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INTRODUCTION

This dissertation bundles three essays in the area of corporate finance. It deals with two main issues: capital structure decisions in financially distressed firms and the role of the investor identity on the acquisition performance.

The first essay is a literature review about equity issues as a means to recover from financial distress. The study provides, firstly, an overview of the extant literature on capital structure theory and financial distress in order to deepen the understanding of how a firm can resolve its financial constraints. On the one hand, some of the most important contributions in capital structure theory are reviewed with a specific focus on equity issues. On the other hand, financial distress is discussed examining the main solutions adopted by distressed firms in order to reorganize (i.e. formal in court proceedings and private reorganizations). Finally, it is discussed a possible gap in capital structure theory and financial distress literature arguing that most of previous research, in the attempt to explain the occurrence of equity issues, just focused on firm specific determinants. With the aim to provide a further perspective for future research, the study examines a series of contributions that consider how capital structure decisions can be affected by external determinants related to the legal system in which the firm operates. These works are aggregated to the discussion in order to suggest a conceptual framework suitable to explain equity issues in financial distress through the integrations of capital structure theory with Law literature.

The second essay is a theoretical and empirical investigation on equity issues in distressed firms. Specifically, I explore the effectiveness of equity issue as a means to recover from distress. I argue the relationship between equity issues and recovery controlling for the legal system in which the firm operates. Central to the thesis is the role of the Bankruptcy Law on the firm's propensity to issue equity which varies according to the legal protection of the creditors. Controlling for this exogenous factor allows me to explain how recovery is affected by the issuance of equity. This study contributes to both capital structure theory and financial distress literature providing evidence on how the capital structure decision to issue equity can drive the process of firm's recovery from

distress. Then, it suggests an alternative explanation of the decision to issue equity in distress arguing the relevance of the legal system as a determinant of this choice. The hypotheses are tested on a sample of 70 firms that recovered from financial distress in 49 countries. The sample is divided in to 34 distressed firms who recovered issuing equity and 36 firms who recovered without an equity issue. Results show that the legal system matters for understanding the occurrence of equity issues in distress; they are more likely to occur in countries with a debtor friendly legal system. Conditionally to the incidence of the law on the firm's choice to issue equity, equity issues positively affect the firm's recovery from distress.

The third study is a theoretical and empirical examination about the relationship between the buyer identity and the acquisition performance. This relationship is argued advancing and testing the idea that different identities of the buyer, specifically strategic or financial investors, have different effects on the performance of the target firm after an acquisition. We suggest that the different resource and knowledge base of the buyer, i.e. its identity, drives the target performance: on the one hand it affects the innovative output and so the patenting activity of the target, on the other hand it has an impact on the economic results of the acquired firm. This study contributes to literature on M&A by providing a complementary explanation of M&A performance, unraveling how the identity of the buyer can play a significant role in driving post-acquisition performance. Moreover, it suggests a more complete analysis of the deal's output considering both the innovative and the economic output. The study relies on a sample of 234 acquisitions in any industry completed between 2006 and 2011. Results show that the identity of the buyer has a direct effect on the performance of the target firm after the acquisition. The results also highlight how identity has a different impact regarding to the different measures of performance: whilst the strategic buyers, moved by the interest for additional knowledge and technology, tend to integrate their capabilities with target fostering innovative processes and improving the innovative performance, the financial buyers use to undertake deals in order to maximize their profits at the expense of the innovative performance. Different evidences emerge for the economic performance of the involved firm which

is positively affected by financial buyers respect to strategic ones since they induce the target firm to undertake highly risky and long term investments in R&D.

The two papers of this dissertation have been presented at international Conferences on management such as EURAM 2014 (European Academy of Management) and BAM 2015 (British Academy of Management). The papers will be submitted to journals soon.

Paper 1

Equity issues as a firm's response to financial distress: a literature review of capital structure decisions, financial distress and reorganization

Abstract

This paper surveys equity issues in distressed firms. The contributions are organized around unifying theoretical themes related to literature on capital structure decisions and financial distress. The review analyzes primarily some important contributions in capital structure theory paying particular attention to equity issues, then it provides an overview of financial distress and its reorganization. Finally, the review offers a conceptual framework to explore the subject matter through the integration of capital structure theory with Law literature. Legal framework is discussed as a possible determinant which drives distressed equity issues. Thus, by summarizing some important contributions of legal scholars it is provided a further perspective to analyze the relationship between equity issues and recovery.

Introduction

The objective of this review is to synthesize the main theoretical contributions in capital structure theory and financial distress literature in order to identify the role of equity issues in the firm's recovery from distress.

This study has two purposes. First, to review some of the most significant extant literature on capital structure theory and financial distress in order to provide a deeper understanding of how a firm can resolve its financial constraints. Second, this review aims to identify those gaps that should be filled for understanding the relationship between equity issues and firm's recovery.

This review is organized around three main issues: equity issues, financial distress and recovery.

The study begins reviewing the capital structure theory about equity issues. In this section the determinants that affect the occurrence of an equity issue are described reviewing some fundamental contributions such as the trade-off theory which suggests that equity issues depends on tax shield, bankruptcy costs and agency costs and the pecking order theory which argues the influence of information asymmetry on the choice to issue equity. Capital structure theory suggests that equity issues occur in different situations and context, so moving from this perspective it is introduced financial distress and the role of equity issues as a means to recover. Moreover, the main solutions adopted by distressed firms for reorganize are reviewed. In court solutions and private methods are discussed emphasizing the role of financial restructurings of debt and equity on the process of resolution of distress.

Finally, it is discussed a possible gap in capital structure theory and financial distress literature arguing that most of the authors who aim to explain distressed equity issues are focused on firms' specific determinants. Thus, the study examines a series of contributions that consider how capital structure decisions can be influenced by external determinants referred to the legal framework. These works are aggregated to the discussion with the aim to provide further evidence on the occurrence of equity issues in financial distress.

The review is organized as follows. In section one equity issues in capital structure theory are reviewed. In section two the ways to resolve financial distress through a process of reorganization are discussed. The last section concludes the review discussing equity issues as a response to emerge from distress and the determinants that affect this choice.

Equity issues in capital structure theory

Capital structure choices have been investigated by numerous authors with both theoretical and empirical studies (the pioneering work was Modigliani and Miller, 1958). The main question consists in addressing how firms choose different sources of financing and how they decide their

capital structures (Myers, 1984). Capital structure theories address this question providing several contributions.

Trade-off theory suggests the existence of an optimal capital structure as the result of the balance between corporate tax shield, bankruptcy costs and agency costs (Bradley et al., 1984; Kraus and Litzenberger, 1973; Haugen and Senbet, 1978; Leary and Roberts, 2005 and others). It removed the first assumption of Modigliani and Miller theorem introducing taxation effects in the financing decisions and highlighting the advantages of debt financing over equity: interest on debt are tax deductible while equity incomes are subjected to taxation. However, debt also increases the bankruptcy costs. In sum, the trade-off theory proposes that firms adjust their target debt-equity ratio gradually moving towards it and regard their decision in function of the trade-off between interest tax shield of debt and costs of financial distress.

Theories about information asymmetry started with Ross (1977). He developed the information asymmetry theory of capital structure by removing another fundamental assumption of Modigliani and Miller (1958) i.e. the market possess of full information about the firm's activities. According to this theory managers possess information about the firm future prospects that market does not have, then management chooses a capital structure that signals some of this information to the market. In the pecking order theory Myers (1984) uses information asymmetry to argue that management is unlikely to issue equity because it fears it will signal that the stock price is overvalued. Thus, equity is considered as a last resort in financing investment decisions and equity issues only occur when debt is costly (i.e. when the debt ratio is high and costs of financial distress become a dangerous threat).

These theories explaining the linkage between the firms' investment behavior and capital structure decisions suggesting that information asymmetry between managers and investors makes debt the preferred external source for financing the firm's investment opportunities (Ross, 1977; Myers and Majluf, 1984; Myers 1984). Investors do not know the true value of the firm, therefore the market tends to misprice the equity issued to finance the new investment. Managers, having superior

information, will tend to issue equity when it is overpriced therefore, the decision to finance an investment opportunity issuing equity will be perceived as a negative signal by the investors who believe that shares are overvalued; as a consequence the price will drop at the announcement.

According to the pecking order theory firms prefer internal to external financing and debt to equity if external financing is used.

