January 2004

Risk Sharing and the Market for Corporate Control: A Case for Golden Parachutes

Atreya Chakraborty
University of Massachusetts, Boston, atreya.chakraborty@umb.edu

12

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TYPE:	Article CC:CCL
JOURNAL TITLE:	International journal of finance
USER JOURNAL TITLE:	The International Journal of Finance
H2K CATALOG TITLE:	The International journal of finance
ARTICLE TITLE:	??œRisk Sharing and the Market for Corporate Control: A Case for Golden Parachutes,â€
ARTICLE AUTHOR:	
VOLUME:	16
ISSUE:	3
MONTH:	
YEAR:	2004
PAGES:	3071-82
ISSN:	1041-2743
OCLC #:	Atreya Chakraborty
CROSS REFERENCE ID:	46525
VERIFIED:	

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PATRON ID:	
PATRON ADDRESS:	
PATRON PHONE:	
PATRON FAX:	
PATRON E-MAIL:	Atreya.Chakraborty@umb.edu
PATRON DEPT:	Accounting & Finance CM
PATRON STATUS:	Faculty
PATRON NOTES:	

System Date/Time: 9/6/2009 6:32:15 PM MST

Mullineaux, D.J. "Deposit-rate Ceilings and Non-Competitive Bidding for United States Treasury Bills", *Journal of Money, Credit, and Banking*, 5, (1973), 201-212.

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The International Journal of Finance • Vol. 16, No. 3, 2004

RISK SHARING AND THE MARKET FOR CORPORATE CONTROL: A CASE FOR GOLDEN PARACHUTES

Attreya Chakraborty
University of Massachusetts, Boston

Abstract

In this paper we model the effect of severance contracts on the investment decisions of a firm under a threat of takeover. We show that, if managers are unable to signal the true nature of their investments, but raiders (being specialists) can access such information at a small cost, then target-managers will choose to invest in less risky projects. While adopting golden parachutes can mitigate this problem, the socially optimal value of the golden parachutes is always greater than what the shareholders will be willing to adopt. This is true because while target shareholders have to pay for these severance contracts, from a social perspective golden parachutes are merely transfer of resources (from the shareholders to the managers). By increasing more risky investments golden parachutes may increase the probability of financial distress. But as long as distress costs affect the shareholders and society equally they do not affect our conclusions.

I. Introduction

In this paper we model the value-enhancing role of golden parachutes in an environment characterized by imperfections in the market for information. We show that shareholders have a strong incentive to institute golden parachute contracts if raiders have private information. Golden parachutes encourage risky investment and the socially optimal value of golden parachutes is larger than the value shareholders are willing to install.

The fundamental intuition of the model comes from the informational asymmetry between the incumbent manager and a raider and the asymmetry of costs of incorporating golden parachutes between the shareholder and the society. Since managers cannot credibly communicate enough information about the nature of their projects, takeovers pose a severe constraint on the nature of projects they choose. We show that, given the above structure managers will choose projects that are not value maximizing for shareholders (less risky).

Further, since shareholders tend to bear the whole cost of golden parachutes -- from a social perspective they are costless transfers -- adopting such measures may increase total welfare even if the shareholders see the costs as outweighing the benefits. In this context we show that the optimal level of golden parachutes is larger than what the shareholders would like to pay out. This conclusion is unaffected by considerations of financial distress costs

(associated with more risky projects) as long as such costs affect shareholders and society symmetrically.

Our paper extends the existing literature by connecting the propensity to bear risk to insurance provided by severance contracts. Unlike in previous work (Harris (1990), Knoeber (1986)), in this paper the gains from adopting golden parachutes do not come from decrease in agency costs (manager's willingness to have raids) but from the changes in the riskiness of investments. As such, this paper provides a theoretical link between adoption of golden parachutes and bankruptcy and liquidation costs.

The policy implications of our model are significant given the widespread adoption of such measures. Theory indicates that there may be substantial gains from relaxing tax-laws governing golden parachutes. Higher tax rates on severance pay may be detrimental to social welfare.

The remaining sections of the paper are organized as follows. Section II contains a brief review of the related studies in this area. In Section III we demonstrate how informational asymmetries along with an active market for corporate control creates a divergence between the interests of managers and shareholders. We also show that golden parachutes can be used to realign the incentives of the managers with those of the shareholders. Finally we derive the socially optimal value of golden parachutes and relate it to the privately optimal one. Section III contains some policy implications of our model and concluding comments.

