Avoiding negative vs. achieving positive outcomes in hard and prosperous economic times

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Abstract

Three studies suggest that business cycle fluctuations trigger distinct motivational orientations that selectively affect economic judgment and decision making. Economic contractions induce avoidance motivation and affect negative economic sentiment, but leave approach motivation and positive economic sentiment unaffected. In contrast, economic expansions induce approach motivation and positive economic sentiment, but do not affect avoidance motivation or negative economic sentiment (study 1). Moreover, economic contractions induce risk aversion for negative outcomes, but not for positive outcomes, while economic expansions instigate risk seeking for positive outcomes, but not for negative outcomes (study 2). A time-series study based on consumer spending over eight decades mirrors the findings of the experimental studies: The consumption of products associated with avoiding negative outcomes increases during economic contractions, but not during expansions. In contrast, the consumption of products associated with achieving positive outcomes increases in expansions, but is unaffected by contractions (study 3).

Keywords: business cycle, gains, losses, approach, avoidance, motivations, risk, consumption

Introduction

The economy generally alternates between hard and prosperous economic times. These business cycle fluctuations not only determine the economic system itself, but influence the individuals in the economic system as well. For example, the relationship between business cycle fluctuations and health effects is well established in medical research literature: There are clear relationships between economic contractions and increased risk of poor mental and physical health, increased rates of mortality, a higher prevalence of risky health behaviors, and short term rises in premature deaths from intentional violence, suicide and homicides (e.g. Brenner, 1979; Dooley, Fielding, & Levi, 1996; Falagas, Vouloumanou, Mavros, & Karageorgopoulos, 2009; Linn, Sandifer, & Stein, 1985; Stuckler, Basu, Suhrcke, Coutts, & McKee, 2009; see however Ruhm, 2000). The profound impact of business cycle fluctuations is also evident in consumption decisions of individuals. For example, unemployment or economic contractions lead to an increase in unhealthy behaviors such as alcohol and tobacco consumption (Dee, 2001; Lee, Crombie, Smith, & Tunstall-Pedoe, 1991), but more 'adaptive' consumption decisions have been observed as well. During economic downturns, consumers trade big 'named' brands in for lower-priced private labels (Lamey, Deleersnyder, Dekimpe, & Steenkamp, 2007) and the acquisition of expensive durables is postponed when consumers are confronted with unfavourable economic times (Deleersnyder, Dekimpe, Sarvary, & Parker, 2004).

The present research aims to investigate the impact of business cycle fluctuations on economic sentiments, decisions under risk and consumption patterns. We will provide evidence for the idea that business cycle fluctuations trigger distinct motivational orientations that selectively affect consumers' responses and actions. More specifically, we will argue that an

economic contraction induces a motivation towards avoiding negative outcomes (i.e. financial losses), while an economic expansion motivates individuals to achieve positive outcomes (i.e. financial gains). Although, ideally, achieving financial gains and avoiding financial losses are considered all together, we suggest that economic downturns will motivate individuals to avoid losses, but not necessarily to achieve gains, while economic expansions will motivate individuals to achieve gains, but not necessarily to avoid losses.

A major methodological challenge in research on business cycle effects is disentangling cause from effect. For example, scholars assume that business cycle fluctuations affect consumption decisions and health outcomes, rather than the other way around. Nonetheless, considering that an economic downturn may lead consumers to postpone the acquisition of expensive products (Deleersnyder, et al., 2004), the reverse may be equally plausible, as postponing consumption might exacerbate economic downturns. Likewise, although it is often thought that economic contractions have an adverse impact on well-being, poor physical/mental health may lead to reduced productivity and contribute to an economic contraction, rather than the other way around. Most, if not all, prior research on business cycle effects relied on correlational evidence, which renders disentangling cause from effect virtually impossible. Hence, we will resort to a combination of experimental and correlational studies in the present research, to separate cause from effect and establish external validity.

Motivational orientations and business cycle fluctuations

According to "the hedonic principle", people are motivated to *approach* pleasure and *avoid* pain. These two basic motivational orientations have been described in different domains of

inquiry with varying terminology (e.g., appetition versus aversion, promotion versus prevention, reward versus punishment, activation versus inhibition, towardness versus awayness…) depending on the research programs in which they have emerged (Gable, Reis, & Elliot, 2003). The approach–avoidance distinction is not only evident in humans but also in other species (Gray, 1990), suggesting that the hedonic principle may be fundamental and innate, a conclusion supported by neurophysiological studies (e.g. Sutton & Davidson, 1997). This should come as no surprise as the hedonic principle has clear adaptive value: The motivation to approach pleasure and avoid pain moves an individual toward potentially beneficial, life-enhancing stimuli (e.g., food, water, sexual partners, etc.) and away from potentially harmful, life-threatening stimuli (e.g., predators, contaminated food, dangerous places, etc.), respectively.

We propose that business cycle fluctuations trigger distinct motivational orientations consistent with the hedonic principle. Economic expansions offer opportunities for desirable outcomes (e.g., stock markets rise, jobs are abound, making profit is feasible, etc.), while economic contractions present a threat to an individual's financial security and well-being. As a consequence, we propose that economic expansions and contractions induce approach and avoidance motivation, respectively. Preliminary evidence for the activation of approach and avoidance motivation through business cycle fluctuations can be found in how political preferences covary with economic conditions. As liberal ("left") and conservative ("right") policies are associated with approach and avoidance motivations, respectively (Janoff-Bulman, Sheikh, & Baldacci, 2008), it should come as no surprise that people prefer liberal policies when the economy is expanding, but prefer more conservative policies when the economy is contracting (e.g. Durr, 1993; Stevenson, 2001).

Motivational selectivity

Myriad stimuli compete for our attention in an increasingly complex world. Because people's cognitive resources are limited, they must selectively attend to certain features of the environment. Motivational orientations help individuals to filter the environment and bring goal-relevant stimuli to the forefront of the perceptual field (e.g. DeWall, Maner, & Rouby, 2009; Maner, Gailliot, Rouby, & Miller, 2007). Ecological theories of social cognition (McArthur & Baron, 1983) suggest that attention is adaptively tuned, i.e. selectively processing key features of the environment that are relevant to the satisfaction of important motives. For example, when hungry, it pays off to selectively attend to food cues in the environment, rather than to 'irrelevant' cues, such as a tree that provides protection from the sun (Montague & King-Casas, 2007). That is, motivational orientations facilitate the allocation of cognitive resources to those features in the environment that are relevant for goal satisfaction.

Activation of motivational states facilitates adaptive responses to opportunities and threats in the environment, but this facilitation is highly *selective*: The effects of approach and avoidance motivation are *restricted* to the processing of positive and negative outcomes, respectively. That is, approach motivation facilitates the processing of positive stimuli, but not negative stimuli; while avoidance motivation facilitates the processing of negative stimuli, but not positive stimuli (Neumann & Strack, 2000). Likewise, approach motivation increases liking for positively valenced products (e.g. Snickers candy bar), but not for negatively valenced products (e.g. pig tongue); while avoidance motivation decreases liking for negatively valenced products, but not for positively valenced products (Förster, 2004). Similarly, approach motivation is more strongly associated with judgments of positive outcomes than negative

outcomes, while an avoidance motivation is more strongly associated with judgments of negative outcomes than positive outcomes (Maner & Gerend, 2007). Specific motives lead goal-relevant aspects of the environment to receive preferential processing, while goal-irrelevant aspects of the environment are processed less intensely. In sum, when people are motivated to approach pleasure, they focus primarily on cues in the environment that are associated with pleasure, not pain. Conversely, when they are motivated to avoid pain, they are attuned to signals associated with pain, not pleasure.

