LARGE PRICE DECLINE, PRICE REVERSAL AND FIRM CHARACTERISTICS: A COMPARATIVE STUDY OF 2008 FINANCIAL CRISIS

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Abstract

On October 10, 2008 share price declined significantly in most capital markets and market rebounded on October 13, 2008. The market decline on October 10, 2008 and a price reversal on October 13, 2008 was one of the largest in the history of most capital markets making it a very significant event period. A firm level comparison is done in three significant and distinctly different capital markets, Australia, India and U.K from an international portfolio diversification perspective. Results show investors of domestic U.K. firms reacted more negatively to high leverage and large liability firms compared to Australian and Indian investors. Overall, differences are found in firm characteristics and reaction across the three markets during the large price change period.

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1. Introduction

The Dow Jones index in the United States on October 9, 2008, declined by 7.33% which was one of the biggest falls in the history of the index. October 9, 2008 was the busiest day in New York Stock Exchange history when panicky investors dumped stocks en masse and 8.3 billion shares were traded on a single day (Bajaj 2008). The following day on October 10, index further fell by 1.5%. The market decline in the U.S. was followed by decline in major markets around the world on October 10, 2008. On October 10, 2008, global stocks fell sharply on one of the worst days of trading in 30 years despite continuing governments efforts to tackle the crisis (BBC 2008). When the market reopened the following working day on October 13, most markets around the world bounced back. The primary objective of this study is to examine stock price behaviour on October 10, 13 and 14, 2008 and at the same time, compare firm characteristic in three distinctly different capital markets namely, Australia, India and U.K. The October 2008 sharp declines in share prices and significant price reversal the following day provide an opportunity for understanding direction and determinants of investor reaction. It may also help establish the association between return fluctuation and firms' financial characteristics during period of large single day price change and analyse the benefits of international diversification. The usefulness of financial information is explored to analyse its use by investors when making a buy-sell decision during financial crisis. Moreover, the predictability of return is examined after the significant decline on October 10, 2008 in the post period price reversal on October 13 and 14, 2008.

During the period of capital market turmoil, especially the one experienced by investors on October 10, 13 and 14, 2008, it seems panic ruled the market. David Hendersen, a floor trader on the New York Stock Exchange said "fear has been running all over Wall Street" (BBC 2008). There were heavy falls across Asia's markets due to the fear. Colvin (2008) finds that the 2008 financial crisis was moving in a downward spiral caused by a lack of investor confidence which makes people less willing to invest in firms. Continuous auctions and automated quotations were associated with large declines on October 9 and 10, 2008 in U.S. and on October 10 in European and Asian markets. The share market crash of 1987 seems to have been repeated in October 2008. In the 1987 market crash, the U.S. market was not the first to decline but has followed the crash in European markets. In 1987, all the major world markets declined

substantially. The 1987 capital market decline was an exceptional occurrence given the usual modest correlations of returns across countries (Roll 1988). Even during the worldwide crisis in 1998, neither the academics, nor the practitioners were well prepared to comprehend the various dimensions of crisis in emerging economies. Marcial (2008) discusses the 2008 U.S. financial crisis and its impact on the stock market, suggesting volatility in the market despite U.S. government votes to bail out failing financial institutions. The 2008 crash started in U.S. followed by the European markets and rest of the world. The Australian share market gained 6% on October 13, 2008, after the U.S. and European governments moved to guarantee the banking systems, lifting investor confidence (AFR 2008). After the October 10 sharp fall in the market, European governments put Euro 1.7 trillion on the line on Monday 13, October, 2008, in guarantees to save their banking system.

In the first model (model 1) of this study, daily returns are regressed on reported earnings to examine the association between daily returns and a firm's financial characteristics. In Model (2), daily abnormal returns of equity is regressed on financial statement items to investigate whether users of financial statements rely more on the financial information when making investment decision and how much of their decision is based on other information. Results from Model (1) support the notion that investors perceive financial information less useful during large price decline and largely ignore the fundamentals of a firm in their reaction. The results from Model (2) support the notion of investor reaction, indicating that the abnormal return on October 13, 2008 was negatively associated with abnormal return on October 10, 2008. Regression results from model (1) and (2) show that the return and abnormal return on October 10, 13 and 14 is associated with market capitalisation of firms in the three countries. The U.K. investors reacted more negatively to high leverage and large liability firms and positively to firms with high cash flow per share compared to Indian and Australian investors. This was expected because, compared to the U.K., the financial market and the banking system in Australia and India are highly regulated and were in a better shape than the banks in U.K. The return on October 13, 2008 is negatively associated with return the previous day (i.e. October 10) across all three countries, suggesting that large price decline is followed by a subsequent price reversal. Lastly, results provide evidence that during large price decline and large price reversal, the abnormal return can be in a direction opposite to the return for a security.

The results of the study provide further support to previously provided evidence on investors' reaction to information when the news is negative, and react positively the following day in an attempt to make abnormal gains from the reversal effect of the previous day's extreme negative reaction. The results also provide evidence that an extreme negative or a positive market reaction and fear of global recession effects different types of capital markets in the same way, as the reaction is due to loss of confidence and shareholders' fear and anxiety.

The contribution of this study is twofold. First, it contributes to the previous studies on investor reaction and price reversal studies by comparing market behaviour and investor reaction across three distinctly different capital markets outside U.S. affected by the financial crisis in U.S. and Europe in 2008. Second, it extends prior literature by focusing on financial characteristics of a firm and the use of that information by investors during days of large price decline and price reversals, and compares this reaction across Australian, Indian and U.K. firms. A further contribution of the study is towards understanding investors in developing countries and emerging markets like India, which has implications for international diversification and portfolio management.

The remainder of this paper is organized as follows. Section 2 discusses prior studies. Section 3 provides background information. Motivation and implication is provided in section 4. Research questions are developed in Section 5. Section 6 describes the methodology, sample and data used in the paper. Empirical results are discussed in Section 7. Section 8 concludes the paper.

2. Prior studies

2.1 Large price changes

Several studies in the past have explored events of large price declines. Muradoglu, Berument and Metim (1999) state that overreaction is a widespread phenomenon in investment decisions in general and during crisis in particular. They show that during financial crisis the risk-return relationships and the determinants of risk change. De Bondt and Thaler (1985) found systematic price reversals for stocks and reported that past losers significantly outperform past winners. The survey and experimental evidence of De Bondt and Thaler (1987) indicated that in probability revision problems people show a tendency to overreact. Brown, et al., (1988) provide an explanation for overreaction suggesting that following a dramatic financial event, both risk and expected returns increase as risk averse investors immediately set prices below their conditional expected values. Sturm (2003) find that post-event price behavior following large one-day price shocks is related to pre-event price and firm fundamental characteristics, and that these characteristics proxy

for investor confidence. Michayluk and Neuhauser (2006) examined investor behaviour during a large information-based market wide decline and find a strong evidence of magnitude effect in short-term return reversals. Consistent with the overreaction hypothesis, Michayluk and Neuhauser (2006), find strong evidence of a magnitude effect and short-term return predictability in the aftermath of the crisis in 1987. Their results are robust to control for size, price and risk effects indicating investor overreaction in times of market crisis. They find that, as a consequence of investor overreaction, stock prices may also temporarily depart from their underlying fundamental values.

2.2 International diversification

The phenomenon of increasing co-movement between developed and emerging stock markets reduces the benefits of international diversification. Lamba and Otchere (2001) find a long-run relationship between the South African market and major developed markets, with the US, Canada and Australia exerting the most influence on South Africa. Wong, et al., (2004) studies the issue of co-movement between stock markets in major developed countries and those in Asian emerging markets. They find that there is co-movement between some of the developed and emerging markets, but some emerging markets do differ from the developed markets. They also observed that there has been increasing interdependence between most of the developed and emerging markets since the 1987 stock market crash and that the interdependence intensified after the 1997 Asian financial crisis. The result of Rather and Leal (2005) also demonstrates a potential loss of diversification benefits and indicate an increase in the correlation between most foreign sectors and U.S. sectors over time. Cha and Oh (2000) investigated the relationships between the two largest equity markets in the world, the U.S. and Japan and the four Asian emerging equity markets: Hong Kong, Korea, Singapore, and Taiwan. Their study indicates that the links between the developed markets and the Asian emerging markets (AEMs) began to increase after the stock market crash in October 1987, and have significantly intensified since the outbreak of the Asian financial crisis in July 1997.

