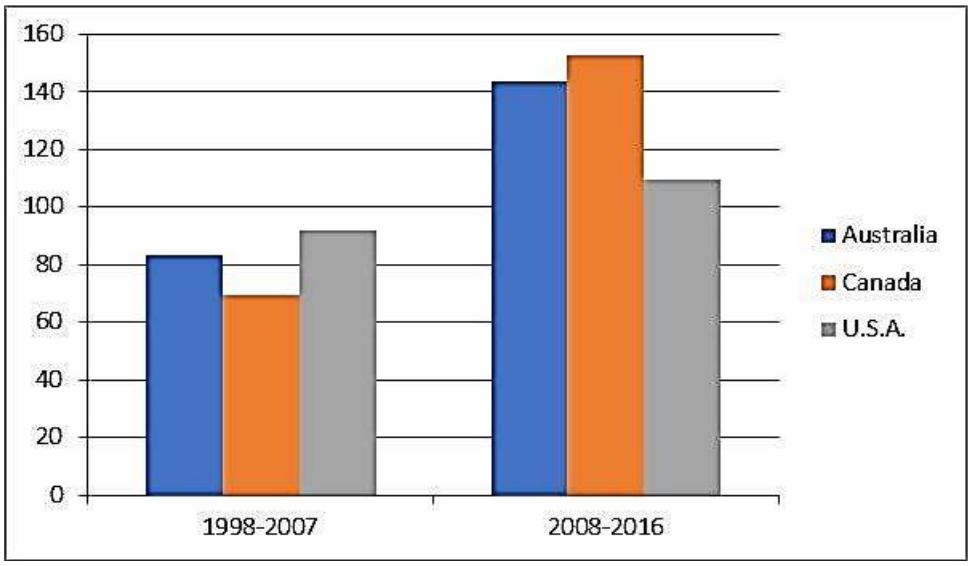


Some Cross-National Comparisons

Using a standardised base (i.e., January 1998=100), Figure 15 compares economic policy uncertainty in Australia, Canada and the U.S. During 1998-2007, uncertainty decreased in each country: in Australia it averaged 84, which represents a

decrease of 16% from its starting point; in Canada it averaged 70, an overall decrease of 30%; and in the U.S. it averaged 92, a decrease of 8% from its starting point. Since 2008, on the other hand, uncertainty has risen – relative both to the starting point and the average for 1998-2007. In Australia it's averaged 144; that's 44% greater than the starting point and 72% higher than the mean during 1998-2007. In Canada it has averaged 153 – i.e., 53% greater than the starting point and 119% higher than the mean during 1998-2007. And in the U.S. it has averaged 110, i.e., 10% greater than the starting point and 19% higher than the mean during 1998-2007. Over time, then, policy uncertainty has risen in each country; it's done so most in Canada and least in the U.S.

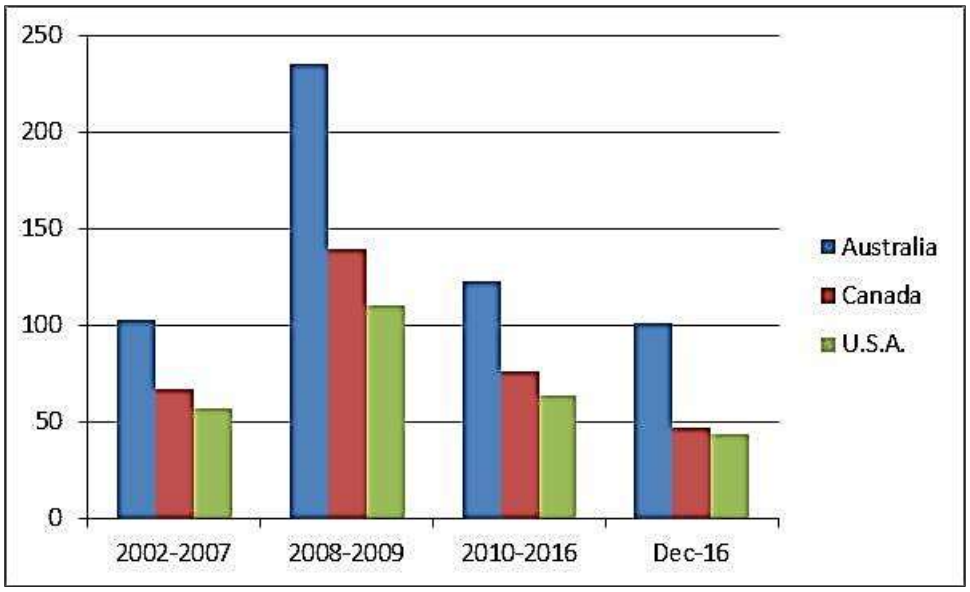
Figure 15:
Policy Uncertainty, Australia, Canada and the U.S.,
1998-2016 (January 1998=100)