II. Related Studies

A "golden parachute" is a contractual agreement between a firm and its key executives, which specifies that these select officials are paid a predetermined amount of compensation in the event of a change in control.[1] The adoption of these contractual agreements does not require a formal shareholder vote (unlike charter amendments), as the board of directors can approve them.[2] Such contracts, with relatively large payouts are quite common in corporate charter of the 1980's.

Rosenbaum (1986) surveying 424 of the Fortune 500 firms in 1986 report that 198 of them had provided their executives with golden parachutes. Lambert and Larker (1985) documenting the size of golden parachutes in ninety firms between 1975 - 1982, and report that golden parachute payoff was on the average 1.7% of the market value of equity and 12.1% of earnings in the year prior to the adoption of such a measure.

Majority of work on golden parachutes has revolved around the issue agency cost between shareholder and manager. Critics of golden parachutes have viewed such arrangements as yet another ploy by the incumbent management to extract rents from shareholders (Business Week, 1982). Singh and Harianto (1989) note that firms adopting golden parachutes have a higher diffusion of stock ownership, longer tenure of the CEO vis-a-vie that of the board members, and financial structures more conducive to takeovers than firms without such provisions. Golden parachutes may allow the managers to

insulate themselves from one of the most effective efficiency-inducing institutions - the market for corporate control. Golden parachutes not only make takeovers more expensive (for the raider), thus denying the target shareholders significant premiums in the event of a successful raid, but more importantly, they help to create the wrong incentive structure by lowering the cost of inefficiency.

Advocates for golden parachutes (Baron (1983), Lambert and Larker (1985)), argue that these contracts help the shareholders resolve the agency problem inherent in any successful takeover.[3] While a successful takeover is unequivocally beneficial for the shareholders (Bradley et al. (1988), Jenson and Ruback (1983), Jarrel *et al.* (1988)), the gains to the target managers are less certain. Unlike shareholders, managers while profiting from their stock options also incur substantial loss of job-related utility since they are dismissed in most successful takeovers. Hence the managers may be less inclined to participate in a successful takeover than the non-managerial shareholders.

Knoeber (1986) views the conflict of interest in the context of the nature of contracting between managers and shareholders. He suggests that optimal contracting with managers must include some deferred compensation, since the true nature of performance is revealed over a long period of time and cannot be forecast at the time of contracting. Such contracting inevitably leads to the possibility of opportunistic behavior on the part of the shareholders, who can always default on any promised deferred payment by selling the shares of the firm to the highest bidder. Hence golden parachutes (and anti-takeover amendments) serve as insurance against any such opportunistic behavior. This study (like that of Lambert and Larker's) provides support for the notion that golden parachutes are advantageous to shareholders' wealth maximizing pursuits.

Harris (1990) argues that shareholders will profit from appointing the managers as their bargaining agent as long as the managers gain less from a takeover than do the non-managerial shareholders. The shareholders may appoint the managers as their bargaining agent by providing them with anti-takeover amendments. These amendments give the incumbent managers significant leverage at restricting takeovers. The loss of job-related utility ensures that the managers would be willing to relinquish the control of their firm only at a price higher that price at which the non-managerial shareholders would be willing to sell their shares. Golden parachutes are beneficial in this model if, without golden parachutes, the managers' disutility from takeover to the managers is so large that they refuse to bargain on behalf of the non-managerial shareholders. In such situations managers can be given side payments in the form of golden parachutes and hence be persuaded to bargain on behalf of the non-managerial shareholders. Such a model of bargaining however fails to explain the presence of golden parachute contracts without any form of anti-takeover amendments.[4]

We view the case for and against golden parachutes from the managers' incentive to take optimal investments, agency costs play no role in our approach. The need for golden parachutes in our model comes from the

inability of the managers to signal the true nature of their investments. Managers are assumed to be unable to convey information about the exact nature of projects to investors. Perhaps providing such information would compromise the value of their investment. For example information on new product development might encourage imitation. Perhaps the managers would face criticism from shareholders if their information turned out to be misleading due to events beyond their control. Further, even if managers were to reveal information, it might be impossible for the investors to distinguish reliable information from unreliable information (Akerlof (1970)).[5] We assume (unlike Ross(1977)) that while managers are not capable of signaling the true value of their projects to shareholders, raiders, being specialists, are capable of discerning the true nature of the projects for a small cost. Managers are viewed as rational agents who maximize their welfare given the incentive structure incorporated by the shareholders. Once employed, managers are assumed to have total control over corporate resources. Their basic role is to allocate the resources under their control across various competing projects.