In addition to the pecking order theory, dynamic models of asymmetric information analyze the firms' capital structure decisions (Lucas and McDonald, 1990; Korajczyk, Lucas and McDonald, 1992; Rajan and Zingales, 1995; Baker and Wurgler, 2002). These studies are based on the idea that companies time the market in their financing decisions and identify a negative relationship between overvaluation (i.e. high market-to-book ratio) and post issuance stock returns as firms tend to issue equity after a period of high stock returns and market tends to correct this misvaluation.

Despite these theories emphasize the limited use of equity relative to debt there is evidence that equity issues occur in different situations. For example Fama and French (2005) argue that if firms find the way to issue equity avoiding information asymmetry maybe the informative problems do not constrain capital structure decisions. This conclusion does not mean that asymmetric information is irrelevant, but its implications become quite limited in driving financing decisions. Indeed firms issue equity in different ways and some of these mechanisms involve low transaction costs and minor asymmetric information problems. Contrasting Myers (1984), who posits that stock price declines in response to announcements of equity issues due to asymmetric information problems, Wruck (1989) and Hertz et al. (2002) find that the stock price response to private placements is positive. Moreover, Smith (1977) and Eckbo and Masulis (1992) find no evidence of a reliable negative price response to announcements of right issues.

The lack of a unifying model suggests that other determinants of the firm's choice to issue equity deserve more attention. Frank and Goyal (2009) provide a comprehensive review of those reliable factors for predicting capital structure decisions. Moreover, corporate financing decisions change over time (Zingales, 2000) and different theories apply to firms under different circumstances

(Myers, 2003). Harris and Raviv (1991) also suggest that it is essential that empirical studies concentrate on testing models in the attempt to discover the most important determinants of capital structure in given environments.

Following the idea that equity issues occur in different contexts, this study proposes an analysis of financial distress with the aim to identify the determinants that lead the firm to issue equity in order to recover.

Financial distress and its resolution

The most diffused definition of financial distress is provided by Wruck (1990) who identifies firms as financially distressed when they are unable to meet their current obligations despite they are not still in bankrupt; financial distress gives to unpaid creditors the right to demand restructuring because their contract with the firm has been breached.

Generically, different ways to resolve financial distress can be grouped into private, informal (out-of-court) restructurings or formal in-court reorganizations (Senbet and Seward, 1995; Blazy et al., 2014).

Formal reorganizations are court supervised proceedings aimed to resolve financial distress such as the US Chapter 11, whilst private methods to resolve financial distress consist in financial restructurings and asset sales.

Literature agrees that the choice between a formal proceeding and a private reorganization depends on their relative costs and benefits, and specifically, on the incentives that the various claimholders find in each solution (Senbet and Seward, 1995; Hotchkiss et al., 2008). The determinants which lead a firm toward an in court formal reorganization or a private workout are well explained by many authors.

Wruck (1990) argues the benefits provided by the US Chapter 11 as a function of certain firm's characteristics e.g. the firm's bargaining power with creditors or its ability to renegotiate. In this

context, imperfect information and conflicts of interest among the firm's claimholders influence the outcome of financial distress.

Gertner and Scharfstein (1991) demonstrate that Chapter 11 is not always an efficient procedure in distress. Its effectiveness depends on the characteristics of the firm's debt structure in terms of maturity of the debt, covenants, and the priority of private and public debt. The formal proceeding has a positive effect on the reorganization when the firm has senior bank debt, shorter-term public debt and seniority covenants on public debt. Asquith et al., (1994) also provide a comprehensive study about how financial distress can be resolved through formal proceedings, describing public and bank debt restructurings.

Similarly, in their study Gilson et al. (1990) show the benefits of a private workout when the firm has few distinct classes of debt holders and a greater proportion of the firm's long term debt is held by banks. When the number of different classes of creditors is small conflicts of interest among them are more manageable. Moreover, because banks are more informed than public debt holders, a greater proportion of long term debt held by banks allows to the firms to renegotiate their debt easier.

This stream of literature suggests a linkage between the occurrence of a formal or informal reorganization and the structure of the firm's liabilities. According to this view, the debt composition affects conflicting interests and information asymmetry among different claimholders. Conflicts of interest can exist among creditors (e.g. banks vs. public debt holders), whilst information asymmetry usually occurs among different classes of debt holders or between creditors and better informed managers. These factors make a formal reorganization more or less likely than a private workout.

In general private reorganizations based on financial restructurings regard capital structure decisions based both on debt and on equity. Debt restructurings, i.e. private workouts, are defined as renegotiations with banks and other creditors in which the firm obtains a debt relief through a debt forgiveness, a maturity extension, a debt for equity swaps or a provision of new loans (Gilson et al.,

1990; Gertner and Scharfstein, 1991). Equity based strategies cover dividend cuts and equity issues (i.e. right issues, open offer of private placements).

Finally, asset divestments represent a further solution to financial distress. This option consists in selling non-profitable assets, non-core assets or even profitable assets with the objective to raise cash. Assets can be sold either piecemeal or in their entirety so it is frequent to observe the divestment of specific subsidiaries or divisions during distress (Sudarsanam and Lai, 2001). Selling assets typically generates needed cash quickly but it is considered a drastic solution because distressed firms may not get a good price for their assets (Gilson et al., 1990; Shleifer and Vishny, 1992; Hart and Moore, 1995; Weiss and Wruck, 1998; De Angelo et al., 2002).

In this work I focus on equity issues as a response to distress. In the next section it is provided a review about equity issues in distressed firms with the aim to analyze the determinants that lead to raise new capital in order to emerge from distress.

Equity issues as a response to distress

The pioneering work about financing decisions in situations of debt overhang is the paper by Myers (1977). He found that high leverage creates incentives for management to pass up growth opportunities determining a situation of underinvestment. In fact shareholders have the incentive to raise equity despite the debt overhang if the benefits from sustaining the firm as a going concern exceed the wealth transfer to debt holders. An important implication of this approach is that wealth transfer drives equity issues in financially constrained firms.

Franks and Sanzhar (2006) study the effect of debt overhang on equity issues. They find a positive effect of debt overhang on the probability to raise equity concluding that debt overhang does not impede the issuance of equity. In many cases equity holders and lenders find ways to mitigate debt overhang problem through lenders' concessions.

Jostarndt (2009) analyzes factors that favor equity issues in financial distress. He confirms the previous hypothesis formulated by Myers (1977) and Gernter and Scharfstein (1991) and also find

that lenders' concessions foster equity issues in distress suggesting that firms overcome a debt overhang in private bargains.

Existing studies that deal with equity issues in distress has mainly emphasized firms' specific determinants that affect the capital structure choice. Indeed, most research who attempts to explain distressed equity issues focus on firm's characteristics as leverage, growth opportunities, debt structure or ownership structure (Myers, 1977; Franks and Sanzhar 2006; Jostarndt, 2009). These contributions shows that capital structure theory put little attention on the study of exogenous factors that affect equity issues in distress. In this regard legal and Law literature about financial distress provides some evidence.

In their seminal works, La Porta et al. (1997, 1998) propose a linkage between Law and finance emphasizing the main differences in bankruptcy Law across countries and its role in shaping both corporate finance and investments. Subsequent literature continued to explore the relationship between creditors' protection by Law and capital structure. Djankov et al. (2007, 2008) found that better legal protection of creditors increases the size of debt market. Bae and Goyal (2009) suggested that creditors' rights improve the terms on which borrowers can raise debt finance. Acharya et al. (2009) argued the relationship between creditors' rights and the bank risk taking.

Despite the legal framework has a central role in capital structure decisions, equity issues has received little attention.

This review highlights this gap suggesting an alternative explanation of equity issues in financial distress. Integrating capital structure theory and financial distress literature, it is provided a further element to explain the effectiveness of equity issues as a means to recover. The legal determinant, as an exogenous factor, affect the capital structure choices of distressed firms. Therefore, distressed firms who operate in different legal frameworks should have different propensities to issue equity as a means to recover . This conclusion can also affect the relationship between an equity issue and the firm's recovery.

Conclusion

This study has taken a look at capital structure decisions in financial distress offering a conceptualization of these issues based on a literature review. It does not intend to be exhausted, however this review aims to inform about the existing knowledge in the subject area and to provide a further perspective of analysis for future research. It sheds light on equity issues as a means to recover from distress reviewing the existing literature on capital structure decisions and financial distress. Moreover this study identifies a gap in this literature related to the exploration of the determinants that affect the relationship between equity issues and recovery from distress. The discussion suggests the analysis of the exogenous determinants (i.e. the legal system) that have an influence on the firm's decision to issue equity in order to recover. The review offers a conceptual framework to explore this issue through the integration of capital structure theory with Law literature.

