

# Financial or strategic buyers: who is at the gate?

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## **Abstract**

Target companies are differently affected when acquired by a financial sponsor as opposed to a strategic buyer. In this paper we analyze M&A activity by financial sponsors and strategic buyers in the euro area between 2002 and 2018, linking their relative contributions to deal flow to the conditions in capital markets. Does the composition of the M&A deal flow change over time? How do different types of acquirers respond to varying conditions in debt and equity markets? We find that M&A activity by financial sponsors and strategic buyers are not synchronous and that capital market conditions affect the composition of the M&A deal flow through multiple channels. In particular, the relative contribution of financial sponsors to overall deal flow grows when the risk-free rate increases, while the opposite occurs when the difference between the credit risk premium of high-yield and investment-grade issuers widens and when stock market valuations rise.

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## 1. Introduction

When it comes to deal-making, there are two main types of acquirer: strategic buyers and financial sponsors. In fact, in 2018 their combined M&A activity totaled 3.9 trillion dollars globally.<sup>1</sup> Still, the composition of M&A deal flow has not been constant over time. This paper empirically examines how the relative contributions to overall M&A activity by financial sponsors and strategic buyers change over time. More specifically, our investigation delves into whether the different buyers respond to changes in financial market conditions, and how.

This is a relevant question to address not only to gain a deeper understanding of the dynamics of the M&A deal-making environment, but also in light of the effect on acquired firms of the different financial structures, governance mechanisms, strategies and goals of each type of buyer. Extant theory suggests that the high debt levels typical of deals carried out by financial sponsors should mitigate agency cost and increase the return on firm assets. According to Jensen (1986), in fact, the use of leverage should discipline management not to misspend cash or misappropriate resources, since high debt levels reduce free cash flows and induce managers to eliminate inefficient investments. On the empirical side, Ayash and Schütt (2016) demonstrate the fact that the debt of firms acquired by financial sponsors in leveraged buyouts (LBOs) more than doubles from 31% of total assets to 68%, while Guo et al. (2011) show the debt to EBITDA ratios of these companies rockets from 1.8 to 6.0 post-LBO. However, the debate

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<sup>1</sup>According to data compiled by Dealogic.

continues on whether the financial structure imposed by financial sponsors on acquired firms is economically efficient. Indeed, evidence on post-LBO improvements in operating performance is mixed. The operational improvements documented by Kaplan (1989), Smith (1990), and Lichtenberg and Siegel (1990) have been recently questioned by Cohn et al. (2014), Ayash and Schütt (2016) and Ayash (2018) who use novel data to show that post-LBO operational improvements are temporary effects largely attributable to cutbacks in investments.<sup>2</sup> Still, the findings of all these papers suggest that target companies are differently affected when acquired by a financial sponsor as opposed to a strategic buyer. This means that the sway in the balance of power between financial sponsors and strategic buyers can significantly alter the structure of the corporate world. This is our motivation for investigating the drivers of M&A activity by different types of acquirers.

Only a few papers in the literature have tried to shed light on financial sponsors in comparison to strategic buyers in terms of M&A activity. For example, recent studies by Barger et al. (2008), Hege et al. (2013) and Dittmar et al. (2012) compare bidding behavior and takeover premiums between strategic and financial acquirers, while Gorbenko and Malenko (2014) focus on the role of synergies in contrast to the search for undervalued assets.<sup>3</sup> Harford et al. (2016) look instead at the interdependence of M&A activity by different acquirer types. We depart from all these studies by relating the M&A activity of financial sponsors and strategic buyers to

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<sup>2</sup>For a detailed summary of all relevant studies, their results, proxies, and sample characteristics see Ayash and Schütt (2016).

<sup>3</sup>Fidrmuc et al. (2012) instead take the opposite perspective and study the sale of targets to financial sponsors and strategic buyers.

the prevailing capital market conditions. Along these lines, Harford (2005), Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) show debt and stock markets conditions affect M&A activity by strategic buyers. In light of this, we expect capital market conditions to affect M&A activity by financial sponsors as well. Still, not in the same ways or with the same intensity, since financial sponsors typically face different financial constraints and have shorter investment horizons and goals. Clearly, we do not consider changes in the composition of the M&A deal flow as the outcome of a zero-sum game between financial sponsors and strategic buyers, as if the overall level of M&A activity was constant over time. Nonetheless, we do expect the composition of deal flow to change over time in response to variations in capital market conditions, to the extent that financial sponsors and strategic buyers do not adjust their M&A activity in the same ways.

