Almost 11 years after the Lehman’s sudden collapse and the Federal Reserve bailing out AIG from the cliff edge, we are surrounded with voices saying that we are counting down to our next financial crisis in a year or two, although currently we are still safely moving forward with rosy economic indicators. Each crisis or market crash was extraordinarily damaging to households, social security and political stability, and may be triggered by various factors, including political affairs, internal economy, etc. As for how to navigate ourselves across the future unknown dark periods, history is a good place to look for answer. As the first AIG Investment AI quantitative research report, this research report will lay a foundation for more future research reports to come by giving a brief overview on the US extreme events that had big impacts on the equity market since 1960s. In the second part of this report, we will examine and discuss the performance and characteristics of one of the most popular financial models, the Fama French 5 factor model, in the past decades, especially when those “extreme events” happened.

An Overview of Historical Major Financial Crisis Since 1970s

Oct 1973 – Mar 1974 OPEC Oil Embargo

In 1973, in order to gain leverage in the peace negotiations after the Arab-Israeli War, the Arab members of OPEC (Organization of Petroleum Exporting Countries) imposed an embargo banning petroleum exports to United States and other countries that supported Israel. Increasingly dependent on oil import, the US economy was drained as the oil price soared to double and finally tripled following the embargo. What made things worse was firstly the wage-price control implemented by President Nixon, who pegged the wage too high and forced businesses to lay off workers. And secondly a devaluation of US dollar triggered by Nixon’s taking US off the gold standard. All these factors together led to a long-lasting stagflation and negative GDP growths lasted for 5 quarters from 1973 Q3 till 1975 Q1, and unemployment rate reached a peak of 9% in May 1975. The crude oil price remained high even after the embargo against US was lifted in March 1974. At the peak, the crude oil price was 6 times the mid-1973 crude oil price level as the OPEC cut production for several more times. Actually starting from January 1973, the stock market was already undergoing one of the worst downturns in the history, and it was compounded by the OPEC Oil Embargo lateron. From January 1973 to October 1974, the S&P 500 Index dropped by 47%.

Recession of 1981-82 and LatAm Sovereign Debt Crisis

In the 1970s, the Fed adopted a “stop-go” monetary policy, which is based on the trade-off between unemployment rate and inflation rate along the Phillips Curve. In “go” periods, the Fed would fight unemployment by lowering interest rate, while in “stop” periods, the Fed would tighten the monetary supply for a lower inflation rate. However, in mid 1970s, the Fed seemed to lose its control over both inflation and unemployment as they tended to mount together. The unemployment rate reached its peak in May 1975 at 9% and trended down slightly in late 1970s. Believing that a high Inflation rate would be harmful to the economy over an even longer time, the Fed again tightened monetary supply after the inflation hit its peak at 11% in Jun of 1979. The expense is inevitably a rising long-term interest rate. 10-year Treasury yield was as high as 15% in 1981. Economic sectors that were more dependent on borrowing were drained, and unemployment rate started to climb to almost 11% at the end of 1982, the highest level in any modern recession. The recession corresponds to the bear market in 1981 – 1982. From Nov 1980 to Aug 1982, the S&P 500 index dropped by 27%.

Before the US could take a breath from a 2-year recession, in August 1982, Mexico announced that they were not able to service the debt to US commercial banks and other overseas creditors, and other Latin American countries followed with same announcements shortly. The Debt Crisis originated from the skyrocketed Latin American borrowing from overseas creditors in 1970s. By 1982, the total Latin American debt held by the 9 largest US banks was 176% of their capital. Coincide with fighting inflation as the priority of the industrialized world, the Latin American countries found that their debt burdens were gradually beyond their affordable level as the interest rate for loans climbed under the tightening monetary policy.

1987 Stock Market Crash

Monday, Oct 19 of 1987, is known as the Black Monday when stock markets around the world crashed. The crash firstly began from Hong Kong, and hit Europe afterwards and later on spread to United States. The US economy recovered from 1980s recession and the stock market was booming accordingly. The DJIA increased by 44% from 1986 year end closing point 1,895 points to 2,722 points in August 1987. On October 19, the crash firstly occurred in Hong Kong. The DJIA dropped by 508 points or 22.6% on October 19, which still remains to be the largest one-day percentage decline in the DJIA. By end of October, the stock markets had fallen in Hong Kong by 45.5%, in United States by 22.7% and the UK by 26.5%. The causes of this crash are still debated. But a most commonly blamed one is the growing and massive use of program trading, which would blindly sell or buy stocks as markets fell or went up and therefore created extra self-inflicted volatilities. Thus, people have reason to believe that the booming market right before the crash can also be attributed to program trading. This is also why the circuit breakers or “trading curbs” was introduced to prevent the index price from a free fall under program trading.

2000-2001 Dotcom Crash

As the personal computer gradually became a necessity in 1990s, the era of information technology arrived, and a large amount of internet-related companies were founded accordingly. Meanwhile, interest rate lower than the prior decades when the Fed fought high inflation with tightening monetary policy provided a favorable environment for the new tech companies to raise capitals and expand their businesses. Investors were enthusiastic about buying in any stock with “.com” suffix in the company name. In order to sustain the technology effect and grab larger market shares, the dotcom companies spent aggressively on all kinds of marketing and promotions, and a lot of them consequently had to maintain operations under losses with more easy money raised from all channels. On March 10, 2000, the NASDAQ Composite stock market index, which included a lot of dotcom companies, peaked at 5,048.62. However, the carnival partially arose from low interest rate could not sustain any more afterwards when economy slowed down and the interest rate started to increase. A lot of dotcom companies were shut down and liquidated, other more robust ones like eBay and Amazon, though survived, ended up with market capital evaporated by 86%. By end of 2002, the stock market lost 5 trillion dollar compared to the prior peak. At its lowest point of NASDAQ index in October 2002, NASDAQ dropped by 78% from its peak.

The 911 Attack

September 11, 2001 is an example of terrorism’s effect on equity market. To prevent stock market meltdown, the NYSE and NASDAQ did not open for trading on the morning of 911 when the first hijacked plane crashed into World Trade Center at 8:46 a.m.. The two stock exchange remained closed until September 17, and on that single day S&P 500 declined by 11.6% and DJIA decreased by 1370 points. As can be expected, the biggest drop occurred in the airline and insurance industry, especially the American Airline (39% decline) and United Airline (42% decline), whose planes were hijacked in the attack. However, as the public believed that US may enter into a war following the attack, sectors related to defense and military began to spike for a while.

2007-2008 Financial Crisis

The 2008 Financial Crisis is considered to be the most serious financial crisis ever since the 1930s Great Depression. However, tracing back to the very beginning, it was actually originated from some good intention of the government: in 1995, in order to encourage Fannie Mae and Freddie Mac to fulfill their lending obligations for affordable housing, the government started to allow them to buy subprime securities