Estimating the Odds of an Equity Bear Market

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A Cooler Spring for Stocks After a Hot Winter

Proving that sustained performance wins, the hare didn't prevail in Aesop's tale. After a surge to 2½ year highs earlier in 2011, North American equity markets have settled back into a more modest groove lately. While it's too early to write the epitaph for one of the past half century's strongest rallies, several forces could help to keep the market express rolling down a slower track for a while longer.

One restraint—though perhaps not such a bad thing seen in a broader context—is the reawakening of investors' appreciation for risk. Rekindled eurozone debt woes have contributed to the more cautious mindset in markets, as evidenced by the strong recent performance not only of government bonds, but other havens, like quality dividend stocks (Chart 1).

Also inspiring caution are perceptions that the global expansion may have already seen its best days, as efforts to cut deficits in the developed world compound the drag from higher energy prices and emerging market central bankers' efforts to tame hot inflation. After padding their growth estimates for 2011 only months ago, many forecasters have consequently been trimming them recently. The good news is that for the great majority of countries, a double dip recession doesn't look like a clear and present danger. The bad is that it looks more and more as if global growth this year will come in closer to our earlier scaled back 4% forecast than 2010's hot 5% pace. The US data revisions point to stiffer energy headwinds for the consumer even as capital spending is downshifting from its earlier vigourous clip. Nor have some of the global economy's strongest players been spared. The recent 10-month low in China's flash PMI, stalled auto sales and further central bank tightening all point to less toasty growth there.

Earnings News: Not Bad But the Bar Has Risen

While commodity prices remain at one of the highest levels on record, the recent modest correction has served to remind investors that those prices can move up and down, notwithstanding the obvious bullish implications in the longer run of rising demand from China and India. Resource stocks have trailed the TSX lately after pacing gains late last year. The curse of high expectations has also helped cool the rally's earlier momentum. Q1's 18% year-on-year rise in TSX earnings was good compared to the 7% longer term annual average. But it trailed pre-reporting season expectations for a rise of over 20%, as misses by energy and materials producers offset street-beating numbers from the telecoms, utilities and non-bank financials (Chart 2).

Chart 1

Quality Dividend Stocks Have Done Well Recently

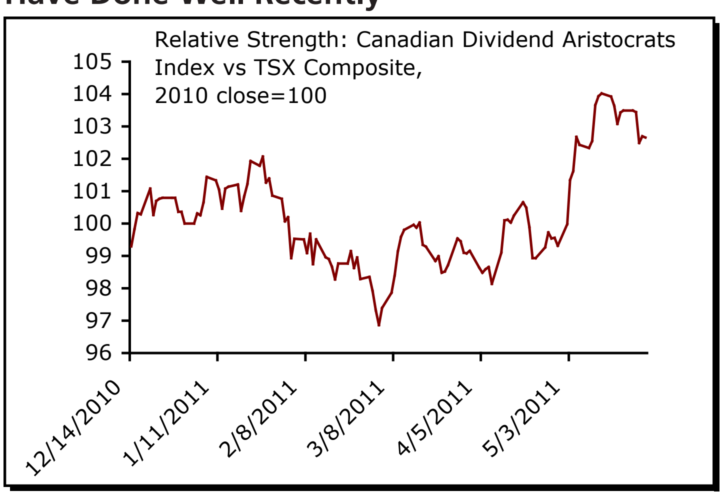
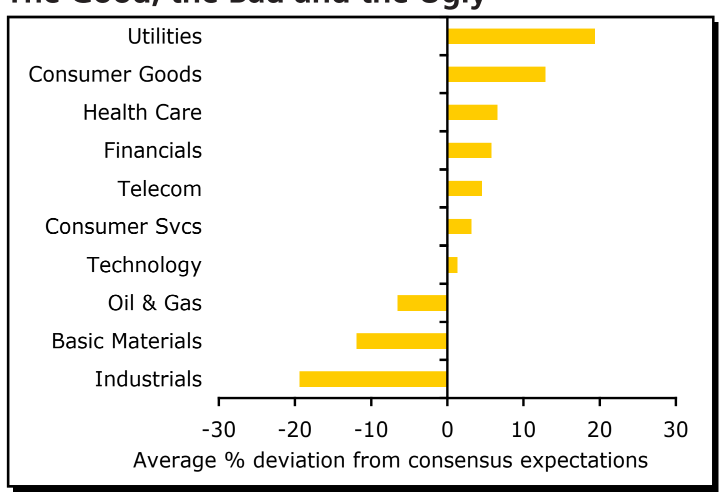


Chart 2

TSX Composite Q1 Earnings: The Good, the Bad and the Ugly



Source: Bloomberg

Some Pluses as Well as Challenges

Not all of the news has been bad, one reason why softer market performance does not in our view portend a sharp retreat. It appears all the more likely that central banks in both Canada and the US will hold their fire for a while longer (see page 1), given the recent growth and inflation data. That could help the TSX more than the S&P 500, given the Canadian market's appreciably higher 35% weighting in interest sensitive sectors (financials, utilities, telecoms) (Chart 3). The past month's 5% drop in US gasoline pump prices may also portend reduced headwinds from that quarter.