We predict that business cycle fluctuations selectively affect consumers' responses, because the activation of approach and avoidance motivation selectively facilitates people's responses to opportunities and threats, respectively (e.g. Förster, 2004; Maner & Gerend, 2007; Neumann & Strack, 2000). The impact of economic expansions should therefore be restricted to positive outcomes, meaning that processing of negative outcomes remains unaffected during economic expansions. In contrast, the impact of economic contractions should be restricted to negative outcomes and should leave processing of positive outcomes unaffected. In sum, we propose that individuals have asymmetric sensitivities to positive (i.e., financial gains) versus negative (i.e., financial losses) outcomes across the business cycle.

Hypotheses Development

Positive and negative economic sentiment in hard versus prosperous times

Most obviously, individuals should feel better off during economic expansions than during economic contractions and ideally, self-reports should reflect this association between macro-economic variables and sentiments of the individuals in the system. As a consequence, business

cycle fluctuations should reliably predict economic sentiments. However, consistent with the perspective that approach and avoidance motivations selectively affect the evaluation of positive and negative outcomes, we propose that economic expansions and contractions differentially influence positive vs. negative economic sentiments. More specifically, in accordance with the motivational selectivity account, we predict that economic expansions have a positive influence on perceptions of wealth (positive economic sentiment), but leave perceptions of poverty (negative economic sentiment) unaffected. Conversely, we predict that economic contractions have a negative influence on perceptions of poverty, but leave perceptions of wealth unaffected. That is, we predict that economic expansions should cause individuals to feel "wealthy" rather than "not poor" and that economic contractions should cause individuals to feel "poor" rather than "not wealthy", due to the different motivational orientations induced by business cycle fluctuations.

H1a: Economic contractions trigger avoidance motivation, inducing negative economic sentiment, while leaving positive economic sentiment unaffected.

H1b: Economic expansions trigger approach motivation, inducing positive economic sentiment, while leaving negative economic sentiment unaffected.

Risk aversion and risk seeking in hard versus prosperous times

Most investors contemplate their investment decisions in terms of achieving financial gains and preventing financial losses. For example, according to modern portfolio theory, investment decisions should be based on trade-offs between the expected returns of the available alternatives and the risks associated with each of these alternatives. By carefully choosing the proportions of

various assets, investors attempt to maximize expected return for a given amount of risk. However, consistent with a motivational selectivity account, achieving financial gains and avoiding financial losses may be managed separately, rather than simultaneously (cf. Zhou & Pham, 2004). As a consequence, we argue that business cycle fluctuations may cause people to be differentially, rather than equally, sensitive to either the achievement of financial gains (i.e. positive outcomes) or the avoidance of financial losses (i.e. negative outcomes).

In general, business cycle fluctuations may induce asymmetric sensitivities to positive outcomes and negative outcomes. More specifically, we predict that economic expansions induce an increased motivation to achieve positive outcomes, but leave the motivation to avoid negative outcomes unaffected. Conversely, we predict that economic contractions induce the motivation to avoid negative outcomes, but leave the motivation to achieve positive outcomes unaffected. As a consequence, economic expansions should produce more risk seeking for financial gains, but not for financial losses, whereas economic contractions should induce risk aversion for financial losses, but not for financial gains.

Our predictions represent a significant departure from standard models explaining decision making under risk. Most theoretical models (prospect theory, subjective expected utility, etc.) do not allow for exogeneous motivational influences, such as those triggered by business cycle fluctuations, on economic decisions. Further, they assume that risky decision-making is largely a process of integrating the desirability of different possible outcomes with their probabilities. Although, ideally, achieving gains and avoiding losses should be considered concurrently, the motivational selectivity account predicts that economic contractions will influence the motivation of individuals to avoid losses, but not necessarily to achieve gains, whereas economic

expansions will influence the motivation of individuals to achieve gains, but not necessarily to avoid losses.

H2a: Economic contractions increase risk aversion for negative outcomes, but not for positive outcomes.

H2b: Economic expansions increase risk taking for positive outcomes, but not for negative outcomes.

Buying products focused on achieving positive outcomes and products focused on avoiding negative outcomes in hard versus prosperous times.

It is well established that business cycle fluctuations affect purchase decisions such as consumption of national brands versus private labels (Lamey, et al., 2007) or expensive products such as durables (Deleersnyder, et al., 2004). In contradiction with the general observation that spending decreases during an economic downturn (Cook, 1999; Deleersnyder, et al., 2004), Lamey et al. (2007) report an *increase* in spending on lower-priced private label products when the economy turns sour. This suggests that the popularity of specific products may wax and wane throughout the business cycle. In a similar vein and consistent with the motivational selectivity account, we predict that business cycle fluctuations may differentially affect consumption patterns of products that are associated with achieving positive outcomes and avoiding negative outcomes.

Gambling and insurance products are often used in standard models of decision making under risk and uncertainty as prototypical examples of achieving gains and avoiding losses respectively (e.g. Friedman & Savage, 1948; Kahneman & Tversky, 1979). Indeed, the

consumption of gambling products (e.g., casino gambling, lotteries) is primarily motivated by an orientation to achieve positive outcomes, rather than to avoid negative outcomes. Conversely, the consumption of products like insurances (e.g., health, motor vehicle insurance) is primarily motivated by an orientation to avoid negative outcomes, rather than to achieve positive outcomes. Therefore, we will investigate the influence of business cycle fluctuations on purchase patterns of these types of products. We predict that economic expansions are particularly associated with an increased consumption of products that are associated with achieving positive outcomes. Conversely, we predict that economic contractions are particularly associated with an increase in consumption of products that are associated with avoiding negative outcomes.

H3a: During contractions, especially the consumption of products which are associated with avoiding negative outcomes - but not of those associated with achieving positive outcomes - increases.

H3b: During expansions, especially the consumption of products which are associated with achieving positive outcomes - but not of those associated with avoiding negative outcomes - increases.

Research overview

We tested our hypotheses in two experimental studies and validated these findings with a time series study. Experiment 1 tested H1a & H1b and Experiment 2 tested H2a & H2b. In these experimental laboratory studies, participants were exposed to cues associated with economic expansions, economic contractions or control cues. Note that a control condition is crucial to document motivational selectivity. Thereafter, measures on economic sentiment, motivational

orientation (experiment1) and risk taking (experiment 2) were collected. The third and final study tested H3a & H3b. As it is important to document behavioral phenomena outside of well-controlled laboratories, we made use of a time-series study which allowed us to investigate whether the findings from the experimental studies can be observed in real consumption patterns. This time-series study links business cycle fluctuations over the past 80 years with consumption patterns of products associated with achieving positive and avoiding negative outcomes. In combination, these studies provide strong support for a motivational selectivity account. That is, during hard times, individuals are motivated to avoid negative, but not to achieve positive outcomes. Conversely, in prosperous times, individuals are motivated to achieve positive, but not to avoid negative outcomes.

Study 1

Method

One hundred and three students (50 men, 53 women) participated in this study in exchange for course credit. Subjects were randomly assigned to a 3 (between subjects: contraction, expansion, control) by 2 (within subjects: positive vs. negative outcomes) design. As previous studies have found that imagination can change attitudes and behavioral intentions as if the imagined situation really happened (Anderson, 1983; Gregory, Burroughs, & Ainslie, 1985), we experimentally induced a “psychological economic state” by making use of imagination scenarios.

Participants read a scenario in which they imagined listening to the radio news. In the *Contraction* scenario, the news bulletin reports that the economic crisis is enduring: Stock

markets and purchasing power are going down, prices are increasing, many people are looking for, but do not find jobs, etc. The scenario continues describing their search for a job in this economic climate. In the *Expansion* scenario, the news bulletin reports that economic growth persists: There are plenty of jobs, stock markets are rising, purchasing power increases, etc. The scenario continues describing their search for a job in this economic climate. In the *Control* scenario, participants imagined getting up in the morning and listening to a news bulletin which gave attention to sports and music and was devoid of any 'economic' information.