Studying M&A activity by different acquirer types in the euro area between 2002 and 2018, we show that while M&A activity occurs in waves (consistent with Harford (2005)), deal flows relating to financial sponsors and strategic buyers are not synchronous. Rather such flows respond in a different manner and to a different extent to changes in capital market conditions. In particular, at the aggregate level we find that the relative contribution of financial sponsors to the total volume of deals climbs when the risk-free rate increases, while it falls when the differential cost of borrowing between high yield and investment grade borrowers widens and when stock market valuations rise. Next, at the deal level, we show these effects are the result of a combination of factors. First, the diverse propensity of

different acquirer types to embark on a transaction under varying capital market conditions. Then, the diverse adjustments in the size of the deals they undertake, but not the takeover premiums they pay.

Other papers in the literature link M&A activity by financial sponsors to capital market conditions. Among them, on the debt side, Kaplan and Stein (1993) argue the emergence of the high-yield market in the late 1980s led to an exceptional wave of LBOs. Furthermore, Shivdasani and Wang (2011) provide evidence that the advent of structured credit improved access to capital for financial sponsors and fueled the most recent buyout boom. Similarly, Ljungqvist et al. (2008) and Colla et al. (2012) study the role of leverage and the pricing of debt in LBOs. They find that tighter credit markets slow down the investment process at the buyout fund level, and that the spreads of LBO debt are inversely related to LBO monthly volumes, respectively. Axelson et al. (2013) then document that most of the variation in LBO debt is explained by credit conditions: the higher the credit risk premium the lower the leverage. Consistent with this finding, Gorbenko and Malenko (2014) present evidence that financial sponsors bid more aggressively in auctions for firms when credit conditions are more favorable. Moreover, Malenko and Malenko (2015) develop a theoretical model for financial sponsors' M&A activity based on the variation of the risk premium, in which they emphasize the ability of firms owned by financial sponsors to borrow against the reputation of the latter with creditors. On the equity capital market side, instead, Haddad et al. (2017) offer an explanation of the time series variation of buyout activity based on the equity risk pre-

mium, by which financial sponsors' M&A activity intensifies when the risk premium is low. Indeed, in their model a low risk premium increases the present value of performance gains and decreases the cost of holding an illiquid investment. These authors predict that both factors should contribute positively to the appetite for deals among financial sponsors. Still, all these papers consider financial sponsors' M&A activity in isolation from strategic buyers.

Our paper instead compares M&A activity by different types of acquirers, positioning our work closest to Martos-Vila et al. (2019). These authors provide an explanation for the dynamics of financial versus strategic acquisition activity focusing on mispricing in the debt market. According to their model, the contribution of financial sponsors to overall M&A activity should be higher when mispricing in debt markets is larger and financial sponsors have better access to credit. However, we depart from Martos-Vila et al. (2019) in several ways. First, while they frame their analysis on the fraction of the value of all deals for public targets accounted for by financial sponsors, we consider in addition the portion of the number of deals. Then, we also include in our analysis non-public targets. Since previous studies find that public-to-private transactions account only for a minor portion of the overall M&A activity by financial sponsors, we believe that including non-public targets provides a more comprehensive picture of the activity by these buyers. Indeed, public targets account for less than 15% of the deals carried out by financial sponsors in our sample.<sup>4</sup> Moreover, including also

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<sup>4</sup>By looking at the type of sellers involved in a sample of French transactions, Boucly et al. (2011)

the number of deals in our analysis of the composition of deal flow allows us to isolate two factors: the effect of market conditions on the propensity of different types of acquirers to embark on a transaction, and changes in the size of the deals targeted by different acquirer types. But most important, we go beyond Martos-Vila et al. (2019) by exploring at the deal level alternative channels through which capital markets conditions affect the composition of the deal flow. In particular, we study the propensity to carry out a transaction for different acquirer types under different market conditions, and we also look at the characteristics of deals they undertake, such as the size of the deal and its takeover premium.

