THE VIGIL

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Are markets truly efficient?

In this edition of the Vigil, we further the November issue's discussion on market efficiency to introduce notions that might help establish a different framework to explain market behaviour.

"VIGIL: from the latin 'Vigilare'. Keeping awake at a time when sleep is customary; an act of watching; surveillance" – Merriam Webster

«The investment universe is characterized by constant movement and change. To successfully navigate therein one must demonstrate intellectual conviction and discipline. One must be capable of reading signs on the distant horizon while avoiding shoals in the near and present. One must also show humility, realism and maintain a good dose of humor. In short we must never fail at being vigilant.

Those qualities are brought forward daily by Natcan's team of professionals. The following commentary reflects the views and opinions of our team on issues impacting Canadian investors and their advisors. »

- Pascal Duquette, president and CIO

>>> NATCAN

Founded in 1990, Natcan Investment Management Inc. is a subsidiary of the National Bank of Canada with approximately 30 billion dollars under management. Natcan is one of the premier institutional money managers in Canada. Our investment leaders follow their convictions with discipline and rigour to serve the best interests of our clients and their financial advisors.

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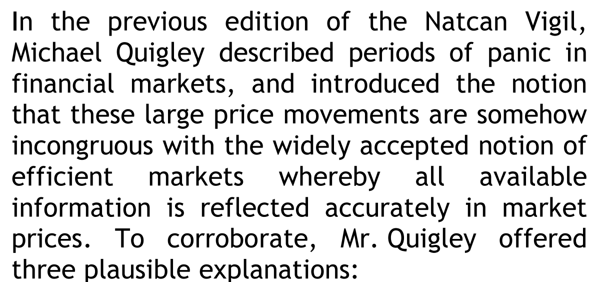
Prior to joining Natcan Investment Management in 2004, Pascal spent 18 years leading CN Investment's Global Equity Investment effort. He started in 1986 as equity research analyst, rose to the position of portfolio manager for European equities in 1991 and to portfolio manager for global equities in 1998. During this period, Pascal also served as a member of different equity and management investment committees overseeing overall investment strategy. Pascal obtained his Master's degree in Science (finance) from Université de Montreal in 1986, and is a holder of the right to use the Chartered Financial Analyst designation.



In the previous edition of the Natcan Vigil, Michael Quigley described periods of panic in financial markets, and introduced the notion that these large price movements are somehow incongruous with the widely accepted notion of efficient markets whereby all available information is reflected accurately in market prices. To corroborate, Mr. Quigley offered three plausible explanations:

- inaccurate valuations;
- investor sentiment; and
- disequilibrium in market forces.

The concept of market efficiency entails that all available information is correctly reflected in market prices and new information is incorporated quickly and accurately.

There are three forms of efficiency: weak, semi-strong, and strong. The weak form would be violated if one could prove that past prices can help forecast future prices, a direct counterpoint to technical analyses. Until the early nineties, the weak form of efficiency was widely accepted. However, in a seminal article published in the Journal of Finance in 1993, Jagadeesh & Titman showed that past prices could indeed help predict future prices. In fact, stocks in the best deciles of performance for the previous 12 months were shown to outperform in the future. This study demonstrated the existence of positive serial autocorrelation in market price series. Momentum investing was born.

The semi-strong form hypothesis relates to the speed of incorporation of new information. It is very difficult to test, and most attempts use stock-split announcements on the basis they convey a positive message from management about the future prospects of the firm. Overall it was shown that if not immediate, the price adjustment was still relatively timely.

The strong form has been most discredited by experts. Conventional wisdom dictates that insider selling and buying conveys information about future prices. These empirical results imply that the concept of market efficiency, as defined earlier, is not respected, or is at least unproven. Yet, the vast majority in academia and a great number of market participants still claim the market is efficient. One may wonder what form of reasoning lies behind this apparent contradiction.

A plausible explanation could be that market participants are taught to believe market efficiency does indeed hold. Challenging widely accepted academic pronouncements requires time, courage, and determination.

One cannot easily test the Efficient Market Hypothesis (EMH) as it is a joint test. It requires the simultaneous testing of:

- the speed of information assimilation in prices; and
- the accurate reflection of this information in prices.

The latter part of the test is the most problematic. To endorse this premise, one needs an equilibrium model to perfectly reflect the market's pricing mechanism. Such a model does not exist at this time. The Capital Asset Pricing Model, the Arbitrage theory, and all their derivatives are theoretical models, and they do not reflect reality. Regardless of this, academia is adamant on defending the EMH, stating that if it cannot be rebuted it must continue to hold. Yet, one cannot help but wonder, if this concept is in reality valid, how sudden market movements such as those that took place on October 19, 1987 come to be?

The seemingly eternal debate about the validity of the theory of efficient markets raises very good questions. Is it necessary to waste time trying to prove the market is truly efficient? Could we have more to gain from trying to determine whether or not market prices reflect economic rationality, as described by widely accepted economic theories? Is it reasonable to believe in Homo Economicus? These questions lead us toward a wide array of very promising avenues to ponder should one seek to further their knowledge and understanding of market dynamics.