After exposure to the scenario, participants answered questions pertaining to economic sentiments and motivational orientations they experienced during this imagination task. First, participants rated their own positive and negative economic sentiment (within subjects) by indicating on a 7-point scale how wealthy (positive economic sentiment) and how poor (negative economic sentiment) they felt. Second, as curiosity is a typical approach-oriented and fear is a typical avoidance-oriented state (Maner & Gerend, 2007), motivational orientations were collected by asking participants to indicate on 7-point Likert scales to what extent they felt (1) curious, eager and interested and (2) fearful, afraid, scared (within subjects). Responses were averaged to form indices of approach (α=.83) and avoidance motivation (α=.96), respectively.

Results

A mixed-design analysis of variance assessed effects of the business cycle fluctuation manipulation on positive and negative economic sentiments, which were included as repeated measures. Results indicated a main effect of business cycle ($F(2, 100) = 8.07$, $p < .001$, partial $\eta^2 = .14$), and a significant two-way interaction between the business cycle manipulation and the valence of economic sentiment ($F(2, 100) = 20.02$, $p < .001$, partial $\eta^2 = .29$; see Figure 1).

Insert Figure 1 about here

The follow-up analyses here (and throughout the article when interactions are explicated) use coding of the valence variable (0,1 vs. 1,0) and the business cycle manipulation (1,0 & 1,0 vs. 0,1 & 1,0) to partial the different business cycle effects at each level of valence (for examples see Irwin & McClelland, 2001). This method ensures that the pooled error variance is used to compute the F-statistics and also allows the use of omnibus degrees of freedom (Raghunathan & Irwin, 2001). In accordance with our hypotheses, *Contraction* increased negative economic sentiment ($M_{\text{contraction}} = 4.43$) when compared to both the *Expansion* ($M_{\text{expansion}} = 2.56$; $F(1,100) = 27.12$, $p < .001$) and the *Control* conditions ($M_{\text{control}} = 2.29$; $F(1,100)=49.88$, $p < .001$), with the *Expansion* and *Control* conditions not differing from each other ($F(1,100) =0.82$, $p = .82$). On the other hand, *Expansion* increased positive economic sentiment ($M_{\text{expansion}} = 4.09$), compared to both the *Contraction* ($M_{\text{contraction}} = 2.73$; $F(1,100)=12.13$, $p < .001$) and the *Control* conditions ($M_{\text{control}} = 3.18$; $F(1,100)=6.19$, $p < .05$), with the *Contraction* and the *Control* conditions not differing from each other ($F(1,100)=1.72$, $p = .19$). In sum, economic contractions made individuals feel “poor” rather than “not wealthy”; whereas economic expansions made individuals feel “wealthy” rather than “not poor”.

Furthermore, we ran a second mixed-design analysis of variance assessing effects of the business cycle fluctuation manipulation on avoidance and approach motivation, which were included as repeated measures. Results indicated effects of business cycle ($F(2, 100) = 18.36$, $p <$

.001, partial η^2=.27), motivation ($F(1, 100) = 62.24$, $p < .001$, partial η^2=.38), and a significant two-way interaction between the business cycle manipulation and motivation ($F(2, 100) = 31.13$, $p < .001$, partial η^2=.38). *Contraction* increased avoidance motivation ($M_{contraction} = 4.66$) when compared to both the *Expansion* ($M_{expansion} = 2.68$; $F(1,100)=29.23$, $p < .001$) and the *Control* conditions ($M_{control} = 2.00$; $F(1,100)=81.03$, $p < .001$) whereas *Expansion* increased approach motivation ($M_{expansion} = 5.17$), compared to both the *Contraction* ($M_{contraction} = 4.10$; $F(1,100)=15.95$, $p < .001$) and the *Control* conditions ($M_{control} = 4.43$; $F(1,100)=9.09$, $p < .01$; see Figure 2).

Insert Figure 2 about here

Subsequent analyses indicate that the effect of expansion on positive economic sentiment is mediated by approach motivation, whereas the effect of contraction on negative economic sentiment is mediated by avoidance motivation. More specifically, we first estimate a regression-based causal model 1 for the effect of condition on positive economic sentiment through the proposed mediator approach motivation using the bootstrap bias-correction algorithm with 1000 iterations proposed by Preacher and Hayes (2008). As Figure 3a shows and in accordance with hypothesis 1a, approach motivation mediates the direct effect of condition on positive economic sentiment (indirect effect = 0.32, $SE = 0.10$, 95% confidence interval: [0.15, 0.57]).

Insert figure 3a about here

Similarly, we estimate a regression-based causal model 2 for the effect of condition on negative economic sentiment through the proposed mediator avoidance motivation. As Figure 3b shows and in accordance with hypothesis 1b, avoidance motivation mediates the direct effect of condition on negative economic sentiment (indirect effect = -0.73, *SE* = 0.17, 95% confidence interval: [-1.05, -0.42]).

Insert figure 3b about here

Discussion

The results of Study 1 provide support for the contention that economic expansions and contractions differentially impact economic sentiments. An economic contraction induces negative economic sentiments, but leaves positive economic sentiments unaffected. In contrast, an economic expansion induces positive economic sentiments, but leaves negative economic sentiments unaffected. In addition, in accordance with hypothesis 1, this study suggests that business cycle fluctuations differentially trigger approach and avoidance motivations, such that negative economic sentiments are explained by increased avoidance motivation induced by

contractions, whereas positive economic sentiments are explained by increased approach motivation induced by expansions.

In experiment 2, we investigate whether and how business cycle fluctuations affect decision making under risk. More specifically, we predict that economic expansions produce risk seeking for positive outcomes, but yield no effects for negative outcomes; whereas economic downturns induce risk aversion for negative outcomes, but yield no effects for positive outcomes.

Study 2

Method

One hundred twenty seven students (23 men, 104 women) participated in this study in exchange for course credit. Subjects were assigned randomly to a 3 (between subjects: contraction, expansion, control) by 2 (within subjects: negative vs. positive outcome) design. We employed the same experimental manipulation as in study 1: Participants were exposed to either economic expansion, contraction or control cues. Afterwards, participants made 14 choices between a smaller, sure monetary outcome and a larger, risky monetary outcome (Hsee & Weber, 1999).

In the positive outcome condition, participants read: "*Suppose that you bought a lottery ticket a week ago. You are informed that you have won and have been given the choice between two options. Option A: receive €20 for sure; Option B: flip a coin; receive €100 if heads, or €0 if tails.*" Participants in the negative outcome condition read: "*Suppose that you violated a traffic rule and hurt somebody a week ago. You are informed that you will be fined and have been given*

the choice between two options. Option A: pay €20 for sure, Option B: flip a coin; pay €100 if heads, or €0 if tails." The risky option was always the same, but the sure option varied from an amount much lower in expected value to an amount much higher in expected value than the risky option (i.e., €2000 if heads, €0 if tails versus resp. €400, €600, €800, €1000, €1200, €1400, €1600 for sure).

The proportion of risk seeking choices[1] in the positive and negative outcome conditions (within subjects) was used as the dependent variable. To increase generalizability, two sets of seven choices were administered: A large outcome set (see above) and a small outcome set (i.e., €100 if heads, €0 euro if tails versus €20, €30, €40, €50, €60, €70, €80 for sure). These 14 questions (7 high and 7 low outcomes choices) were presented in a random order, except that the high outcome set always preceded the low outcome set. As statistical analyses indicated that business cycle manipulations influenced the small and large outcome size questions in a similar fashion, we ignore this factor in the remainder.