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Paper 2

Capital structure decisions in financially distressed firms: equity issues as a way to recover from distress

Abstract

This research investigates capital structure decisions undertaken by constrained firms in order to emerge from financial distress. Specifically, this study explores the effectiveness of equity issues as a means to recover from distress. Controlling for the Bankruptcy Law in which the firms operate, I argue the relationship between equity issues and recovery. So, this paper first focuses on the effect of the legal determinant (i.e. creditors' protection) on the firm's propensity to issue equity. Second, it explores the effectiveness of the equity issues on the firm's recovery.

The empirical test on a sample of financially distressed firms support the hypothesis that high investor protection determines a lower probability to issue equity in financial distress. Furthermore, results show a positive relationship between leverage and firm's recovery through an equity issue.

Introduction

From 2009 an increasing number of companies began to have difficulties which easily turned into financial distress and subsequently into bankruptcy. In 2009 U.S. bankruptcy filings (Chapter 7 and Chapter 11, U.S. Bankruptcy Code) were 60.837 (Administrative Office of the U.S. Courts); it was the highest value from 1993. Financial difficulties, bankruptcy and reorganization become important topics during periods of severe economic downturns. The economic recession started in 2008 shifted the managerial attention on distressed firms, specifically, on how firms should deal with financial distress.

Due to the economic and financial worldwide crisis, companies face increasing challenges in paying their financial obligations and highly leveraged firms have high probabilities to encounter financial

dysfunctions. The common belief that debt magnifies the negative effects of an economic downturn (International Monetary Fund, 2011) leads to the conclusion that a deeper analysis would be needed for understanding the capital structure changes that financially distressed firms should realize especially if they operate during periods affected by the crisis.

Evidence suggests that leverage remains usually high after both out of court restructuring and Chapter 11 reorganization (Gilson, 1997; Kahl's, 2002). This finding implies that firms observe increases in their debt ratios during financial distress ending up more highly leveraged than they were before becoming distressed. Motivations can be attributed to different elements such as transactions costs (Gilson, 1997) , the attempt to avoid an inefficient liquidation or other obstacles in getting down debt levels such as the inefficiency of the Chapter 11 process (Kahl's, 2002). As a consequence, the period before the occurrence of the Bankruptcy is considered crucial for taking decisions that allow to the firm to trigger a process of recovery. So why do not firms issue equity in order to respond to financial distress?

If equity issues in highly leveraged firms has been explored by prior research (Myers, 1977; Gertner and Scharfstein, 1991; Jostarndt, 2010) whether and how they affect the firm's recovery from financial distress remains unclear. Moreover, although these previous studies have investigated the determinants of the choice to issue equity, little attention has been paid to the impact of exogenous factors e.g. the legal system.

The purpose of this work is to analyze the capital structure decisions undertaken by financially distressed firms in order to find responses for emerging from distress. Specifically, this study explores the effectiveness of equity issues as a means to recover from distress. I argue the relationship between equity issues and recovery controlling for the legal system in which the firm operates. Central to my thesis is the role of the Bankruptcy Law on the firm's propensity to issue equity which varies according to the legal protection of the creditors. Controlling for this exogenous factor allows me to explain how recovery is affected by the issuance of equity.

This study contributes to both capital structure theory and financial distress literature. It provides evidence on how a capital structure decision consisting in issuing equity can drive the process of firm's recovery (Myers, 1977; Gertner and Scharfstein, 1991; Claessens et al., 2003; Claessens and Klapper, 2005; Davidenko and Franks, 2008). Then, it suggests an alternative explanation of the decision to issue equity in distress arguing the relevance of the legal system as a determinant of this choice (La Porta et al., 1998; Djankov et al., 2007).

Using a Heckman two-steps model on data from 49 countries from 1995 to 2015 I found a negative effect of legal protection of creditors on the firm's propensity to issue equity and a positive relationship between an equity issue and the recovery from distress.

In the following sections I first identify the determinants that affect the choice of distressed firms to undertake an equity issue arguing the linkage between the Bankruptcy Law and the firm's propensity to issue equity in distress. Second, I explore the extent to which an equity issue can drive the process of firm's recovery from distress. Third, the method and data used to test the hypotheses are described. Finally, the results and the findings are discussed.

Theoretical framework

In this section, I show the effect of equity issues on the firm's recovery from distress controlling for self-selection. I first discuss the self-selection problem in relation to the choice to issue equity, and second the relationship between an equity issue and the firm's recovery.

Controlling for self-selection, I explain how recovery is affected by the capital structure decision to issue equity. The control is conducted exploiting the legal system in which the firm operates; this exogenous factor affects the choice to issue equity. The adoption of this approach allows to partially harmonize mixed results in equity issues literature.

Why the legal system matters

Literature has largely analyzed the firm's strategies to deal with distress. In their study Senbet and Seward (1995) identify several methods for resolving financial distress resulting in private and formal reorganizations. Private initiatives also include capital structure decisions, such as equity issues, whilst formal resolutions concern bankruptcy proceedings. Thus, firms who want recover from financial distress have the option to choose an out of court or a formal, in court, bankruptcy proceeding. The choice depends on the incentives that the various claimant groups (i.e. shareholders and creditors) have to reorganize the financially distressed firm. In other words, the occurrence of an equity issue for recover from distress depends on the benefits that the creditors and the firm receive by the infusion of fresh capital with respect to the advantages they have with the adoption of a formal bankruptcy proceeding. Crucial for this decision are the legal characteristics of a country. It is known that country characteristics affect the way the financial distress is resolved (Claessens and Klapper, 2005; Davidenko and Franks, 2008). Differences in the Bankruptcy Law among countries also influence the capital structure decisions of distressed firms (Claessens et al., 2003). The following section explains how the legal system affects the firm's propensity to issue equity in distress. On the one hand the Law affects the attractiveness of an equity issue for the firm, on the other hand it has an impact on the convenience of a formal bankruptcy proceeding for the creditors.

Legal protection of creditors and equity issues in financial distress

The effect of the Bankruptcy Law on the firm's propensity to issue equity is discussed considering the legal protection of creditors and, specifically, the rights granted to the creditors by the Law during a process of firm's reorganization or liquidation. Following a well consolidated literature started with La Porta et al., (1998), Djankov et al., (2007), creditors' rights are explained by four legal rules: no automatic stay, secured creditors paid first, restrictions on reorganization and no management stay.

A legal system where creditor friendliness is maximum includes all the following provisions: management is replaced by an administrator appointed by the court, or by creditors, that is responsible for the operation of the business during the reorganization and acts in the creditors' interests; the legal procedure imposes restrictions in reorganization such as the creditors' consent i.e. restrictions make management subjected to creditors' demands; the reorganization does not impose an automatic stay on the assets of the firm, so the secured creditors can repossess collateral and demand immediate reimbursement to the debtor; secured creditors are paid first because they are ranked first in the distribution of the proceeds that result from the disposition of the assets of a bankrupt firm.

On the firm side, a strong protection of creditors by Law encourages the firms to increase their debt financing (La Porta et al., 1997, 1999; Djankov et al., 2007; Haselmann et al., 2010). Cho et al. (2014) interpret this view as the supply side approach of the financial market according to which a strong creditor protection increases the creditors' propensity to lend at more favorable terms, resulting in firms adopting higher debt. If firms operating in legal systems which strongly protect creditors will tend to adopt more leverage, they consequently will use less equity for financing. Strong creditor rights not only induce creditors to increase lending but also to offer better conditions to a financially distressed borrower in terms of loan contracting. Different authors argue that legal rights that lenders have in reorganization and liquidation procedures matter for the loan contracting (Diamond, 2004; Bae and Goyal, 2009): lenders will be prone to apply higher interest rates when they offer credit to firms operating in countries with weak creditors' rights. Loan size and maturity also respond to the legal protection of creditors: loan amounts shrink as creditors' rights decrease (Bae and Goyal, 2009). Accordingly, strong creditors' rights would suggest that lenders offer more debt when they are well protected by Law. Financially distressed firms who operate in creditor friendly legal systems receive better conditions in terms of debt financing, so equity issues are less attractive as a means of recovery. It follows that equity issues are less likely to occur for resolving financial distress when creditors are well protected by Law.