Compared to Martos-Vila et al. (2019), this deal level analysis allows us to shed light on the role that the target company valuation and the financial constraints of the acquirer play in determining the composition of the M&A deal flow. In particular, it allows us to disentangle the effect of one type of acquirer crowding out the other from the different types of acquirers adjusting their preferred deal size. Moreover, by including a transaction value cutoff of 50 million euros we ensure the deals carried out by financial sponsors are financed with significant leverage, resulting in a study of LBOs versus strategic acquisitions. Martos-Vila et al. (2019) employ instead a transaction size cap of 1 billion dollars but no minimum cutoff. Finally, focusing on M&A activity in the euro area allows us to corroborate the findings obtained so far mostly from the analysis of the U.S. market place.

The rest of this paper is organized as follows. Section 2 presents the

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find that only 4.3% of the transactions are public to private, while Strömberg (2008) finds similar results for a sample of global buyouts.

theoretical background linking the intensity of M&A activity by the different acquirer types with financial market conditions. Section 3 describes our data collection methodology and provides summary statistics. Section 4 offers our empirical analysis and provides a detailed discussion of the results. Section 5 concludes.

## **2. Financial market conditions and M&A activity by different acquirer types**

It is not obvious ex-ante how financial market conditions differently impact the intensity of the M&A activity by the two acquirer types. Financial sponsors and strategic buyers are fundamentally dissimilar along several dimensions. In this section we first point out the main points of divergence between acquirer types in terms of financial constraints, investment horizons, strategies and goals. Then, we provide systematic theoretical background for the discussion of M&A activity by financial sponsors and strategic buyers based on the interaction of capital market conditions with the distinctive characteristics of the two acquirer types.

First, different acquirer types have different investment horizons and pursue different objectives. Strategic buyers are long-term oriented, they typically integrate with the target companies they buy and usually aim to realize operational synergies, by achieving economies of scale or eliminating duplicate functions. Reasons for acquisitions include vertical expansion (buying a customer or a supplier), horizontal expansion (new geographic markets or product lines), eliminating competition, or enhancing certain capabilities, such as technology, research and development, or marketing.



As a result, strategic buyers value their targets in combination with their current business. On the contrary, financial sponsors are generally short-term oriented, as their ownership of the target company is only temporary.<sup>5</sup> Their main goal is to maximize the financial return for their investors at exit.<sup>6</sup> In order to do so they undertake different strategies. They target firms with high cash flow generation capacity that can sustain a highly leveraged financial structure (see Lehn and Poulsen (1989) and Opler and Titman (1993)). They reorganize the target, improve managerial incentives and dispose of unproductive assets in order to optimize cash flows (Davis et al. (2014) and Ayash (2018)). They can also use the newly-acquired firm as a platform for industry consolidation (see Ayash et al. (2017)). They try to time the market in anticipation of higher valuation multiples at exit (see Ayash et al. (2017)). As a result, unlike strategic buyers, financial sponsors value their targets on a stand-alone basis.

Second, different acquirer types are faced with dissimilar financing constraints. In general, with regard to financial sponsors, given the highly leveraged nature of their investments, they are considered more risky than strategic buyers and borrowing for them is more expensive. Consistently, Guo et al. (2011) and Axelson et al. (2013) demonstrate that debt in LBO deals typically stands at about 70% of the transaction value. Strategic

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<sup>5</sup>In the theoretical model of Hege et al. (2013), private equity is a transitional form of ownership, with financial sponsors acquiring an asset which will be divested via an exit auction. The typical private equity partnership contract stipulates that funds have a life of 10 years, with a possible extension of 3 years (see Phalippou and Gottschalg (2009)).

<sup>6</sup>Fürth and Rauch (2015) draw a detailed road-map of the divestment process of financial sponsors, showing that their choice of exit strategy is rational and driven by past profitability and the financial success of the deal. In a sample of US financial sponsors, Kaplan and Strömberg (2009) find that in 38% of all exits financial sponsors sell companies to strategic buyers, in 24% to other financial sponsors and 14% opt for an IPO. Ayash and Schütt (2016) reveal a default rate ranging from 20% to 25%.

buyers also resort to debt funding for financing their acquisitions. Martynova and Renneboog (2009) document that approximately 23% of the cash deals in their sample of strategic acquisitions involved debt financing. Yet, strategic buyers are more conservative than financial sponsors, as they borrow against their own assets and would directly bear any cost of financial distress. As a result, their cost of borrowing is relatively lower.<sup>7</sup> Similar remarks hold true for equity capital. Investors typically require higher returns from financial sponsors, because of the illiquidity of their investments. This holds especially compared to strategic buyers that are publicly listed, but also for private ones when management fees are considered. Metrick and Yasuda (2010) estimate that financial sponsors earn on average 17.37 dollars of fees in present value per 100 dollars of capital under management. This, together with the fact that they usually have only a finite period in which to invest their capital (see Degeorge et al. (2016)) puts them under greater pressure to invest.