3. Background information

The U.S. financial institutions struggled to regain the confidence of investors, after bad loans caused more than $US635 billion of write downs across the industry during 2007 and 2008. Washington Mutual, the Seattle-based bank came to symbolise the excesses of the U.S. housing market bubble, after it lent overly generous mortgages to thousands of customers unable to repay the loans (Wallop 2008). Samuelson (2008) reflects on the 2008 U.S. financial crisis comparing it to the economic conditions during the Great Depression in 1929. He offers parallels, such as borrowing heavily for manufactured goods, and differences, such as the lesser role of the federal government in 1929. A comparison of the U.S. federal government's response to the financial crises of 1929 and 2008 and U.S. stock markets indicates similarities. Investor aversion to risk deepened the credit crisis which further slowed down the economy. Inter-bank spreads increased significantly ever since the U.S. sub-prime crisis emerged in July 2007. On September 15, 2008 Lehman Brothers, one of the most prestigious players on Wall Street, filed for bankruptcy protection making it the biggest victim of the credit crunch and sub-prime crisis. The near collapse of insurance giant American International Group (AIG) on September 17, 2008 prompted further panic on global markets. Merrill Lynch and Lehman Brothers both expanded aggressively into property-related investments. They offered loans to people on low incomes or with poor credit histories. The article "A monetary malaise" (Economist 2008) examines the role of central banks in the 2008 financial crisis. Lax monetary policy from the U.S. Federal Reserve Board and other central banks created easy credit and a flood of lending which was a major contributor to the crisis in 2008. The U.S. Federal Reserve Board's main mistake is seen as ignoring the extent to which U.S. finance has become intertwined with major trading partners such as China. Due to huge write downs on the value of those investments, Lehman Brothers lost $14bn over a period of 18 months between 2007 and 2008. Alan Greenspan described the credit crisis as a "once-in-a-century" type of event. The regulators and policy-makers were required to establish comprehensive actions to strengthen public confidence in U.S. financial institutions and restore functioning of credit markets. October 10, 2008 was the day of major panic selling, the Dow Jones index in U.S., France's Cac index and the German Dax lost heavily due to large selling. The world officials cut interest rate to bail out key firms and took steps to shore up the global financial system over the weeks prior to the October 10, 2008 sharp decline. The move to add up to a trillion dollars worth of new capital diluted the positions of existing holders which added to the day's selling on October 10, 2008 (McKay 2008). As the leaders from the 15 euro-zone countries agreed to a broad set of proposals to shore up the financial system and the buying of ailing banks and guarantee interbank lending, Asian share markets gained in October 13, 2008 trading (Mathieson 2008). The gain across several markets was because of the comfort from signs that world leaders were acting in a more

aggressive and coordinated fashion to solve the financial crisis.

4. Motivation and implications

In this study share price reaction outside U.S. is tested and compared to understand the effect of U.S. financial crisis on other developed countries and emerging markets. Most prior studies on market reaction and shareholder overreaction are based on U.S. data. Over the last 20 years, correlation has increased across countries due to increase in cross country listing and bilateral trade increases. In the current economic climate the importance of developed countries, other than US, and emerging countries in Asia, have become significantly important (Sturm 2003). The financial crisis in the U.S. and the extreme one day returns on October 10 and 13, 2008 provides an opportunity to again investigate and compare investor reaction and predict short term intraday price reaction across different types of capital markets. A question naturally arises whether during times of large price decline and price reversal, investors follow a set pattern and reward/ punish firms on the basis of the fundamentals of the firm. On October 9, 2009, the market experienced a significant decline in the Dow Jones index making it a significant event in the history of most capital markets around the world. Liberalization of stock market and emergence of new capital markets resulted in an increase in investors' interest in international diversification. International diversification allows investors to have a larger basket of foreign securities to choose from as part of their portfolio assets, thereby, reducing single country risk factor. But such benefit of international diversification reduces if national equity markets tend to move together in the long run. The event dates provides an opportunity to examine in the current financial crisis, the firm return and the implications of firm specific characteristics on the magnitude of decline and price reversal. The findings of Sturm (2003) study indicate that investors respond differently to negative price shocks than to positive price shocks. In particular, large price decreases generally drive positive post-event abnormal returns, while large price increases do not drive positive or negative abnormal returns. The result of this study has some usefulness for ordinary and less sophisticated investors when making a buy or sell decision during days of large price changes.

The events on October 10, 13 and 14, 2008 are one of the most significant days in the history of global capital markets. On October 9 and 10, the Dow Jones had the biggest fall over the period of the financial crisis, a fall of 7.33% on October 9 and another fall of 1.4% on October 10. The two consecutive price declines are again the largest since a single day fall in 1929. The 7.33 % fall in the index is the 2nd largest over the period of the credit crisis that started in 2007. The October 13 revival of the index was the biggest reversal in terms of percentage over the period of the credit crisis with an index bounce back of 11.08%. October 13 price reversal was also the biggest since the last price reversal in the year 1933. The October 9, 2008 slide of the Dow Jones index is the biggest since the last biggest slide on October 26, 1987 of 8%. Moreover, on October 10, the Dow Jones index experienced the biggest volume of trade at 11,456,230,400. A significantly higher index fall of October 9 and 10 combined together and a price reversal of 11.08% on October 13 makes this period very interesting as it had significant affect over capital markets in other countries. On October 13, 2008, the Australian Securities Exchange (ASX) All Ordinary Index experienced the largest point reversal at 5.13% since October 1987 financial crisis. The index fall of 8.2% on October 10, 2008 is the second biggest (biggest was on October 20, 1987) in the 24 years. In India, the Bombay Stock Exchange (BSE) main index SENSEX experienced one of the largest reversals at 7.42% on October 13 after the 7% slide on October 10, 2008. In the U.K., FTSE experienced the second largest fall in its history on October 10, 2008 at 8.84%, the largest fall being 12.21% on October 20, 1987. The 8.26% bounce back on October 13, 2008 was also the second largest reversal in 24 years. When the October 14, 2008 increase of 3.22% is included it becomes the largest ever. Such large fall and price reversal makes the period between October 10, 13 and 14, 2008 significant events in the history of many capital markets around the world. The study focuses on the three days October 10, 13 and 14, as the price decline and subsequent price reversal over consecutive days, are the largest in the history of many indexes around the world, including the index of major capital markets of Australia, India and UK. The October 10, 13 and 14, 2008, price movements resulted in the large price decline and subsequent price reversal over a consecutive period of 3 days. Even though there was large price declines in subsequent weeks during the financial crisis, in none of the periods such large price decline and following day price reversal was experienced in the major markets, making the 10, 13 and 14 October period of interest for research.

This study is limited to the evaluation of share price movements for three countries. The three day period large price changes were due to the events taking place in the US market. One of the reasons for choosing these three countries was that they are located in distinctly different time zones and geographically at a large distance from the U.S. Choosing these three countries helps in understanding the timing of reaction based on

events taking place in the US. Given that Australia is almost a day ahead of the US, it is interesting to know how and when the Australian market reacts in the opening hours after receiving the news from US. UK was included in the study as it is a major market in the European continent and was facing severe banking crisis. The importance of India is associated with its fast growth among developing countries. Investors internationally have been showing keen interest in investing in Indian capital market for diversification purpose. Arora, Jain et al. (2009) examine the behavior of stock returns in selected emerging markets over the period January 1, 2002 to April 30, 2009. Their findings shows that the benefits of investing in emerging markets are not lost in the periods of falling stock markets.The results of the study may indicate whether there is a major difference in the way firm fundamentals are used by investors in India compared to the developed countries, and, whether there is anything unique about Indian capital market which can be examined during the event period.

5. Research questions

Association studies examine the relationship between released information and price reaction. The objective of such studies is to evaluate, how quickly the price changes upon the release of information. Kothari (2001) states that release of new information should be impounded in the stock price over a short period of time. One of the notable differences in capital markets across different countries can be because of the difference in timing of opening and closing of the stock market. There is a significant difference in the timing of stock market operation in Australia and U.S., which is almost of a day. This has implication for investors during the financial crisis of 2008 as the Australian market reacted to news related to U.S. Difference in returns and abnormal returns is expected between the three countries namely, Australia, India and U.K. due to their distinctly different time zones.