Results

A mixed-design analysis of variance assessed effects of the business cycle fluctuation manipulation on risk seeking in the positive and negative outcome conditions, which were included as repeated measures. Results indicated main effects of business cycle ($F(1, 124) = 5.02$, $p < .01$,partial $\eta^2=.08$), valence of the outcome ($F(1, 124) = 32.65$, $p < .001$, partial $\eta^2=.21$), and a significant two-way interaction between business cycle manipulation and valence ($F(2, 124) = 4.57$, $p < .05$, partial $\eta^2=.07$; see Figure 4).

Insert figure 4 about here

In accordance with hypothesis 2, risk seeking in the negative outcome condition was lower in the *Contraction* ($M_{contraction}$ = 0.33) than in the *Expansion* ($M_{expansion}$ = 0.42;F(1,124) = 4.44, $p < .05$) and the *Control* ($M_{control}$ = 0.44; $F(1,124)=8.22$, $p < .01$) conditions, with the *Expansion* and the *Control* conditions not differing from each other ($F(1,124)=0.45$, $p = .50$). On the other hand, risk seeking in the positive outcome condition was higher in the *Expansion* ($M_{expansion}$ = 0.36) than in the *Contraction* ($M_{contraction}$ = 0.24; $F(1,124)=9.97$, $p < .01$) and the *Control* ($M_{control}$ = 0.25; $F(1,124)=7.42$, $p < .01$) conditions, with the *Contraction* and the *Control* conditions not differing from each other ($F(1,124)=0.02$, $p = .90$).

Discussion

Experiment 2 suggests that business cycle fluctuations cause individuals to be differentially sensitive to either the achievement of positive outcomes or the avoidance of negative outcomes. In accordance with the motivational selectivity account, study 2 demonstrates that economic expansions induce a motivation to achieve gains, but leave the motivation to avoid losses unaffected; while economic contractions induce a motivation to avoid losses, but leave the motivation to achieve gains unaffected. Furthermore, participants behaved according to predictions derived from Prospect Theory (Kahneman & Tversky, 1979): People were more risk seeking in the loss domain than in the gain domain. However, when motivations triggered by business cycle fluctuations are taken into account, the pattern of results is consistent with

predictions derived from a motivational selectivity account (cf. Maner & Gerend, 2007; Zhou & Pham, 2004).

To our knowledge, study 1 and 2 are the first studies to demonstrate the *causal* influence of business cycle fluctuations on economic sentiment and economic decision making. However, the main drawback of well controlled laboratory studies may be the lack of ecological or external validity of the conclusions. That is, the findings in experimental studies may be difficult to generalize to real market behavior. Therefore, we conducted a time-series analysis to investigate whether business cycle fluctuations differentially affect consumption patterns. In accordance with hypotheses 3a & 3b, we predict that economic contractions are associated with an increase in consumption of products that are associated with avoiding negative outcomes. Conversely, we predict that economic expansions are associated with an increased consumption of products that are associated with achieving positive outcomes.

Study 3

Method

To formally assess whether contractions (expansions) particularly affect consumption of products focused on avoiding negative outcomes (achieving positive outcomes), but not consumption focused on achieving positive outcomes (avoiding negative outcomes), we estimate the following asymmetric model:

$$\Delta y_t = \alpha + \sum_{i=1}^{I} \beta_i \Delta y_{t-i} + \varphi^{+} \exp_t + \varphi^{-} \mathrm{contr}_t + \varepsilon_t, \quad (1)$$

with lag length I determined on the basis of information criteria (Judge, Hill, Griffiths, Lütkepohl, & Lee, 1988)[2]. y_t is the aggregate consumption of a specific product at time *t*, and

exp_t and $contr_t$ reflect the general state of the economy at a certain point in time *t*. By splitting up the business cycle into two phases (i.e. expansion versus contraction), the model allows each phase to *differently* affect consumption. The variable exp_t measures the magnitude of the expansion by calculating how much the business cycle has increased relative to its previous trough. When the economy is contracting, exp_t is set to 0. Similarly, when the economy is downturning, the variable $contr_t$ quantifies the magnitude of a contraction by calculating how much the business cycle has dropped compared to its previous peak, whereas it is set to 0 when the economy is booming. We refer to the Appendix for a more technical discussion on the operationalization of exp_t and $contr_t$. Note that our asymmetric model is specified in differences. Therefore, we make use of preliminary unit root tests to determine whether the series is indeed non-stationary (as implicitly assumed in Equation (1)), and needs to be differenced to avoid spurious findings (Dekimpe & Hanssens, 1995).

In Equation (1) we assess whether the depth of expansion and contraction, respectively exp_t and $contr_t$, have *additional* explanatory power over lagged consumption, Δy_{t-1} (i.e. the series own history), allowing us to test whether the business cycle *Granger causes* consumption of a specific product, Δy_t. Through the intercept α, we control for all other factors that are not explicitly included in the model (see Franses, 2001, for a technical discussion), but may contribute to the changes in consumption, Δy_t. For instance, prior research indicates that gambling consumption is influenced by many factors besides the business cycle, such as the growing number of casinos and the broadening of the assortment (Andrade & Iyer, 2009).

Under the assumption that an economic contraction stimulates consumption focused on the avoidance of negative outcomes, we expect a positive relationship with this type of

consumption (thus, $\varphi^- > 0$), but not with consumption focused on the achievement of positive outcomes (thus, $\varphi^- = 0$). In contrast, we expect that expansions are related to consumption focused on the achievement of positive outcomes (thus, $\varphi^+ > 0$) but not to consumption focused on the avoidance of negative outcomes (thus, $\varphi^+ = 0$).

Data

Information on insurance and gambling consumption patterns over time were obtained from the personal consumption expenditures (PCE) database provided by Bureau of Economic Analysis (BEA), which measures the goods and services purchased by persons who are resident in the U.S. These series are aggregated yearly estimates of quantities purchased by all U.S. residents and span from 1929 to 2008.[3] The gambling series includes casino gambling, lotteries and pari-mutuel net receipts (e.g. gambling at horse races) purchased by consumers. The insurance estimates contain health, household, life and motor vehicle and other transportation insurance premiums.[4] From the same data source, we extracted data on real GDP, expressed in constant 2005 prices, which is used as a proxy for the general economic activity (Stock & Watson, 1999)**.**

Results

Unit root tests (Enders, 1995) point out that the two consumption series are evolving (i.e., the null hypothesis of the presence of a unit root could not be rejected, all *p*'s > 0.10), indicating that the asymmetric model should be specified in differences. Based on information criteria (Judge et al. 1997), one lag is included for consumption focused on achieving positive outcomes,

whereas two lags are included for consumption focused on avoiding negative outcomes (i.e. respectively I=1 and I=2 in Equation 1). Previous year consumption evolution has a significant positive impact on consumption evolution this year for both consumption series (i.e., for insurance $\beta_1 = 0.24$, p <.05 and for gambling $\beta_1 = 0.52$, p <.01). Second year lagged consumption for gambling turned out not to be significant (i.e. $\beta_2 = -0.36$, p =0.13) More interestingly, we found that economic expansions and contractions differentially affect consumption focused on achieving positive outcomes and avoiding negative outcomes (see table 1).