Third, regarding the bidding process, strategic buyers, especially those listed on public equity markets, have more flexibility in choosing the method of payment. In fact, they can offer their own shares, alone or in combination with other forms of consideration, in exchange for the shares of the target company. This becomes especially relevant when deals are larger in size or potential stock mispricing is higher. Hansen (1987) presents a theory for the choice of exchange medium in mergers and acquisitions, arguing that when uncertainty is higher, the bidder company prefers using stock over

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<sup>7</sup>For a theoretical discussion of how the debt tax shield could distort the ownership of assets as a result of M&A see Norbäck et al. (2018).

other forms of consideration in order to mitigate the risk of overpayment. On the empirical side, Faccio and Masulis (2005) find evidence within a sample of European companies that the target size is negatively correlated with the proportion of cash used as a method of payment.

We believe all these differences between financial sponsors and strategic buyers alter their exposure and therefore their responses to changes in debt and equity market conditions. Hence, we expect the composition of the M&A deal flow to change over time as a result of the interaction of market conditions with the distinctive traits of different acquirer types. To frame these relationships within a systematic theoretical background, we first discuss the impact of financial market conditions on M&A activity from a general point of view and then focus on individual effects for different acquirer types, based on their specific characteristics.

### *2.1. Debt market conditions*

Extant theory suggests that favorable conditions in debt markets are associated with higher M&A activity. Harford (2005) identifies liquidity in debt markets and ease of financing as necessary conditions for the reallocation of assets, and thus for M&A activity. Indeed, in principle, cheap and abundant credit reduces financial constraints and allows buyers to realize more leveraged transactions at lower costs, boosting the returns on deals. In order to analyze the effect of debt market conditions on M&A activity, we differentiate between two determinants of borrowing costs for financial sponsors and strategic buyers: a risk-free component, which is common to all acquirer types, and the credit risk premium, which instead affects differ-

ent acquirer types commensurately with their risk profile. This distinction is in line with Haddad et al. (2017) and is aimed at disentangling the variation in the cost of debt associated with the credit cycle from the price of credit risk.

With the risk-free component we aim at capturing liquidity in debt markets and the ease of borrowing money. During the expansion phase of the credit cycle, borrowers have relatively easier access to credit and the risk-free rate is low. Vice versa, when the credit cycle contracts, liquidity in debt markets dries-up and the risk-free rate grows. A change in the risk-free component of the cost of debt affects the financial constraints of both financial sponsors and strategic buyers. Still, the responsiveness to shifts in the credit cycle varies across acquirer types. In principle, in fact, financial sponsors should be more sensitive to the overall liquidity in credit markets, as they rely on debt financing relatively more than strategic buyers, in both relative and absolute terms.

The second component of the borrowing cost that we focus on to determine the effect of debt market conditions on M&A activity is the credit risk premium, i.e. the excess yield offered by a debt instrument over the risk-free rate. When investor appetite for risk is low the credit risk premium is high, while a low credit risk premium is a consequence of a high demand for risky assets. A lower risk premium expands the set of investment opportunities for acquirers to include larger target companies. Instead, a higher credit risk premium impairs the ability of acquirers to borrow money and undermines the returns they can achieve on their investments.

Yet the credit risk premium contributes to the cost of borrowing of different acquirer types commensurately to their credit quality. Borrowing is cheaper for highly rated acquirers than for poorly rated ones. This means that the differential between the credit risk premiums of different acquirer types determines their relative financial constraints but also their investment opportunity sets, as well as their ability to obtain returns from using leverage. Following the extant literature, we use the yield spread between high-yield and investment-grade debt issues to proxy for the differential between the credit risk premiums of different acquirer types. We interpret this differential as the extra cost that financial sponsors have to pay to raise debt for their highly leveraged transactions compared to strategic buyers. When the yield spread is high, financial sponsors are relatively more constrained, their investment opportunity set is smaller and their ability to obtain returns from using leverage is limited. Consistent with this argument, Martos-Vila et al. (2019) show that the yield spread is inversely correlated with debt misvaluation. Moreover, Axelson et al. (2013) find that an increase in the high-yield spread negatively affects the leverage used in LBOs.