OTHER SCIENCES TO THE RESCUE

Psychology

Few people would argue that their personal lives are not governed by the type of rationality described by economists. Yet, we continue to expect individuals to conform to economists' definitions of rationality when making economic or financial decisions.

Psychology has long studied this aspect of our decision-making process; numerous biases influence our decision process. Economics and finance have started to use some of these findings to elaborate a new economic model. Though not the founding fathers of the theory, Amos Tversly, Daniel Kahneman, and Richard Thaler have become the authorities of what is now known as behavioural finance. Their efforts have been widely recognized; Kahneman was the laureate of a Nobel Prize in Economics in 2002.

Behavioural finance is the study of the influence of psychology on the behaviour of financial practitioners. It helps explain why and how markets might be inefficient.[1]

The best way to reveal the flaws of the EMH is to reproduce a portion of one of Richard Thaler's presentations at a Harvard Business School seminar, which the author attended several years ago (see table opposite).

<u>Environmental and Pure Sciences</u>

In science, it is now widely accepted that nature is probabilistic. This means that there is an element of uncertainty in any event which could lead to different results, even though one might repeat the same event under a strictly controlled environment. This happens because uncertainty is different from risk. Contrary to risk, uncertainty cannot be measured. Unexpected market events will take place as sure as the sun rises every morning. In mathematical parlance, it is said that markets exhibit a fat tail distribution. In simple terms, this means extreme events happen more often than they should.

We accept this notion in many areas of our lives, but have difficulty applying them to financial markets. No one expects two children born from the same partners to look exactly the same despite the fact they originate from the same gene pool. Why then do investors expect all interest rate increases to have the same impact? In fact, children from the same couple are more often than not entirely

Implications of the Rational Efficient Market Framework

Implications	Facts
Changes in prices reflect news	October 19, 1987
Everyone buys the market portfolio	Most portfolios are poorly diversified
Virtually no trading	Most equity funds are actively managed; Turnover is high
Prices are unpredictable	Small firms, prior losers, low p/e, low price to book, all outperform the index Price drift after earnings, dividend, and share repurchase announcements
Only non-diversifiable risk is priced	Beta barely matters
When dividends are taxed higher than capital gains, firms will repurchase shares rather that pay dividends	Dividends are the norm; When firms announce dividend initiations or increases, share prices increase
Stock splits are irrelevant, and if costly, will not be observed	The average nominal stock price on the NYSE is the same as it was 70 years ago

dissimilar. The same rationale applies to market reactions to economic news. This is a pretty complex discussion, and if one wishes to dig deeper on the subject, "Out of Control, the New Biology of Machines" by Kevin Kelly, former editor of Wired, is a highly recommended book on the matter.

<u>The Environmental Science and the Creative Destruction Theory</u>

To explain the predictive power of past prices on future prices, Robert Haugen, a Berkeley professor, carried the phrase "markets are slow to overreact"[2].

[1] SEWELL, Martin, *Behavioural Finance*, Department of Computer Science, University College London, May 2007, 14 p.

[2] HAUGEN, Robert A., *The New Finance: Overreaction, Complexity and Uniqueness*, Prentice Hall, 17 Nov. 2003, 149 p.

This is the professor's way of expressing his belief that momentum investing works. There are two justifications to this statement:

1. Information, though disseminated fast, is slowly absorbed. As such, some economic actors are late in acting or reacting.

2. Price movements generated by the news attract new buyers. Price movement is information in itself as it exposes that other informed traders are acting.

The famous Austrian economist Joseph Schumpeter has described the process of creative destruction as the natural state of a capitalist economic system. To illustrate, one may glance at the animal kingdom for analogies: it has been often said that pure capitalism resembles the law of the jungle. In nature, the equilibrium is at best a state that nature strives for, though it never stays stable for a prolonged period. In a world of gazelles and lions, there is an optimal number of gazelles sufficient to satisfy the hunger of the lions. However, because of external shocks such as droughts or human interventions, imbalance becomes the norm, the natural state of the world. As the number of gazelles increases, the lion population gathers more food and grows stronger; the gazelle population is thus gradually reduced, causing the inevitable death of weaker lions, and triggering another upsurge in the number of gazelles.

According to Schumpeter, this is the way a capitalistic economy should function. Financial markets are the ultimate capitalistic systems, and it is therefore natural for prices to overshoot in both directions, thus creating violent and sudden price movements at times. Bubbles and crashes are therefore to be expected, though their unfolding tends to be a slow and steady process.

CONCLUSION

I have attempted to be thought provocative so as to illustrate that many of today's openly accepted academic concepts driving our financial beliefs could be questioned seriously, if not rejected outright.

Acceptance of the fact many investing precepts can be challenged should lead toward alternative thinking. One such area with great promise is behavioural finance. We plan on exploring the subject with you in a future edition of the Vigil.

Until then we wish to remind you that all things considered, know thyself seems to be pretty good advice when the time calls for wise investment decisions.

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