A second major difference expected between the three countries is associated with the level of capital market efficiency and maturity in the three countries. The Australian and U.K. markets are more matured compared to Indian market. Besides this, the share ownership structure is different in emerging markets compared to developed markets like U.S., Australia, Japan, U.K. and other European countries. Around 75% of the Australian capital market is owned by institutional investors. Similar ownership trend exists in U.S. and U.K. Institutional ownership improves market efficiency as is evident from prior studies (El-Gazzar 1998; Ajinkya, Bhojraj et al. 2005; Hossain, Marks et al. 2006; Velury and Jenkins 2006). Indian capital market is less efficient compared to the U.K. and Australian capital market.

Certain pre-event firm characteristics influence investor confidence, which in turn influences buying and selling decisions. Investor confidence is lessened by a negative price shock effect. In an efficient market, stock prices are set using relevant and reliable information on underlying asset values and financial characteristics of a firm. There has been growing evidence that macroeconomic and accounting variables as well as seasonal regularities can predict stock returns with some authors interpreting it as a rejection of the semistrong-form efficient market hypothesis (Demos and Vasillelis 2007). During period of large price changes, firm's fundamentals generally become less relevant. Callao, et al., (2006) perform a comparative analysis of the value relevance of reported earnings and their components. They find that market value are related directly with the quantity and quality of the disclosed financial data and that country factors also affect the value relevance of accounting earnings. As the objective of financial reporting is to provide information that is useful to present and potential investors, a pertinent question is whether accounting information and financial conditions of a firm are useful to investors when making investment decisions (Roll 1988). Such usefulness has been seen to decline during market turmoil as experienced previously during the 1987 financial crisis. The sharp decline in share prices on October 10, 2008 provides an opportunity to analyse investor reaction and in establishing an association between returns and firm characteristics. Due to significant changes in capital markets in many countries since 1987 financial crisis, test of predictability of returns in the post period price reversal on 13 October and 14 October 2008, enhances our understanding based on more current economic conditions.

Market reaction is expected to be more negative on October 10, 2008 for larger firms by capitalisation. Large market capitalisation firms have higher share price and any negative price change due to a bad news is expected to be more for large firms. Market reaction is expected to be more negative on October 10, 2008 for large capitalisation firms. Prior studies provide evidence that investors overreact to bad news. Based on the overreaction hypothesis, if there is a large negative price change, it is followed by large positive price change the following day. De Bondt and Thaler (1985) found systematic price reversals for stocks that experience extreme long-term gains or losses. Past losers significantly outperform past winners and their finding is consistent with the behavioral hypothesis of investor overreaction. Bremer and Sweeney (1991) find that extreme large negative 10-day rates of return are followed on average by

larger-than-expected positive rates of return over following days. Pritamani and Singal (2001) examined return behavior following large price change events. They found unconditional post event abnormal returns to be unimportant. Sturm (2003) find that large price decreases generally drive positive post-event abnormal returns. However, the relationship is altered when pre-event return and firm characteristics are introduced. Since return was more negative for large market capitalisation firms, the return the following day is expected to be more positive for large market capitalization firms. This discussion leads to the following hypothesis.

Hypothesis Ia: The return on October 10, 2008 is negatively associated with market capitalisation of firms.

Hypothesis Ib: The return on October 13, 2008 is positively associated with market capitalisation of firms.

When there is a large price change on a single day, the reaction on the following day is expected to be in the opposite direction ((De Bondt and Thaler 1985; Bremer and Sweeney 1991; Sturm 2003). On October 10, share price of most stocks fell in capital markets in the three countries. The mean return of ASX All Ordinary, SENSEX and FTSE was negative on the day. Due to a large negative price change and negative return on October 10, investors will enter the market on October 13 (the next trading day) to profit from purchase of low price shares as large negative price change indicates that shares of firms are less costly. Besides this, over the weekend of October 11 and October 12, most governments in Europe and countries in Asia and Americas announced financial packages for the revival of the financial market. This was perceived to be a good news and market was supposed to bounce back after a steep fall the previous closing day (i.e. October 10). The large negative price change on October 10 is expected to result in a large positive return on October 13 (the following trading day). This discussion leads to the following hypothesis.

Hypothesis II: The return on October 13, 2008 is negatively associated with previous day (October 10) return.

Financial leverage is the ratio of a firm's debt to equity. Risk has been found to be associated with the level of discretionary disclosures (Lang and Lundholm 1993). Opler and Titman (1994) find that highly leveraged firms lose substantial market share and market value of equity to their more conservatively financed competitors in industry downturns. High leverage is a proxy for financial distress and risk. Hsueh et al., (2006) tests the relationship between the degree of leverage and the operating risk of firms in Taiwan and states disclosure of leverage information could help amateur investors to get a clear picture of a firm's financial position. Leverage also acts as a control for agency issues as suggested by Sweeney (1994) and is widely used as a control variable in earnings management studies (Peasnell, Pope et al. 2000). Australian and Indian banking systems are considered to be highly regulated and healthier compared to the U.S and U.K. This indicates, investors' reaction in the U.K. capital market is expected to be more negative to high leverage and high total liability firms. Given the healthier condition of Australian and Indian banks with strong asset base, investor reaction is expected to be less negative to high leverage and high liability firms in these two countries. The financial crisis in the U.S. and U.K. made it difficult for domestic U.K. firms to borrow more money from the banks as the crisis resulted in a credit crunch. Hence, some variation in return is expected across the three countries due to the level of liability and leverage of firms. This discussion leads to the following hypothesis

Hypothesis IIIa: Market reaction for domestic U.K. firms is more negative for high leverage and high liability firms.

Hypothesis IIIb: Market reaction for domestic U.K. firms is more positively to high cash flow per share firms compared to Australian and Indian firms with high cash flow per share.

6. Methodology, sample and data collection

6.1 Methodology

Even study methodology is used similar to De Bondt and Thaler (1987), Pritamani and Singal (2001) and Michayluk and Neuhauser (2006). For the purpose of regression analysis, firm-specific return and abnormal returns are required to use as dependent variable. Firm-specific abnormal returns are determined on each of the event dates against previous day closing share price by using the standard event study approach pioneered by Fama, Fisher, Jensen and Roll (1969). Equation 1 is estimated for all firms over a period of up to 250 days (but not less than 100 days) through to 10 days before October 9, 2008. 1 This procedure

[1] Consistent with prior research, sample firms are required to possess at least 100 days of firm returns data, to provide more accuracy when estimating the parameters of the market model similar to Chang *et al.* (2006).

ensures that the estimates of the model parameters for testing October 10, 13 and 14 are not influenced by the financial crisis event.

The standard market model allows estimation of abnormal return for each firm:

$$R_{it} = \alpha_0 + \beta_1 R_{mt} + \nu_{it} \quad (1)$$

Where

R_{it} = security return for firm i on day t (October 10, 13 and 14, 2002);

R_{mt} = market return calculated using data from Yahoo Finance for ASX All Ordinary, SENSEX and FTSE stocks on days October 10, 13 and 14, 2002;

α_0 and β_i = Ordinary Least Square (OLS) coefficients; and

ν_{it} = the disturbance term (residual).

The market model is estimated for each event using daily stock and market return data over an estimation period similar to that defined earlier in the paper. Abnormal returns (ARit), are then computed for each firm on an event date by:

$$AR_{it} = R_{it} - (a_0 + b_1 R_{mt}) \quad (2)$$

Where

AR_{it} = abnormal return for firm i on day t (October 10, 13 and 14, 2002), a_0 and b_1 are the OLS estimates of market model parameters for firm i.