Also using a standardised base (i.e., December 2002=100), Figure 16 compares VIX in these three countries. During 2002-2007, volatility decreased in Canada (by an average of 33% relative to its base) and even more markedly in the U.S. (43%) but not in Australia. During the GFC, i.e., the calendar years 2008-2009, volatility zoomed – relative both to each country's starting point and its average for 2002-2007. Since 2010, in contrast, volatility has abated by similar percentages in all three countries (i.e., by 48% in Australia, 45% in Canada and 42% in the U.S.). Compared to its GFC average, by December 2016 VIX had fallen 61% in

Australia, 66% in Canada and 60% in the U.S. Finally, in December 2016 the Australian VIX equaled its level of December 2002; in Canada and the U.S., it was less than half its earlier level.

Figure 16:
VIX, Australia, Canada and the U.S., 2002-2016 (December 2002=100)



Conclusion

Can today's combination of high policy uncertainty, low volatility and general overvaluation of stocks, bonds, real estate, etc., persist indefinitely? These things, I believe, are presently out of kilter; accordingly, it also seems to me, at some point they must realign. *Specifically, either (1) uncertainty must abate appreciably or (2) volatility must rise considerably.* The aspects of policy uncertainty enumerated on pp. 5-6, it seems to me, won't disappear suddenly or soon. VIX, on the other hand, regresses to its mean: low values today imply higher values tomorrow. Possibility #1, which I regard as less probable, may – together with central banks' suppression of interest rates to historic lows – continue to underpin financial assets' very high valuations. Possibility #2, on the other hand, which I think is more likely, would (particularly if uncertainty persists or rises further, and given most assets' very high valuations) deflate their prices. George Soros – who backed the wrong horse before and lost billions after the American presidential election –

agrees. "Right now, uncertainty is at a peak," he told Bloomberg at the World Economic Forum's annual meeting at Davos, Switzerland, on 18 January. "So I don't think the markets are going to do very well." John Hussman goes further: "If there's any point in U.S. stock market history, next to the market peaks of 1929 and 2000, that has deserved a time-stamp of speculative euphoria," he writes in Time-Stamp of Speculative Euphoria (13 February 2017), "… now is that moment. Perhaps there's room for this burning wick to shorten further, but across every … method we use, the estimated downside risk of the market overwhelms its upside potential."

Like most fears of Armageddon, Hussman's and Robert Shiller's (see footnote #1) are probably overblown. Yet the causes of the Global Financial Crisis remain mostly undiagnosed, its triggers continue securely in place, and authorities' blindness and stupidity persist.[13] Although Hussman makes a habit of hyperbole, Shiller doesn't; accordingly, investors worthy of the name might regard his concerns as a plausible lower bound of the possible future course of events. This Newsletter's conclusion plus Shiller's concern provide two more reasons (I've detailed others; for an overview, click here) to maintain our extremely conservative, albeit highly unconventional, investment policy and portfolio. I therefore remain cautiously optimistic that troubled waters will ultimately provide good fishing.

Chris Leithner

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[13] The World Economic Forum ignores this critical weakness. The possibility of another financial crisis is apparently too insignificant to appear on its list of top-10 global risks (see its Global Risks Report 2017). That's hardly reassuring. In its 2009 report, published within weeks of the nadir of the 2007-2009 bear market and financial crisis, it identified "Asset Price Collapse" as the world's most significant risk. *At the very time when, according to CAPE and other measures, investors should have been BUYING stocks, the WEF advised that investors should shun them.* Fast-forwarding to the present, debt has mounted rapidly, rates of interest have been suppressed to unprecedented lows and major stock markets are overvalued by virtually all reputable measures; *but a financial crisis doesn't rank among the global elite's worries.* This provides a stark lesson in contrarian investing: Davos Man counsels, in effect, that "investors" buy at high prices and sell at low prices. These elites are actually "anti-authorities" – if anything, it's sensible to do the opposite of what they recommend.