
ARTICLES

A Literature Review of Social Mood

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Emotions exert a significant influence on financial behavior. The “socioeconomic hypothesis” posits social mood, the collective mood of individuals, as a primary causal variable in financial and social trends. In order to provide a scientific basis for the study of social mood, this article reviews psychological research on major mood-related elements of personality: affect, motivation, and personality traits. We examine the structure and functions of these core personality dimensions, and discuss research on contagion processes by which individuals’ moods spread and manifest in a collective social mood. We also address implications for financial and economic behavior. Social mood is rooted in empirically established personality dimensions that are fundamental to human nature, and can influence financial outcomes.

Rational choice theory, a perspective that views people as “rational actors” who base economic decisions on logical calculations of their best interests, is strongly entrenched in the field of economics (Tetlock and Mellers [2002]). However, emotions, which are not taken into account in this theory, also exert a profound influence on human behavior, including economic behavior. In fact, every major problem faced by humanity involves emotion (Russell [2003]).

Modern economics explains agents decisions and choices via the paradigm of utility maximizing. However, agents often exhibit irrational behavior that may decrease economic utility in order to achieve psychological satisfaction and subjective comfort (Gao and Schmidt [2005]).

The influence of emotion is present in both individual microeconomic decisions and aggregate trends in financial markets. In regard to individual economic choices, Lerner, Small, and Lowenstein [2004] demonstrate that emotions can have dramatic effects on economic transactions, even when they arise from a prior, irrelevant situation. A prime illustration can be found in the endowment effect—the tendency to ascribe a higher value to an item one already owns than one is willing to pay to acquire it today. Lerner, Small, and Lowenstein [2004] found that emotions such as disgust

and sadness influenced both buying decisions and sellers’ prices.

Another series of studies examined participants’ intuitive understanding of the endowment effect, and found that emotional states created an egocentric “empathy gap” between buyers and sellers. This resulted in very large discrepancies between selling and offering prices and often led to a stand-off (Van Boven, Loewenstein, and Dunning [2003]).

On a broader scale, financial markets often fail to act as predicted by fundamental factors such as expected corporate earnings and economic variables such as interest rates and inflation levels. As Shiller [1984] notes, stock prices can be affected by social dynamics and mass psychology. Psychological factors and confidence levels are major contributors to market irrationality, which is most evident during financial bubbles and crashes (Shiller [2002]). It has been argued that financial market trends are caused by emotions that contribute to investors’ tendency to act in concert and engage in unconscious herding behavior (Prechter [2001]).

Another phenomenon that can affect rational processing is information overload. The vast amounts of company, industry, market, and economic data that are available to both individual and professional investors can have a negative effect (Dreman [2004]). When mental processing resources are reduced due to increasing memory load, greater reliance is placed on affect or emotion (Shiv and Fedorikhin [1999]). Emotion adds to the complexity in predicting behavior because it does not conform to static models and patterns of linear causality (Mayne and Ramsey [2001]).

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Social Mood

The results of the studies mentioned thus far imply that social mood may be a key factor in financial trends. The emotions of financial decision-makers reflect the overall mood of society. It has been argued that the stock market is a direct index of social mood, the collective level of optimism or pessimism in society at a given time (Elliott [1942], Prechter [1985, 1999], Green [2002]).

Prechter's [1999] "socioeconomic hypothesis" suggests that social mood determines various types of social actions in the areas of finance, culture, and macroeconomics. Nofsinger [2005] bolstered the case that social mood determines decisions made by consumers, investors, and corporate managers and that the level and nature of business activity follows rather than leads social mood. Social mood is considered an endogenous construct inherent in human psychology that can override external influences on economic outcomes.

A voluminous psychological literature exists on mood and individual emotion. However, psychologists have devoted less attention to the topic of social mood and its basis. Because social mood reflects the aggregate mood of individuals, a thorough understanding of collective social mood requires examining mood-related phenomena in individuals.

This article discusses research on the underlying structure of core mood-related personality dimensions: affect, motivation, and personality traits. We address functions of emotions, processes by which individuals' moods may become manifested in broader mass psychology, and implications for financial behavior. This research can provide a scientific foundation for the construct of social mood.