In the following regression model (1) return on October 10, 13 and 14, 2008 is the dependent variable:

$$RTEN_i\_RTHIRTEEN_i\_RFOURTEEN_i = \beta_0 + \beta_1 PE + \beta_2 MKTTOBOOK + \beta_3 LOGMKTCAP + \beta_4 LOGLIABILITY + \beta_5 LEVERAGE + \beta_6 CASHFLOWPS + \mu \quad (3)$$

Where, RTEN is daily security return per share for firm i on October 10, 2008. RTHIRTEEN is daily security return per share for firm i on October 13, 2008. RFOURTEEN is daily security return per share for firm i on October 14, 2008. PE is the price earnings ratio for firm i, in domestic currency, where earnings is the last reported earnings and the share price is the price on October 9, 2008. MKTTOBOOK is the ratio of last reported market value of shares and book value of equity for firm i. LOGMKTCAP is the natural logarithm of market value of equity for firm i. LOGLIABILITY is the natural logarithm of last reported total liability for firm i. LEVERAGE is the ratio of last reported total liability and equity of firm i. CASHFLOWPS is the last reported cash flow per share for firm i in domestic currency.

To further examine the price reversals and shareholders overreaction across three countries using financial information, Model (2) is used, where, abnormal return on October 10, 13 and 14, 2008 is the dependent variable:

$$ARTEN_i\_ARTHIRTEEN_i\_ARFOURTEEN_i = \beta_0 + \beta_1 PE + \beta_2 MKTTOBOOK + \beta_3 LOGMKTCAP + \beta_4 LOGLIABILITY + \beta_5 LEVERAGE + \beta_6 CASHFLOWPS + \mu \quad (4)$$

Where, ARTENi, ARTHIRTEENi and ARFOURTEENi are daily abnormal security return per share for firm i on October 10, October 13 and October 14, 2008 respectively; all other variables are as previously defined.

Variables and sample selection

The variables used in this study are the ones that have been widely used in previous studies and are easier for investors to use when making investment decisions, also being more relevant during financial crisis. Moreover, these variables are also widely used by investors in gaining basic understanding of the financial performance and position of a firm and understanding some basic underlying risks involved with the investment. Moreover, these variables are very simple to understand as they are associated with basic and fundamental characteristics of a firm which makes it easier for ordinary and less sophisticated investors to pick the right shares for a buy or sell decision. Arbel and Jaggi (1982) suggests that stock price level effects returns. De Bondt and Thaler (1987) in their study of investor overreaction, have used market to book ratio, market value, financial leverage and earnings yield. Similar to their studies, market to book ratio, market capitalization and leverage is used in this study. Besides this price to earnings ratio (PE), cash flow per share and liability is included in the model to better understand the affect of the credit crisis on firm return during large price decline and price reversal. Sturm (2003) has also used leverage, book value per share and earnings per share in the cross sectional model of his study. Cash flow per share, price earnings ratio and market to book ratio are included as control variables.

The selection of countries was based on very specific reason to be able to compare the effect of credit crisis across different economies. Australia has been included in the study because, despite the presence of major Australian banks in the U.S., the Australian economy and particularly the financial sector has been considered to be very healthy due to the very strong banking regulatory environment. Assistant Treasurer of Australia Mr. Chris Bowen said that Australia does not face recession, but the economy will be affected by the crisis as this has affected the confidence in the financial markets (AAP 2008). Even the International Monetary Fund and the World Bank indicated that Australia will continue to be robust and continue to grow as commented by Mr. Bowen suggesting that the Australian capital market was different from the U.S. and European markets. Indian capital market was selected because India is one of the fastest growing emerging markets with tremendous growth potential, with one of the largest growth rates in the recent years. Given that India is emerging as the financial power house of Asia, and will significantly influence the global economy, it is important to understand the similarity or differences between Indian capital market and the developed capital markets. Moreover, the study sheds some light on the existence of benefits of international diversification which allows investors to have a larger basket of foreign securities, thereby reducing single country risk factor and this has been recently questioned. More interestingly, unlike many European countries, the Indian government did not announce any specific financial package as it was assumed that India had a healthy growth rate and was less affected because of the strength of its financial sector. Both India and Australia have a very healthy financial system and banks in these two countries have very strong asset base. Only 1% of the total credit in Australia was subprime compared to 15% in the U.S. India is one of the most important among the emerging markets and has attracted significant amount of foreign direct investment from U.S. and Europe. U.K. is one of the major capital markets in Europe and banks in the country have been facing liquidity problems and are struggling for survival. The domestic firms listed in U.K. have been included because U.K. is facing financial problems very similar to the U.S. Major U.K. banks have been at the verge of collapse over the last one year.

6.3 Data Collection

The sample includes 2,050 Australian firms listed on ASX, 1,650 Indian firms listed on BSE and 2,217 domestic UK firms based on FTSE index. All firms across three countries were listed and traded at the time of data collection. Financial information is collected from DATASTREAM database. The share prices for each firm in the three countries were collected from DATASTREAM database. Market return for Australian firms is return on ASX All Ordinary index, for Indian firms is return on SENSEX index and U.K. firms is return on FTSE index. Index return is calculated using index data from Yahoo Finance. Finally, firms with confounding news (e.g. earnings and dividend announcement, ex-dividend and other firm-specific news) disclosed in the three day period surrounding October 10, 13 and 14, 2008 are excluded from the sample. The final sample consists of 2,014, 2,009 and 2,022 Australian firms on October 10, 13 and 14 respectively. The sample of Indian firms consists of 1,612, 1,623 and 1,605 and that of U.K. firms includes 2,187, 2,192 and 2,201 firms on October 10, 13 and 14 respectively.

7. Results

7.1 Descriptive Statistics

Panel A, B and C of Table 1 reports descriptive statistics on variables used in the two models for Australia, Indian and domestic U.K. listed firms respectively.

<<< INSERT TABLE 1 ABOUT HERE >>>

Panel A of table 1 reports the descriptive statistics of variables used in the two models for Australian firms. The mean (median) of RTEN is -0.0657(-0.0407) for RTHIRTEEN is 0.0166 (0.0000) and for RFOURTEEN is 0.0534 (0.0000). The mean abnormal return on October 10, 13 and 14, 2008 is 0.0098, -0.0270 and 0.0176 respectively and is opposite in sign to returns on the same three days. The mean (median) of PE, MKTTBOOK, LOGMKTCAP, LOGLIABILITY, LEVERAGE and CASHFLOWPS is 0.9474 (-0.7550), 1.6426 (0.7180), 1.3435 (1.1520), 2.0344 (1.6665), 1.5666 (0.3173) and -0.6807 (-0.0020) respectively.

Panel B of table 1 reports the descriptive statistics of variables used in model (1) and model (2) for Indian firms. The mean (median) of RTEN is -0.0565 (-0.0466) for RTHIRTEEN is 0.0061 (0.0045) and for RFOURTEEN is 0.0140 (0.0048). The mean of abnormal return on October 10, 13 and 14, 2008 is 0.0273, -0.0840 and -0.0078 and is opposite in sign and magnitude to returns on the same three days. The mean (median) of PE, MKTTBOOK, LOGMKTCAP, LOGLIABILITY, LEVERAGE and CASHFLOWPS is 38.2113 (6.4114), 0.8200 (0.5253), 3.3475 (3.3481), 9.0474 (8.8246), 2.4511 (1.4805) and 29.7619 (16.2610) respectively.

Panel C of table 1 reports the descriptive statistics of variables used in model (1) and model (2) for U.K. firms. The mean (median) of RTEN is -0.0376 (-0.0199) for RTHIRTEEN is 0.0169 (0.0000) and for RFOURTEEN is 0.0140 (0.0000). The mean of abnormal return on October 10, 13 and 14, 2008 is 0.0425, -0.0558 and -0.0143 and is opposite in sign and magnitude to returns on the same three days. The mean (median) of PE is 9.9008 (3.4011), MKTTBOOK is 0.8747 (0.4933), LOGMKTCAP is 1.1257 (1.0530), LOGLIABILITY is 3.0650 (3.0852), LEVERAGE is 1.3444 (0.7861) and CASHFLOWPS is 0.2035 (0.0630).

Comparing the mean of the variables of listed firms in Australia, India and U.K., there are no sign differences in mean return as expected. The mean return on October 10, 2008 is negative for all three countries and positive for October 13, and 14, 2008. For Australian firms, the mean of abnormal return is positive on October 10, negative on October 13 and positive on October 14. But for U.K. and Indian firms, the mean of abnormal return is positive on October 10, negative on October 13 and again negative on October 14. The mean of PE ratio is less than 1 for Australian firms but is high (9.9008) for U.K. firms and very high (38.2113) for Indian firms. This difference across the three countries is notably because around 50% of Australian listed firms are loss making, whereas, due to the growth of the Indian economy and future potential of Indian firms, the PE of Indian firms on an average is very high. On an average the market to book ratio of Australian firms is more than 1 whereas, for U.K. and Indian firms is around 0.8. Finally, the leverage of U.K. firms is higher (2.4511) then Australian (1.5666) and Indian (1.3444) firms. The magnitude difference of some variables (cash flow per share, liability and market capitalisation) for Indian firms is significantly higher due to the currency difference as the financial data used in the paper is based on local currency for each country.