On the creditors' side, a strong legal protection provides creditors with more power in bankruptcy. Claessens and Klapper (2005) show how filings are more likely in countries with strong creditors' rights. Thanks to the rules of no automatic stay on assets, restrictions for going into reorganization and management replacement, creditors are more likely to be repaid and generally to get the control over the debtor. No automatic stay on assets implies that secured creditors can repossess collateral during the reorganization procedure and demand immediate reimbursement. This provision encourages creditors to incur in a formal bankruptcy proceeding in order to observe the firm to meet its obligations. At the same way, the use of bankruptcy regime is more attractive in presence of restrictive reorganization feature: creditors have the certainty that financial distress will be resolved within a reasonable period of time since their consent represents an obstacle for the firm during the formal proceeding. Strong legal protection also gives to creditors the power to replace existing managers ensuring the efficiency of a formal bankruptcy proceeding. With the occurrence of financial distress, formal bankruptcy proceedings are more attractive for creditors if the Bankruptcy Law favors the enforcement of their rights during a proceeding.

Conversely, a weak creditors' protection induces lenders to offer less favorable conditions to a financially distressed firm. This fosters the firms to rely on equity financing to emerge from distress. On the creditors' side, formal bankruptcy proceedings are less attractive when creditors' rights are lower (Claessens et al., 2003; Claessens and Klapper, 2005). In debtor friendly legal systems an in court resolution of distress does not ensure to the creditors the enforcement of their rights. In such a case, informal solutions to distress are preferred by creditors (Davidenko and Franks, 2008). Creditors have little control over the bankruptcy process when they cannot replace management during bankruptcy, there are no restrictions for the firm into reorganization, automatic stay on assets does not allow to secured creditors to repossess collaterals and demand reimbursement in any moment. These legal features make a formal reorganization less attractive for creditors increasing the likelihood of an out of court restructuring. Moreover, an equity issue is well accepted by creditors due to the priority they have respect to equity holders on the new capital.

In sum, I propose:

HP1: Financially distressed firms who operate in Debtor-friendly legal systems are more likely to issue equity as a response to distress than financially distressed firms who operate in Creditor-friendly legal systems.

Equity issues and firm's recovery

Researchers have used leverage as a proxy for the wealth transfer construct to explain the occurrence of equity issues in firms with debt overhang difficulties (e.g. Myers, 1977; Gertner and Scharfstein, 1991; Jostarndt, 2009): when leverage is high equity holders will contribute to finance the firm if the value created through the infusion of new capital is greater than the value transferred to the debt-holders through the equity issue. Financially distressed firms who issue equity experience this transfer of value due to the risk of appropriation by the creditors and to the transferring of wealth from owners to creditors. Infusions of new capital represent the introduction of a more junior source of financing determining a problem related to the satisfaction of the pre-existing, senior financial claimants (i.e. creditors) that have priority respect to equity claimants. This stream of literature suggests that wealth transfer has a negative effect on the occurrence of equity issues (Myers, 1977): for high levels of wealth transfer an equity issue will finish to favor the creditors. For this way some authors (Gartner and Scharfstein, 1991; Hart and Moore, 1995) suggest that distressed firms do not issue equity since an equity issue determines a transfer of value to creditors not transferred by a debt issue.

However once distressed firms choose to issue equity as a result of firm specific and exogenous factors (i.e. legal system), fresh capital raised is used to resolve the debt overhang problem and to reduce the bankruptcy costs. The issue proceeds are partially invested in growth opportunities and in part used to repay debt. Both measures foster the firm's recovery. Moreover, in many cases, lenders' concessions follow the firm's restructuring facilitating the emergence from distress: high

leverage during reorganizations i.e. large wealth transfer to creditors, increases the lenders' incentives to offer concessions (Gartner and Scharfstein, 1991). This suggests a positive effect of equity issues on firm's recovery. So, I propose:

HP2: There is a positive relationship between leverage and the firm's recovery through an equity issue

Methodology

Sample Selection and data collection

In order to assess the propensity of financially distressed firms to issue equity and their capacity to recover, I built a multi-country dataset. It covers 49 countries from Europe, North and South America, Africa, Asia and Australia grouped according to the four existent legal families. Civil Law tradition includes countries with French, German and Scandinavian legal origins, whilst Common Law tradition includes countries with English origin. The selection follows the approach originally adopted by La Porta et al., (1998) and then by Djakov et al. (2007) and Claessens and Klapper (2005).

Countries of **English origin**: Australia, Canada, Hong Kong, India, Ireland, Israel, Kenya, Malaysia, New Zealand, Nigeria, Pakistan, Singapore, South Africa, Sri Lanka, Thailand, United Kingdom, United States, Zimbabwe.

Countries of **French origin**: Argentina, Belgium, Brazil, Chile, Colombia, Ecuador, Egypt, France, Greece, Indonesia, Italy, Jordan, Mexico, Netherlands, Peru, Philippines, Portugal, Spain, Turkey, Uruguay, Venezuela.

Countries of **German origin**: Austria, Germany, Japan, South Korea, Switzerland, Taiwan.

Countries of **Scandinavian origin**: Denmark, Finland, Norway, Sweden.

The sample has been created in three stages. First, all industrial, publicly traded and financially distressed firms operating in the selected countries from 1995 to 2015 have been identified. Utilities and financial firms have not been included (Acharya et al., 2011). Accounting data for these firms were collected using Datastream and Osiris databases. Financially distressed firms have been selected following, among others, Asquith, Gertner and Scharfstein (1994), Jostarndt and Sautner (2010), Sengupta and Faccio (2011). A firm is classified as financially distressed if it reports an EBIT less than its interest expenses for at least two consecutive years within the period covered by the sample.¹ An EBIT lower than interest expenses in only one year is not accepted as a condition of financial distress since most of the firms satisfying this condition do not take discernible actions in response to distress (Asquith et al., 1994). In fact, they have sufficient liquid funds to meet that year's interest payments. The attention is restricted to firms with serious and structural financial difficulties.

Recovery takes place if for two consecutive years, beginning in the year following the financial distress, the firm reports an EBIT greater than its interest expenses. This sampling criterion reflects the --++ rule according to which at two years of distress (i.e. $EBIT < \text{Interests expenses}$) follow two years of recovery (i.e. $EBIT > \text{Interests expenses}$)². This second step has led to the identification of 96 distressed firms who emerged from distress.

In the last stage, I identified all the distressed firms that recovered issuing equity. Distressed firms recover issuing equity if the year in which the issuance occurs represents the last year of financial distress or the first of recovery. Equity issues include right issues, open offer and private placements. The final sample is composed by 43 distressed firms who recovered through an equity issue and 53 distressed firms who recovered without an equity issue. However, due to the partial availability of data about firm's characteristics such as leverage, I had to eliminate some observations leading to a final sample size of 70 distressed firms who recovered from distress; the

¹ Following literature, the definition of financial distress adopted in this work is that provided by Wruck (1990) according to which financial distress is a situation where a firm is unable to meet its current obligations since its cash flow is insufficient to pay the outstanding debt.

² A similar sampling rule was used by Sudarsanam and Lai (2001).

sample is divided into 34 distressed firms who recovered issuing equity and 36 firms who recovered without an equity issue.

Firms drop out from the sample in case of bankruptcy or acquisition (Gilson, 1997; Jostarndt, 2009).

Variables description

Dependent variables

Equity issue in financial distress. I measure this variable as the probability that a financially distressed firm has to issue equity.

Recovery from financial distress. I measure recovery as the log of the difference between the amount of EBIT and that of interest expenses reported after the equity issue by the distressed firm.

Independent variables

Creditors' rights. Creditors' protection by Law is measured as an index that follows the one constructed by La Porta et al. (1997). It aggregates four dummy variables representing the rights that secured creditors might have in formal proceedings of liquidation or reorganization. The index is formed by adding 1 in four different situations: the law imposes restrictions in reorganization such as creditors' consent; the law imposes mandatory dismissal of management in reorganization; the Bankruptcy law imposes the lack of automatic stay on assets; finally, secured creditors have absolute priority on the distribution of the proceeds during a formal proceeding.

The provision related to the priority of secured creditors in payments respect with other claimants is included in the construction of the index even if this provision is expected to be not very significant for the firm's propensity to issue equity in distress; the choice to include it in the index allows for a more precise estimation of the degree of creditors' protection provided by the Law (Djankov et al.,

2007). The index ranges from 0 (weak creditors' rights) to 4 (strong creditors' rights) and scores creditors' rights for each sample country in a certain year.

As La Porta et al., (1998) the year of observation of these bankruptcy provisions coincides with the time of the analysis. Conversely, Djankov et al. (2007) expanded the available data set on creditors' rights covering 129 countries and 25 years of data. Their data give the possibility to analyze consequences of institutional reforms for financial development. One of their main findings consists in observing the stability of the creditors' rights over time since there is almost no change in average creditors' rights score over the years for any legal origin. This result confirms that the above mentioned measures of creditors' protection reflect relatively permanent features of the institutional environment, deeply rooted in national legal origin and it partially justifies the choice to consider only one period of observation.

