

## THE PERILS OF TEACHING CASE STUDIES IN FINANCE DURING PERIODS OF FINANCIAL VOLATILITY

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### Abstract

This study examines teaching in finance by application of case studies during times of financial market volatility. Academic textbooks often presume neat structured solutions to real world problems that are often quite complex. Recent events such as the global financial crisis (GFC) and the European debt crisis (EDC) come to mind. Leaders and policy makers are grappling with how to solve these major financial and societal problems. Templates within academic case studies are in many cases now defunct. These evolving crises are the new case studies of the future. This study posits that educators should address the tools they use in the classroom. Whilst they should still maintain the tool of traditional case study teaching in their portfolio, they should now evaluate new methodologies to attempt to learn about new and often frequently catastrophic events occurring in financial markets. Students should continue with traditional analysis of cases, but should also be probed and tested how to address events that have yet to happen and currently could be termed almost unimaginable. This should help educators prepare students to be the leaders and the thinkers of the future. Students should be encouraged to move away from a structured 'black-box' thought process which should allow them the ability to probe and find quick and efficient solutions for the betterment of society in future years if they are called upon to do so.

### Introduction

A key theory forming part of financial thinking is that over time values revert back to a norm. This *mean reversion* concept is widely formalised in all finance textbooks when the topic of asset valuation is examined. More broadly, educators in finance apply case-based learning as a teaching medium. The study of *mean reversion* in asset prices can be applied to the use of case-based study in the classroom. The global financial crisis (GFC) and resultant aftershocks have delayed at best, a return to the normal trend line. The Japanese tsunami and atomic meltdown have added to financial volatility in financial markets. *Force majeure* in the form of catastrophic natural events such as floods, hurricanes and earthquakes among others that are becoming repetitive, are having catastrophic effects on global economies. In Europe a sovereign debt crisis is unfolding, and a banking contagion is playing on the minds of the financial market participants. Where does this so-called *normal line* now lie?

When financial instability is ongoing, the abnormal can become the normal. This presents a problem for educators in the finance discipline. The

integration of case study analysis into an educator's portfolio becomes a two-edged sword. Case-based learning is arguably a powerful medium for student enlightenment during periods of financial market stability, but in times of extreme financial market volatility the lessons to be learnt from case studies may suddenly be old news. So whilst finance theory tells us that asset prices revert to a *norm* or more technically they *mean-revert*, a question to be asked is do case-based studies in the classroom also *mean-revert* after periods of extreme volatility? The lessons that educators pass onto students before periods of extreme volatility may often be irrelevant after the event. The key aim of this paper is to address the issues facing those educators who teach finance students using case-based methodology during periods of extreme financial market volatility.

### Review of Literature

Miller (2004) describes a methodology known as problem-based learning (PBL) employed in an organisational behaviour (OB) business undergraduate course she managed. In PBL the role of the instructor changes to that of a mentor. Once students have understood the key fundamentals underpinning a topic, they then proceed to the problem solving stage. This allows students to be more actively involved in the classroom, negating the tendency towards rote learning. The author aims to create an *unforgettable* class experience. The core focus of PBL is that of problem solving. The PBL methodology can be applied to OB facing students in an educational setting, in their workplace or in their personal lives. PBL involves a six-stage process. Problems are identified and researched and solutions are put forward. Output is measured, work is presented, and students finally reflect on their work. The author states that PBL stimulated wonderful learning experiences from her cohort of students. It also added positively to her teaching experience.

Pearce (2002) discusses *structured conflict* (SC) in the context of case-based study. The key behind SC is an open discussion on the major differences on a chosen topic. By openly debating differences, students converge towards a better decision-making process. By building consensus and agreeing on differences, students better understand and commit to their decisions. Pearce has used SC in his teaching. Whilst students may find the process intimidating, most find the experience worthwhile. He cites several skills learnt by students in an SC setting: analytical skills are improved due to constant debate and culminating in the presentation of findings. Case studies do not always supply full information to aid in the decision-making process, but the constant debate about the issues allows students to expand all possibilities leading to fuller solutions. Finally, case-based SC allows students to build self-confidence through the cumulative and often high-energy interaction with their peers.