The sample of Australian, Indian and U.K. firms are further divided into two sub samples using the median of leverage (panel A), market to book ratio (panel B) and price to earnings ratio (panel C) to investigate whether there is any systematic similarity or differences in the return and abnormal return on October 10, 13 and 14, 2008 across the three countries. The results for Australia and India are reported in table 2 and 3 respectively and for U.K. firms in table 4.

<<< INSERT TABLE 2 ABOUT HERE >>>

For Australian firms, the mean return on October 10 is -0.0666 for low leverage firms and -0.0640 for high leverage firms. Similarly, mean return on October 13 is higher (0.0193) for high leverage firms compared to low leverage firms, which has a mean return of 0.0152. The return on October 14 has a mean of 0.0582 for low leverage firms and 0.0435 for high leverage firms. The trend of mean of abnormal returns on October 10, 13 and 14, 2008 is associated with the returns on these days for low leverage and high leverage firms.

The mean return for high market to book ratio of Australian firms is more negative on October 10 and more positive on October 13 and 14 compared to low market to book ratio. This indicates that market has used market to book ratio as information when reacting on the three days. High market to book ratio firms are considered to be more risky during the financial crisis as investors may think they are overvalued and hence react more negatively on October 10 and more positively on 13 and 14. This is expected as the price reversal on October 13 and 14 is simply because of the market's negative reaction on October 10. Interestingly, the mean of abnormal return is of higher magnitude on October 10, 13 and 14 for low market to book ratio firms.

Panel C of table 2 reports the descriptive statistics of returns and abnormal returns for Australian firms based on high and low price to earnings ratio. The mean return on October 10 is more negative for low PE firms compared to high PE firms. Similarly, the reversal on October 13 and 14 shows a more positive mean return for low PE firms.

<<< INSERT TABLE 3 ABOUT HERE >>>

The result for Indian firms is reported in panel A, B and C of table 3. The mean return on October 10 is -0.0583 for low leverage firms and -0.0531 for high leverage firms. Similarly, return on October 13 is higher (0.0090) for high leverage firms compared to low leverage firms, which has a mean return of 0.0003. The return on October 14 has a mean of 0.0159 for low leverage firms and 0.0103 for high leverage firms. The mean of abnormal returns on October 10 and 13 is similar across low and high leverage firms, but on October 14, 2008 the mean abnormal return is more negative for high leverage firms than low leverage firms.

The mean return (panel B of table 3) for low market to book ratio of Indian firms is more negative on October 10 (-0.0583) and more positive on October 13 (0.0091) and 14 (0.0167) compared to low market to book ratio. Compared to Australia and U.K. firms it seems the Indian investors have used the market to book ratio in a different way and have penalized the low market to book ratio firms more heavily on October 10. Similar to returns, the abnormal returns is in the opposite direction for low market to book ratio compared to high market to book ratio for all three days.

Panel C of table 3 reports the descriptive statics of return variables for Indian firms based on low and high PE ratio. The return on October 10 is more negative and on 13 is more positive for high PE ratio firms. The abnormal returns on the same three days are in the opposite direction.

The U.K. domestic firm results are reported in panel A, B and C of table 4.

<<< INSERT TABLE 4 ABOUT HERE >>>

The mean return on October 10 is -0.0369 for low leverage firms and -0.0418 for high leverage firms. The return on October 13 is 0.0157 for high leverage firms and is lower compared to low leverage firms, which has a mean return of 0.0171. The return on October 14 has a mean of 0.0140 for low leverage firms and 0.0137 for high leverage firms. The mean of abnormal returns on October 10 is similar across low and high leverage firms, but on October 13 and 14, 2008 the mean abnormal return is more negative for high leverage firms than low leverage firms.

Similar to Australian firms, the mean return for high market to book ratio of U.K. firms is more negative on October 10 (-0.0388) and more positive on October 13 (0.0246) and 14 (0.0178) compared to low market to book ratio. The U.K. investors seem to have reacted to financial crisis related news and have used market to book ratio when making investment decision. As expected, the abnormal returns on October 10, 13 and 14 has an opposite trend being more positive for low market to ratio on October 10 and more negative on October 13 and 14 for low market to book ratio compared to high market to book ratio.

For U.K. firms, the mean return on October 10 is more negative and is more positive on October 13 for high PE ratio firms compared to low PE ratio firms. This is expected because high PE ratio firms are considered to be more risky as they are highly priced and investors are expected to react accordingly during market uncertainty and fear due to credit crisis.

Overall, the mean of returns and abnormal returns for firms partitioned on the basis of high and low leverage firms across the three countries does not show any significant pattern or trend. One notable difference is in the abnormal return on October 14 which is negative for Indian and U.K. firms but is positive for Australian firms. The reason for this difference is that the return on this date for all Australian firms is 0.0534 and is significantly higher than the mean of U.K. firms (0.0140) and Indian firms (0.0140) on the same day. This indicates that the market reaction for Australia firms was more positive compared to Indian and U.K. firms on October 14 and this difference can also be attributed to the geographical location of Australia resulting in a timing difference across the three countries and the difference in the timing of market opening and closing which effects how the information is used by the market.

The mean of returns and abnormal returns based on high and low market to book ratio has a similar trend in terms of magnitude for U.K. and Australian firms and is different for Indian firms indicating that Indian investors have used the market to book ratio differently compared to investors in Australia and U.K.

Mean of returns and abnormal returns on October 10, 13 and 14 is similar for Indian and U.K. firms when comparing across a sample of high and low PE ratio firms. But the trend is different for Australia firms. One possible reason for such difference is that the mean of PE ratio of pooled Australian firms is less than 1 (0.9474) and is significantly higher for Indian (38.2113) and U.K. firms (9.9008).

7.2 Multivariate Results

Table 5 and 6 reports the results of Model (1) and Model (2), with dependent variable return (table 5) and abnormal return (table 6) for Australian, Indian and domestic U.K firms.

<<< INSERT TABLE 5 ABOUT HERE >>>

Panel A, B and C of table 5 reports the results of multivariate regression for Australian firms in column 2. Return on October 10 (RTEN) is positively associated with PE ratio and is significant at the 1% level indicating higher negative return for lower PE ratio firms. RTEN is negatively associated with log of market capitalization (LOGMKTCAP) with t-statistics of -3.05 and significant at 1% level. For Australian firms, the return on October 10 is more negative for high market capitalization firms. The t-statistics for log of market capitalization is positive and significant at the 1% level on October 13. This indicates the share price of large market capitalization firms bounced back more on October 13 as a reversal of large negative price change on October 10. The adjusted R2 of model (1) is only 0.0102 indicating that the negative return on October 10 cannot be explained by the financial characteristics of individual firms and was largely associated with bad news related to the financial crisis in US and Europe. The return for Australian firms on October 13 is negatively associated with return on October 10 (significant at 1% level).

The regression results for Indian firms are reported in the third column of panel A, B and C of table 5 for model (1). Similar to sample of Australian firms, for Indian firms, RTEN is negatively associated with log of market capitalization (LOGMKTCAP) with t-statistics of -1.57 and significant at the 10% level. For Indian firms, the return on October 10 is more negative for large market capitalization firms as is expected since larger firms are hammered more. The t-statistics for log of market capitalization is positive but not significant on October 13. The adjusted R2 of model (1) is only 0.0011 for Indian firms indicating that the negative return on October 10 cannot be explained by the financial characteristics of individual firms but was largely associated with bad news related to the financial crisis in U.S. and Europe. The return on October 13 is negatively associated with return on October 10 (significant at 1% level).