An additional way for using only one period of observation concerns the scarce importance to account for legal reforms. The goal of this analysis consists in estimating the effect of the Bankruptcy Law (i.e. creditors' protection) on the firm's propensity to issue equity in order to recover from distress. It follows that this study aims to assess the consequences of the creditors' protection by Law on the firm's financing choices rather than the impact of institutional changes on financing choices.

Leverage. Following Myers (1977) and Gertner and Scharfstein (1991) I approximate value transfer to creditors by using the firm's leverage. Leverage is measured considering the average value of leverage percentage reported by the firm during the period of distress preceding the issue.

Control variables

Financial distress. I measure this variable as the log of the average amount of distress registered by the firm before the equity issuance. Specifically, I calculate distress as the log of the difference between EBIT and interest expenses (Gertner and Scharfstein, 1991).

Descriptive Statistics

<<<< Table 1 >>>>

Model specification

To test my hypotheses, I use a Heckman two-steps model (Heckman, 1979). This method allows to address the endogeneity problem arising from the expectation of performance outcomes with respect to the strategy chosen (Hamilton & Nickerson, 2003). In this study, the strategic decision to issue equity can be an endogenous choice to the expectation about the recovery from financial distress. This is clearly a sample selection problem: the outcome is observed only for a subsample of observations and this incidental truncation is clearly not completely random.

In the final sample of 70 firms, the recovery rate is only for 34 of them. The remaining 36 firms did not issue equity at all and so I cannot measure their recovery through this means. A regression could be used if this truncation were random that is not the case since the firm's decision to issue equity is individually taken and depends upon different factors such as creditors' protection by Law.

The solution to address this endogeneity problem is the Heckman – two steps – selection procedure (Gronau, 1974; Lewis, 1974; Heckman, 1976) consisting first in estimating the likelihood to issue equity in financial distress (selection equation) and second in evaluating the determinants of firm recovery from distress (regression equation).

In this study the analysis corrects for such bias examining legal determinants that affect the firm's decision to issue equity in financial distress and the determinants of the firm's recovery from financial distress. In the selection equation, creditors' rights has been employed as the variable that explains the decision to issue equity but it is unrelated to the recovery from distress (see Bascle, 2008).

Results

In the first Heckman step a probit model is employed to regress the creditors' rights and obtain an estimation of the firm's probability to issue equity in financial distress. As suggested by the hypothesis 1, financially distressed firms who operate in Debtor-friendly legal systems are more likely to issue equity as a response to distress than financially distressed firms who operate in Creditor-friendly legal systems. The Hypothesis 1 is significantly confirmed; the regression coefficient is negative and significant at the 5% confidence level.

Hypothesis 2 predicts a positive relationship between equity issues (i.e. value transfer) and firm's recovery. The results show the positive effect of value transfer on firm's recovery, however they are not significant.

Financial distress is negative and significant suggesting that highly distressed firms encounter more difficulties in recovering.

<<<< Table 2 >>>>

Discussion and conclusion

Results of past research on equity issues in distressed firms are mixed and often controversial. A significant stream of literature (Myers, 1977; Gertner and Scharfstein, 1991; Jostarndt, 2009) suggests that highly leveraged firms present a low probability to issue equity. Senbet and Seward (1995) argue the absence of equity issues in financially distressed firms. Conversely, Franks and Sanzhar (2006) provide evidence that leverage is positively related to the likelihood of an equity issue and that highly leveraged firms are even more likely to raise equity than an average firm. Fama and French (2005) find that non profitable firms often issue equity. The presence of equity issues in financial distress implies that shareholders have incentives to raise equity as a means to recover despite the occurrence of value transfer to creditors after the infusion of fresh capital.

Much of this research on equity issues has omitted to consider exogenous factors such as the legal system in which the financially distressed firms operate and has instead focused on firm specific determinants in explaining the raise of equity capital.

This study aims to reconcile these results examining the role of the Bankruptcy Law on the firm's propensity to issue equity and then the effectiveness of an equity issue in terms of firm's recovery from distress. In particular this study, accounting for self-selection, shows the effect of an equity issue i.e. of the wealth transfer on the firm's recovery from distress.

The results suggest that selection matters for understanding the effectiveness of an equity issue in financial distress. The legal system significantly affects the firm's propensity to issue equity so when wealth transfer is high exogenous factors mitigate it. Controlling for self-selection the relation between wealth transfer and firm's recovery is positive showing the effectiveness of an equity issue. Specifically, the results show that equity issues by distressed firms are more likely to occur in countries with a debtor friendly legal system. Conditionally to the incidence of the legal system on the firm's decision to issue equity, equity issues positively affect the firm's recovery despite wealth transfer to creditors.

This study contributes to capital structure theory and financial distress literature in several ways. First it demonstrates the significance of the legal system in advancing our understanding of equity issues in distressed firms. This study adds value to the capital structure theory regarding whether the firm's value depends on the legal context under which a firm is operating (La Porta et al., 1998; Djankov et al., 2007).

Second, this study suggests an harmonization of the existent literature about equity issues (Myers, 1977; Gertner and Scharfstein, 1991; Fama and French, 2005). It provides evidence about the occurrence of equity issues as a means to recover suggesting that the effectiveness of the equity issue on the recovery is in part contingent upon the legal system of the firm's country.

Third, this study contributes to literature on financial distress suggesting further insights about the resolution of distress (Claessens et al., 2003; Claessens and Klapper, 2005; Davidenko and Franks, 2008).

Limitations

Some limitations of this study are noteworthy. A first limitation concerns the empirical model which converged to a value of rho that is -1. In a Heckman model rho accounts for a spurious association between error terms due to unmeasured factors: a rho equals to -1 indicates the presence of a correlation between the errors in the selection and in the main equation (i.e. the two equations are not independent). It is maybe due to the number of observations in the dataset or to other possible covariance relationships among the model's determinants (Heckman, 1979). Despite this evidence, the estimation converges and the model solution turns out quite good results.

A second limitation is related to the significance of the leverage variable. Maybe due to the limited number of equity issues in the sample of financially distressed firms, I identify a positive but not significant effect of leverage on the firm's recovery.

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List of tables

Table 1: descriptive statistics

VARIABLES	N	Mean	Sd	min	Max	skewness	kurtosis	sum	Median
Leverage	70	114.2	189.4	-760.5	590.5	-1.113	9.058	7,997	101.5
log_distress	96	-10.06	2.004	-14.41	-4.204	0.243	2.920	-965.9	-10.13
log_recovery	43	9.834	1.830	5.734	13.24	-0.182	2.302	422.9	9.809

Table 2: Results of the Heckman model

	Heckman
log_recovery	
log_distress	-0.776*** (3.01e-05)
leverage_percentage	0.000729 (0.00125)
Constant	2.994*** (0.278)
Mill's Ratio	
rho	-1 (218.831)
lambda	.59563*** (.119)
Selection Model (eq.1)	
leverage_percentage	-0.00149** (0.000695)
cr_index	-0.164*** (0.0197)
Constant	0.530*** (0.159)
Observations	70
Uncensored obs	34
Wald chi-squared	6.65*e+03

Standard errors in parentheses
 *** p<0.01, ** p<0.05, * p<0.1

Heckman selection model
 (regression model with sample selection)

Number of obs = 70

Censored obs = 36

Uncensored obs = 34

Log likelihood = -91.76137 Wald chi2(2) = 6.65e+08
 Prob > chi2 = 0.0000

```

-----+-----
Log_recovery |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-----+-----
log_recovery |
  log_distress |  -.7758977   .0000301  -2.6e+04   0.000   -.7759567   -.7758387
leverage_perc |   .0007289   .0012484    0.58   0.559   -.001718    .0031757
      _cons |   2.994354   .2776106   10.79   0.000    2.450247    3.538461
-----+-----
select       |
  cr_index |  -.1643896   .0196822   -8.35   0.000   -.2029661   -.1258131
leverage_perc | -.0014941   .0006947   -2.15   0.031   -.0028557   -.0001325
      _cons |   .5296944   .1590534    3.33   0.001    .2179555    .8414333
-----+-----
  /athrho | -17.14017   218.8317   -0.08   0.938   -446.0425   411.7622
  /lnsigma |   .5956393   .1197289    4.97   0.000    .360975    .8303036
-----+-----
      rho |          -1   1.17e-12                -1          1
      sigma |   1.81419   .217211                1.434728   2.294015
      lambda |  -1.81419   .217211                -2.239916  -1.388465
-----+-----
LR test of indep. eqns. (rho = 0):   chi2(1) =    19.59   Prob > chi2 = 0.0000
  
```


Paper 3

Strategic or Financial: Who makes the difference? Consequences for the post acquisition performance³

Abstract

In this paper we investigate the effect of the buyer identity on the acquisition performance finding differences between financial and strategic buyers. Analyzing data for 234 acquisitions in any industry completed between 2006 and 2011, we found that both strategic and financial buyers have a positive effect on the performance of the target firm. However, results suggest that whilst the strategic buyers have a positive impact on the innovative performance of the target firm more than financial ones; the latter have a positive effect on the economic performance of the target more than the strategic buyers.