Nunally and Evans (2001) argue that case-based learning speeds up the student experience. They used an introductory finance course as an example, stating that a case study must contain a strong combination of theory and practice. Many academic institutions present *capstone* courses, which bring all the ideas learnt during a course under one umbrella. The authors state this *interrelatedness* should be presented to students at the start, and not at the end,

of finance courses. Case-based learning combined with practical application equips students with tools necessary to face the marketplace for finance professionals. This in turn leads them to attack business with a more flexible and dependable mindset. Stretcher (2001) similarly examined case-based studies in undergraduate finance courses. His survey results attempted to determine how widely case studies are used in undergraduate courses and any existent motivations why case-based study may or may not be used. According to Coldwell and Rose (2011), one of the main challenges facing educators seeking to enhance learning, as well as practitioner and student satisfaction, is to create opportunities for students to apply financial concepts and theory to real world cases. According to Bennis and O'Toole (2005), business education has been preoccupied with imparting theoretical rather than practical skills that would enable students to be successful business professionals. According to Albrecht and Sack (2000), educational models focus excessively on content at the expense of practical skill development. Marriott (2004) posits that if students wish to learn spreadsheets to enable proficiency in financial modelling to enhance their skills and job opportunities, then educators should in turn facilitate the use of spreadsheets in the classroom.

Brooks and Oliver (2004) introduced a new course designed to combine management accounting concepts with technology. The technology component emphasized spreadsheet design and communication. The use of case studies ensured that the curriculum was relevant and simulated "real life" scenarios. This added to the course relevance. It also enabled educators to change their role to act as facilitators rather than as instructors as the class participants took on a greater responsibility for their own learning. The authors reported a continual growth in skills and confidence over the course of the subject. Students discovered an improved ability to deal with problem-solving situations.

This is often known as *constructivism* in the pedagogical literature, as students take responsibility for the learning process and in turn develop autonomy and independence. A lecturer is no longer the only authority but acts more as a guide, supporting learners in the process of constructing knowledge (Neo & Neo, 2001). Students develop important problem solving and thinking skills and acquire the necessary skills required to work in a team. Experiential learning leads to the enhancement of their knowledge base and the ability to learn how to learn. David Kolb is often regarded as the founder of experiential learning and with Roger Fry, set out a learning cycle, which included four elements: concrete experience, observation and reflection, the formation of abstract concepts and testing in new situations (Kolb, 1981). Learning involves the use of concrete experience to test ideas. Technology is a critical component of the learning process (Neo, Neo, & Tai, 2007). Information and communications technologies can be used to support experiential learning environments (Challis & Rice, 2005).

Bruner (2002) has written a popular finance textbook containing real world cases involving mostly well known companies facing corporate finance decisions. The focus is on decision-making.

Case studies are lengthy and extensive, involving advanced data analysis. Technology enables “learning by doing” and it is not possible to undertake a relevant case study mode of education in corporate finance without students acquiring financial modelling skills. Spreadsheets enable the teaching of corporate finance using the case study approach.

Many institutions integrate financial modelling within programmes with each case study requiring students to apply financial modelling in Excel. This may involve preparation of pro forma financial statements and cash flows and use of Excel tools such as Goalseek, Data Tables, Scenario Manager, Monte Carlo Simulation, Financial functions and specific add-ins and add-ons. These follow a building block approach, which is integrated with specific cases. The combination of using Excel financial modelling skills and the case study approach results in a significant improvement in the ability of students to deal with complex business situations and apply advanced spreadsheet modelling skills.

### **Historical Financial Market Case Studies That Challenged the ‘Norm’**

According to Sykes (2003), Holland experienced one of the earliest documented bubbles in history with occurrence of the Dutch Tulip Boom of 1636-37. The tulip had been growing in abundance in the East and the first recorded growth in Holland was in 1562. A craze in society for tulips started in Paris and spread to Holland. Dutch gardeners crossbred the tulip to produce beautiful colourful flowers. Holland at the time had all the ingredients for an asset price explosion. Prosperity was rising amongst the moneyed classes at the time, tulips were a new commodity and the marketplace for tulips was unregulated and liquid. In 1633 the supply of tulips was growing in Holland. In that year an interest in the tulip developed and prices started to rise strongly. A boom developed and the peak lasted for two months. All the ingredients of financial market exuberance appeared, such as speculation, the use of borrowed monies for trading and the infectious spread of market participants across all of society from the rich to the poor and the informed to the ill informed. The bubble did eventually burst and many people were destroyed financially. Whilst scientists and engineers may learn from history, the finance industry tends to repeat its mistakes.

