



ARTICLE

Investment decisions of companies in financial distress



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Abstract This paper analyzes the influence of financial distress on the investment behavior of companies. The analysis includes companies from Germany, Canada, Spain, France, Italy, UK and USA, which cover a wide spectrum of different institutional environments. The methodology used is panel data estimation using the Generalized Method of Moments (System-GMM), thereby allowing control of both unobservable heterogeneity and the problems of endogeneity in explanatory variables. The results show that the influence of financial distress on investment is different according to the investment opportunities available to companies. So, companies in difficulties with fewer opportunities have the greatest propensity to under-invest, while firms in difficulties with better opportunities do not present different investment behavior than healthy companies.

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Introduction

Financial literature widely discusses the investment decisions of companies. The study of the relationship between cash flow and investment level is the most common way of analyzing the problems of over- and under-investment (Kaplan and Zingales, 1997; Cleary, 1999; Fazzari et al., 1988; Hoshi et al., 1991). However, the study of over- and under-investment decisions in companies in financial distress is a topic that still requires more in-depth study.

Previous literature on investment decisions identifies the existence of financial constraints as a key variable. Bhagat et al. (2005) found that “financially distressed firms behave differently from financially constrained firms”, so the results considering financial constraints are not directly applicable to companies in financial distress, even considering that companies in financial distress are subject to such constraints. We must take into account that the degree of financial constraint is not observable, so different papers use different proxies that are not related with the financial situation of the firm.¹

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¹ To identify financially-constrained firms, some of these papers use dividend payout ratios (Fazzari et al., 1988), and size, based on the notion that smaller firms will be more financially constrained

The influence of financial distress on the investment behavior of firms has been analyzed indirectly in some papers. [Whited \(1992\)](#) studied the behavior investment when firms are subject to borrowing constraints, finding that difficulties in obtaining debt finance have an impact on investment. [Bhagat et al. \(2005\)](#) analyzed the investment–cash flow sensitivity of firms in financial distress, finding that the relationship between investment and internal funds for these firms is conditioned by operating profits. [White \(1996\)](#) proposes, from a theoretical point of view, that the problems of over- and under-investment can be exacerbated in companies in financial distress even before they file for bankruptcy. However, previous works have not empirically tested this approach until now, since they do not study the effect that financial distress has on a firm's investment policy.

The main contribution of this work is to conduct an empirical analysis on over and under-investment problems, explicitly considering the implications that the existence of financial distress has on the investment behavior of companies. The paper proposes several hypotheses that relate the existence of financial distress to problems of over- and under-investment. The proposal is that the very existence of difficulties is a crucial factor in explaining the investment behavior of firms. However, not all firms in distress will show similar behavior. Those who have fewer opportunities for investment will have a greater tendency to under invest, while, in the opposite case, problems of over-investment could arise.

The testing of these hypotheses is complex, since it is necessary to have a variable to measure the degree of over- and under-investment by companies. To address this problem, unlike the previous empirical work, this article proposes a measure of the investment behavior of firms that allows determining whether firms in distress have a higher propensity to over- or under-invest. This measure is the level of investment relative to investment opportunities available to the firm (measured by Tobin's q). In addition, the empirical analysis takes into account all firms, healthy and financially distressed, allowing the analysis of whether the investment behavior differs for the two groups of companies.

The analysis includes companies from Germany, Canada, Spain, France, Italy, UK and USA, which cover a wide spectrum of different institutional environments. The methodology used is panel data estimation using the Generalized Method of Moments (GMM). This methodology allows controlling both unobservable heterogeneity and the problems of endogeneity in explanatory variables through the use of instruments.

The results show that the influence of financial distress on investment is different in accordance with the investment opportunities available to the company. Therefore, the companies with fewer opportunities have the greatest propensity to under-invest, while firms in difficulties with

greater opportunities do not present different investment behavior than healthy companies.

Theory and testable hypotheses

The introduction of imperfections in capital markets in the model of [Modigliani and Miller \(1958\)](#) means that companies will not always be able to make all the investments that create value. In these situations, the company may encounter problems from sub-optimal investment decisions due to the existence of imperfections in capital markets, such as information asymmetry and agency costs. In other words, it may occur that the firms do not undertake all profitable projects, under-investment, or that the firm carry out excessively risky projects with a negative net present value, over-investment ([Morgado and Pindado \(2003\)](#) present a comprehensive review of these problems).

Financial literature contains numerous studies that examine investment decisions and all the problems associated with such decisions in companies. Most of these studies focus on analyzing the sensitivity of the investment decision to the availability of cash flow. However, several factors affect this relationship between investment and cash flow. According to [Hoshi et al. \(1991\)](#), a problem in analyzing this relationship is that the generation of greater cash flow may be a sign of good management in the past and such companies are more likely to remain well managed in the future. In this case, these companies have more liquidity and would have greater investment opportunities, which would lead to a higher level of investment due to the higher level of management and not only the availability of higher cash flow.

Existing literature focuses on studying these different interpretations of the relationship between investment and cash flow. In order to go deeper into the analysis of the relationship between internal funds and investment, researchers have taken into account the existence of growth opportunities and financial constraints. The results show a positive relationship between growth opportunities and the level of investment, but with regard to financial constraints, the results are less clear. On the one hand, some authors find that companies with higher financial constraints have a greater sensitivity to cash flow ([Lopez Iturriaga, 2006; Hoshi et al., 1991; Fazzari et al., 2000](#)). On the other hand, other studies find the opposite relationship, that is, greater sensitivity to cash flow for companies with fewer restrictions ([Kaplan and Zingales, 1997, 2000; Cleary, 1999; Kadapakkam et al., 1998](#)).²

However, all these studies exclude companies in financial distress from the analysis because their own financial situation will condition their investment behavior. One of the defining characteristics of firms in distress is the existence of financial constraints and strained access to credit, stemming

because they face higher informational asymmetry problems and agency costs ([Kadapakkam et al., 1998](#)). Another approach used is multivariable analysis, which considers an entire profile of characteristics shared by a particular firm and its dividend payment behavior ([Cleary, 1999; Maestro et al., 2007](#)).

² The apparent contradiction between these results may be due to the different ways of measuring financial constraints, since they are not directly observable. Replicating these articles with different measures of financial constraints used by previous authors, [Moyen \(2004\)](#) finds that the contradiction in the results can be explained by the way companies are classified in terms of their degree of constraint.

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