## *2.2. Stock market conditions*

Theory suggests that high valuations are associated with more intense M&A activity. In particular Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004) identify valuations as a trigger of M&A activity, since overvalued acquirers bid more and overvalued targets are more willing to accept offers when valuations are high. In principle, in fact, stock market prices should reflect future expectations grounded in economic fundamen-

tals, such as growth opportunities and the equity risk premium. Thus, when an economy is in good shape, bidders are not necessarily discouraged by high valuations, as they tend to be more confident they can achieve higher cash flows. Furthermore, stock market valuations reflect the cost of equity, with higher valuations corresponding to lower cost of equity. As a consequence, future growth in performance which is not yet reflected in valuations is more valuable when it is discounted at a lower average discount rate. This increases bidders' willingness to tie up resources in less liquid and riskier investments to achieve higher returns when valuations are high. As a consequence, then, when valuations are high, M&A activity should be high too.

A change in stock market conditions affects the financial constraints and the investment opportunity set of both financial sponsors and strategic buyers. Still, also in this case, the responsiveness to shifts in valuations varies across acquirer types. In principle, in fact, while Haddad et al. (2017) use the discount rate argument to explain M&A activity by financial sponsors, the same rationale is even more relevant for strategic buyers. The value of the synergies they can obtain from the acquisition depends on the rate at which they are discounted to their present value. Consistently Gorbenko and Malenko (2014) find that compared to financial sponsors, strategic buyers pay on average higher takeover premiums and their valuations of targets in auctions are higher. These results confirm the common view that strategic bidders are willing to pay more for the average target because of the

potential synergistic gains they can obtain.<sup>8</sup>

On the contrary, high target valuations hinder the returns financial sponsors can obtain in their short investment horizon, especially if they overpay. Consistently, Gorbenko and Malenko (2014) demonstrate that valuations of targets vary across acquirer types. Financial sponsors typically aim for a higher return than strategic buyers to meet the expectations of their investors. As such, these acquirers are relatively more reluctant to close deals at high valuations and less willing to contribute additional equity to compete with rival bids by corporate buyers. In the first case, they would in fact erode the potential capital gain at exit while in the latter they would dilute their returns. Vice versa, corporate buyers can afford to close deals at higher valuations: they usually require lower rates of return than financial sponsors and they can exploit potential synergies. In line with this argument, Barger et al. (2008) find that public target shareholders receive a 63% higher premium when the acquirer is a public firm rather than a private equity firm.

### **3. Data**

The sample for our analysis includes all completed deals by euro area strategic buyers and financial sponsors announced in the period between 2002 and 2018. Data are collected from Bloomberg and deals are classified according to the type of acquirer. To account for the fact that targets

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<sup>8</sup>In line with this argument, Barbopoulos et al. (2019) demonstrate in a real options framework that target valuations and takeover premiums vary across bidders, as the synergistic value created by the deal depends on how the acquirer can capitalize on the combined investment opportunities. Higher real options embedded in the target lead to higher takeover premiums.

acquired by financial sponsors can be subsequently used as platforms for industry consolidation (Ayash et al. (2017)), we further refine Bloomberg’s acquirer classification by controlling for strategic acquisitions by acquirers previously targeted by a financial sponsor. In addition, we collect ownership data on the acquirer from Bureau van Dijk’s Orbis.<sup>9</sup> We are able to identify 14 instances in which a target acquired by a financial sponsor subsequently embarks in a strategic acquisition and another 13 deals in which the acquirer is controlled by a financial sponsor at the time of the acquisition. We assign all these deals to the financial sponsors’ category. Moreover, all deals included in the sample satisfy the following conditions:

- the announced transaction value is above 50 million euros;
- the transaction is not a buy back nor an exchange offer, and leads to the acquisition of 100% of the target company in the case of a strategic buyer, or to a controlling stake in the case of a financial sponsor;
- if the acquirer is classified as a strategic buyer, it is not a financial institution.