Insert table 1 about here

In accordance with hypothesis 3, contractions cause a positive impact on consumption focused on avoiding negative outcomes (i.e. insurances) ($\varphi^- = 0.17$, p =.08), but are unrelated to consumption focused on achieving positive outcomes (i.e. gambling) ($\varphi^- = -0.06$, p=.89). Oppositely, expansions are unrelated to consumption focused on avoiding negative outcomes ($\varphi^+ = 0.11$, p=.31), but stimulate consumer expenditures for products that are focused on achieving positive outcomes ($\varphi^+ = 0.57$, p=.08).[5]

Robustness Check. Given our exceptionally long time span, we explored whether our estimated parameters are stable over time. We adopted the Quandt-Andrews Breakpoint test (Andrews, 1993; Andrews & Ploberger, 1994), which explores whether there are one or more structural change(s) in the parameters α, β, φ- and φ+ of Equation (1) for the full sample from 1929 to 2008. Based on the Maximum statistic (i.e. the maximum of the individual likelihood ratio F-statistics obtained from single Chow Breakpoint tests), we were *un*able to reject the null-

hypothesis of no structural changes in our parameters for both consumption focused on achieving positive outcomes (maxF = 2.50; p>.10) and consumption focused on avoiding negative outcomes (maxF = 8.28; p>.10). This implies that our parameters are stable over time.

Discussion

This third and final study, using consumption patterns extending over 80 years, mirrors the conclusions from the experimental studies. That is, the pattern of results is consistent with predictions derived from the motivational selectivity account. Business cycle fluctuations differentially affect consumption patterns of products that are associated with achieving positive outcomes and avoiding negative outcomes. Economic contractions are associated with an increase in consumption of products that are associated with avoiding negative outcomes (i.e., home insurances, health insurances, etc.), whereas economic expansions are associated with an increased consumption of products that are associated with achieving positive outcomes (i.e., casino gambling, lottery tickets, etc.). Note that, although spending usually decreases during recessions (Cook, 1999; Deleersnyder, et al., 2004), we find that, paradoxically enough, spending on products that are associated with avoiding negative outcomes increases during economic contractions. As such, we provide evidence that some product categories - such as e.g. insurances - may profit from economic contractions.

General Discussion

We investigated the influence of business cycle fluctuations on economic sentiments (study 1), economic decisions under risk (study 2) and consumption patterns (study 3). In combination,

these studies suggest that business cycle fluctuations trigger distinct motivational orientations that differentially affect decision-making under risk and even product purchases. More specifically, we found that an economic downturn influences negative (but not positive) economic sentiment, while prosperous times influences positive (but not negative) economic sentiment. As a consequence, economic downturns induce risk aversion for negative (but not for positive) outcomes, while prosperous times instigate risk seeking for positive (but not for negative) outcomes. These behavioral patterns are not the result of artificial laboratory testing procedures as we replicated this pattern of results using real consumption data. Consumption of products associated with achieving positive outcomes and avoiding negative outcomes covaried with the business cycle fluctuations in the predicted fashion. The consumption of products avoiding negative outcomes increases during downturns (but not during prosperous times), while the consumption of products associated with achieving positive outcomes increases in prosperous times (but is unaffected by economic downturns).

The present studies contribute to prior research in different ways. First of all, this is one of the first attempts to investigate the *causal* mechanisms behind the consequences of business cycle fluctuations. When scholars merely employ correlational approaches (e.g. Deleersnyder, et al., 2004; Lamey, et al., 2007), it is virtually impossible to explain *why* certain patterns arise. We resorted to a multi-method approach allowing us not only to document new phenomena in market data, but also to explain these phenomena using experimental procedures. For example, our studies point to the importance of approach and avoidance motives in business cycle fluctuations which might lead to different consumption patterns.

Second, the majority of “recession research” is based on *surveys* measured during *one* specific recession. For instance, people hit by a recession make fewer purchases, postpone

luxuries and weigh prices more in their decisions (Ang, Leong, & Kotler, 2000; Jensen & Rao, 1988; Shama, 1981; Zurawicki & Braidot, 2005). Research focusing on *both* contractions *and* expansions using data on purchases, rather than surveys, is relatively scarce in the literature (for notable exceptions see Deleersnyder et al. (2004) and Lamey et al. (2007)). The present research explored how business cycle fluctuations differentially affect purchase patterns using data across several business cycles without the drawbacks of working with surveys.

Furthermore, our research might be useful in the debate which measure should be used as a proxy of someone's socio-economic position. It has been argued that developing consistent and broadly comparable measures of socio-economic position is essential (Braveman, et al., 2005). Conceptualizing and measuring socio-economic position is among the more difficult and controversial subjects in social research and scholars have debated the theory, operationalization, and usefulness of the construct for about 125 years (Oakes & Rossi, 2003). Measures of wealth, poverty, income, social class, socio-economic status, occupational status, education etc. have been used in prior research as a proxy of an individual's economic position. We would like to emphasize that these measures need to be selected with great care as they may be differentially sensitive to business cycle fluctuations.

The connection between business cycle fluctuations and differential processing of positive and negative outcomes is not inconsequential. The observation that we may be especially sensitive to positive (negative) outcomes during expansions (contractions) may help explain economic puzzles. At the end of 2007, America's credit card debt alone was an amazing $972 billion (Rucker & Galinsky, 2009). Although credit card debt might be attributed to many factors, our studies provide a possible explanation of why credit card debt can be so high during prosperous economic times: When people make use of credit cards, they especially focus on

what they obtain (i.e. positive outcomes), while postponing the accompanying costs (i.e. negative outcomes) to the future. As people are predominantly drawn towards positive outcomes during expansions, disregarding potential negative outcomes, the findings of the present paper would suggest that credit card debt especially boosts during prosperous economic times.

In a similar fashion, the findings of the present paper might provide insights into the recent subprime mortgage crisis. It has been remarked that bankers tend to lend too aggressively at the peak of a cycle and that most bad loans result from this aggressive type of lending (Dell'Arricia, Igan, & Laeven, 2008). During economic booms, collateral requirements decrease (a “collateral” is a borrower's pledge of specific property to a lender, to secure repayment of a loan) and riskier borrowers obtain credit (Jiménez, Salas, & Saurina, 2006). Following our research findings, we suggest that both bankers and borrowers took particularly potential gains, but not potential losses into account during expansions, which might have led them to act overly optimistic. Therefore, we argue that not only lending standards eased just before the subprime mortgage crisis (Dell'Arricia, et al., 2008), but that the financial risk taking of borrowers turned out to be overly optimistic as well. Potential negative outcomes might not have been sufficiently taken into account by both parties, merely as a consequence of business cycle fluctuations.

The present research has implications for marketing communications, as the effectiveness of certain types of marketing messages may critically depend on the state of a business cycle (Ang, et al., 2000). For example, in the 2009 global recession, the Dutch-based Bank Rabobank advertised “Top security” as one of the reasons to choose for them. Our research suggests that this may be a particularly wise strategy when the economy is suffering. When the economy is flourishing however, and people are motivated to achieve positive outcomes, we suggest that advertising focusing on positive outcomes, potential gains and opportunities (e.g., advertising

higher interest rates) would be more successful. Therefore, we call for more research to examine not only the association between the business cycle and individual's economic decisions, but also to study the specific persuasive impact of communication particularly focused on the avoidance of losses vs. achievement of gains during hard and prosperous economic times.

Limitations and further research

A limitation in the current set of studies is that the methods we used cannot directly measure the extent to which individuals differentially attend to positive versus negative outcomes. Therefore, the question remains whether our pattern of results can be explained by (a) selective attention to, (b) selective processing or (c) differential weighting of positive versus negative outcomes. In addition, further evidence in support of our theorizing is needed by means of using different dependent measures. For example, market(ing) conduct in the insurance and gambling sector (e.g. changes in prices and advertising expenditures related to different phases of the business cycle) might mitigate or reinforce the observed findings in study 3. Further research needs to disentangle the interplay between actions of consumers and the sector itself. Moreover, future research should explore which operationalizations of risk are affected by business cycle fluctuations. For example, in study 2, we operationalized decision making under risk by means of the risk taking measure of Hsee and Weber (1999). Nevertheless, further research is needed to investigate whether the observed effects result from a preference for variance and/or a preference for skewness (see e.g. Golec & Tamarkin, 1998). Furthermore, it would also be interesting to show motivational selectivity at the stock market. For example, hard

economic times may be associated with the trading volume of put (but not call) options whereas prosperous economic times may correlate with the trading volume of call (but not put) options.