Affect

Although they are sometimes used interchangeably, we can distinguish between the closely related concepts of mood and emotion. In terms of duration, emotions tend to be shorter-term than moods. Moods appear to persist over longer periods of time (Ekman [1994]), but emotions fluctuate, and move around a mean level that exhibits a degree of stability over time and across situations (Diener and Lucas [2000]).

Also, an emotion is usually *about* something, e.g., love for a spouse, fear of an attacker. Philosophers note that emotion has a cognitive content, or an "intentional" object: fear *of* him, anger *at* her (Dennett [1987], Searle [1982]). The emotion is associated with someone or something.

Mood, on the other hand, is typically free-floating and unattached to any intentional object. Mood may be experienced in relation to no particular stimulus and

directed at no specific target (Wood, Saltzberg, and Goldsamt [1990]). Social mood, therefore, may describe the characteristic affective condition of a population and is not necessarily tied to any specific social event(s).

Structure of Emotion

Emotions as Discrete Entities

Several approaches have been suggested for determining the underlying structure of mood and emotion. One major model posits that there exist discrete, basic, universal emotions in all cultures (Ekman [1992]). Each emotion has unique patterns of physiological arousal, behavioral display, and unique functions such as motivation. These emotions likely developed during evolution to meet particular challenges in our early ancestral environments. Patterns that enhanced the ability to adapt and thrive led to survival and reproductive advantages and were therefore passed on. Those that did not died out.

However, there are a number of criticisms of this model. For example, how many discrete kinds of emotional experiences exist? Research on self-reported emotion has not settled on a number (Russell and Mehrabian [1977], Watson and Clark [1992]). It is also argued that distinctions between discrete emotions are the result of social construction, and are not inherent in the emotions themselves.

Positive Affect and Negative Affect

In contrast to the notion that emotions are discrete entities, an alternative concept posits a limited number of underlying dimensions as the basic structure of emotion. One important model emphasizes the importance of the dimensions of positive affect (PA) and negative affect (NA) (Tellegen, Watson, and Clark [1999], Watson and Tellegen [1985]). PA is defined by categories labeled pleasantness and emotional engagement. Specific emotions associated with PA include happiness, enthusiasm, and elation. NA is defined by unpleasant feelings such as sadness, anger, fear, and disgust.

There is evidence that PA and NA are somewhat independent dimensions of affect rather than opposite ends of a single bipolar dimension. One implication of this independence is that characteristics of PA and NA can coexist in an individual, and the presence of one type would not preclude the presence of the other. "Bittersweet" and other mixed feelings would be examples of emotions that include both positive and negative elements.

More recently, it has been suggested that PA and NA are the subjective components of two basic

biobehavioral systems of activation (Watson et al. [1999]). These systems entail two broad, evolutionary motivational systems that promote adaptation and survival (we discuss this in more detail later).

At the individual level, PA and NA are a direct analog of positive and negative social mood at the collective level. Economic expansions, equity bull markets, and financial speculation are associated with positive feelings like optimism and enthusiasm; economic contractions and bear markets reflect an increase in negative emotions like pessimism, fear, and anger (Prechter [1999]).

PA and NA are major contributors not only to overall feelings of subjective well-being or dissatisfaction (Diener and Lucas [2000]), but also to perceptions of risk and benefit that influence investor behavior. During decision-making, emotional reactions to risk often differ from cognitive assessments of those risks. When such a divergence occurs, emotional reactions frequently end up driving behavior (Loewenstein et al. [2001]).

A number of empirical studies have found that mood influences reactions to risk. For example, people in a positive mood perceive choices as less risky, and the likely outcomes as more favorable. They are therefore more willing to take risks (Deldin and Levin [1986], Isen [1997], Nygren et al. [1996]). Williams [2004] similarly found that managers may be more willing to undertake risky business propositions when their own affective state is more positive.