Introduction

Merger and acquisitions (M&As) are considered as the main strategic option to entry in new and foreign markets, as a way to achieve economies of scale and market share, or to acquire new resources and capabilities (e.g. Hitt et al., 2004; Scherer and Ross, 1990). Empirical data show the relevance of this phenomenon: in 2012, more than 28,000 M&As were completed worldwide (Thomson Reuters, 2012); 2015 has been considered as the biggest year ever for worldwide merger and acquisitions (The wall street journal, 3 Dec 2015). *“Buyers splashed out \$3.8 trillion on mergers and acquisitions in 2015, the highest amount ever, surpassing the previous record set in 2007, before the financial crisis”* (Bloomberg, 2016). According to Bloomberg, in 2015 firms seem to be particularly optimistic about undertaking M&A: in an EY survey (2015) emerged that “60

³ Co-authored with Alfredo Valentino

percent of executives expected to carry out acquisitions in the next 12 months, up from 40 percent a year earlier”.

This rapid proliferation of worldwide M&As and the growing interest of the investors upon these deals suggest the need to shed light on the comprehension of the drivers that affect the M&As' performance. One of the main factors in explaining M&As' output is the role played by the investors since it changed over the time becoming a relevant characteristic of each wave of M&A. During the sixth wave (2003-2008) private equity firms represented the most diffused kind of investors and boomed as shareholders (McCarthy, 2013); they were prone to acquire firms with the objective to divest them as soon as the market value increased (Hauser, 2015). The seventh wave (2011-onwards) started after the worldwide credit crisis of 2008 and was characterized by an intense M&A activity in emergent markets (BRICS), a growing development of technology and an increasing number of deals based on a strategic motivation; the role of the strategic investors became more important due to new competitive pressures from the market which generated the need to have access to new knowledge and to merge with companies owning complementary resources and capabilities (Hauser, 2015). So whilst M&As undertaken by financial investors were dominant until 2007, M&As conducted by strategic investors have assumed an increasing weight after the crisis of 2008 (Hauser, 2015). Both these trends imply different results in terms of M&As' economic and strategic performance due to the different role played by the investors. In this scenario, different investors has characterized the M&As' course over the time and their identity can represent a relevant factor to understand the deal's output. Several studies have analyzed the effects of M&As on the target firms. Some of them have investigated the impacts on the innovative performance of target (Hitt et al., 1996; Ahuja & Katila, 2001; Cassiman et al., 2005; Cloudt et al., 2006; Grimpe & Hussinger, 2006; Valentini, 2012; Arvanitis & Stucki, 2014; Yayavaram & Chen, 2015). For example, Hitt et al. (1991) find that acquisition intensity of a firm is negatively related to its ability to innovate. Acquisition requires time and managerial effort that divert managers to long-term investments like those in innovation. In fact, R&D activities are risky in their nature and

require long term investments that may have a negative effect on the short term results (Hoskisson et al. 2002). Ahuja and Katila (2001), instead, show a positive effect of M&A on the acquiring firms' patents. Similarly, Karim and Mitchell (2000) argue how M&As can enhance the innovation capacity of the acquiring firms that can renew their existing resources or obtain completely new and different resources. Moreover, Valentini (2012) finds a different impact of M&As on patenting quality and quantity. If from one side M&As generate efficiencies that have a positive effect on patenting quantity, on the other they increase pressure on short-term results and reduce patents' quality.

Others have highlighted the effects on economic performance (Morosini et al., 1998; Zollo and Singh, 2004). For instance, Morosini et al., (1998) found a positive relationship between the cultural distance and the growth of the post- acquisition sales (i.e. economic performance) in cross border deals. Zollo and Reuer (2002) investigated the firm's post acquisition economic performance as a consequence of prior deal experience. Moreover, using variation in the acquiring firm's ROA, Zollo and Singh (2004) measured the acquisition economic performance as a consequence of the learning processes specific to the management.

Although previous studies have considerably investigated this phenomenon (for a literature review see Meglio & Risberg, 2011), they don't present conclusive results. Moreover, despite some worthy exceptions (Grimpe & Hussinger, 2001), little attention has been paid to the identity of buyers as financial or strategic investors and its effects on the target performance. Even if extant study has investigated how M&As impact on performance bringing synergies through the combination and redeployment of resources, little is still known about the impacts of different buyers on the performance of the target firm. Furthermore, as underlined by Meglio & Risberg (2011), previous studies have conceived performance as a one-directional construct distinguishing between economic or innovative performance.

In this study, we attempt to harmonize the evidence on the effects of acquisitions on firms' performance by advancing and testing the idea that different identities of buyer (strategic or

financial) have different effects on the performance of the target firm after an acquisition. We argue that the different resource- and knowledge-base of the buyer drives these divergent performances. Following Zollo and Meier (2008), we adopt a dual perspective of performance, strategic and financial, considering on the one hand the effects of the acquisition on the acquired firms' patenting outputs, on the other hand the impact of the acquisition on the economic revenues.

To isolate the effects of different identities of buyers on performance of acquired firm, we consider only acquisitions without mergers in our study.

We contribute to the literature on M&A by providing a complementary explanation of M&A performance, unraveling how identity of buyer can play a significant role in driving post-acquisition performance. Specifically, we identify a linkage between the identity of buyer and the acquisition performance distinguishing different effects for economic and innovative outputs.

For the empirical investigation we built a multi-country dataset that counts 234 acquisitions in any industry completed between 2006 and 2011.

The paper proceeds as follows. First, the theoretical framework is explained, showing how different identity of buyer can impact on innovative and economic performance of target firm. Second, we describe the method and data used to test our hypotheses. Finally, the results are presented before the findings are discussed and related broadly to the M&A literature.

Theoretical framework

Moving from the assumption that acquisitions modify the resources and capabilities i.e. the knowledge base of the involved firms (Capron, Dussauge and Mitchell, 1998) and that investors have their own aims and interests in the deal (Hoskisson, 2002; Humphery-jenner, 2013), we analyze how the strategic and the financial identity of the buyer can affect differently the performance of the target. Whether an acquirer with a financial identity is a private equity firm or any other institutional investor, a strategic acquirer is represented by all those firms who operate in the same or complementary industry respect to the target firm.

As argued by Ahuja and Katila (2001, p 201) “*an acquisition can be viewed as the union of two knowledge bases*”. Whilst financial buyers provide financial resources and managerial capabilities to maximize their profits (Wruck, 2008), strategic ones make acquisitions with the goal to get new or additional resources, R&D capabilities and technologies (Teece et al., 1997; Puranam et al., 2003; Cassiman et al., 2006).

Strategic buyers usually are firms heading to process optimization with a consolidated skill-set to manage technology or firms looking to design blue ocean strategies i.e. innovation exploration and exploitation (March, 1991). Through acquisitions they want to get access to new resources and competences, and they stimulate the management of acquired firm to invest continuously in R&D and in new products. Moreover, strategic buyers don't only get access to the knowledge of the targets, but share also their knowledge with them. As argued by Valentini and Di Guardo (2012) acquisitions determine the recombination and the redeployment of firms' resources modifying their knowledge bases, creating new knowledge and fostering innovation. Puranam and Srikanth (2007, p.806) suggests that “*post-merger integration helps acquirers leverage what the acquired firm knows*”. The production of new knowledge triggered by this type of investors tends to increase research productivity and the relative performance in terms of number of patents. Moreover, after an acquisition, firms achieve complementary resources (Graff, Rausser and Small, 2003).