We found that gambling was only associated with expansions, but not with contractions. At first sight, this finding appears to contradict previous research which showed a positive link between lotteries or lottery-type stocks and unemployment rates (e.g. Kumar, 2009; Mikesell, 1994). In a similar vein, poor individuals tend to spend more on gambling products (e.g. Clotfelter & Cook, 1987) and this demand increases with a decline in their income (Blalock, Just, & Simon, 2007). However, we argue that the majority of consumers are not truly financially hit by most economic contractions. It may well be that among unemployed or financially deprived people, fundamentally different behavioral patterns can be observed. Hence, more research is needed to explore whether "truly hit" consumers react differently to business-cycle fluctuations than those that are only "psychologically hit" by the economy.

Finally, whereas we focused on the role of avoidance and approach motivations during resp. hard and prosperous economic times, other motives may be elicited by different phases of the business cycle. For example, it has recently been shown that women seek to enhance their physical attractiveness in times of economic uncertainty (Hill, Rodeheffer, Griskevicius, Durante, & White, 2011) whereas others suggest that for those who are still in the market of luxury products during an economic recession, conspicuous consumption endures (Nunes, Dreze, & Han, 2011). On the other hand, it has been found that less visible (non-positional) goods are relatively more desirable during recessions (e.g. housing, prescription drugs, health insurance) whereas visible non-essential (positional) goods become relatively less desirable (Kamakura & Du, in press). Therefore, these papers and our present set of studies urge for more theorizing and

empirical evidence for the impact of different aspects of different phases of the business cycle on people’s thoughts, feelings, motivations, judgments and decisions.

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Footnotes

[1] We also performed analyses with Risk Preference Indices as defined by Hsee and Weber (1999), but results do not change when these indices are used as dependent variable. We preferred to use proportional measures as we did not want to lose data of participants (n=40) displaying inconsistencies in their choices due to randomization of item order (e.g., choosing a smaller sure gain over a risky gain, but choosing the risky gain over a larger sure gain).

[2] For the sake of simplicity, we do not allow for lags for the exp_t and $contr_t$ variables in our model specification. Nonetheless, if we determine how many lags should be included for both exp_t and $contr_t$ based on formal information criteria, we find that no lags are needed and, thus, only looking at instantaneous effects for both variables is adequate.

[3] When GDP decreases with 1% compared to the peak right before that contraction, insurances grow with 0.17%. Likewise, when GDP increases with 1% compared to the trough right before that expansion, gambling grows with 0.57%.

[4] According to BEA, these quantities are calculated by dividing the current-dollar value of the component by an appropriate price index.

[5] The insurance premiums can be paid by consumers or on behalf of consumers. As such, our insurance series also includes expenditures financed by third-party players on behalf of households, such as employer-paid health insurances. Nonetheless, given that the knee-jerk reaction of most companies is to tighten belts in economic bad times (Andras & Srinivasan, 2003), third-party payers are expected to cut back insurances paid on behalf of consumers during

contractions as a fast way to cut costs. As a result, the real effect on insurance paid by consumers is probably underestimated with the data we used.

[6] Based on formal tests, the residuals of the 'consumption focused on achieving positive outcomes' equation appear to be heteroskedastic (*White test*: $\chi^2(4)=22.37$; $p<.05$) and auto-correlated (*Breusch-Godfrey Serial Correlation LM test*:$\chi^2(2)=11.20$; $p<.05$). Accordingly, we report robust standard errors based on a Prais-Winsten (1954) estimation that corrects for autocorrelation while using the HC3 estimator (Long & Ervin, 2000) that corrects for heteroskedasticity.

Appendix

Depth of Expansion and Contraction: Operationalization

To quantify the depth of an expansion and a contraction, we first need to register the cyclical fluctuations in the general economy (i.e. the *business cycle*). Data on real GDP are used as a proxy for the general economic activity. Business cycle fluctuations across many sectors are reflected in aggregate output, making the *cyclical component of GDP* an appropriate indicator for the overall economic cycle (Stock & Watson, 1999). In line with economic studies (Cook, 1999; Holly & Stannett, 1995), we adopt the Hodrick and Prescott (HP) filter (1997) to extract from the GDP series those fluctuations that occur at business cycle periodicities. The HP filter decomposes the GDP series, GDP_t, into a trend component, GDP_t^l, which varies smoothly over time, and a cyclical component, GDP_t^c (i.e. fluctuations that occur at business cycle periodicities), by fitting a smooth curve through a set of data points. To identify both components, one minimizes the variance of the cyclical component subject to a penalty for variation in the second difference of the trend component. The cyclical component, which fluctuates around that trend, is then obtained by subtracting the long term trend from GDP_t, i.e. $GDP_t^c = GDP_t - GDP_t^l$. More formally, the HP filter obtains GDP_t^l by minimizing

$$\text{(A1)} \qquad \sum_{t=1}^{T}(GDP_t - GDP_t^l)^2 + \lambda\sum_{t=2}^{T-1}((GDP_{t+1}^l - GDP_t^l) - (GDP_t^l - GDP_{t-1}^l))^2,$$

where λ is a penalty parameter that determines the degree of smoothing; the larger its value, the smoother the resulting long-term component. As business cycles exhibit cycles of varying length that tend to last no longer than eight years in duration (Christiano & Fitzgerald, 1998), our smoothing constant is chosen to generate a trend accounting for all fluctuations longer than eight

years. We follow Baxter and King (1999), who recommend a value of λ equal to 10 for annual series.

After obtaining the business cycle (i.e. GDP_t^c), we can define our two variables in Equation (1) that reflect the general state of the economy at a certain point in time *t* (see Beaudry & Koop, 1993 and Lamey, et al., 2007 for a similar practice):