This type of case has been repeated through history. According to Pettinger (2010), in 1929 Wall Street suffered a major stock market crash. The 1914-18 war led into the 1920s when a US nation that had been constrained by war was ready to move to a different type of emotion. Technological breakthroughs developed in the movie, aviation and car industry. The 1920s saw boom economic times develop. Business and individuals flourished. The stock market was the recipient of investor and speculative monies rising strongly. Stock prices were being driven upwards not necessarily by fundamentals but by exuberance and greed. The market peaked in October 1929 and crashed on 24 October. Before the peak there were 30,000 banks in existence in the US. During the period 1928-30 a total of 5,000 banks went bankrupt. This in turn led to the Great Depression of the 1930s.

According to Wikipedia (2012), history repeated itself in 1987. The U.S. stock market had been rapidly rising during the 1980s. The Dow Jones industrial average peaked in August 1987 approximately 44 percent above the previous year's close. In October the market collapsed, falling by 25 percent overnight. A major reason for the crash has been attributed to market psychology. Similar to 1929, as stock prices rose, market watchers felt they would miss out on windfall profits. More and more people entered the market. Typically the smart players exited at the top and those uninformed players kept buying. The crash occurred and caused massive wealth destruction. Another reason posited for the crash is program trading. This involves the use of computer technology to execute trading positions. Programmers write the code and attempt to execute profitable trades at the "correct" entry point. At a point of extreme volatility, computer trade execution exacerbates the fear in the market and capitulation eventuates.

CANSTAR (2009) documents the history behind the global financial crisis (GFC), which commenced in 2007. The source of the GFC is attributed to a housing bubble in the U.S. Mortgage loans were advanced to less than credit worthy individuals. Interest rates, which had been dropping during the decade, were conducive to strong borrowing. This growth in sub-prime lending led to an expansion in the securitisation process. This involves lenders packaging loans into parcels and selling the packages on financial markets. These packages were bought and sold around the globe by diverse participants such as municipalities, pension funds, governments, speculators, etc. These packages were often accorded dubious high quality ratings by supposed expert credit rating agencies.

The trigger for the GFC is attributed to be when those homeowners who initially took out cheap mortgages were unable to make their interest repayments. This caused a ripple effect around the globe as stock markets crashed and credit lending dried up. Governments had to bail out banks and major corporations. Stock prices fell and businesses collapsed. Currently the European debt crisis (EDC) is at centre stage. The EDC is an offshoot of the GFC. The key difference is that the main players in the core of the GFC were corporations. The key EDC players are sovereign governments. The psychology of financial markets documents hundreds of scenarios that unfolded during the decades. Finance textbooks tend to present underlying theory often followed by examples without addressing the unknown unknowns. What was once an unknown is now a known and often becomes part of the education process. Unfortunately, theoretical models tend to not consider the rapidly evolving unknowns occurring in markets. According to Coy and Wooley (1998), Long Term Capital Management (LTCM), a financial vehicle known as a hedge fund collapsed in 1997. Among its directors were Myron Scholes and Robert C. Merton who jointly shared a Nobel Prize in Economics in 1997. The company engaged in complex financial transactions involving huge sums of borrowed funds. It particularly applied mathematical trading using detailed quantitative models often constructed by employees with PhDs in mathematics. In its initial existence it generated annualised returns of over 40 percent. In 1998 its portfolio value declined by 44 percent – this equated to a yearly loss of \$2 billion.

Quantitative models are based on the history of markets and prices. Computers check through thousands of transactions to determine relationships between financial assets. Once relationships are established computers may trade on their historical correlation between price movements. If the direction is intact, trades generate profits. If volatility enters the market, presumed direction of prices can diverge. Computer programs expect prices to revert back to a long-term norm. But when prices do not revert according to theory posited in finance textbooks, large events such as LTCM occur.