For U.K. firms table 5 reports the results of multivariate regression in the fourth column of panel A, B and C for model (1). The t-statistics for market capitalization for U.K. firms is negative (-0.67) but is not significant. On October 13, return (RTHIRTEEN) is positively associated with market capitalization of U.K. firms. Similar to sample of Australian and Indian firms, for model (1) using U.K. firms, the adjusted R2 is very low (0.0206). The return for U.K. firms on October 13 is negatively associated with return on October 10 (significant at 1% level) similar to Australian and Indian firms and supports the third hypothesis. Moreover, the return on October 10, 13 and 14, 2008 is negatively associated with leverage and positively associated with cash flow per share.

Table 6 reports the regression results for model (2) for Australian, Indian and domestic U.K. firms in panel A (October 10), B (October 13) and C (October 14).

<<< INSERT TABLE 6 ABOUT HERE >>>

The results reported in column 2 of table 6 shows that abnormal return of Australian firms on October 10 is positively associated with PE ratio (significant at the 5% level) and negatively associated with market to book ratio (significant at the 5% level) and log of market capitalization (significant at the 5% level) similar to the results of model (1). For October 13 and 14, 2008, the abnormal returns on the two days are negatively associated with ARTEN and ARTHIRTEEN and significant at the 1% level. The abnormal return on these two days is positively associated with market capitalization and is significant at the 1% level.

The results reported in column 3 of table 6 for Indian firms shows that abnormal return on October 10 is negatively associated with PE ratio (significant at the 1% level) and has no significant association with market to book ratio and log of market capitalization. For October 13, the abnormal return is negatively associated with ARTEN and PE but on October 14, abnormal return is positively associated with ARTEN and ARTHIRTEEN and is significant at the 1% level. The abnormal return on these two days is positively associated with market capitalization and is significant at the 1% level.

The results reported in column 4 of table 6 for U.K. firms shows that abnormal return on October 10 is negatively associated with leverage and has no significant association with any variable. For October 13, the abnormal return is negatively associated with ARTEN and leverage but on October 14, abnormal return is positively associated with market to book ratio and negatively associated with leverage and is significant at the 1% level. The abnormal return on October 14 is positively associated with ARTHIRTEEN and is significant at 1% level.

The intercept for model (1) for Australia, Indian and U.K. firms is negative and significant at 1% level on October 10 and October 13. The PE ratio on October 10 is significant for Australian firms at the 1% level but is not significant for Indian and U.K. firms. One possible reason for this

difference is the less than 1 mean PE ratio of pooled sample of Australian firms and significantly higher PE ratio for Indian and U.K. firms. The adjusted R2 for model (1) using Australian and U.K. firms is higher than for Indian firms indicating Indian investors' reaction on October 10 was less associated with the financial characteristics used in the model and was more of a panic reaction to the negative news.

The adjusted R2 for model (1) for October 10, 2008 return is lower for sample of Indian firms (0.0011) compared to Australian (0.0102) and UK firms (0.0206). This indicates that the financial variables used in model (2) explain less of the negative return of Indian firms against that of Australian and UK firms. The adjusted R2 for model (1) using October 13 return is significantly higher for Indian sample (0.7189) compared to Australian (0.0846) and UK firms (0.1127). The adjusted R2 for model (1) for return on October 14, 2008 is higher for Indian firms (0.4461) compared to Australian firms (0.1186) and UK firms (0.0288). Moreover, the difference between Indian capital market and that of Australian capital market becomes more evident as the return on October 14 (RFOURTEEN) is positively and significantly associated with return on October 13 (significant at the 1% level) and return on October 10 (significant at the 1% level). As expected, for Australian firms in model (1), the return on October 14 (RFOURTEEN) is negatively associated with return on October 13. The results provide evidence that there is a difference between emerging capital markets and developed and more matured capital markets.

Moreover, the association between returns and control variables is also different for firms listed in Australia, India and U.K. indicating a difference in the three capital markets. For domestic U.K. firms on October 10, return (model (1)) is negatively associated with leverage (significant at the 10% level) and log of liability (significant at the 5% level). But there is no significant association in the model using Indian and Australian firms (except for liability significant at 10% level). One possible reason for the difference can be associated with the impact of financial crisis on domestic U.K. firms compared to Australian and Indian firms.

The return and abnormal return for Australian and Indian firms on October 10 is negatively and significantly associated with market capitalization supporting hypothesis Ia. The return and abnormal return for Australian and Indian firms on October 13 is positively associated with market capitalization and supports hypothesis Ib. For U.K firms, the association between market capitalization and return is negative on October 10 (not significant) and positive on October 13 (significant at the 5% level). The regression results reported in panel B show that return (table 5) and abnormal return (table 6) on October 13 is negatively and significantly associated with return and abnormal return on October 10. The regression result for model (1) and model (2) also supports hypothesis II that investors of domestic U.K. firms react more negatively to high leverage and high liability firms and positively to cash flow per share compared to investors in Australian and Indian firms.

The return on ASX All Ordinary index and mean return of the whole market on October 10 were negative but the mean of abnormal return was positive on the same date. On October 13, index rose by 5.13% and the mean of the whole market was 1.6%. But the mean of abnormal return on the same date was -2.7%. For Indian BSE listed firms, the mean return was -5.6% on October 10 but the mean of abnormal return was 2.73%. Similarly, the mean return of the whole market on October 13 was 0.6% but the mean of abnormal return was -8.4%. For domestic U.K. firms, the mean return of all domestic firms was -3.7% but the mean of abnormal return was 4.2%. On October 13, the mean return was 1.7% but the mean of abnormal return was -5.6%. The difference between mean return and mean of abnormal return provides evidence that during times of large price change and large price reversal, the mean of abnormal return can be in the opposite direction to the return on the market index.

8. Conclusion

During the financial crisis, in October 2008 there were sharp market movements over a relatively short period of time in Australia, India and U.K. The results of regression model across the three countries is analyzed to see if there is any systematic differences in the way investors react in different markets and the association between the reaction and firm characteristics. The financial crisis in U.S. and Europe and the severe credit crisis due to the subprime crisis that started in U.S. in 2007 resulted in a panic like situation across the globe. This study investigated the large share price decline on October 10, 2008 and the price reversal on the following trading day. A comparative study is conducted using Australian, Indian and domestic U.K. firms to find out whether there is a difference between the three capital markets. Results show differences in explanatory power of model, return and variability between emerging and less matured Indian capital market and the developed capital markets like Australia and U.K.

Regression results from model (1) and (2) show that the return and abnormal return on October 10, 13 and 14 is associated with market

capitalization of firms in the three countries. The investors reacted more negatively to high leverage and large liability domestic U.K. firms and positively to cash flow per share compared to the reaction towards similar firms in India and Australia. This was expected because the financial market and the banking system in Australia and India are highly regulated and were in a better shape than the banks in U.K. The return on October 13, 2008 is negatively associated with return the previous trading day on October 10 across all three countries suggesting that large price decline is followed by a subsequent price reversal. Lastly, results provide evidence that during large price decline and large price reversal, the abnormal return can be in the opposite direction to the return for a particular security. The abnormal return of a security is in the opposite direction to the return across the three markets suggesting a large change in index may result in an abnormal security return in the opposite direction. Moreover, the abnormal return on October 14 for Australian firms is negatively associated with abnormal return on October 10 and 13, 2008, but the association is positive for Indian and U.K. firms which can be explained by the time differences in the operation of the three markets. The results of the study are of interest to investors seeking profits from trading during large price declines and subsequent price reversals and for investors with cross country diversification of investment portfolio.

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Table 1. Descriptive Statistics of Independent Variables Used in Regression Analysis.

