Journal of Banking & Finance 33 (2009) 2241–2252

Contents lists available at ScienceDirect

Journal of Banking & Finance

journal homepage: www.elsevier.com/locate/jbf

Financial instruments with sports betting components: Marketing gimmick or a domain for behavioral finance?

Wolfgang Breuer *, Guido Hauten, Claudia Kreuz

Department of Finance, RWTH Aachen University, Aachen, Germany

ARTICLE INFO

Article history:
Received 1 May 2008
Accepted 2 June 2009
Available online 6 June 2009

JEL classification:
G31
G32
G35

Keywords:
Behavioral finance
Financial engineering
Sports betting
Structured products

ABSTRACT

We examine theoretically and experimentally a certain class of new financial instruments which are designed as lotteries on the outcome of prominent sports events like the Soccer World Cup 2006. From a theoretical point of view, sports betting products may be superior to a fixed rate investment because of heterogeneous expectations, risk-loving behavior of investors or additional non-monetary utility components. In comparison to the direct placement of bets at bookmakers', sports betting products may be preferable in cases of hedonic framing. Our experimental section, however, reveals the limited practical relevance of these theoretical arguments for "*average*" decision makers. Despite this, financial instruments with sports betting components offer a certain profit potential due to the *diversity* of preferences across individuals. Summarizing, the issuance of sports betting products may actually be mainly driven by marketing aspects, nevertheless sports betting products may be considered to be "viable" niche products with low cost of capital for banks.

1. Introduction

What might a big sporting event such as the Soccer World Cup in Germany have to do with a descriptive decision theory like the prospect theory? At first glance, certainly very little; at second glance, in fact, a great deal. Banks in particular are increasingly using events of this kind for marketing campaigns, whereby the spectrum involved ranges from the basic usage of the title of the respective sporting event right up to the supplying of special financial instruments that are in one way or another connected to it. With regard to the latter, two product varieties in particular emerged during the course of the Soccer World Cup 2006 in Germany. We shall refer to them here simply as "participatory products" and "sports betting products". Such financial instruments are by no means limited to the German capital market (see, e.g., DeJong, 2006, for Korea and Baumann, 2006, for Switzerland). For simplicity reasons, however, we restrict our further exposition to financial products of this kind that are issued on the German capital market, although our findings will be of general relevance. Moreover, besides the Soccer World Cup, there are other big sporting events which one can use as the starting point for the design of specialized financial products, e.g. the European Soccer Championship (for the EURO 2008, see, e.g., Kramer, 2007; Schich, 2008). However, as the general product design opportunities are always the same, we adhere to the example of the Soccer World Cup 2006 as our reference case.

With regard to participatory products, these involve participation in the economic success of those companies which profit most from the relevant sporting event; in this case, from the Soccer World Cup. To this end, banks offer baskets of shares from suitable companies in the form of funds or certificates. Examples of participatory products are the Frankfurt Trust Fund's "FT Big Sports", the WestLB Bank's "WM-Select-Zertifikat 7/06" and the Commerzbank's "Top 11 Zertifikat". The sphere of selected companies varies in accordance with who is offering the financial product, so that sponsors and manufacturers of sports goods, but also construction and travel companies, might be included in the basket of shares. The creation of a portfolio of this kind is only sensible if the capital market is not informationally efficient in the semi-strong sense. In other words, commonly available information about the company in question being in some way related to the sporting event under consideration must not find its way directly into the share prices. Generally speaking, it is highly unlikely that this condition will be fulfilled, since an event like the Soccer World Cup could never "suddenly" materialize. We should expect that capital market participants would adapt their supply and demand behavior comparatively well to sporting events and the yields therefrom for

* Corresponding author. Tel.: +49 241 80 93539; fax: +49 241 80 92163.
E-mail addresses: wolfgang.breuer@bfw.rwth-aachen.de (W. Breuer), guido.hauten@bfw.rwth-aachen.de (G. Hauten), claudia.kreuz@bfw.rwth-aachen.de (C. Kreuz).

0378-4266/$ - see front matter
doi:10.1016/j.jbankfin.2009.06.001

particular firms. The resulting price effects imply that a special portfolio selection strategy which focuses on shares of this kind has little prospect of realizing positive excess returns.

The focus of our analysis will thus be on the second important product variety linked to the Soccer World Cup: Sports betting products as a specific form of structured products (for recent studies on other structured products see, e.g., Wilkens and Stoimenov, 2007; Entrop et al., 2009). A key characteristic of sports betting products is that the respective investors receive a rate of return which depends on the outcome of the World Cup, whereby typically, it is the performance of the German national soccer team that is paramount. On the one hand, this might simply be a marketing gimmick (in fact, this perception actually seems to be the predominant one of practitioners; see, e.g., Mildenberger, 2006; Weiss, 2006; or N.N., 2006). On the other hand, the placement of this kind of instrument may be understood as a (special, but nevertheless) "serious" form of fund-raising – one which, naturally, has to be financially attractive for the customer as lender and cost effective for the bank as borrower. These two motivations are not mutually exclusive, since the more successful the market placement of a finance instrument of this kind, the more likely a positive marketing effect will be. Up to now, the literature has failed to examine this "other" view in any detail, and this paper intends to rectify this omission.