The eventual end of LTCM involved being bailed out by the Federal Reserve. Billions of dollars of investors' money was lost during the saga. LTCM employed quantitative experts schooled in advanced mathematics. Methodologies employed can often be traced back to graduate and PhD programs. Textbooks often lay out hundreds of formulae that neatly fit in place and are in the majority solvable. Often in real life, observable volatility in financial markets causes the mathematics to collapse with no ready answer to those investors facing massive losses. The LTCM Corporation case study proudly held two Nobel Prize winners on its board of directors. Maybe educators should start in the classroom and begin to question what we teach our students?

The circular flow of income is a basic fundamental axiom of microeconomics. This is a simple economic model describing the flow of income between consumers and producers commonly known as households and firms. Firms provide goods and services, and households provide labour. The model can be expanded to incorporate government and financial markets plus imports and exports. When an economy strengthens, households feel wealthier and increase spending. Firms invest more and meet the needs of consumers. Economic activity and money flow increases. In depressed economic conditions households do spend less and save more, demand for goods and services decreases. Financial institutions hold back credit. Less money flows through the economy and economic activity contracts. This basic model depicted in Figure 1 is referred to in every undergraduate economics textbook (Ruffin, 1992).

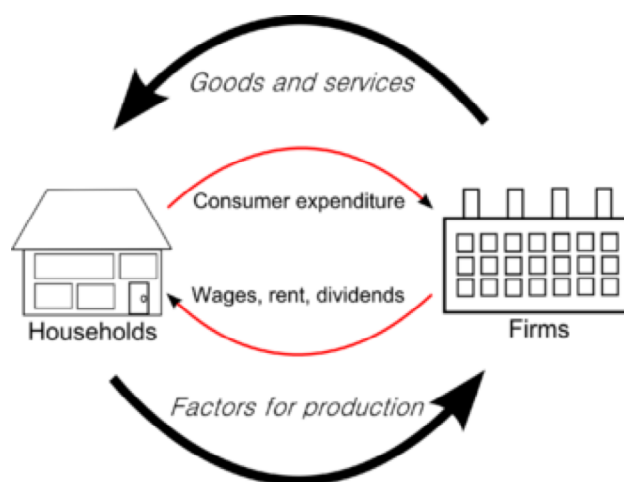


Figure 1. Circular flow of income.  
Source: Wikipedia

Baxendale (2011) states that whilst the circular flow theory exists in all economics courses it has major flaws. It does not question how money is spent or whether it adds to aggregate wealth. Individuals with outgoings of \$2000 per month and income of \$1800 per month have to either use up savings or borrow the shortfall. If there is no available credit to borrow elsewhere the individual must cut back expenditure. The same logic must apply to corporations and sovereign governments. According to the model to restore profitability is to re-establish any necessary economic growth. Aggregate expenditures of all should equal aggregate incomes all in this model. The question to be asked is what the aggregate level of profitability is among firms, households and sovereigns.

What about those parties who lent money to bad businesses and inept governments who will not get their money back? Economic pain must occur. How does this circular flow model accommodate this scenario? One theory proposed is to inflate the debt away by issuing more money into the economy. Prudent savers now find the value of their money deflated. Lenders who made poor decisions by offering loans to dud borrowers will now be spared debt default. This creates an illusion of a return to profitability.

The EDC has followed the GFC. According to Hilsenrath (2010), the mantra from the U.S. Federal reserve is to inject more money into the economy by buying bonds from banks and corporations. This process of injecting money into the economy might avoid deflation but this comes at the expense of Baxendale's *prudent savers*. A strategy employed by the U.S. to strengthen its financial sector post GFC was to introduce a Troubled Asset Relief Program (TARP). Assets and equity are purchased from financial institutions. Extra monies became available to the banking system for lending purposes. The problem is that the bankers' fear of a global financial meltdown caused them to hold back on lending to business. This further added to fear in the economy. Government bailed out large firms that were considered "too big to fail." In many European countries, ordinary taxpayers had to cover the costs of excessive borrowing by entrepreneurs from loose banking practices. Moral hazard is the practice of taking extra risk knowing that any costs will be taken up by parties not taking the risk. Moral hazard is synonymous with the GFC. Many banks lent money unwisely – accumulated bad and doubtful debts – and were bailed out by government because of the "too big to fail" mantra. Finance and economics case studies incorporate the concept of the circular flow of money, but in practice GFC-type events that lead to excessive financial market volatility cause the theory to be re-evaluated in the classroom (Wikipedia, 2012).