Our sample includes 2,406 deals, of which 484 are carried out by financial sponsors and the remaining 1,992 by strategic buyers.<sup>10</sup> A 50 million euro minimum deal size cutoff is in line with the literature on leveraged buyouts, resulting in a sample of LBOs versus strategic acquisitions (Ayash

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<sup>9</sup>We are able to identify 951 out of the 1,049 strategic acquirers in our sample by matching company names across databases. Among them, we focus only on the 332 that are not publicly listed, since public companies are unlikely controlled by a financial sponsor. For 218 of them ownership information is available on controlling shareholders in the month prior to the acquisition.

<sup>10</sup>Our sample size is comparable to that of related papers in the literature using European data, such as Kolb (2019).



and Rastad (2018)). Among strategic acquisitions, 77% are carried out by publicly listed acquirers and only 11.7% involve stock payment alone or in combination with other types of consideration. Figure 1 shows the yearly breakdown of the number of deals by financial sponsors and strategic buyers and the relative contribution of the former to aggregate deal value in the euro area. Overall, the activity of financial sponsors and strategic buyers varies significantly from one year to next and clusters in time, consistent with Harford (2005) and the extant literature on merger waves.<sup>11</sup> The deal volume attributable to strategic buyers (M&As) always exceeds that of financial sponsors (LBOs). However, the fraction of the latter over aggregate deal volumes varies over time, both in terms of the number and the value of deals.

—Insert Figure 1 about here—

Table 1 provides some insight into the composition of the sample. Summary statistics on deal and target characteristics are presented for the whole sample and for the subsamples of deals undertaken by strategic buyers and financial sponsors, respectively. Descriptive statistics for deal characteristics are reported in Panel A. On average, deal value is about 897.1 million euros and ranges from a minimum of 50.0 million euros to a maximum of approximately 108.0 billion euros, with a median around 185.6 million euros. For the subset of public targets, a considerable 30.4% takeover premium

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<sup>11</sup>Harford (2005) analyzes a sample of industry-level merger waves in the 1980s and 1990s and finds that such waves occur in response to specific industry shocks that require large-scale reallocation of assets paired with sufficient capital liquidity. Similarly, Bianchi and Chiarella (2018) show substantial cross-industry heterogeneity in the dynamics and persistence of merger waves as a result of different responses to common or distinct drivers of merger activity.

is paid in excess of their market capitalization before the announcement, ranging from a 36.0% discount to a maximum 165.7% premium, with a median around 25.4%. When looking at the breakdown of financial and strategic buyers, some interesting aspects emerge. First, the average deal value does not differ significantly across different bidder types, suggesting that on average financial and strategic buyers in our sample bid for targets of similar size. Moreover, consistent with Gorbenko and Malenko (2014), strategic buyers pay on average a substantially higher takeover premium, which suggests that these acquirers are more willing to recognize higher valuations as justified on the basis of the synergies they expect to realize.

As regards target characteristics, we collected relevant information on financial data on these firms from the 12 months before and after the transaction from Orbis.<sup>12</sup> The summary statistics are reported in Panel B of Table 1. Overall, financial sponsors and strategic buyers seem to target the same type of companies in terms of size and growth. Generally, we do not find any significant difference between M&A and LBO targets in terms of their total assets or revenues, or their growth rates. The same holds for their cash holdings and leverage. Still, firms targeted by financial sponsors are relatively more profitable on average. While we do not find any significant difference between the profit margins of companies targeted by financial sponsor and strategic buyers, LBO targets report on average higher rates of return on assets and equity. Differences across groups are significant at

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<sup>12</sup>We are able to identify 1,808 out the 2,329 targets in our sample by matching company names across databases. For 755 of them information on company financial data is available between 2010 and 2018, and 331 have records from the 12 months before and after the transaction.

the 10%-level. Analogously, the average Debt/EBITDA ratio of companies targeted by financial sponsors is relatively lower than that of M&A targets, suggesting LBO targets have relatively more capacity for additional debt.<sup>13</sup>

Consistent with this interpretation and the different financing strategies used by the two acquirer types, the debt of LBO targets escalates on average by 4 times EBITDA with the LBO. This translates into an increase in their leverage, while the opposite occurs for M&A targets whose leverage declines instead.<sup>14</sup> Variations in the target companies' Debt/EBITDA ratio and leverage are different across deal types at the 10%-level of statistical significance.

