

ASSET PRICING IN A CAPITAL MARKET

Valentin Gabriel CRISTEA**

Abstract

This research shows us risks in acquiring assets on capital markets. Behavior of investors uses limited rational theory, adaptive theory of expectations and mind theory. Simon asserted in 1955 that “a normal human being is not entirely rational in making his decisions because of various heuristics and behavioral prejudices.” The hypothesis of adaptive expectations asserts that “adaptive rationality of human preferences and expectations, given that individual decisions are preferred over time, incomplete information, and different learning environments” (Brocas and Carrillo, 2000; Hey, 1994). Compared to EU firms investing in the financial market, Romanian firms invest less because of poor asset quality, labor market uncertainty and inadequate transport infrastructure, according to the EIB survey of December 4th, 2018.

Keywords: *asset, debt, pricing, capital market, financial market, risks.*

1. Introduction

Asset pricing theory is an important foundation for financial theory, practice and policy. The asset pricing model is dated on 1960s evolves and it was improved over time.

The behavioural asset pricing centers on the role of behavioural forces on investor, asset prices, and market behaviours. The behavioural finance views investors are not rational in their investment decisions. This means systematic deviations of asset prices and market efficiency from rational point of view. In respect with this, Shiller, 1981; Shefrin and Statman, 1985; De Long et al., 1990; De Bondt, 1998; Shleifer, 2000; Baker and Nofsinger, 2002; Shiller, 2003; Shiller et al., 1984; Statman, 2008, many evidence point to the ideas that the pricing in the stock market is complex, and relies not only on the fundamental forces, but also on human emotion and mistakes.

1.1. Asset pricing testing strategy

Based on the above theoretical perspectives, the behavioural asset pricing theory ensures theoretical foundation on the roles of both fundamental and behavioural risk factors in asset pricing determinants modelling. Acket et al., 2003; Lucey and Dowling, 2005; Statman et al., 2008 studied multiple sources of behavioural risks that could be categorized as cognitive heuristics (cognitive shortcut) and affective biases (sentiment, emotion, and mood). Then, in practice, Baker and Wurgler showed in 2007 that there are issue related to the choice of behavioural factors; how to measure them, how to understand the variations in investor behaviour over time, and how to determine which stocks have limited arbitrage potential. Moreover, empirical evidence highlighted that risk and returns relationships are heterogeneous due to many causes.

In asset pricing testing strategy, the factor and style investing framework has been employed to collect the heterogeneous risk-return relationships. Baker and Wurgler, 2006, 2007; Kaplanski and Levy, 2010; Kurov, 2010) demonstrated that the behavioural

finance paradigm is giving an alternative views on the roles of factor and style investing in asset pricing behaviour. In factor investing, it has been observed that the firms' equity risk and returns profile are heterogeneous given different firm and industry characteristics. In style investing, Graff, 2014, behavioural finance interest is to capture specific stocks that are prone to behavioural risks influence.

Based on the above theoretical perspectives, the behavioural asset pricing theory provides theoretical foundation on the roles of both fundamental and behavioural risk factors in asset pricing determinants modelling.

2. Content

The foundations for investor behaviours are found on bounded rational theory, adaptive expectation theory, and theory of mind. Simon said in 1955: “The bounded rational theory asserts that a normal human being is not entirely rational in his/her decision making due to various behavioural heuristics and biases”. Brocas and Carrillo, 2000; Hey, 1994 stated that this theory is complemented with the adaptive expectation hypothesis that postulates adaptive rationality of human preference and expectation given that individual decisions are under timeinconsistent preferences, incomplete information, and different learning environment. Meantime, the theory of mind provides a cognitive neuroscience perspective to justify the dual process -cognitive and affective- on the human neural basis that rationalizes the rational -cognitive logic- and irrational -cognitive heuristics and affective bias- affect human decision making stated Camerer et al., 2005; Shimp et al. in 2015.

* PhD Candidate in Accounting, Faculty of Economic Science, „Valahia” University of Targoviste (valigabi.cristea@gmail.com).

Shefrin and Statman studied in 1994 the behavioural asset pricing theory that provides theoretical foundation on the roles of both fundamental and behavioural risk factors in asset pricing modelling. Statman assume in 2008 four statements in the behavioural finance asset pricing models (BAPM): (i) investors are normal, (ii) markets are not efficient, (iii) investors design portfolios according to the rules of behavioural portfolio theory, and (iv) expected returns follow behavioural asset pricing theory. The behavioural portfolio theory (Shefrin and Statman, 2000) proposed an optimal portfolio construction that is segregated into multiple mental accounts that resemble both bonds and lottery like features. Shefrin and Statman (1994) stated the behavioural asset pricing theory which focuses on firm features or characteristics that are possibly describe what normal investors want namely utilitarian, expressive, and emotional benefits studied by Shefrin and Statman, 1994; Statman, 2008.