How TSX Fared After Earlier Oil/Resource Rallies

In terms of potential risk scenarios, an obvious one given the economic backdrop and a potentially firmer US dollar is that commodity prices could lose a bit more ground.

Our analysis (see pages 3-5) suggests that wouldn't be an unalloyed negative for Canada's economy, given the country's close ties with a heavily energy using US economy and damage to consumer pocket books. What might the effect be on equity valuations? While modest oil prices swings are a plus for Canadian stocks, the historical evidence would appear to suggest that large, recession inducing ones, which rob consumers of purchasing power and squeeze margins elsewhere in the economy, aren't.

The 1973-74 OPEC oil shock provides a case in point. The S&P 500 rebounded strongly from late 1974 on in that episode, as slowing growth eased pressure on energy

Chart 3

TSX Has More Weight in Yield-Sensitive Areas

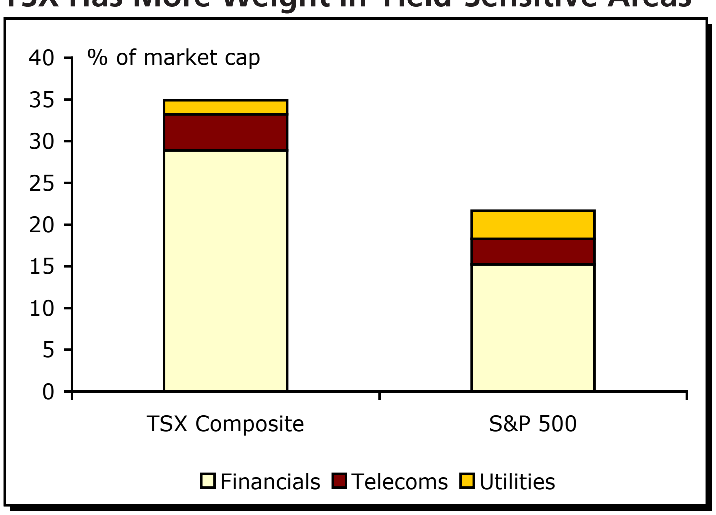
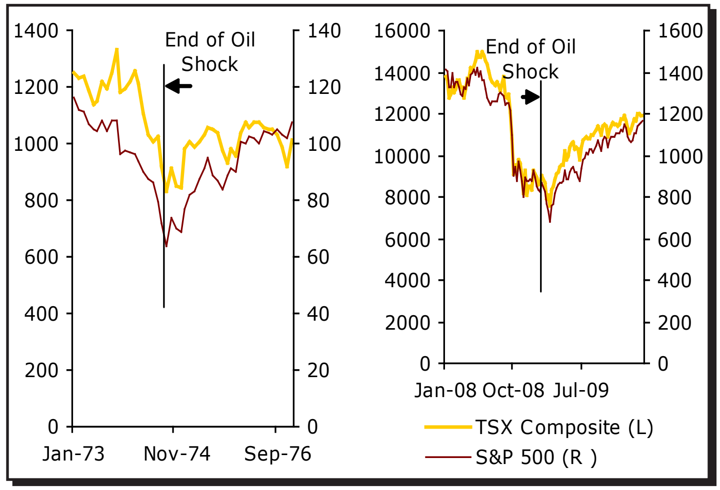


Chart 4

TSX & S&P 500 Rallied Together on Improving Growth Outlook After Past Oil Shocks



markets, improving the general economic outlook. The TSX bottomed at precisely the same time as the US index in that episode, despite its greater energy weighting. The stimulus from falling energy costs also certainly contributed to the strength of the rebound in both stock markets in the aftermath of the recent recession. Although the energy sector lagged the market as a whole, the TSX nevertheless rose by 60% in the first year after the bottom, one of the strongest rallies on record (Chart 4).

Handicapping the Odds on Future Bull and Bear Markets

If energy alone isn't such a decisive driver, what are the odds that other factors either tip the recent sell-off into a full-fledged bear market or send the TSX to new heights? In modelling those probabilities, we have chosen to focus on a three-month horizon, because that period is a relevant one for many investors and the predictive power of many indicators declines over longer time periods. The TSX has had ten rallies—defined loosely as a 20% rise in prices—since 1956, the earliest year for which consistent data is readily available. (Comparable data on the level and changes in forward earnings are, unfortunately, available only back to the mid-1980s.) The TSX has been in a bullish phase about 80% of the time in the past half-century, making that by far the most prevalent trading regime (Table 1, Chart 5).

