Chapter 11
US Financial Crisis Critique and the Statistical Predictability of a NYSE Portfolio

Gerry Wymar
Hammersmith Planning, UK

ABSTRACT

This study's purpose is to review investment practitioner accounts describing the causes and effects of the global financial crises, with a focus of the US financial crisis. A critical gap in the literature was found: the lack of an independent indicator that could do forecast a market upturn or downturn at least a week in advance to provide sufficient lead time for hedging a stock portfolio before a crash. A sample of 95 high performing companies listed on the New York Stock Exchange (NYSE) was used as a multiyear case study. Publicly available market indexes such as Mood's, Standards and Poor's (S&P, and others, were tested as independent factors to explain the behavior of the case study stock portfolio performance. Correlation, regression (simple, multiple, stepwise, surface response) and ANOVA (with T-tests) were used to analyze 817 days of returns during the 2008-2011 period of the US financial crisis. A complex polynomial nonlinear equation was developed which could predict the behavior of the case study portfolio five days in advance.

INTRODUCTION

The global financial crises was caused by the US financial crisis which in turn was instigated by unethical actions (including insider trading as well as poor bank lending practices), but the key impetus was the failure of the US housing market due to delinquencies in the sub-prime and prime mortgage sectors (Phillips & Yu, 2011; Gorton, 2008; Krinsman, 2007). Mortgage holders could no longer afford increasing payments due to rapidly rising variable mortgage rates.

Additionally, the earlier economic expansion, the technology boom and the bull market of the 1990's created employment prospects and income capabilities that encouraged more home owners to invest in homes with high loan-to-value mortgages, while unethical investors took advantage of the poor banking practices by flipping mortgages

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(Phillips & Yu, 2011; Buckberg, Dunbar, Egan, Schopflocher, Sen, & Vogel, 2010; S&P, 2007).

In parallel with the housing market problems, the stock market began to suffer, as there were many unethical events taking place, such as investment companies selling complex market-based options and loan 'synthetic' derivatives which included a complex variable market-driven interest rate (Weaver, 2008). Unfortunately as the overall stock market crashed, so did the economy, which caused portfolio values to plummet and variable loan rates to skyrocket, in most if not all of the world markets (Krinsman, 2007; Phillips & Yu, 2011).

Although the 2008 economic recession was triggered in the US, other countries also experienced the fallout, especially those countries that entertained more variable return based investment instruments, and those that held stocks of multination corporations that were dependent on the US market. Governments at all levels (including pension plan administrators) were hit by heavy losses, both from a bear stock market, and also due to swapping high fixed interest loans with variable rate derivatives that by 2009 carried exponentially higher rates than any previous instruments on record (Bakshi, Kapadia, & Madan, 2003). The financial crises resulted in the downfall of the economy experienced mostly by US, Ireland, Greece, and Portugal (Phillips & Yu, 2011; Buckberg, Dunbar, Egan, Schopflocher, Sen, & Vogel, 2010).

However, some US stocks weathered the global economic crises better than others. This manuscript critically reviews the underlying factors and impacts of the 2008 global economic crises to gain insight about how the performance of a portfolio could be predicted in multi-year volatile conditions. Then a methodology is developed to explain the behavior of a market portfolio case study composed of stocks traded on the New York Stock Exchange (NYSE). A high performing group of 95 companies were examined to create a statistical model which can explain the movement of the average capitalization index of the portfolio. The factors were developed by statistically testing the average capital return variances of publicly listed US investment market indexes to locate the most predictive index for a three year period during the global financial crises (2008-2011).

The results of this study have been useful to manage this stock portfolio (the contents of which are listed in the appendix). These 95 stocks did perform well as illustrated in the time series plot of Figure 1 from 817 monthly average return data points during 2008-2011. More so, the results of this study will be useful to other investors that wish to hold US-based NYSE companies in their portfolio. While the scope of this case study was focused on US-based stocks, the principles may be generalized to other countries. In effect, this paper illustrates a method to reduce the uncertainty of a stock market portfolio performance in a national or international financial crisis - in case that should occur again.

LITERATURE REVIEW

There is no doubt that the global financial crises was causes by the US sub-prime market crash which hit the US in the latter part of 2007, then accelerated into a full-blown global economic crisis by the end of 2008 (Phillips & Yu, 2011; Buckberg, Dunbar, Egan, Schopflocher, Sen, & Vogel, 2010; S&P, 2007). There was widespread financial insolvency and sustained volatility in financial markets that was similar to that of the era of US Great Depression (Gorton, 2008; Krinsman, 2007).

Financial Crises Components

It is necessary to understand the US macro and micro sub-prime factors that underpinned the global financial crises of the 2008-2011 period before stock market predictors can be located. A likely starting point for the global financial crisis can be traced back to the first quarter of 2006