The behavior of the financial market is explained by the study of the limited rational market and the adaptive market hypothesis. Miller suggested in 1987 the limited limited market theory (Bounded-EMH) as the result of rational limited human behavior. Lo introduced the adaptive market hypothesis in 2004, 2005, 2012. Nawrocki and Viole showed in 2014 that these theories provide a theoretical basis for the dynamic behavior of financial markets due to a complex combination of investor behavior that adapts to changes in time, information and technology.

Fundamental factors are based on firm fundamentals and macroeconomic fundamentals. Company fundamentals - The role of accounting variables on stock returns is reported in the equity model (Ohlson (1995)). Graham and Dodd (1934) used the use of accounting information in stock valuation in "the practice of choosing to justify the firm is limited to dividend yields (DY), earnings per share (EPS) and earnings ratio (PER)." These variables are the only information reported in newspapers and are available to all investors. Lee and Lee (2008), Ong et al. (2010), Tee et al. (2009) and Thim et al. (2012) provided empirical evidence to support these statements. For example, the importance of EPS in influencing the return of shares in Malaysia is supported by Pirie and Smith (2008) and Thim et al. (2012). Indeed, support for DY as one of the determinants of return of shares in Malaysia is provided by Pirie and Smith (2008), Dehghani and Chun (2011), Kheradyar et al. (2011) and Lee and Lee (2008), Economic Factors determine the firm's business and therefore return stocks as postulated in the theory of arbitrage prices according to Ross, 1976. Clare and Priestley, 1998; Ch'ng and Gupta, 2001, show that "the evidence of macroeconomic factors that are significant in explaining stock prices in Malaysia is not conclusive." This research shows that macroeconomic factors are determinants. Considering several larger macroeconomic variables, three aggregate indicators of the macroeconomic index, namely the Coincident Index (CI), the Lead Index (LEI), and the LAI, are used.

Izani and Rafli, 2004 showed that variables were significantly correlated with stock yields in Malaysia.

H1: Company fundamentals determine stock returns.

H2: The main macroeconomic factors determine stocks.

According to the survey provided by the EIB in December 2018, "investment firms remain focused on replacement and tangible assets". The EIB says that "investment in intangible assets is below the EU level (25% vs. 36%)." The innovation-focused analysis of Romanian firms shows that "most innovative firms use solutions rather than their development," says the EIB "Approximately 12% of companies face funding constraints and dependence on domestic sources of funding remains high," the EIB quotes. "Access to finance is a major problem in Romania than in other EU countries, and innovative firms in the field advanced technologies, find it hard to find external financing. "The lack of adequate transport infrastructure is a major obstacle for Romanian companies compared to similar EU enterprises", says the report. "The lack of adequate transport infrastructure is a major obstacle for Romanian companies compared to similar enterprises in the EU", concludes EIB.

This research gives an insight into the theory and practice of price behavior of assets. This research has shown that the asset pricing model includes fundamental risk factors (ie firm and macroeconomic fundamentals) and behavioral variables (ie investor sentiment and emotion), both through rational and irrational elements of investor decision.

Shefrin and Statman in 1994 explained the role of behavioral factors in inventory returns, while the popular behavioral factors invested are investor sentiment and investor sentiment. For sentiment, this article shows that consumer sentiment index (CSI), business conditions index (BCI), and stock index futures (FKLI) are behavioral factors. These indicators represent consumer opinion, business and institutional investors. Mat Nor et al., 2013; Tuyon et al., 2016). (Ahmad and Rahim, 2009, Chan, 1992, Cornell, 1985, Garbade and Silber, 1983, Stoll and Whaley, 1990 used these variables to explain Malaysian behavioral factors, because institutions normally use this mechanism as a hedging mechanism (Tuyon et al., 2016). In terms of emotions, this research proposes an emotional index through the volatility of the stock market, which is the investor's emotion in terms of Taylor (1991) demonstrated that negative events evoked rapid, rapid and social psychological, cognitive and emotional reactions rather than positive ones. Lo and Repin (2002) noted that traders with more experience experienced a stronger excitement in response to short-term market fluctuations than more experienced traders.