Panel A: Descriptive statistics of ASX listed Australian Firms					
	Mean	Median	Std. Dev.	Minimum	Maximum
RTEN	-0.0657	-0.0407	0.1084	-0.7500	1.0000
RTHIRTEEN	0.0166	0.0000	0.1094	-0.6428	1.0000
RFOURTEEN	0.0534	0.0000	0.1307	-0.3333	2.0000
ARTEN	0.0098	0.0240	0.1034	-0.6715	1.0377
ARTHIRTEEN	-0.0270	-0.0375	0.1090	-0.6480	0.9565
ARFOURTEEN	0.0176	-0.0167	0.1271	-0.3780	1.9598
PE	0.9474	-0.7550	15.5802	-87.0000	98.0000
MKTTOBOOK	1.6426	0.7180	14.3651	-22.1284	11.0212
LOGMKTCAP	1.3435	1.1520	0.9324	-2.0000	4.9375
LOGLIABILITY	2.0344	1.6665	3.0825	-6.9077	13.0419
LEVERAGE	1.5666	0.3173	22.3300	-3.8075	16.6696
CASHFLOWPS	-0.6807	-0.0020	31.5781	-0.3410	79.0750
Panel B: Descriptive statistics of BSE listed Indian Firms					
RTEN	-0.0565	-0.0466	0.0384	-0.1964	0.0000
RTHIRTEEN	0.0061	0.0045	0.0576	-0.0383	0.1848
RFOURTEEN	0.0140	0.0048	0.0347	-0.1024	0.1043
ARTEN	0.0273	0.0355	0.0248	-0.0282	0.0684
ARTHIRTEEN	-0.0840	-0.0687	0.0523	-0.01392	0.0193
ARFOURTEEN	-0.0078	-0.0119	0.0292	-0.0373	0.0894
PE	38.2113	6.4114	146.5165	-960.0385	990.0000
MKTTOBOOK	0.8200	0.5253	2.3155	-56.8247	13.6917
LOGMKTCAP	3.3475	3.3481	0.9098	0.2227	6.2816
LOGLIABILILTY	9.0474	8.8246	2.0887	-1.7602	16.0806
LEVERAGE	2.4511	1.4805	8.5018	-5.1775	23.0051
CASHFLOWPS	29.7619	16.2610	66.3007	-193.155	1357.4300
Panel C: Descriptive statistics of domestic UK Firms					
RTEN	-0.0376	-0.0199	0.0684	-0.6250	0.9215
RTHIRTEEN	0.0169	0.0000	0.0868	-0.4285	1.7500
RFOURTEEN	0.0140	0.0000	0.0667	-0.7050	0.9230
ARTEN	0.0425	0.0496	0.0662	-0.5259	0.9997
ARTHIRTEEN	-0.0558	-0.0633	0.0887	-0.5005	1.6373
ARFOURTEEN	-0.0143	-0.0222	0.0658	-0.4636	0.8955
PE	9.9008	3.4011	124.1225	-918.7500	989.4737
MKTTOBOOK	0.8747	0.4933	4.0323	-45.4382	71.7857
LOGMKTCAP	1.1257	1.0530	1.0496	-1.6989	4.9837
LOGLIABILITY	3.0650	3.0852	2.7004	-3.8632	10.8072
LEVERAGE	1.3444	0.7861	7.6283	-94.2401	110.0000
CASHFLOWPS	0.2035	0.0630	0.5772	-4.2670	6.0810

Where RTEN is daily security return per share for firm i on October 10, 2008. RTHIRTEEN is daily security retu share for firm i on October 13, 2008. RFOURTEEN is daily security return per share for firm i on October 14, ARTEN is daily abnormal security return per share for firm i on October 10, 2008. ARTHIRTEEN is daily ab security return per share for firm i on October 13, 2008. ARFOURTEEN is daily abnormal security return per sh firm i on October 14, 2008. PE is the price earnings ratio for firm i, in domestic currency, where earnings is t reported earnings and the share price is the price on October 9, 2008. MKTTOBOOK is the ratio of last reported value of shares and book value of equity for firm i. LOGMKTCAP is the natural logarithm of market value of equ firm i. LOGLIABILITY is the natural logarithm of last reported total liability for firm i. LEVERAGE is the ratio reported total liability and equity of firm i. CASHFLOWPS is the last reported cash flow per share for firm i in dc currency.

Table 2. Descriptive Statistics on Returns of Australian Firms

Panel A: Return comparison of low leverage and high leverage firms

	Low leverage			High leverage		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0666	-0.0353	0.1112	-0.0640	-0.0516	0.1024
RTHIRTEEN	0.0152	0.0000	0.1181	0.0193	0.0000	0.0883
RFOURTEEN	0.0582	0.0000	0.1426	0.0435	0.0128	0.1008
ARTEN	0.0094	0.0247	0.1040	0.0104	0.0222	0.1023
ARTHIRTEEN	-0.0281	-0.0395	0.1189	-0.0253	-0.0353	0.0895
ARFOURTEEN	0.0236	-0.0150	0.1393	0.0074	-0.0182	-0.0271
Two-sample test of difference p-value = 0.0001						

Panel B: Return comparison of low market to book and high market to book firms

	Low market to book			High market to book		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0647	-0.0333	0.1129	-0.0681	-0.0555	0.0967
RTHIRTEEN	0.0108	0.0000	0.1132	0.0303	0.0000	0.0983
RFOURTEEN	0.0528	0.0000	0.1418	0.0549	0.0288	0.0989
ARTEN	0.0106	0.0273	0.1070	0.0083	0.0191	0.0954
ARTHIRTEEN	-0.0340	-0.0398	0.1108	-0.0125	-0.0332	0.1038
ARFOURTEEN	0.0195	-0.0194	0.1401	0.0136	-0.0097	0.0942
Two-sample test of difference p-value = 0.0001						

Panel C: Return comparison of low PE ratio and PE ratio firms

	Low PE ratio			High PE ratio		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0682	-0.0316	0.1182	-0.0621	-0.0522	0.0922
RTHIRTEEN	0.01998	0.0000	0.1227	0.0117	0.0000	0.0863
RFOURTEEN	0.0583	0.0000	0.1490	0.0462	0.0143	0.0979
ARTEN	0.0058	0.0261	0.1150	0.0144	0.0218	0.0879
ARTHIRTEEN	-0.0234	-0.0402	0.1272	-0.0312	-0.0349	0.0833
ARFOURTEEN	0.0251	-0.0189	0.1515	.0090	-0.0151	0.0905
Two-sample test of difference p-value = 0.0001						

Note: All variables are as previously defined. The sample of firms have been sub dividend into portfolio of high and low leverage, market to book ratio and price earnings ratio firms using median values.

Table 3. Descriptive Statistics on Returns of BSE listed Indian Firms

Panel A: Return comparison of low leverage and high leverage firms						
	Low leverage			High leverage		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0583	-0.0466	0.0413	-0.0531	-0.0466	0.0318
RTHIRTEEN	0.0090	0.0045	0.0605	0.0003	0.0045	0.0511
RFOURTEEN	0.0159	0.0048	0.0360	0.0103	0.0048	0.0318
ARTEN	0.0271	0.0355	0.0248	0.0276	0.0355	0.0248
ARTHIRTEEN	-0.0830	-0.0687	0.0522	-0.0857	-0.0687	0.0524
ARFOURTEEN	-0.0069	-0.0119	0.0295	-0.0097	-0.0119	0.0285
Two-sample test of difference p-value = 0.0001						
Panel B: Return comparison of low market to book and high market to book firms						
	Low market to book			High market to book		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0583	-0.0466	0.0428	-0.0529	-0.0466	0.0272
RTHIRTEEN	0.0091	0.0045	0.0613	-0.0001	0.0045	0.0487
RFOURTEEN	0.0167	0.0058	0.0366	0.0084	0.0048	0.0299
ARTEN	0.0267	0.0355	0.0247	0.0283	0.0355	0.0249
ARTHIRTEEN	-0.0828	-0.0687	0.0513	-0.0861	-0.0687	0.0541
ARFOURTEEN	-0.0064	-0.0119	0.0295	-0.0105	-0.0119	0.0284
Two-sample test of difference p-value = 0.0001						
Panel C: Return comparison of low PE ratio and PE ratio firms						
	Low PE ratio			High PE ratio		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0560	-0.0466	0.0393	-0.0578	-0.0466	0.0362
RTHIRTEEN	0.0043	0.0045	0.0579	0.0104	0.0045	0.0568
RFOURTEEN	0.0171	0.0048	0.0367	0.0059	0.0048	0.0275
ARTEN	0.0312	0.0355	0.0228	0.0175	-0.0053	0.0267
ARTHIRTEEN	-0.0895	-0.0687	0.0495	-0.0702	-0.0311	0.0564
ARFOURTEEN	-0.0054	-0.0119	0.0319	-0.0140	-0.0119	0.0197
Two-sample test of difference p-value = 0.0001						

Note: All variables are as previously defined. The sample of firms have been sub dividend into portfolio of high and low leverage, market to book ratio and price earnings ratio firms using median values.