Before highlighting the basic implications of the model, it is important to point out one crucial assumption underlying our view of the market for corporate control. Our view of takeovers diverges significantly from that of Manne (1965) School of efficiency-enhancing role of takeovers. In our model the primary role of takeovers (and the primary source of profit to the shareholder) is to reduce the undervaluation in the market which arises due to informational asymmetries between managers and investors. We view takeovers as "not designed to prune managerial dead-wood....on the contrary, they reflect (*a response to*) a flaw in the market machinery and valuation prices."[6] Herman, E.S., and Lowenstein, L. (1988), page 215 (Italics added).

As such, the primary role of golden parachutes in our model is to reduce the incentive alignment problem created by the manager's inability to signal the true nature of their projects. Such arrangements facilitate better contracting and make both parties better off. In case of a bad draw, managers are compensated for the market's undervaluation of their projects (and increased probability of raid) and this encourages them to undertake more risky projects. The shareholders also gain since the manager's greater propensity to bear risk results in larger payoffs when the projects are successful.[7]

III. The Model

The manager-shareholder interaction is characterized in the following way. We assume that the managers' remuneration is a fixed proportion (α) of the current profitability of the firm (Stein (1988), Ross (1978)). The managers and the shareholders are risk neutral. Each period the managers choose the risk of projects (r) so as to maximize their expected returns. The returns for bearing risk are characterized in the following fashion. The manager chooses the underlying risk of the project in the beginning of the period, and the payoffs from the projects (realized at the end of each period) are denoted by $\Pi^S(r)$

and $\overline{\Pi}$ according to whether they succeed or fail.[8] We characterize high-risk projects as projects with a low probability of being successful but high payoffs when they are successful. $S(r)$ denotes the probability of success of an investment strategy given the risk of the project; we assume $\frac{dS(r)}{dr} < 0$ and $\frac{d^2S(r)}{dr^2} > 0$.[8] We also assume that the return from a successful project is an increasing function of its risk (i.e. $\frac{d\Pi^S(r)}{dr} > 0$ and $\frac{d^2\Pi^S(r)}{dr^2} < 0$).

III.(a) Optimal risk taking if raids were not possible

Under our assumptions, in the absence of takeovers, there is a unique optimal level of risk, r^{*M}, which maximizes the mangers expected remunerations. The manager's problem can be written as:

$$Max_r M = \alpha\{S(r)\Pi^S(r) + (1 - S(r))\overline{\Pi}\} \quad (1)$$

With no raids there is no conflict of interest between the shareholder and the manager, since the shareholder acting in his own interest would have chosen exactly the same level of risk to maximize his net worth.

III.(b) Optimal risk taking if raids were possible but golden parachutes were not allowed.

The introduction of raids creates an important asymmetry of payoff between the manager and the shareholder. Since we assume that investors are guided by current profitability and are unaware of the expected value of the firm, the low profitability in such a state temporarily reduces the value of the firm.[9] Raids occur when the bad state is realized (the payoff is $\overline{\Pi}$). The raider however is an active participant in the market for information and can take advantage of this undervaluation by offering a tender price which is greater than the current value of the firm. We assume that competition in the market for corporate control assures the shareholders a tender offer that reflects the true expected value of the firm (net of the costs of conducting takeovers). The managers can also sell their shares to the raider at the tender price T. However since the managers are fired in case of a successful raid, their payoffs in case of a successful raid can only be measured net of such the losses (L). L represents the dollar value of all losses incurred by the target managers in case of a successful raid and consequent loss of their jobs. L includes all costs incurred by the managers due to reallocation, loss of seniority (perks, power and prestige) and job search after a takeover. Although the manager can usually sell his stocks at a substantial premium we assume such payments falls short of

the raid related disutility (L) suffered by the managers. P denotes the probability of a successful raid.[10]

The manager's problem when takeovers are possible (without golden parachutes) is:

$$Max_r \overline{M} = \alpha\{S(r)\Pi^S(r) + [1-S(r)]\{(\alpha T - L)P + [1-P]\alpha\overline{\Pi}\} \quad (2)$$

Let r^{**M} denote the level of risk chosen by the manager when raids are feasible.

Proposition 1: In the absence of golden parachutes, the manager chooses a lower level of project risk in an environment that allows for takeovers (i.e. $r^{*M} > r^{**M}$).