—Insert Table 1 about here—

#### 4. Empirical analysis

We conduct our empirical analysis first at the aggregate level and then corroborate our results at the deal level.<sup>15</sup> Specifically, we initially investigate the link between LBO deal volume and risk-free rates, credit risk premiums and stock market valuations by examining the proportion of deals

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<sup>13</sup>Consistent with this argument, just 17 out of 211 LBO targets for which we can obtain information on the current status from Orbis have subsequently defaulted. This corresponds to a default rate of approximately 8%, which is smaller than the one reported reported by US studies using a similar transaction size cutoff (see Ayash and Schütt (2016)) and more in line with Tykvová and Borell (2012) that study European companies also using data from Orbis.

<sup>14</sup>The increase in leverage of LBO targets is not as economically meaningful as we would have expected based on the evidence from US data provided by Ayash and Schütt (2016). Still, it is in line with what Boucly et al. (2011) find within a sample of French buyouts that includes both growth equity buyouts and leveraged buyouts.

<sup>15</sup>To ensure that our results are not driven in any significant way by the fact that strategic buyers have greater flexibility in the choice of the payment method, in unreported findings, we replicate all our analyses excluding from the sample all deals for which stock is used as consideration. The results, which are available upon request, are equivalent to those obtained for the full sample and presented in Tables 5 and 6.

related to financial sponsors under varying conditions in financial markets. Our intuition is that if financial sponsors and strategic buyers were analogously affected by conditions in financial markets their corresponding deal flows would be synchronous. In other words, as the number of deals or their aggregate values vary over time, the relative composition of the deal flow would remain constant. On the contrary, we would interpret a comparative lack or abundance of financial-sponsors-related deal flow when the risk-free rate, the credit risk premium or valuations are particularly high or low, as evidence of the impact of stock and debt market conditions on LBO deal volume.

Next, we corroborate the results of the aggregate level analysis by examining, at the individual deal level, the effects of varying stock and debt market conditions from three different angles: the odds a deal is backed by different acquirer types, the size of the deals they undertake and the takeover premium they pay. This analysis allows us to shed additional light on the behavior of financial sponsors and strategic buyers under varying market conditions. More specifically, it allows us to explore different channels through which the risk-free rate, credit risk premiums and stock market valuations affect the composition of the deal flow. In particular, we are interested in testing whether the effects that we observe are the result of one type of buyer crowding out the other or rather the consequence of an adjustment in the size of deals undertaken by different types of buyers.

#### 4.1. Aggregate level analysis

We model the contribution of financial sponsors to total deal flow as a linear function of a vector of financial variables:

$$Y_{j,t} = a + bX_t + \nu_j + e_{j,t} \quad (1)$$

We measure financial sponsors' activity relative to aggregate deal volume,  $Y_{j,t}$ , either on the basis of the corresponding number of deals or their value. Depending on the model specification, the subscript  $t$  denotes the quarter or the year of observation and  $j$  the industry of the target firm. First, in fact, we aggregate LBO and M&A deals quarterly and divide the number or the value of all deals carried out by financial sponsors in a given quarter across all industries over the total deal flow in the same quarter. This results in two time series, with 68 observations each, spanning the entire sample period. Figure 2 shows the quarterly breakdown of the number of deals between financial sponsors and strategic buyers and the relative contribution of the former to aggregate deal value.

—Insert Figure 2 about here—

Then, we compute the same measures annually by dividing the number or the value of all deals carried out by financial sponsors in a given industry over the total deal flow in the same industry. We use Bloomberg's industrial sector classification: Basic Materials, Communications, Consumer-Cyclical, Consumer-Non Cyclical, Energy, Financials, Industrials, Technology, Utilities and Others. Table 2 describes the distribution of the observations

in our sample by deal type and across industries. Approximately 60% of the deals in our sample involve Consumer-Cyclical, Consumer-Non Cyclical and Industrials. These same industries account for about two-thirds of the LBOs in our sample, suggesting financial sponsors typically concentrate their activity in specific industries.

—Insert Table 2 about here—

By aggregating deals this way, we obtain a panel of 170 year-industry observations for the number of deals and another one for their aggregate value. With these measures we aim to study the within industry effects of varying market conditions on deal volumes by financial sponsor and strategic buyers. In doing so, we take into account the intrinsic differences across industries, such as their different appeal to various types of bidders, and the fact that deals tend to cluster in time and industries. Figure 3 shows for each industry the yearly breakdown of the number of deals by financial sponsors and strategic buyers, as well as the relative contribution of the former to aggregate deal value.