H3: Investors' sentiment affects the return on equity.

H4: The investor's emotion determines the stock.

In practice, there are the results of this research that highlight useful practical implications. As a rule, behavioral risks distorting fair fundamentals must be controlled both in risk modeling and in portfolio management. In portfolios management, Shefrin and Statman (2000) created behavioral portfolios theory and showed an optimal portfolio construction that is spread over several mental accounts that resemble both bonds and lottery features. Mauboussin, in 2002, points out that “an adapted investment strategy is argued to be more efficient in a complex market system that changes over time due to constant information and technological change.” In line with this intuition, several authors have proposed behavioral investment approaches as follows. Livanas (2007) shows that the value of portfolio gains should be greater than the value of portfolio losses to hedge investors' risk of asymmetric risk tolerance. Ma (2015) described three different ways to develop investment strategies with the ability to adapt to economic regimes, market yields or changes in market volatility. Jacobs and Levy (2014) wrote about the dynamic selection and diversification of the portfolio must take into account the multidimensional source that affects the return on inventories. Montier (2007) highlighted the need to have portfolios and risk diversification strategies.

In theory, investors are assumed to be rational and adaptive human beings, demand for stocks would be influenced by rational (fundamental) and irrational (behavioral) forces. We can reconcile the previous ones with the interdependent behavioral theories of the decision, the limited rational theory (Simon, 1955), the theory of perspectives (Kahneman and Tversky, 1979) and the adaptive expectation of human behavior (Tinbergen, 1939). Moreover, it is important for investor investors that there is a risk that investors will be forced to pay for their investment. Due to the limited adaptive nature of investor behavior, stock prices will have dynamic behavior. Dynamics show that inventory trends in nonlinear fashion relationships and risk / return relationships are heterogeneous under certain conditions. This was shown by previous researchers as (Baur et al., 2012; Blume and Easley, 1992; Fiegenbaum, 1990). The limited-adaptive trait of behaviour behavior of the investor and behavioral dynamics will lead to limited, adaptive market efficiency as postulated in EMH (Miller, 1987) and AMH (Lo, 2004, 2005, 2012). Current research complements the theoretical research of empirical evidence on the predictability and adaptive nature of capital market efficiency / inefficiency (Kim et al., 2011).

Research has studied and found that both fundamental and behavioral risks should influence the return on assets, thus quasi-rational risk factors. Within the multifactorial model of pricing of existing assets, both economic and firm foundations have been recognized as a source of risk in equity investments, namely fundamental risks. They were most investigated separately. Ross's APT framework

motivates economic factors, and firm foundations have been investigated according to Graham and Dodd's (1934) own equity model, or Ohlson's own equity modeling model (1995). This research combined these two factors into the multifactorial factor of asset pricing. For macroeconomic factors, instead of using individual economic variables as commonly used, this research uses three macroeconomic indices (coincident index, leadership index, delayed index) that represent large economic variables. For a fundamental firm, this research uses three robust fundamentals (earnings ratio, dividend yield, earnings per share) that are commonly used by industry practitioners to assess equity. In short, all of these fundamental factors are very significant in influencing returns. Behavioral Risks - In the behavioral research of existing asset prices, the risk of popular behavior used is emotion and emotion. In general, these behavioral variables are significant in influencing the return of shares in Malaysia and provide confirmation of evidence of the validity of the BAPM framework (Shefrin and Statman, 1994).

Heterogeneity of risk-return relationships - Given the limited investor rationality, the predictability of risk-return relationships is also expected to be heterogeneous for various reasons. The empirical conditions that determine the heterogeneous relationships between risk and profitability relationships are the characteristics of the industry (Kaplanski and Levy, 2010, Kurov, 2010), the characteristics of the firm (Baker and Wurgler, 2006, 2007), market states in loss and earnings Bassett and Chen, 2001; Lee and Li, 2012; Ni et al., 2015; Pohlman and Ma, 2010). Therefore, in the asset pricing test, the pooling of stocks in similar industry groups and company-specific groups provides companies with a homogeneous feature to correct the possible source of specification (Barber and Lyon, 1997; Filbeck et al., 2013). This research examines possible differences in behavioral risk impacts on defensive and speculative industrial stock groups, with the belief that the latter is subject to behavioral prejudices. While company-based subgroups of portfolios are segmented on the basis of size, value and prices due to differences in return on inventories in different company characteristics documented in existing literature (Banz, 1981, Rosenberg et al., 1985, Shefrin, 2000; Drew and Veeraraghavan, 2002). This research classifies the penny stock based on 1 ringgit or lower share price, according to De Moor and Sercu (2013). Behavioral Finance Students have argued that the relationship between stock characteristics and trading behavior is due to different psychological traps (Chang et al., 2015). In particular, company characteristics use investors to distinguish the group that has a higher or more popular relative value. In investment practice, popular stocks are in news and are highly traded by retail investors. As such, popular stocks may be associated with a misinterpretation of firm characteristics, which is not due to fundamental elements (Ibbotson and Idzorek, 2014; Shefrin, 2015).