According to Fleming (2001), the combination of complementary resources and capabilities develops novel innovations, improving the number and the quality of patents. “*Integrating two hitherto knowledge bases and providing firms with a larger and more diverse set of intellectual assets*” (Valentini, 2012, p. 338), acquisitions may therefore improve innovative performance of the acquired firm. This positive effect is likely to be amplified if buyer operates in a complementary or different industry respect to acquired firm. The combination of different (or complementary) knowledge and capabilities pursues radical innovations over more incremental ones (Reinganum, 1983), enhancing redeployment and fostering innovation (Cassiman and Veugelers, 2006).

On the other hand, financial buyers are value maximizing entities which usually undertake deals in order to maximize their profits (Shleifer A, Vishny S.W., 1997). They aim to foster quickly the post-acquisition performance through the provision of financial resources and managerial capabilities (Hellmann & Puri, 2002; Wruck, 2008). This approach tends to reduce managers' interests in pursuing highly risky and long term returns activities such as R&D investments or new products development (Hill et al., 1988). Even R&D expenses tend to be cut in case the target is under stress. Innovation requires time and often it doesn't coincide with the goals of financial buyers. Moreover, these buyers are characterized by a knowledge base usually unsuitable for innovation. Even if the knowledge of buyer is heterogeneous from the knowledge of target, it doesn't determine a positive impact on the innovative performance, because these knowledge bases have different strategic nature (see the study of Vermeulen & Barkema, 2001, about the effect of different knowledge between the acquirer and the target firm). It is consistent with Valentini and Di Guardo (2012) who found that whilst diversity in merging firms' downstream resources exerts a positive effect on post-acquisition innovation related activities, diversity in knowledge bases does not seem to exert a significant effect on the inventive activity. So, we hypothesize:

Hp1: Strategic buyers positively affect the innovative performance of the acquired firm in the post-acquisition period more than financial ones.

However, if the search for fast returns and the knowledge base proper of the financial buyers collapse with the innovative performance of the target firm, the financial synergies they trigger positively affect the economic results. Financial buyers provide managerial capabilities and financial resources to the target firm which improves its efficiency and economic performance.

On the other side the strategic investors leverage the innovation output through the knowledge transfer and the resources recombination but they also affect the firm's propensity to invest in innovation. Indeed, the acquisition of external knowledge and its integration within the firm

stimulates the target investments in R&D as an input to create innovation. R&D activities needed to develop the innovative performance are highly risky investments and require long term (Hoskisson et al., 2003), so this process tends to consume economic resources.

H_p 2: Financial buyers positively affect the economic performance of the acquired firm in the post-acquisition period respect to strategic ones.

Methodology

Data collection and sample selection

In order to test our hypotheses, we built a multi-country dataset. Specifically, acquisitions in any industry and in any country completed between 2006 and 2011 served as a sampling frame in our study. Following Arvanitis and Stucki (2014), we considered only acquisitions to better isolate the effects of such operations on target performance. Acquisitions are defined as M&As where firms are legally independent from each other (Arvanitis and Stucki, 2014). Moreover, we included all industries to provide a greater validity to our results. Respect to previous study (Cloudt et al., 2006; Zerenler et al., 2008; Valentini & Di Guardo, 2012), our results are not driven by few innovative industries, and the observations of innovative activity are not reduced to specific sectors. Taking into account acquisitions worldwide, we considered the effects of heterogeneous attributes in acquisitions' performance.

In the time frame 2006-2011, 2,300 acquisition deals were completed worldwide and they represented our population. On this population we started to collect data. Following Ahuja and Katila (2001), Cloudt et al. (2006) and Bauer et al. (2016), we choose a study period of 5 years after the acquisition to guarantee the completion of the integration phase and to measure the clear effects of acquisition on target's performance. Due to the partial availability of data on patents, our sample was reduced up to 797 observations. Data on patents were collected using secondary datasets, e.g.

Zephyr and Orbis. Then, to obtain reliable data on company characteristics we had to further eliminate other observations, leading to a final sample size of 234. Data on company characteristics were collected using Osiris and annual reports of involved firms. Following Bauer et al. (2016), we adopted the target's perspective in order to understand the post deal effects.

Variables construction

Dependent variables

Innovative performance. We measured the innovative performance using patents as an output of innovation activity. Consistently with literature, the operationalization of this construct was adapted from Ahuja and Katila (2001) and Yayavaram & Ahuja (2008). We detailed the patenting activity of the target firms involved in the acquisition counting the number of patents published before the deal and the number of patents 5 years after its completion. So, we measured the innovative performance as the log of the difference between these two numbers as in the following formula:

$Ln_Patent_Increase = \ln (\text{the number of patents published after the deal} - \text{the number of patents published before the deal}).$

Economic performance. Following Arvanitis and Stucki, (2014) and Thomsen and Pedersen (2000) we measured the economic performance using the sales of the target firm. Specifically, we calculate the log of the revenues (*Log_rev_target*).

Independent variable

Investor Identity. This variable captured the nature of buyer. Specifically, using US Sic-codes, it measured if buyer was a financial entity (like private equity, financial fund, or bank and so on.) or a strategic one (another firm in a same or complementary industry of the target). Identity is a dichotomous variable that takes value 1 if buyer is a strategic and 0

otherwise.

Control variables

In order to control for other effects than hypothesized, we used several control variables drawn from the extant literature. We controlled for the distance between buyer and target firm. This variable is a multi-dimensional construct covering various aspects. We focused on cultural, knowledge and geographical distance. Building on previous study (Berry et al., 2010), we calculated distance between buyer and target firm. Cultural distance is defined as “*differences toward authority, trust, individuality, and importance of work and family*” (Berry et al., 2010; p.1464). Following Berry et al. (2010), to measure cultural distance we used public opinion data from four waves of the World Values Survey (WVS). Since this distance varies over time (Inglehart and Baker, 2000), the frequency of WVS (every 5 years) allowed us to capture these changes. Knowledge distance captured the different capacity of countries to create knowledge and to innovate (Berry et al., 2010). It considered the different distribution of talent, innovation and, creativity across location. Following Berry et al. (2010), it was measured as the difference of the number of patents and of scientific articles per capita between the buyer country and the target one (Berry et al., 2010; Furman et al., 2002). Finally, we computed the geographical distance in kilometres between the capital of buyer country and the capital of target one. We used distance calculator, one of the applications in Google Maps. These distances were highly correlated each other. To solve this issue, the three items of distance were averaged in only one construct with a Cronbach $\alpha=0.9$ indicating an excellent overall reliability. Then, a varimax factor analysis showed the three items loaded on one factor. Another control variable was the *size* of target firm. As in previous study (Ahuja and Katila, 2001; Clodt et al., 2006), it was measured as the log of the number of employees after the deal. Moreover, we controlled for the target country characteristics, using the gdp of target country from World Bank. Finally, we controlled for the year too. Particularly, *Time fixed effect*: T_i are year dummies that capture time-varying macroeconomic shocks.

Results

To test our hypotheses, we run two basic OLS regressions with the same independent variables and two different dependent ones. They may be summarized in two basic models as follows:

$$Y_1 = \alpha_1 + \beta_{11}X_1 + \beta_{12}X_2 + \beta_{13}X_3 + \varepsilon$$

where Y_1 = innovative performance; α is the intercept and β_s are regression coefficients; X_1 = Investor Identity; X_2 = Distance; X_3 = Target size; ε = error term.

$$Y_2 = \alpha_2 + \beta_{21}X_1 + \beta_{22}X_2 + \beta_{23}X_3 + \varepsilon$$

where Y_2 = Economic Performance; α is the intercept and β_s are regression coefficients; X_1 = Investor Identity; X_2 = Distance; X_3 = Target size; ε = error term.

Before presenting the results of the regression models, we report the correlation matrix (Table 1). A careful analysis of the correlation matrix shows a low correlation between the most of variables. So, the dataset doesn't seem to suffer of multicollinearity issues. This conclusion is further supported by the variance inflation factor value (VIF), which is in all variables and in both models below the critical threshold of 10 (Myers, 1990; O'Brien, 2007). Also the tolerance doesn't fall below 0.1 (Hair et al., 2006).

<<< Insert table 1 here >>>

The results of the two models are showed in table 2.

<<< Insert table 2 here >>>

The alternative specifications distinguished per each model are based on the following logic:

1. Specification 1 contains the base model with only control variables;
2. Specification 2 contains the full model.

In the discussion section of this paper, we rely especially on the specification 2 that contains the full model. In the hypothesis 1, we predicted that strategic investor positively affects the innovative performance of target firm in the post-acquisition period respect to financial one. The corresponding coefficient is positive and significant at the 1% confidence level. So, the hypothesis 1 is significantly confirmed.