Unlike the case of conventional deposits with a fixed rate of interest, with sports betting products there is the problem of an additional source of risk in the determination of the rate of return, which is practically independent of other cash flows for most investors and also for the issuing bank. Thus, there is no room for monetary hedging motives as a justification for the supply or demand of the relevant financial instrument. Things may be different if we take other utility generating sources than money into account. For example, individuals may utilize sports betting to hedge the disappointment of an unsuccessful outcome of an event they are emotionally attached to, such as the performance of the German team in the Soccer World Cup. However, if we restrict ourselves to situations where only money counts, then, as a consequence, in the case of homogeneous, that is, identical expectations of the investors and of the issuer of a sports betting product, the latter's expected rate of return cannot be attractive for both contractual parties at the same time if a specific fixed interest rate for the same maturity is available and all participants are risk-neutral or risk-averse. Every time one of the two participants favors the sports betting product on account of its expected rate of return over a fixed interest rate instrument, the other party will take just the converse view. To sum up, then, there are only three possible reasons for why a sports betting product can simultaneously be advantageous to a simple fixed rate investment in the view of both lenders and borrowers: (1) different expectations with regard to the probabilities of possible outcomes of a sports event, which are relevant to the resulting contractual rate of interest, (2) risk-seeking behavior of at least one of the participants, and (3) other utility generating sources than money.

However, even in the light of these three reasons it remains unclear why sports betting products should be preferred to a simple direct placement of bets at bookmakers'. In fact, in situations with individuals having different mental monetary accounts at the same time with integration and segregation among them, according to certain so-called hedonic framing rules, there may be a relevant difference between sports betting products and direct sports bets.

According to personal information supplied to the authors by the sales director of a Sparkasse bank, the bank successfully sold the "Sparkassen-KickTipp" (a sports betting product issued by the Sparkasse banks) to private investors, but the overall issuance amount was considerably lower than that of traditional fixed term deposit offers during the respective time period. Although such a statement is mere anecdotical evidence of a limited, though positive market success of these instruments, a more rigorous analysis would certainly be preferable. As empirical data seems to be hard to find, we want to address this issue by way of an experimental design. By confronting 385 students of our university with different decision situations, we have the opportunity to assess the relevance of heterogeneous expectations, risk-loving behavior, non-monetary utility components as well as hedonic framing. Since we refer to cumulative prospect theory (CPT henceforth) as our reference for descriptive decision making, we are also able to contribute to the growing literature that examines the practical relevance of CPT in financial decision making (see, e.g., Erner et al., 2008).

Summarizing, we find that – compared to situations with homogeneous expectations as a consequence of exogenously given probabilities – heterogeneous expectations reduce the demand for sports betting products because of ambiguity effects. Moreover, the behavior of "average decision makers" according to CPT differs considerably from the behavior that is actually observable. Non-monetary utility components per se do not play a relevant role, but there may be an indirect effect via influencing an investor's probability assessments.

Even without non-monetary utility aspects, with homogeneous expectations being in effect and with CPT not being valid, a considerable share of students acts in a risk-loving manner. Although, because of this *diversity* in preferences, sports betting products could thus be viable even in the light of alternative fixed rate investments, they face the problem of competing with the direct placement of bets, as aspects of hedonic framing do not seem to be very important. Moreover, risk-loving behavior seems to be best exploited by mimicking the direct placements of bets, e.g., through simple binary lotteries, which are quite prone to misestimations of success probabilities. With bookmakers having a comparative advantage over banks in estimating the probabilities of potential outcomes of sporting events, this problem certainly limits the potential success of financial instruments with sports betting components. Against this background, one may indeed consider these instruments to be niche products that function as marketing gimmicks, which explains their quite impressive presence in marketing campaigns, but at the same time – and to a limited degree – they may also serve as serious financing means with lower cost of capital than other financial sources.

The rest of the paper is organized as follows: In Section 2, we give a more thorough description of sports betting products. In Section 3, we present our theoretical analysis, while Section 4 is devoted to the experimental verification of our hypotheses. Section 5 concludes.

2. Financial instruments with sports betting components

In general, sports betting products consist of two interest components: One is a fixed base interest rate r and the other is an uncertain bonus payment $\tilde{b} \geqslant 0$ that depends on the outcome of a predefined sporting event. The various products differ in particular with respect to the probability distribution of $\tilde{b}$. An example of a financial product with a rate of return which depends on the success of the German national soccer team, is that which was offered by the Dresdner Bank: a money market account with a bonus of 0.75% p.a., should Germany win the World Cup title. Here, as with other products, the maximum permissible investment amount was restricted (to 20,000 €) and the time period for the potential bonus interest payment was also limited (up to August 31, 2006). The Postbank's "Fifa WM 2006 Weltmeister Zertifikat" and the "DZ 11,0 Champion MaxiRend Tracker" not only both have unwieldy names even for German speakers, they are also participatory products in the aforementioned sense and they both guaranteed extra interest payments subject to the respective World Cup winner