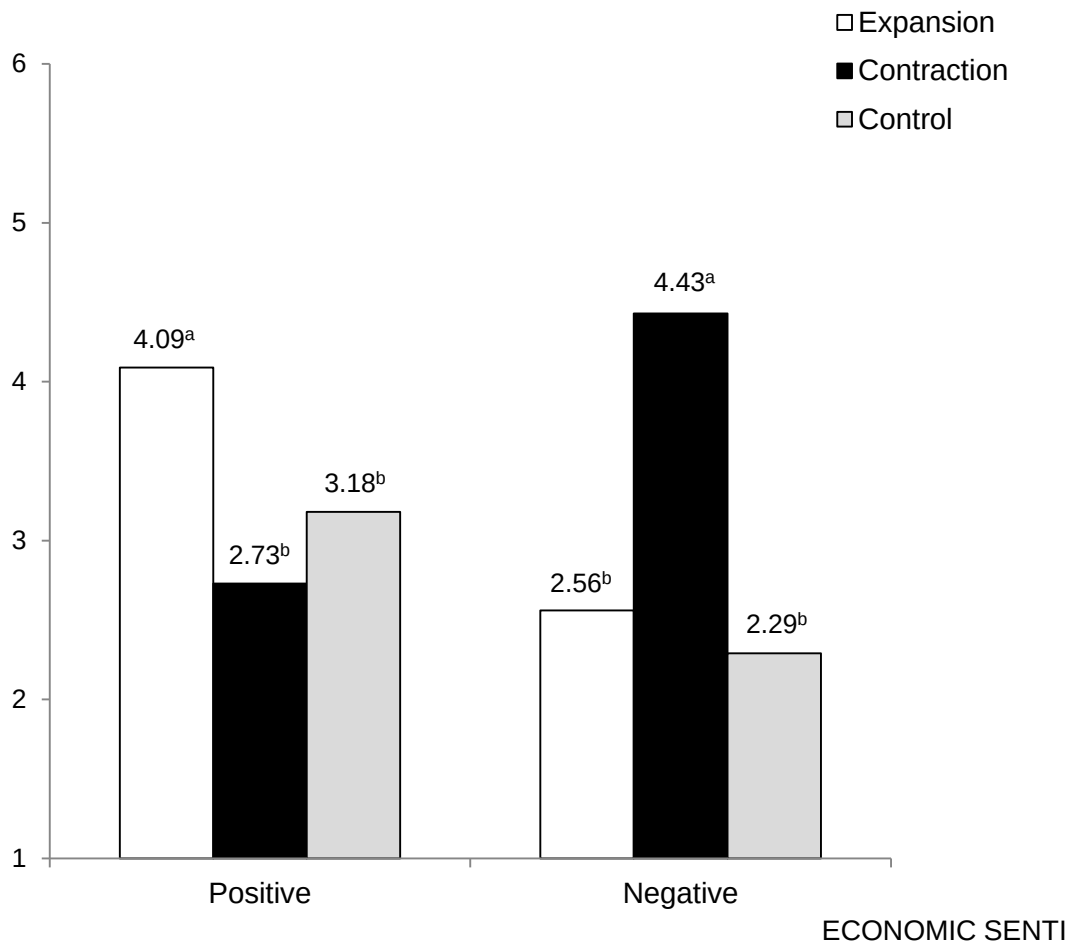
$$\text{(A2)} \quad exp_t \quad \begin{cases} = GDP_t^c - (\textit{prior trough in } GDP^c) & \textit{if } \Delta GDP_t^c > 0 \\ = 0 & \textit{if } \Delta GDP_t^c \le 0 \end{cases}$$

$$contr_t \quad \begin{cases} = 0 & \textit{if } \Delta GDP_t^c > 0 \\ = (\textit{prior peak in } gdp^c) - GDP_t^c & \textit{if } \Delta GDP_t^c \le 0. \end{cases}$$

where exp_t and $contr_t$ quantify the severity of, respectively, expansions and contractions in the economy at time *t*. Decreases (increases) in the cyclical component of real GDP, i.e. GDP_t^c, correspond to contractions (expansions). The variable exp_t measures the magnitude/depth of the expansion by calculating how much the business cycle has increased relative to its previous trough. Similarly, when the economy is downturning, the variable $contr_t$ quantifies the magnitude of a contraction by calculating how much the business cycle has dropped compared to its previous peak

Figure 1

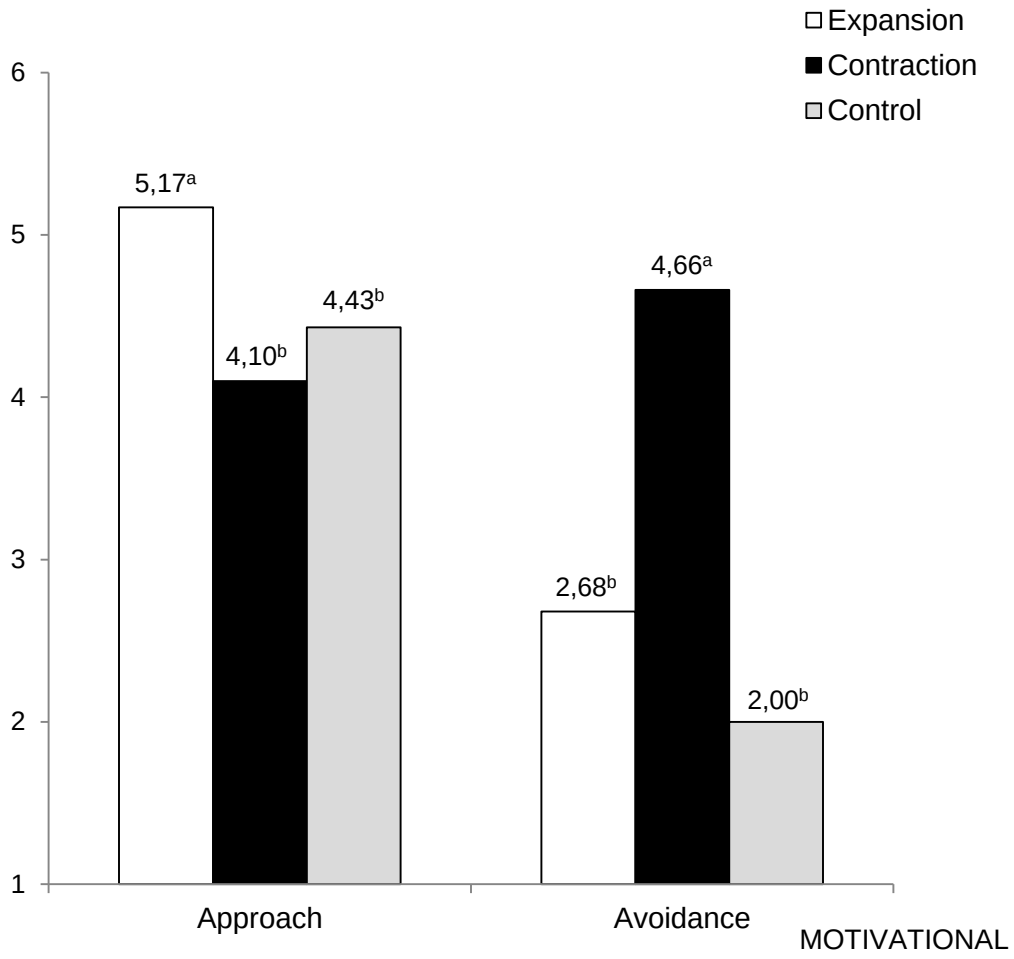
STUDY 1 – ECONOMIC SENTIMENT AS A FUNCTION OF VALENCE AND CONDITION



NOTE – Different superscripts within specific valence indicate a significant difference at $p < .05$

Figure 2

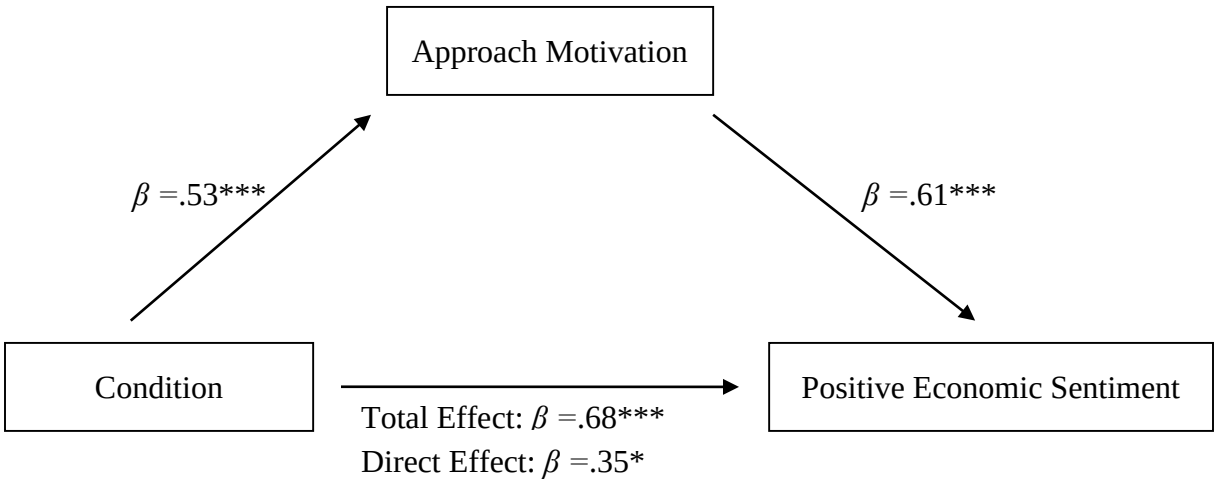
STUDY 1 – MOTIVATIONAL ORIENTATION AS A FUNCTION OF CONDITION



NOTE – Different superscripts within specific motivational orientation indicate a significant difference at $p < .01$