As far as the small business is concerned, they are recommended by many analysts, despite the fact that they have a higher risk and are highly speculative stocks, because these stocks are attractive, affordable and popular among retail investors with a presence (Bhootra, 2011; Chandra and Reinsten, 2011; Chou et al., 2012; Wood and Zaichkowsky, 2004).

Behaviors have a greater impact in negative situations (with the states in crisis market). Behavioral factors during the crisis period depend and are higher than in non-crisis periods. Influences of fundamental and behavioral risks are stronger in crisis than in non-crisis situations. This judgment is embraced by a higher individual coefficient for these risk factors during the crisis state. Hence, investors are more sensitive and sensitive to negative and negative news. They are panicked in the event of a market crisis.

Analyzing in addition the lag effect of fundamental and behavioral factors on return of inventories, delayed accounting variables are performed to mitigate concerns about the delayed effect of inventory returns. The economic and behavioral effects will be delayed to determine the feedback effects of historical return information. All fundamental and behavioral variables are significant determinants of return of shares. It is noticed that in crisis situations dynamic / risk relations are distorted.

Basic analyzes are conducted by the European Investment Bank (EIB) on Romanian companies samples to observe the current effects of the determinants on stock returns.

The results obtained revealed four models, namely fundamental factors, economic fundamentals, behavioral factors and combined factors. In the first models, all firm and economic fundamentals determine the profitability of stocks. It is noted that all behavioral factors are significant. In the latter model, all fundamental fundamental factors remain significant determinants of risk. However, economic risks and behavioral risks are significant. Statistics show that behavioral factors remain very influential in determining stock returns, followed by firm fundamentals and, ultimately, economic factors with minimal influence on stock performance.

Jacobs and Levy (1988) have introduced the disadvantage of the industry and the effects of the firm on the purification of real resources. Jacobs and Levy, 2014 showed the consistency of this idea. The research in question studies and expands this idea from the perspective of behavioral finance. The ideas of Jacobs and Levy can be expanded through this analysis to provide a discussion of the disaggregation of

behavioral effects across different stock groups to find and manage the degree of risk of risky behavior in the equity portfolio.

In the asset pricing model, it is tested on different groups of industrial companies. The industry group can be divided into defensive and cyclic industrial groups. All core risk groups have a significant value in stocks in the defensive industry. Concerning behavioral risks, we can see that only two behavioral risks are significant as risk factors. This is in line with the theory that defensive stocks should be less vulnerable to behavioral risks.

3. Conclusions

“Access to finance is a major problem in Romania than in other EU countries, and innovative firms in the field advanced technologies, find it hard to find external financing. “The lack of adequate transport infrastructure is a major obstacle for Romanian companies compared to similar EU enterprises”, says the report. “The lack of adequate transport infrastructure is a major obstacle for Romanian companies compared to similar enterprises in the EU”, concludes EIB.

This research gives an insight into the theory and practice of price behavior of assets. This research has shown that the asset pricing model includes fundamental risk factors (ie firm and macroeconomic fundamentals) and behavioral variables (ie investor sentiment and emotion), both through rational and irrational elements of investor decision. Asset pricing is achieved through the factor and style investment Framework to provide behavioral justification on the role of investment characteristics and style. Empirical analysis demonstrates limited instability and heterogeneity of risk factors (dynamic). The previous analysis is in line with the behavioral theories mentioned and previous empirical evidence reflected in the literature of financial behavior. For practitioners, research findings show how we can manage the dynamic risk-return relationship and excessive exposure to behavioral risks using the suggested behavioral risk quadrant. There are many possible sources of behavioral risks, characteristics, style and possibly new elements that can determine the heterogeneity of risk / return relationships in the impact of asset price formation in financial research. These issues need to be investigated in future behavioral pricing research on global assets.

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