The biblical reference to seven good harvests followed by seven meagre ones is one of the oldest references to "persistence" in asset markets. A Markov Chain, one

Chart 5

TSX's Time in Different Regimes Since 1956 (%)

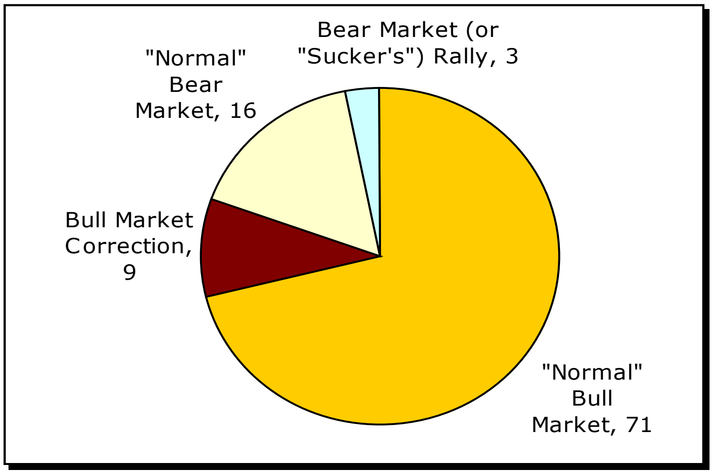
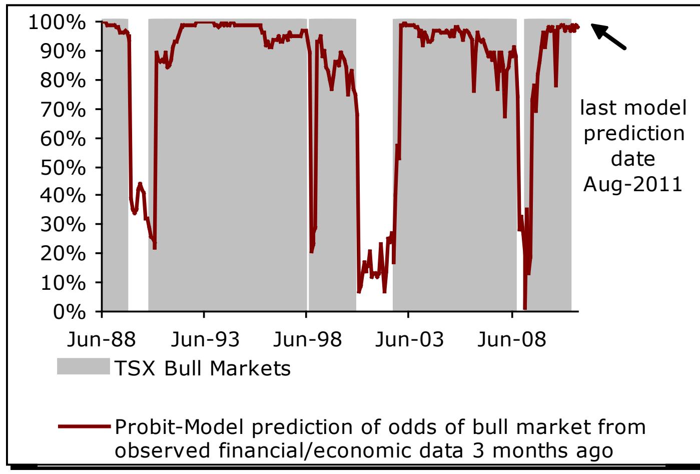


Chart 6

Actual and Predicted Bull and Bear Markets



model of time-correlated performance used increasingly in modern financial analysis, holds that tomorrow's trading regime (e.g. bull or bear market), depends on today's state—but not on any earlier history. The transition probabilities in a Markov Chain (the odds, say, that a bull market this month will be followed by "a bull market correction" next) are fixed in the simplest case. However, a more complex but realistic and useful approach from an investment perspective, is where the odds of progressing from one market regime to another depend on the state of the economy, earnings and other financial variables.

Adopting the latter of these two approaches, we have used a probit regression on six financial and economic series and a variable representing the market's current state (i.e. bull market=1, or bear market=0) to calculate odds for a particular type of market performance three months ahead. A bull market-bear market indicator constructed this way has had considerable success tracking the timing of regime shifts since the mid-1980s

Table 1

Historical TSX Bull & Bear Markets

Bottom	Top	Rise (%)	Subsequent Decline (%)
Dec-57	Dec-61	62.2	-18.4
Sep-62	May-69	97.8	-28.3
Jun-70	Feb-74	54.8	-32.7
Dec-74	Nov-80	184.5	-44.0
Jul-82	Aug-87	205.5	-30.9
Nov-87	Aug-89	41.3	-25.1
Oct-90	May-98	158.1	-28.8
Aug-98	Sep-00	105.9	-50.0
Oct-02	Jun-08	164.7	-49.8
Mar-09	?		

*Probit Model — (market state 3 mo. ahead: bull=1, bear=0) = Φ [1.09 + .14 x (mo/mo US GDP chg.) + .0018 x (10 yr – 3 mo. GOC yield)** -.28 x (equity market liquidity) - .12 x (12 mo. fwd PE ratio)** +0.26 x (ratio of 12 mo. fwd to 12 mo. trailing earnings)** – .012 (3 mo. % chg. in CRB index) + 1.94 x (current market state: bull=1, bear=0)**]*

*Where 'market liquidity' is the TSX 60 bid ask spread and index earnings refer to survey and lagged historical numbers from Thomson Reuters. ** denotes statistical significance at the 10% level. Φ is the normal cumulative distribution function, as per the usual practice. US monthly GDP changes are interpolated from the quarterly data. The model was estimated over the May 1987 – May 2011 period.*

(Chart 6). Using the latest data, it is currently placing under 5% odds on the start of a new bear market in the next two-three months, suggesting that the TSX's recent decline is a bull market correction. Our analysis suggests that the variables that convey the most information about future market performance are: 1) the slope of the yield curve, 2) the ratio of 12-month forward to trailing earnings, and 3) the 12-month forward PE ratio. That suggests investors might be well advised to pay close attention to these metrics, as part of their tracking of general economic and financial trends.

A downshifting global recovery and assorted other developments have contributed to a cooler ride in equity markets recently. Within each economic cycle, there are typically many market ups and downs, jogs and short-term corrections. Although the situation bears watching, our analysis does not suggest a materially worse equity market outcome than that typical bump in the road.