Proof: Equation (2) can be rewritten as:

$$Max_r \overline{M} = \alpha\{S(r)\Pi^S(r) + [1-S(r)]\overline{\Pi}\} - \alpha[1-S(r)]P\{\overline{\Pi} - (T - \frac{L}{\alpha})\} \quad (3)$$

Substituting Equation (1) into equation (3) we have:

$$Max_r \overline{M} = M - \alpha[1-S(r)]P\overline{\Pi}\{\overline{\Pi} - (T - \frac{L}{\alpha})\} \quad (4)$$

Letting $Z = -\alpha[1-S(r)]P\overline{\Pi}\{\overline{\Pi} - (T - \frac{L}{\alpha})\}$ implies

$$\left|\frac{dM(r)}{dr} + \frac{dZ(r)}{dr}\right|_{r^{**M}} = 0. \quad (5)$$

But we already know (from equation (1)) that at r^{*M}, $\frac{dM(r)}{dr} = 0$.

Since $\frac{dZ(r)}{dr} = \alpha P\{\overline{\Pi} - (T - \frac{L}{\alpha})\}\frac{dS(r)}{dr} < 0$, existence of a unique solution to the manager's problem implies that $r^{*M} > r^{**M}$.[11]

The shareholders' objective function when raids are possible is different from that of the managers. Unlike the managers, the shareholders receive a tender price T from the raider, where T exceeds $\overline{\Pi}$. Hence

shareholders are cushioned against 'bad draws' due to the raiders information-gathering activities.

The shareholders' maximizing problem when takeovers are feasible is

$$Max_r H = (1-\alpha)\{S(r)\Pi^S(r) + [1-S(r)]\{PT + [1-P]\overline{\Pi}\}\} \quad (6)$$

Let r^{**S} denote the optimal level of risk chosen by the shareholders if they were to choose the level of riskiness of the projects and raids were feasible.

Proposition 2: When takeovers are possible and golden parachutes are absent the shareholders would choose riskier projects than the managers (i.e. $r^{**S} > r^{**M}$). Thus it is in the shareholders' interest to induce the manager to choose more risky investments.

Proof: Equation (2) can be rewritten as:

$$Max_r H = \alpha\{S(r)\Pi^S(r) + [1-S(r)]\overline{\Pi}\{(T - \frac{L}{\alpha})P + [(1-P)\overline{\Pi}\} \quad (7)$$

Substituting Equation (2) into equation (7) we have:

$$Max_r H = \frac{1-\alpha}{\alpha}\overline{M} + [1-S(r)]PL \quad (8)$$

Let $K = [1 - S(r)]\ PL$, since $\frac{dK(r)}{dr} = \{ - \frac{dS(r)}{dr} \text{PL } \} > 0$, then $r^{**S} > r^{**M}$. ▪ (9)

Proposition 2 implies that it is in the shareholders interest to encourage managers to take greater risks. We now show that golden parachutes fulfill this requirement.

III.(c) Optimal risk taking with raids and golden parachutes

Let D, a constant, denote the dollar value of the golden parachutes offered by the shareholders to the management.[12]

The manager's maximizing problem can now be written as:

$$Max_r \tilde{M} = \alpha S(r)\Pi^S(r) + [1-S(r)]\{(\alpha T - L + D)P + [1-P]\alpha\overline{\Pi}\} \quad (10)$$

Let $\tilde{M}_r$ denote the first order condition with respect to risk. Let $r^*(D)$ denote the optimal amount of risk chosen by the manager.

Proposition 3: The manager's propensity to bear risk is a non-decreasing function of the magnitude of the golden parachute (i.e. $\frac{dr}{dD} > 0$).

Proof: By the implicit function theorem we know $\frac{dr}{dD} = -\frac{\tilde{M}_{rD}}{\tilde{M}_{rr}}$,

where $\tilde{M}_{rD} = \frac{\partial \tilde{M}_r}{\partial D} > 0$. By the second-order condition $M_{rr} < 0$. Hence

$$\frac{dr}{dD} = -\frac{\tilde{M}_{rD}}{\tilde{M}_{rr}} > 0. \blacksquare$$

Thus managers who have golden parachutes in their contacts would demonstrate a larger propensity to bear risk according to this model.