Rational expectations theory is an economic hypothesis that assumes that expectations by agents of the future value of economic variables are on average systematically correct. Given statistical expectations, agents' expectations are on average correct. The theory is model driven. Agents within the model are primarily workers, firms and consumers. They model expectations of future economic behaviour. Agents are presumed to act

rationally. The model assumes that agents do not make systematic errors when making predictions about the future. Deviations from their expectations are random occurrences. The key economic assumption is that an economy has only one equilibrium point. This equilibrium is forecasted into the future. Expectations are formed around this equilibrium point (Katz & Rosen, 1998).

The assumption of rationality can break down in periods of extreme volatility in financial markets. The cases listed about starting with the tulip boom through to the GFC and the current EDC question the concept of rational agents. When financial markets become volatile, fear can enter agents' minds. Severe wealth destruction can eventuate. Finance theory assumes reversion to a normal level of prices, but volatility challenges this idea. Finance theory has also been a strong supporter of the efficient market hypothesis (EMH) where prices are assumed to "even out" over time. This argument has not been evident especially in the European debt markets such as Ireland, Greece, Italy and Spain in recent years. Agents have been less than rational in their behaviour, which has seen nations on the brink of bankruptcy and anarchy. The EMH is also predicated on rational man. Stock prices are assumed to find a 'fair' equilibrium value. This has not been a feature of European stock markets during this crisis. Retirement funds and savings have been eroded and government debt has been downgraded.

Leaders struggle to find solutions. Decision makers are looking towards policy decisions from the Great Depression to solve the GFC. Textbooks and case studies in traditional economics and finance textbooks struggle to address the problems presented by these crises. Figure 2 presents the VIX index. This volatility index is commonly known the *fear index*. When the index rises, it represents financial markets agents' stress levels and when the index stabilises at a much lower level this signifies calm in markets. The VIX is a ratio of derivative instruments called put and call options used by market traders to bet on downside or upside movement in markets. The VIX challenges textbook assumptions permeating through finance and economics textbooks that put forward the assumption of rationality in behaviour.

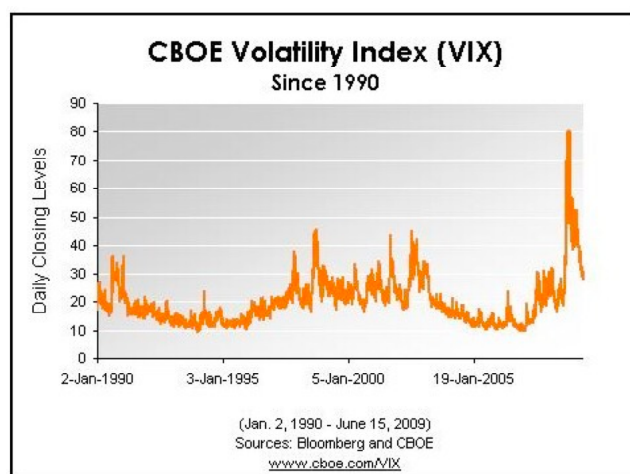


Figure 2. VIX Index.



## Conclusion

Economics and finance textbooks present neat mathematical and logical models of how financial markets function. Rational behaviour is a key assumption underpinning many of these models. Statistics and mathematics are neat and easy to follow, but in reality humans are not necessarily rational in their behaviour. Volatility in financial markets brings fear and greed, and human emotions take over from the logical quantitative models. Stress and extreme wealth destruction occurs. Market participants are often bewildered about how to react. Policyholders struggle to find templates for how to solve crises facing their governments and countries. Traditional textbooks and case studies are left wanting when this volatility arrives. Perhaps educators should still concentrate on existing models of behaviour and asset prices but also place a greater emphasis on events that are unpredictable and uncertain and in some cases may be unimaginable. This would widen the student experience and help develop the next crop of leaders and policy makers to be equipped for future global crises, which history tells us will occur again and again and again.

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