Figure 3a

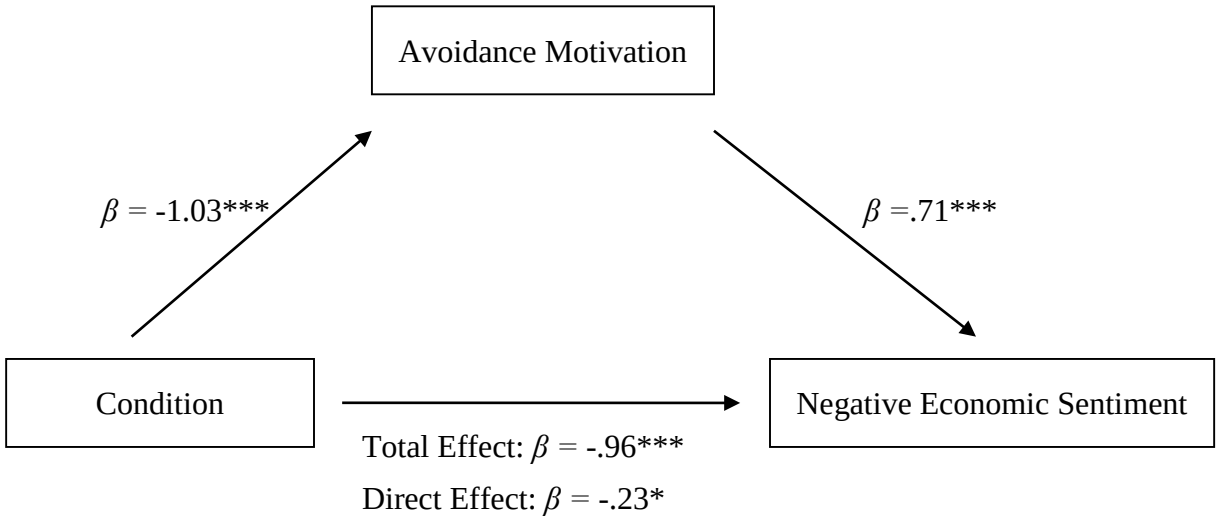
STUDY 1 – MEDIATION MODEL 1



NOTE. – All path coefficients represent regression weights. Coefficients significantly different from zero are indicated by asterisks (*p < .10, ***p < .001). The total (direct) effect coefficient represents the effect of condition on positive economic sentiment without (after) controlling for the mediating influence of approach motivation.

Figure 3b

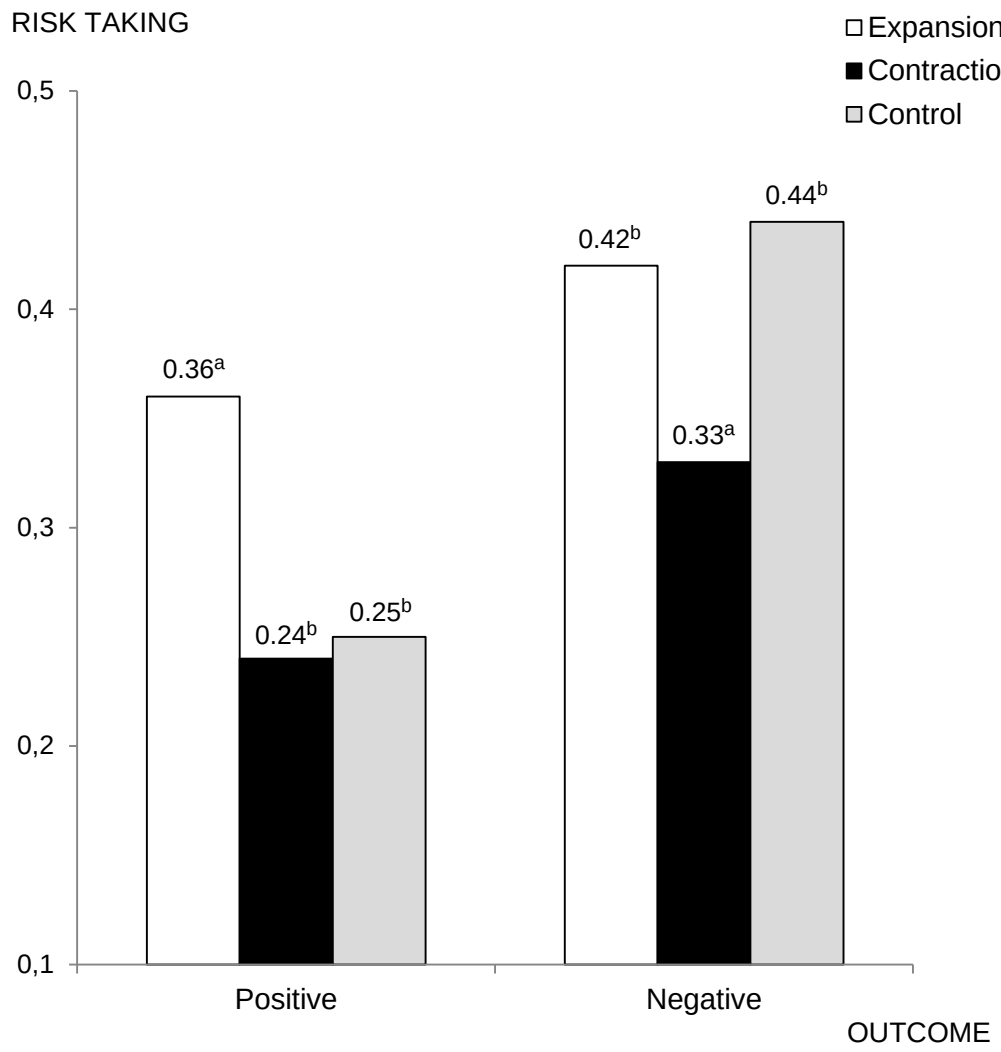
STUDY 1 – MEDIATION MODEL 2



NOTE. – All path coefficients represent regression weights. Coefficients significantly different from zero are indicated by asterisks (*p < .10, ***p < .001). The total (direct) effect coefficient represents the effect of condition on negative economic sentiment without (after) controlling for the mediating influence of avoidance motivation.

Figure 4

STUDY 2 – FINANCIAL RISK TAKING AS A FUNCTION OF VALENCE AND CONDITION



NOTE. – Different superscripts within specific valence indicate a significant difference at $p < .05$

Table 1

STUDY 3 – RESULTS OF THE ASYMMETRIC MODEL

	Consumption focused on achieving positive outcomes (n=77)[6]		Consumption focused on avoiding negative outcomes (n=78)	
Intercept – Drift term	0.046***	(0.016)	0.016**	(0.007)
Lagged growth (t-1)	0. 516***	(0.156)	0.235**	(0.111)
Lagged growth (t-2)	-0.358	(0.236)		
Business cycle effects				
Expansion	0.572*	(0.327)	0.112	(0.109)
Contraction	-0.055281	(0.398)	0.174*	(0.098)
R^2adjusted		19,50%		6,01%

* p <.10, ** p <.05, *** p<.01

NOTE. – Standard errors are reported between brackets.