Conversely, individuals in induced depressed moods are significantly more conservative and less willing to take risks (Yuen and Lee [2003]). A negative mood can lead to a sense of deprivation (Kavanagh, Andrade, and May [2005]), and a greater desire for asset preservation and safety. Economic contraction due to reduced investment and spending may be fostered by the inclination toward risk aversion that is associated with negative affect.

Similarly, increased investment, spending, and economic expansion likely result from the perceptions of reduced risk and increased benefits associated with positive mood and confidence. Also note that judgments of risk and benefit are inversely related: Actions judged to be low-risk tend to be judged as high in benefit, and vice versa (Alhakami and Slovic [1994]).

Personal trust can also play an important role in stock market dynamics, and can even contribute to market bubbles (Olsen [2004]). Affect and social mood influence trust levels: Positive emotions such as happiness and gratitude increase trust, while negative emotions such as anger decrease it (Dunn and Schweitzer [2005]). Thus, PA and positive social mood result in perceptions of trust, reduced risk, and increased benefits; NA and negative social mood lead to reduced trust and perceptions of greater risk and fewer benefits.

Valence Arousal Dimensions

Watson and Tellegen [1985] do not claim that PA and NA are the only basic affect dimensions. Evidence has been provided for a highly influential model that characterizes emotions as points plotted within a two-dimensional space (Russell [1980], Feldman Barrett and Russell [1998]). One dimension represents *valence*: pleasure versus displeasure, or pleasant versus unpleasant feelings (this is also referred to as hedonic value). The pleasure-displeasure axis ranges from one extreme (e.g., agony) to the opposite (ecstasy).

The second dimension is level of *arousal* (high or activated versus low or deactivated), and ranges from drowsiness, through various stages of alertness, to frenetic excitement. This dimension reflects feelings of mobilization and energy. High arousal states are preparations for action; low arousal states are periods of inaction. The combination of the valence and arousal dimensions, called core affect, describes moods and is always present (Russell [2003]).

A circumplex configuration is formed by the intersection of the axes for valence and arousal. Thus, the four quadrants of this circumplex are activated-pleasant, deactivated-pleasant, activated-unpleasant, and deactivated-unpleasant. Various emotions are located in each quadrant. Russell [2003] notes that a core affect of pleasure may qualify as the emotion of happiness, and a core affect of displeasure as sadness. The combination of pleasure and high arousal constitutes elation, and the combination of displeasure and high arousal constitutes anxiety. This model has received support in numerous studies that have replicated its two-dimensional structure (Feldman Barrett and Russell [1999]).

Prechter [1985, 1999] identified the emotions that characterize investors and society during the four stages of a stock market cycle: 1) *market uptrend*: calm, contented, at ease; 2) *market top* (peak positive mood): energetic, happy, enthusiastic; 3) *market downtrend*: sad, fatigued, inhibited, insecure; and 4) *market bottom* (peak negative mood): tense, hostile, angry, antagonistic. These four categories parallel the four categories formed by the affective dimensions of valence and arousal: 1) deactivated-pleasant (*market uptrend*); 2) activated-pleasant (*market top*); 3) deactivated-unpleasant (*market downtrend*), and 4) activated-unpleasant (*market bottom*). Thus the valence and arousal dimensions that characterize affect also reflect the predominant emotional tone of stock cycles. These fundamental dimensions of affect may be useful in identifying major stages of investment cycles.

Mild core affect is typically part of the background of consciousness rather than the focus of a person's conscious world. What causes changes in core affect is not fully understood, but it can change without any external stimulus. It can be influenced by endogenous

factors like genetically based differences in volatility, the activity of immune cells, diurnal rhythms, and hormone changes (Russell [2003]). This aspect of core affect is consistent with the socioeconomic proposition that the fundamental causes of social mood are endogenous.

Recent psychological research indicates that core affect responds to unconscious information. Even people's goals and behavior are affected by stimuli outside conscious awareness (Bargh and Chartrand [1999]). Investment behavior may thus be influenced by emotions that 1) are outside conscious awareness, and 2) have endogenous causes that are not linked to external events. These characteristics of emotion may help explain why stock market cycles do not always concur with fundamental economic factors. The non-linear causal effects of emotion (Mayne and Ramsey [2001]) may reduce the accuracy of stock market predictions based solely on economic and financial variables.