In the hypothesis 2, we predicted that financial investor positively affects the economic performance of target firm in the post-acquisition period respect to strategic one. Our results largely confirm this hypothesis. We find support for it at the 5% confidence level. So, the hypothesis 2 is significantly confirmed, too.

Looking at control variable, we find support for the effect of the target firm's size on both types of performance at the 1% confidence level, confirming the results of previous study (Ahuja & Katila, 2001; Arvanitis and Stucki, 2014). But, we don't find support for distance.

Discussion and conclusion

The aim of this study was to explore the effects of buyer identity on M&As' output. Due to the increasing relevance of the strategic buyers in the last wave of M&As and to the controversial role played by private equity firms and by other financial buyers, the identity of buyer represents a relevant driver for the performance of M&As and, in general, their trend over time.

Our results suggest that the identity of buyer matters in acquisitions and it has a direct effect on the performance of the target firm after acquisition. The results also highlight how identity has a different impact regarding to the different measures of performance. Specifically, strategic buyers moved by the interest for additional knowledge and technology tend to integrate their capabilities with target fostering innovative processes and improving the innovative performance. Conversely, financial buyers use to undertake deals in order to maximize their profits at the expense of the innovative performance. Different evidences emerge for the economic performance of the involved

firm which is positively affected by financial buyers respect to strategic ones since they induce the target firm to undertake highly risky and long term investments in R&D.

These results demonstrate that the identity of buyer and the nature of the knowledge owned stimulate differently the acquisition performance. According to their identity, buyers can trigger innovation processes or economic outcomes which lead to distinguish different effects for the innovative and economic performance of the deal.

This study contributes to M&A literature in several ways. First, we provide insights about the drivers which lead acquisitions since we analyze different types of buyers and the effect of their diversity in knowledge base on the performance of the acquisition. On the one hand, literature which explores the innovative performance of M&A (Ahuja & Katila, 2001; Cassiman et al., 2005; Cloudt et al., 2006; Grimpe & Hussinger, 2006; Arvanitis & Stucki, 2014; Yayavaram & Chen, 2015) considers the role of strategic buyers on the innovative processes of the firm without paying attention to the potential effects of financial buyers on the same kind of performance. On the other hand, literature about financial buyers and M&As (David et al., 2001; Humphery-jenner et al., 2013; Cumming et al., 2016) provide little evidence about the comparison between different buyers. Grimpe & Hussinger (2001) distinguished between strategic and financial buyers in explaining the technology acquisitions but their results *“provided no indication whether there is an effect of acquirer identity on innovation performance following the deal”*.

Second, this paper suggests an harmonization of the existent literature about the acquisition's performance (Morosini et al., 1998; Zollo & Meier, 2008; Meglio & Risberg, 2011) providing a more complete analysis of the deal's output. We introduce a broader concept of the acquisition performance considering both the economic and the innovative output. So, we contribute providing an alternative explanation of the effects produced by an acquisition in the post-deal period. We also address various limitations presented by several papers who deal with the problem of M&A performance. As suggested by Valentini and di Guardo (2012), we examine buyers and target firms from all industries in order to expand the results also to industries in which technological innovation

is not crucial. Moreover, we define the identity of buyer looking at their different knowledge base. This allows us to link the identity of buyer to the nature of the acquisition performance finding different results according to buyer's characteristics. So, we partially overcome the limitations due to the fact that different buyers' motivations do not explain the performance of the acquisition (see Grimpe & Hussinger, 2006) and those related to the unclear linkage between the learning opportunities offered by acquisition and the output of the deal (see Vermeulen & Barkema, 2001). In their paper Vermeulen & Barkema (2001) suggest that buyers may learn from targets if the latter own a current knowledge base related to the former. They highlight that the outcome of acquisition depends on the differences complementing the knowledge of buyer. However, they let to future studies the demonstration of the extent to which these differences hamper learning, and so negatively affect the acquisition performance, instead of improving it generating a positive effects on the acquisition output. We overcome this limitation distinguishing the impact of different buyer identities and their knowledge base on the acquisition output and also differentiating performance in innovative and economic.

Limitations and future research

A first limitation is related to the operationalization of the innovative performance variable. Notwithstanding the quantity of innovation represents a suitable measure of the innovative performance (Ahuja and Katila, 2001; Cloudt et al., 2006; Arvanitis & Stucki, 2014; Yayavaram & Chen, 2015) we just focused on the number of patents published before and after the deal without considering any measure related to the quality of innovation such as impact, originality and generality (Hall et al., 2001; Argyres & Silverman, 2004; Valentini, 2012). Our analysis could be more complete if additional data about patent quality were included.

A further limitation concerns the significance of the cultural distance variable. Due to the limited number of cross border acquisitions in the sample, we were not able to identify a clear effect of cultural distance on the acquisition performance. It would be desirable to explore this element in our

analysis since the relevance of the International acquisitions. As we know the last M&A wave is by an intense activity in emergent markets and globalization has assumed a central role in valuating investments and managing firms. So, we suggest that explanations about the performance of cross border acquisitions should also differ according to the nature of buyer. Specifically, the cross border effect explained by the cultural distance between buyer and target (see Hofstede, 2001) can amplify the impact of both strategic and financial buyers on performance.

For strategic buyers, one of the main motives for conducting a cross-border M&A is the acquisition of technology and know-how (Cassiman et al., 2005; Bertrand and Zuniga, 2006; Makri et al., 2010). M&As can be seen as a vehicle to broaden the knowledge-base of a firm (Vermeulen and Barkema, 2001; Bjorkman et al., 2007) and foster innovation (Chakrabarti et al., 1994; Ahuja and Katila, 2001; Cloudt et al., 2006). External heterogeneous and complementary resources and capabilities develop innovation (King et al., 2003) and when the provision of new knowledge comes from international buyers, heterogeneity of the knowledge transferred is amplified by the cultural distance and by the cultural diversity of the International buyer. Differences in national cultures can generate positive effects in terms of learning of new routines and knowledge transfer (Bauer et al., 2016) so distance could boost the impact of strategic buyer on the innovative performance. However, failure of M&As in terms of cultural differences or distance can be associated with higher risks and costs that characterize the merge of entities who belong to different countries (Hofstede, 2001; Kogut and Singh, 1988). The integration phase following an M&A can become problematic when cultural differences arise (Bauer et al., 2016). Due to greater coordination and communication costs (Kogut and Singh, 1988) and to higher risks related to the cultural heterogeneity between the buyer and the target firm it is expected a decrease in the economic performance.

Financial buyers usually “*act as facilitators in the international market of corporate control*” (Ferreira et al., 2009) building bridges between firms and reducing information asymmetry between buyer and target. Faelten et al., (2016) suggest the positive role of financial buyers in cross-border M&A activity. Foreign financial investors in international transactions facilitate the achievement of

financial synergies providing to target greater opportunities to access to the capital markets and to enter in the International networks contributing to add value to the firm (Douglas et al., 2016). In that case, the cultural distance contributes to amplify the positive impact of financial buyers on the economic performance of the acquisition.

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List of tables

Table 1. Correlation Matrix

	1	2	3	4	5
1. Identity	1				
2. Distance	0.110	1			
3. Target_employees	0.036	-0.104	1		
4. gdp_target	0.094	0.082	0.181	1	
5. Year	0.014	-0.057	-0.048	-0.034	1

Table 2. Results of the two models

	Innovative Performance		Economic Performance	
	1	2	1	2
Identity		0.724** (0.29)		-0.961** (0.39)
Distance	0.001+ (0.01)	0.001 (0.01)	-0.001 (0.01)	0.001 (0.01)
Target_employees	0.203** (0.06)	0.199** (0.06)	0.916** (0.06)	0.923** (0.07)
gdp target	0.527** (0.14)	0.509** (0.14)	0.173 (0.15)	0.178 (0.15)
Year				
2007	-0.674 (0.51)	-0.692 (0.50)	-0.222 (0.43)	-0.156 (0.43)
2008	-0.799+ (0.49)	-0.829+ (0.49)	0.014 (0.42)	0.075 (0.43)
2009	-0.938+ (0.51)	-0.946+ (0.50)	-0.695 (0.51)	-0.687 (0.51)
2010	-0.920+ (0.52)	-0.972+ (0.51)	-0.039 (0.53)	-0.323 (0.53)
2011	-0.556 (0.52)	-0.559 (0.51)	-0.312 (0.52)	-0.306 (0.52)
Cons	-5.75** (1.96)	-6.07** (1.92)	10.73** (1.96)	11.47** (2.01)
N	234	234	234	234
R2	0.15	0.23	0.23	0.50