The incorporation of golden parachutes into the corporate charter is not costless for the shareholders. The shareholders realize that the raider would anticipate such costs and lower his tender offer accordingly. We assume that the shareholders, through the board of directors, are able to play the role of a 'principal' in their interaction with the manager. The shareholders "move first" in the sense that they incorporate golden parachutes and the managers then react to these severance clauses. Hence shareholders can incorporate the reaction functions of the managers ($r(D)$) in their maximizing exercise.

The shareholder's problem can now be written as

$$Max_D H^G = (1-\alpha)\{S(r(D))\Pi^S(r(D))\} + (1-\alpha)[1-S(r(D))]\{P[T-\frac{D}{1-\alpha}] + [(1-P)\overline{\Pi}\} \quad (11)$$

The shareholders will choose a non-zero severance payment only if the cost of incorporating such clauses (i.e. the loss in terms of a lower tender offer) fall short the gains from the manager's additional risk-taking. Let D^{*S} denote the dollar value of the optimal severance contract and r^{*S}(or $r(D^{*S})$) the level of risk (chosen by the manager) associated with such contracts.

We define the socially optimal severance package to be one that maximizes the net wealth of the society given the framework of our model. Hence, unlike the shareholders, the cost of golden parachutes does not affect the planner's objective function, since it is purely redistributive in nature.

The social planner's is

$$Max_D P = S(r(D))\Pi^S(r(D)) + [1-S(r(D))]\{PT + [1-P\}\overline{\Pi}\} \quad (12)$$

Let D^{*P} denote the optimal level of severance payment chosen by the social planner.

Proposition 4: The social planner would always choose a larger level of severance payment than would the shareholders. (i.e. $D^{*P} > D^{*S}$).

Proof: Equation (11) can be rewritten as:

$$Max_D H^G = (1-\alpha)\{S(r(D))\Pi^S(r(D))\} + (1-\alpha)[1-S(r(D))]\{PT + [1-P]\overline{\Pi}\} - \{[1-S(r(D))]PD \quad (13)$$

Substituting Equation (14) into equation (13) we have:

$$Max_D P^{G.P} = \frac{1}{1-\alpha}H^G + \{[1-S(r(D))]PD\} \quad (14)$$

Let $L = \{P\,[1\text{-}S(r(D))]D\}$; then since

$$\frac{dL}{dD} = P\,[1 - S(r(D))] - \frac{dS}{dr}\frac{dr}{dD}D\,P > 0, D^{*P} > D^{*S}. \blacksquare \quad (15)$$

IV. Implications and Conclusion

Our model has an important policy implication for the regulation and taxation of severance contracts such as golden parachutes. Once we assume that the distributional consequences of such measures are irrelevant to any social value maximizing exercise, a strong case can be made for relaxing current provisions regarding such forms of contracting. Most importantly, such arguments are not affected by costs of bankruptcy or liquidation. Hence golden parachutes may improve social value by not only stemming the loss arising "a huge diversion of managerial effort into devising ways to reduce vulnerability that did not grow out of managerial inefficiency"[13] but society may also gain from cushioning managers from their inability to communicate relevant information.

Endnotes

*The author wishes to thank Robert Taggart, Jr., Richard Arnott, Stephen Polasky, and Helen Lange for their valuable comments, criticisms and many insightful discussions on earlier drafts of this paper. This paper has also benefited a lot from the discussants of the FMA meetings in Toronto. The usual disclaimer applies.

[1] The change in control clauses along with the "trigger events" (events that qualify the managers to activate the golden parachutes) are explicitly defined and are unique to individual contracts. The most common triggers include the purchase of a substantial

block of outstanding stocks by an outsider, a change in the majority of the board of directors, or an outright acquisition of the company.

[2] It should be noted that although explicit consent from shareholders is not required, managers are required to notify them of such actions through proxy statements. Hence the adoption of golden parachutes may be viewed as being approved by the shareholders through their acquiescence.

[3] Lambert and Larker observe that "golden parachutes adoption was associated with a statistically significant positive security market reaction". They attribute such findings to the incentive-aligning role of golden parachutes.

[4] Daly and Subramanian (1989) note that while 45% of the 141 NYSE firms that were taken over during 1981-1985 had golden parachute contracts, only 48% of these contract-awarding firms had any form of anti-takeover amendments.

[5] Even if it were possible for shareholders to discern reliable from unreliable information, the cost of collecting information along with the free-rider problem would deter shareholders from investing doing so (Grossman and Hart (1980)).