Neural Systems in Emotion

Emotion also has a neuroanatomical basis. Several brain structures play a role in emotion. The amygdala has been consistently implicated in numerous studies of emotional processes and is a sort of "emotional computer" (LeDoux and Phelps [2000]). The amygdala influences many cortical areas, thus governing a variety of perceptual and higher-order mental processes.

Ochsner and Feldman Barrett [2001] view emotion as the product of an interaction between non-conscious, automatic processes, and deliberative, conscious processes. The amygdala's function is to automatically detect potential threats and associate them with corresponding physiological responses and appropriate actions. This system is associated with negative affect, and registers potentially threatening stimuli rapidly so we can respond immediately to the threat.

According to these researchers, another neural system, the basal ganglia, is associated with positive affect. Its function is to register possible rewards and encode sequences of action or thought that, over time, have led to a desired or positive outcome. This system operates more slowly. This makes sense, as adopting certain thoughts and behaviors would only be useful if they have led to a desirable end repeatedly and reliably over time.

Consistent with the differential speed of operation of the amygdala and basal ganglia is the frequently noted observation that stock prices fall more rapidly than they rise. Therefore, bear markets are typically shorter than bull markets. Investment lore commonly ascribes this tendency to the idea that fear is stronger than greed. A more precise explanation may be that the amygdala, which is associated with negative affect (bear markets), detects potential threats more rapidly,

while the basal ganglia, associated with positive affect (bull markets), registers possible rewards more slowly.

This pattern is consistent with a robust psychological phenomenon termed the negativity bias, the propensity to react more strongly to negative than to positive stimuli (see Cacioppo, Gardner, and Berntson [1997]). This heightened sensitivity to negative information may have resulted from the process of natural selection because it is more difficult to reverse the consequences of an injurious or fatal assault than those of a missed opportunity (Cacioppo and Gardner [1999]).

Emotional Contagion

Social mood is the collective manifestation of individual mood. But what dynamics link individual and social mood? In other words, by what process do individuals' moods spread and become enacted at a wider societal level? Studies of contagion effects, particularly emotional contagion, may provide an answer. Studies of contagion share in common the finding that people's feelings and behavior are strongly affected by their observations of others. Psychological research has explored several types of contagion effects including goal contagion, social contagion of motivational orientations, and emotional contagion.

The goals of others are usually not communicated explicitly. However, research has found that people perceive others' behavior as goal-directed, and readily infer others' goals from their behavior (e.g., Heider [1958], McClure [2002]). Furthermore, people can make such inferences automatically, without conscious intent and awareness (Aarts and Hassin [2005]). This ability allows people to adroitly adjust to their social surroundings.

Aarts, Gollwitzer, and Hassin [2004] demonstrate experimentally that perception of others' behavior can lead to "*goal contagion*: the automatic adoption and pursuit of goals that others are perceived to strive for" (p. 24). Their results indicate that people may spontaneously take on the goals of others in an unconscious manner. These researchers noted that this may result in people becoming more similar in what they desire and strive for, and hence in their plans for the future. Thus, people and groups may orchestrate their goals and behaviors without much conscious thought. This mechanism may also account for what might be termed automatic social goal contagion, the tendency for us as a whole to non-consciously adopt and pursue collective goals at particular points in time.

Wild and Enzle [2002] review evidence for another form of contagion, social contagion of motivational orientations. This research suggests people's motivational orientations toward activities can spontaneously spread solely on the basis of their perceptions of others' motivations for engaging in an activity. Much of this research has focused on intrinsic and extrinsic mo-

tivation and the conditions under which intrinsic motivation is enhanced or undermined. These are key concepts in self-determination theory (see Deci, Koestner, and Ryan [1999]). Thus, people's goals and their reasons for pursuing those goals, i.e., their motivational orientations, are subject to contagion effects.