Table 4. Descriptive Statistics on Returns of domestic UK Firms

Panel A: Return comparison of low leverage and high leverage firms						
	Low leverage			High leverage		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0369	-0.0173	0.0688	-0.0418	-0.0322	0.0657
RTHIRTEEN	0.0171	0.0000	0.0907	0.0157	0.0000	0.0588
RFOURTEEN	0.0140	0.0000	0.0687	0.0137	0.0000	0.0537
ARTEN	0.0423	0.0508	0.0669	0.0438	0.0460	0.0626
ARTHIRTEEN	-0.0547	-0.0639	0.0933	-0.0612	-0.0595	0.0600
ARFOURTEEN	-0.0140	-0.0225	0.0677	-0.0162	-0.0197	0.0553
Two-sample test of difference p-value = 0.0001						
Panel B: Return comparison of low market to book and high market to book firms						
	Low market to book			High market to book		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0037	-0.0163	0.0712	-0.0388	-0.0329	0.0487
RTHIRTEEN	0.0156	0.0000	0.0908	0.0246	0.0114	0.0573
RFOURTEEN	0.01336	0.0000	0.0686	0.0178	0.0085	0.0541
ARTEN	0.0429	0.0508	0.0690	0.0405	0.0460	0.0479
ARTHIRTEEN	-0.0574	-0.0653	-0.0731	-0.0466	-0.0501	0.0577
ARFOURTEEN	-0.0147	-0.0233	-0.0284	-0.0123	-0.0134	0.0477
Two-sample test of difference p-value = 0.0001						
Panel C: Return comparison of low PE ratio and PE ratio firms						
	Low PE ratio			High PE ratio		
	Mean	Median	Std. Dev.	Mean	Median	Std. Dev.
RTEN	-0.0355	0.0000	0.0736	-0.0405	-0.0325	0.0604
RTHIRTEEN	0.0125	0.0000	0.0917	0.0228	0.0013	0.0794
RFOURTEEN	0.0136	0.0000	0.0722	0.0144	0.0000	0.0584
ARTEN	0.0426	0.0557	0.0700	0.0425	0.0443	0.0619
ARTHIRTEEN	-0.0583	-0.0655	0.0948	-0.0530	-0.0597	0.0817
ARFOURTEEN	-0.0146	-0.0236	0.0746	-0.0141	-0.0194	0.0549
Two-sample test of difference p-value = 0.0001						

Note: All variables are as previously defined. The sample of firms have been sub dividend into portfolio of high and low leverage, market to book ratio and price earnings ratio firms using median values.

Table 5. Multivariate Regression Analysis of Market Return

	Australian firms t-statistics		Indian firms t-statistics		Domestic U.K. firms t-statistics	
Panel A: Dependent variable is the return on October 10, 2008						
Intercept	-8.29	***	-8.08	***	-6.86	***
RTEN						
RTHIRTEEN						
PE	2.43	***	0.46		0.02	
MKTTOBOOK	-0.96		-0.16		0.91	
LOGMKTCAP	-3.05	***	-1.57	*	-0.67	
LOGLIABILITY	1.45	*	0.85		-1.73	**
LEVERAGE	0.84		0.05		-1.60	*
CASHFLOWPS	0.50		1.46	*	1.06	
Adjusted R2	0.0102		0.0011		0.0206	
N	2014		1612		2187	
Panel B: Dependent variable is the return on October 13, 2008						
Intercept	-3.07	***	-12.01	***	-3.01	***
RTEN	-8.28	***	-41.13	***	-6.08	***
RTHIRTEEN						
PE	-1.31	*	0.69		-0.32	
MKTTOBOOK	0.54		-1.73	**	2.15	**
LOGMKTCAP	3.91	***	1.13		1.71	**
LOGLIABILITY	-1.43	*	-1.47	*	0.76	
LEVERAGE	-0.62		1.30	*	-2.87	***
CASHFLOWPS	-0.79		-0.28		2.69	***
Adjusted R2	0.0846		0.7189		0.1127	
N	2009		1623		2192	
Panel C: Dependent variable is the return on October 14, 2008						
Intercept	1.79	*	6.39	***	2.40	***
RTEN	-9.81	***	7.23	***	0.20	
RTHIRTEEN	-7.01	***	17.69	***	2.61	***
PE	-1.92	*	-1.91	**	0.09	
MKTTOBOOK	-0.71		-2.24	**	1.79	**
LOGMKTCAP	3.73	***	0.13		1.08	
LOGLIABILITY	-1.87	**	-0.59		-0.65	
LEVERAGE	0.74		2.89	***	-3.10	***
CASHFLOWPS	-1.45		1.26		1.32	*
Adjusted R2	0.116		0.4461		0.0288	
N	2022		1605		2201	

Note: Return on October 10, 13 and 14, 2008 are regressed on the firm specific variables and return of previous day using the basic regression model (1):

$$RTEN_i\_RTHIRTEEN_i\_RFOURTEEN_i = \beta_0 + \beta_1 PE + \beta_2 MKTTOBOOK + \beta_3 LOGMKTCAP + \beta_4 LOGLIABILITY + \beta_5 LEVERAGE + \beta_6 CASHFLOWPS + \mu$$

***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.
The significant levels are based on a one-tail test for signed predictions and a two-tail test otherwise.

Table 6. Multivariate Regression Analysis of Abnormal Market Return

	Australian firms t-statistics		Indian firms t-statistics		Domestic U.K. firms t-statistics	
Panel A: Dependent variable is the abnormal return on October 10, 2008						
Intercept	3.01	***	4.46	***	9.81	***
ARTEN						
ARTHIRTEEN						
PE	2.08	**	-3.14	***	-0.42	
MKTTOBOOK	-1.99	**	-0.17		0.88	
LOGMKTCAP	-2.03	**	-0.01		-0.66	
LOGLIABILITY	0.56		0.63		0.28	
LEVERAGE	1.50	*	1.09		-1.58	*
CASHFLOWPS	1.22		1.03		1.23	
Adjusted R2	0.0118		0.0201		0.0084	
N	2014		1612		2187	
Panel B: Dependent variable is the abnormal return on October 13, 2008						
Intercept	-5.49	***	-8.99	***	-8.86	***
ARTEN	-8.95	***	-74.00	***	-7.30	***
ARTHIRTEEN						
PE	-1.15		-3.71	***	-0.47	
MKTTOBOOK	1.34	*	-2.92	***	2.19	**
LOGMKTCAP	3.23	***	2.74	***	1.04	
LOGLIABILITY	-1.96	**	-1.90	**	0.20	
LEVERAGE	-0.66		3.53	***	-3.00	***
CASHFLOWPS	-0.61		0.43		2.40	***
Adjusted R2	0.1162		0.8967		0.1145	
N	2009		1623		2192	
Panel C: Dependent variable is the abnormal return on October 14, 2008						
Intercept	-1.33	*	15.45	***	-2.28	**
ARTEN	-7.28	***	35.54	***	-0.07	
ARTHIRTEEN	-5.28	***	42.50	***	2.43	***
PE	-1.58	*	2.60	***	-0.04	
MKTTOBOOK	-0.41		-0.83		2.09	**
LOGMKTCAP	2.83	***	-2.66	***	-0.28	
LOGLIABILITY	-1.11		0.61		0.43	
LEVERAGE	0.69		0.46		-3.75	***
CASHFLOWPS	-1.74	**	1.37	*	1.38	*
Adjusted R2	0.0783		0.7630		0.0343	
N	2022		1605		2201	

Note: Abnormal return on October 10, 13 and 14, 2008 are regressed on the firm specific variables and abnormal return of previous day using the basic regression model (1):

$$ARTEN_i \_ ARTHIRTEEN_i \_ ARFOURTEEN_i = \beta_0 + \beta_1 PE + \beta_2 MKTTOBOOK + \beta_3 LOGMKTCAP + \beta_4 LOGLIABILITY + \beta_5 LEVERAGE + \beta_6 CASHFLOWPS + \mu$$

***Significant at the 1% level.
**Significant at the 5% level.
*Significant at the 10% level.
The significant levels are based on a one-tail test for signed predictions and a two-tail test otherwise.