[6] We feel that the conventional efficiency-enhancing (efficient manager replacing the inefficient one) argument is seriously misplaced in its dichotomous treatment of the motivation of the manager of the target firm vis-a-vie that of the bidding firm. If incumbent management can so wantonly waste resources that shareholders may earn premiums over 50% upon their removal, then it is quite inconsistent to claim that the new set of manager's interests will be better aligned to those of the shareholders.

[7] It is possible that getting the manager to choose a riskier project may require severance packages too large to be profitable for the shareholders. Such cases require that the shareholders choose both anti-takeover amendments and golden parachutes to maximize their wealth. In this paper we analyze only the consequences of adopting golden parachutes. Linn and McConnell (1983) and Lambert and Larker (1985) document a positive effect on stock price when golden parachute provisions are adopted.

[8] We assume that there are no bankruptcies and that all returns are non-negative. Hence $\overline{\Pi}$ represents the payoff from the event when the bad state occurs. If there are no takeovers after the bad state has been realized, the managers simply chooses a new investment strategy with the resources they have under their control.

[9] Note that $\Pi^S(r) > S(r)\Pi^S(r) + (1-S(r))\overline{\Pi} > \overline{\Pi}$, where $S(r)\Pi^S(r) + (1-S(r))\overline{\Pi}$ is the expected value underlying the distribution of payoffs chosen by the managers.

[10] This assumption tries to capture the notion that at any point of time the shareholders have incomplete information about the exact nature of the project. Hence they tend to put more weight on currently available indicators (such current profitability and earnings) to update their priors regarding expected returns. Current profitability here thus broadly refers to all the indicators which tend to bias the shareholders in favor of short-run performance (Shubik,M(1988)).

[11] Whenever the expected value of the project is greater than the realized payoff there is an attempt to takeover the firm. However the success of a takeover attempt depends on exogenous factors such as the size of the firm, the nature of stock ownership, the presence of anti-takeover amendments, infringements to antitrust laws etc. P captures all such factors which contributes to the success of a raid.

[12] Managers being worse off after a successful raid implies $Z>0$, hence $P\{\overline{\Pi} - (T - \frac{L}{\alpha})\} > 0$.

[13] We assume that golden parachutes cannot make the manager as well off as he would have been in the good state. That is $\Pi^S(r) > \{(\alpha T - L + D)P + [1-P]\alpha\overline{\Pi}\}$.

[14] Herman, E.S., and Lowenstein, L. (1988): "The efficiency effects of hostile takeovers" in *Knights, Raiders and Targets.* New York: Oxford University Press. p 216.

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The International Journal of Finance Vol. 16, No. 3, 2004

BOND RETURN PREDICTABILITY: The European Market

Florinda Silva
University of Minho

Maria Ceu Cortez
University of Minho

Manuel Rocha Armada
University of Minho

Abstract

The predictability of security returns has received considerable attention in the literature, and yet the predictability of bond returns beyond the US markets has remained far less explored. Here we plan to remedy the shortcoming, and in that effort we analyse the ability of several predetermined information variables in predicting bond returns in the European market. We test if variables, commonly used for that matter in the context of other markets (such as inverse relative wealth, term spread, real bond yield and a January dummy) are also useful predictors of European bond returns. Due to some particularities of the sample period of analysis, characterised by the EMU convergence, we also include the yield spread in relation to German bonds. We further examine the return predictability across different bond maturities: 1-3, 3-5 and 5 or more years to maturity. The results indicate that variables such as the term spread, IRW and a January dummy represent useful information in order to predict bond returns for different maturities. The other two variables add little in terms of explanatory power. Surprisingly, the DM yield spread does not seem to have any predictive ability for the countries expected to participate in the EMU. However, a puzzling result is obtained: this variable appears to be significant for the UK market! Additionally, we find that investors, using simple trading strategies that exploit this information, may obtain higher returns. This outperformance is observed for different maturities, being more evident for long-term Government bonds. These findings may have important implications on other related issues such as market efficiency, asset pricing, and portfolio performance evaluation.

1. Introduction

The predictability of the return on financial assets is a question that has been largely debated amongst academics and practitioners. This predictability may be interpreted as evidence of rational variation of expected returns or as market inefficiency or even as a combination of the two. Assuming rationality, predictability should reflect the time-varying expected risk premium. Why does the expected risk premium change? Intuitive reasons tell us that it changes with economic conditions. The economic explanation is that the level of risk aversion changes along with the economic cycle, being higher in situations of recession (thus higher the