Contagion effects have also been studied in regard to emotion and mood. A broad working definition of emotional contagion is "the tendency to 'catch' (experience/express) another person's emotions"; this process "is relatively automatic, unintentional, uncontrollable, and largely unconscious" (Hatfield, Cacioppo, and Rapson [1992, p. 153]). For example, clinical research has found that depressed, anxious, and angry individuals tend to induce similar moods in people around them (Coyne [1976], Howes, Hokanson, and Lowenstein [1985]). Hatfield, Cacioppo, and Rapson [1992] suggest that emotional contagion is a universal human phenomenon.

In regard to theoretical bases for emotional contagion, Schacter's [1959] extension of social comparison theory (Festinger [1954]) posits that affiliating with others produces pressure to establish a common social reality. This theory suggests that one's emotional reactions to a situation are influenced by others' emotional states when one is aroused (e.g., under threat).

Another view of emotional contagion is conveyed by the theory of primitive emotional contagion (Hatfield, Cacioppo, and Rapson [1992, 1993]). This theory suggests emotional contagion occurs generally even when individuals are not aroused. Many studies have found that people spontaneously mimic the facial expressions, voices, postures, and body movements of affiliates, theoretically producing similar emotional states. The economic philosopher Adam Smith noted as early as 1759 that as people imagine themselves in another's situation, they display "motor mimicry."

Some research has supported a social comparison model of emotional contagion (Sullins [1991]); other studies of naturalistic threats have been more consistent with a primitive emotional contagion explanation (Gump and Kulik [1997], Kulik and Mahler [1987], Kulik, Moore, and Mahler [1993]). But all of these studies have established the operation of emotional contagion, with the majority suggesting it occurs regardless of the observer's emotional state.

Emotional contagion may help explain phenomena such as mass hysteria, and social epidemics that multiply rapidly in an era of mass communication (Showalter [1997]). It may assist in understanding group behaviors that have shaped societies and history, such as Adolph Hitler's fanning of hate, Martin Luther King's message of love, the ways in which crowds behave, and the awesome power of mass media (Hatfield, Cacioppo, and Rapson [1993]). Direct human interaction was necessary for emotional contagion to occur in tribal societies. But in contemporary society, televi-

sion, film, radio, newspapers, magazines, and the Internet provide vehicles for the rapid spread of contagion effects without direct person-to-person contact. The process of emotional contagion suggests how mood can spread throughout a society and become collectively manifested in widespread social mood.

Functions of Emotions

Why did emotions develop in humans (and animals) during the course of evolution? Some theorists hearken back to classical philosophers such as the Stoics who believed emotions serve no useful functions. This position was renewed in the eighteenth century Enlightenment belief that the logic of reason should be the master of the unruly and unreliable passions (Solomon [1993]). This perspective considers emotions as disorganizing forces that disrupt rationality.

Functional accounts, on the other hand, typically assume that emotions are adaptations to problems of physical survival and social adjustment. For example, an evolutionary view suggests that emotions are a superordinate program of the mind and brain developed over thousands of years of natural selection. This emotional "uber-program" directs the activities and interactions of a very broad array of cognitive, behavioral, and physical subprograms of the individual (Cosmides and Tooby [2000]). The emotional system informs and motivates the organism to make choices and decisions in order to solve problems encountered in ancestral environments and promote its chances of adaptation and survival.

Functional theories generally emphasize the useful consequences of emotions, such as the value of fear in responding to threats (flight), and anger in motivating aggression (fight). Emotions serve important interpersonal and communicative purposes as well (e.g., Fridlund [1994]). Emotions regulate the distance between people, drawing them together or pushing them apart (Levenson [1999]). Emotions also perform significant intrapersonal functions. They facilitate mental functions of attention, perception, judgment, and memory retrieval (Russell [2003]). This cognitive utility is readily apparent in individuals with damage to parts of the brain involved in emotional processing: Their decision-making ability is fundamentally impaired so that they no longer have the ability to determine (feel) which choices and potential outcomes might be pleasant or unpleasant. Functional accounts generally imply that emotions are essential for coherent and purposeful human functioning.

An integrative view is that the positive and negative views of the effects of emotions are both partially true. Emotions sometimes disrupt or disorganize effective goal-directed behavior and rational thought. At other times, they facilitate organization and serve as "a master choreographer, the ultimate organizer of disparate

response systems” (Levenson [1999, p. 495]). They perform in a unified manner in solving fundamental problems. Whether adaptive or disruptive, emotions are an integral element of human functioning that influence and pervade decision-making.

Motivation

Motives and traits are two fundamental and distinct elements of personality. The distinction between motives and traits is grounded in differing conceptions of human nature put forth by the ancient Greeks (Winter et al. [1998]). Motives refer to peoples’ wishes and desires, the “why” of behavior (McClelland [1985, p. 4]). Traits refer to stylistic and habitual patterns of cognition and emotion, the “how” of behavior. Traits channel the ways in which motives are expressed (Winter et al. [1998]).

Regarding motivation, the disposition to be motivated and live purposely is an evolutionary imperative “built into the most fundamental architecture of zoological organisms” (Klinger [1998, p. 30]). Evidence from several literatures has centered around the idea that there are two basic motivational systems that mediate goal-directed approach and avoidance behaviors. The avoidance system is commonly labeled the *behavioral inhibition system* (e.g., Fowles [1987], Gray [1982]). The approach system has been variously labeled a *behavioral activation system* (Cloninger [1987], Fowles [1980]), a *behavioral approach system* (Gray [1981, 1990]), a *behavioral facilitation system* (Depue and Iacono [1989]), and a *behavioral engagement system* (Depue, Kraus, and Spont [1987]). The approach system facilitates behavior and generates positive affect. This system directs organisms toward situations and experiences that are potentially pleasurable and rewarding. The avoidance system is sensitive to threats and aversive stimuli, and is responsible for behavioral inhibition or withdrawal and generating negative affect. The primary function of this system is to inhibit behavior that could lead to undesirable consequences such as pain or punishment (Watson et al. [1999]).

Elliot and Covington [2001] put forth several reasons why approach-avoidance motivation should be viewed as fundamental and basic to the study of human behavior. They noted that the approach-avoidance distinction has a long and rich intellectual history, ranging from Greek philosophy to its incorporation in many major and diverse psychological theories, including Freudian, Jungian, behavioral, cognitive, humanistic, and evolutionary. It is applicable not only to humans, but to other forms of animate life including organisms as simple as the single-cell amoeba (Schneirla [1959]).

Tooby and Cosmides [1990] argue that the decision to approach or withdraw has been the fundamental

adaptive decision for organisms throughout evolutionary history. Zajonc [1998] suggests that all subsequent responses of an organism are based on the initial approach-avoidance discriminations, and these discriminations are the primary and most elemental reaction of organisms to environmental stimuli. A motivational system that can discriminate between hostile and hospitable stimuli is of primeval importance (Hunt and Campbell [1997]).

Elliot and Thrash [2002] provide empirical evidence that the approach-avoidance distinction is so conceptually central that it can organize and integrate seemingly disparate approaches to personality. An early and influential theory in this regard was developed by Gray [1976, 1991], who proposed individual differences in sensitivities of two conceptual nervous systems. The behavioral approach system (BAS) responds to incentives such as reward signals. This system stimulates movement toward goals, and is associated with positive feelings. The behavioral inhibition system (BIS) responds to threats, such as punishment signals. This system promotes vigilant attention to the environment and inhibits behavior; it is associated with negative feelings (Gray [1981, 1990]).

BAS and BIS are two independent systems representing appetitive and aversive motivation. As with affect, these systems differ as a function of valence (positive versus negative). BAS and BIS parallel and are statistically correlated with positive and negative affect, respectively (Gable, Reis, and Elliot [2000]).

Approach and avoidance motivation may play an integral role in financial behavior. Thus, the approach/appetitive motivation is associated with positive emotions that may lead to buying, investment, and business expansion. The avoidance/aversive motivation elicits negative emotions that contribute to caution, risk aversion, and business contraction. Indeed, bull market psychology may be viewed as the motivation to *approach* risk and achieve gains, while bear market psychology is the motivation to *avoid* risk and prevent or minimize losses. Approach motivation would dominate during periods of positive social mood; avoidance motivation would dominate during periods of negative social mood.

BIS and BAS have different neural substrates. Gray’s [1982, 1991] research suggests that the neural substrates of the BIS include the septo-hippocampal system, two sets of its ascending monoaminergic neurons, and its neocortical projections in the frontal lobe. Although Gray has not specified the neural basis of the BAS as fully, a number of researchers believe dopaminergic pathways are centrally involved (Depue and Collins [1999], Gray et al. [1991], Stellar and Stellar [1985]).

Based on extensive research with his colleagues, Davidson [1992, 1995, 1998] concluded that specialized neural substrates for behavioral approach and pos-

itive affect are lateralized in the left anterior regions of the cerebral cortex, and behavioral withdrawal and negative affect are lateralized in the right anterior cortical regions.

Personality Traits

There are thousands of personality trait-related words in the English language. Since the beginning of the modern era of personality psychology in the 1930s, researchers have sought to identify the trait dimensions that are most fundamental and important. The most prominent solution that has emerged is the Five Factor Model (FFM), which posits that five major domains are the primary personality traits: Extraversion (versus Introversion), Agreeableness (versus Antagonism), Conscientiousness (versus Heedlessness), Emotional Stability (versus Neuroticism), and Openness to Experience (versus Closed to Experience). These are collectively referred to as the Big Five. The FFM indicates that traits are hierarchically ordered so that a variety of narrower, more specific traits are correlated with each of the five primary traits.

The FFM has been replicated in numerous studies with diverse populations and in many countries, and there is evidence that it may be a universal structure of personality traits (McCrae and Costa [1997]). The FFM was derived empirically and is atheoretical. Thus questions have been raised: Why are these particular domains the fundamental dimensions of traits? And are there higher-order dimensions of the Big Five?

In fact, two-factor analytic studies of the Big Five did find two higher-order factors (Digman [1997], Carroll [2002]) that were interpreted quite differently by their respective researchers. One was comprised of Extraversion and Openness to Experience, and the other included Agreeableness, Conscientiousness, and Emotional Stability. Other recent studies have also found a two-factor structure (Saucier et al. [2005]).

Olson [2005] reinterpreted the data of Digman [1997] and Carroll [2002], and suggested two factors uniting their results. This analysis posited that Extraversion and Openness to Experience share the higher-order personality dimension of *Engagement* in common. The Engagement continuum reflects social and experiential engagement, and ranges from engaged to disengaged. At the high end of the Engagement continuum are traits such as enthusiastic, active, energetic, curious, and involved. The low end includes traits such as apathy, passivity, disinterest, detachment, and withdrawal.

As a fundamental trait dimension, Engagement would have evolutionarily adaptive benefits. Individuals must engage their environments in order to obtain resources for nourishment, shelter, and growth. Engagement would also facilitate exploration and pursuit

of desirable incentives and goals that would foster vital evolutionary tasks of survival and reproduction.

In regard to the second major factor, the Big Five traits of Emotional Stability, Agreeableness, and Conscientiousness share in common the dimension of *Self-Control*. Individuals with strong self-control are able to restrain and control distressing emotions, antagonistic and antisocial interpersonal behaviors, and lackadaisical and irresponsible behaviors. Thus the Self-Control dimension reflects interpersonal (Agreeableness), emotional (Emotional Stability), and task-oriented (Conscientiousness) self-control.

Self-control traits also foster evolutionary survival. Inhibition of impulsive responses and rash actions help avoid exposure to dangers such as predators, enemies, and disease. Careful planning and deliberation improves chances of securing necessary resources such as food and shelter. Control of negative emotional reactions like rage and hostility facilitates formation of cooperative and strategic alliances and successful mating.

A review of research has found that low scores on the three self-control traits are associated with a wide spectrum of counterproductive work behaviors such as absenteeism, stealing, drug and alcohol use, inappropriate customer service behaviors, and handling stress poorly. Conversely, high scores on self-control traits are related to stellar job performance (Ones and Viswesvaran [2001]). Low self-control traits are also correlated with a wide variety of diagnosable personality disorders (Olson [2005]). Deficiencies in self-control have been linked to numerous social and personal problems as well, including addiction, crime, domestic violence, bankruptcy, and academic failure (Tice, Bratslavsky, and Baumeister [2001]).

The foregoing analysis suggests Engagement and Self-Control constitute the fundamental dimensions of personality traits. Note that they are also empirically related to affective dimensions. A number of studies have found that the Engagement traits of Extraversion and Openness to Experience are positively correlated with PA. The Self-Control traits of Agreeableness, Conscientiousness, and Emotional Stability are negatively correlated with NA (McCrae and Costa [1991], Watson and Clark [1992]). Negative emotions can be said to impair self-control (Tice, Bratslavsky, and Baumeister [2001]). Thus, Engagement is associated with positive emotions, and low Self-Control is associated with negative emotions.

Engagement and Self-Control are empirically related to PA and NA, respectively, and they are also conceptually related to positive and negative social mood. Researchers have debated the extent to which personality traits are fixed versus malleable across time. Recent empirical evidence indicates life experiences and social climate can cause changes in traits. Social influences from the domains of work, family, and social

movements are associated with changes in personality traits in adulthood (Helson, Jones, and Kwan [2002], Roberts, Helson, and Klohnen [2002], Helson and Soto [2005]). Prechter [1999] has documented the extensive effects of social mood on numerous social and economic events and social climate. Thus, by affecting social climate, long-term changes in social mood may affect individual personality traits.

To the extent that traits are affected by social climate, and to the extent that Engagement traits are correlated with PA and positive social mood, individuals should tend to show greater trait Engagement during periods of positive social mood. The Engagement traits of energy, enthusiasm, curiosity, openness, and social involvement are the same characteristics that typify periods of positive social mood (Prechter [1999]). Similar to approach motivation, engagement is associated with positive emotions that stimulate buying and business expansion. *Engagement* in increased investment and risk-taking is a hallmark of bull market psychology.

During periods of negative social mood, individuals are more likely to display lower self-control. At an individual level, the characteristics of negative social mood identified by Prechter [1999] parallel the main features of the Big Five traits associated with low self-control: distressing emotions (neuroticism), greater antagonism and interpersonal discord (low agreeableness), and reduced interest in effort and achievement (low conscientiousness). Similar to avoidance motivation, the low self-control trait dimension is related to anxiety and other negative emotions that lead to the caution and risk aversion seen in bear market psychology.

At the societal level, the social problems associated with low self-control, such as addiction, crime, and bankruptcy (Tice, Bratslavsky, and Baumeister [2001]), are also more common during periods of negative social mood. So the level of low self-control traits and the problems associated with them should escalate when social mood becomes increasingly negative.

Conclusion

The aggregate emotional states of individuals comprise social mood. Social mood appears to be rooted in fundamental components of human personality that have been empirically established. The personality correlates of positive social mood include positive affect, approach motivation, and engagement-related traits. Negative social mood is related to negative affect, avoidance motivation, and traits associated with low self-control.

The fact that basic affect, motivation, and traits each appear to have a two-dimensional, bivariate structure implies that the core, underlying structure of basic per-

sonality is fundamentally bivariate in nature (Olson [2005]). Positive and negative social mood may be reflections at a collective level of this underlying two-dimensional personality structure.

Future research should examine empirical relationships between measures of investor and social mood, personality variables, and financial outcomes. Stock market indexes, a record of the cumulative buying and selling decisions of traders and investors, provide the broadest and most immediate reflection of investor mood. Measures of stock market sentiment such as surveys of institutional and individual investors (e.g., American Association of Individual Investors), market advisers (e.g., Investors Intelligence), and indices of market activity (e.g., put/call ratios of options, mutual fund inflows, mutual fund cash ratios) also reflect the cumulative mood of investors. Greater appreciation of the important influence of social mood should lead to a better ability to understand financial behavior and trends.

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