—Insert Figure 3 about here—

Summary statistics for all our dependent variables are presented in Table 3. The average contribution of financial sponsors to aggregate deal volume is on average about 20% of the number or the value of deals. The average number of LBOs is about 7 per quarter or 3 per year within each industry. This compares to an average of about 28 M&As per quarter or 11 per year within each industry. On 38 different occasions, there are no LBOs in a

given industry and year, as is the case in the last quarter of our sample period. At least 8 M&As are observed in each quarter of our sample period, but on 4 different occasions none is recorded in a given industry and year. This results in 4 industry-year observations in which there are no deals at all, meaning we cannot compute the relative contribution of financial sponsors to aggregate deal volume. The maximum number of LBOs is 25 per quarter or 19 per year within a given industry, while the corresponding figures for M&As are 66 and 61, respectively. In terms of deal values, the contribution of financial sponsors to aggregate deal volume is relatively more volatile and has a lower median.

As expected, LBOs and M&A deal flows are positively but not perfectly correlated. The correlation between the quarterly number of deals by financial sponsors and strategic buyers is 57%, while at the industry-year level this figure moves up to 66%. This is consistent with Harford et al. (2016) who demonstrate that an LBO in one industry reveals private information about optimal changes in that industry and leads to more M&A activity by both acquirer types.

—Insert Table 3 about here—

Our set of independent variables,  $X_t$ , includes macroeconomic and financial variables, observed either at the beginning of the quarter or averaged over the year, depending on the periodicity of the dependent variable. The euro area 3-month Euribor rate,  $Euribor - 3m_t$ , is used to capture varying conditions in the markets for debt with respect to the risk-free rate. High values correspond to less liquid credit markets, and vice versa. Then,

we compute the spread between the yields offered by the constituents of the Bloomberg Barclays Euro High Yield Bond Index over those of the Bloomberg Barclays Euro Corporate Bond Index,  $YieldSpread_t$ , to account for changes in the credit risk premium and the extra cost that high-yield borrowers have to pay to raise debt. Higher values of this variable correspond to a wider gap in the cost of borrowing for financial sponsors relative to strategic buyers. Finally the price-to-book ratio of the Euro Stoxx 50 Index,  $P - to - B_t$ , proxies for the level of valuations in the equity market. Higher values correspond to relatively higher valuations and a lower cost of equity. Finally,  $\nu_j$  are industry fixed effects, when included.

Figure 4 plots the annual evolution of our independent variables over the sample period. We observe substantial variation in all our financial and macroeconomic variables. Indeed, the sample period comprises quite a few distinct intervals of recognized turmoil and changing macroeconomic conditions. Examples include the conditions following the Lehman Brothers collapse in October 2008 and through the European sovereign debt crisis, marked by unfavorable credit conditions combined with high investor uncertainty and lower valuations; or the period following the adoption of quantitative easing, characterized instead by cheap credit paired with renewed investor confidence and growing stock market valuations.

—Insert Figure 4 about here—

Summary statistics for our independent variables, based on their observation at quarterly frequency, are presented in Table 4. The 3-month Euribor rate ranges from the negative rates observed in the last part of the sample



period to about 5% in the run-up to the financial crisis. The average of about 1.5% reflects the exceptional liquidity of credit for a large part of the sample period due to protracted expansionary monetary policy, as well as low growth and inflation expectations. Analogously, the yield spread spiked as high as 18% in the wake of the financial crisis, to eventually narrow to historical low levels in the last part of the sample period. The average of about 5% reflects the relatively good appetite for risk in debt markets for a large part of the sample period and therefore the relatively favorable financing conditions for financial sponsors. Finally, the stock prices over the sample period varied, ranging from as cheap as to approximate their book value to more than two times that figure. Overall, considering Harford (2005) and the literature on the drivers of M&As, the summary statistics for our macroeconomic and financial variables suggest that our sample period should see intervals of more favorable conditions for M&A and stronger deal flows alternating with periods characterized by relatively less favorable conditions and weaker deal volumes.

Not surprisingly, the 3-month Euribor rate and the yield spread are moderately correlated, while stock market valuations are positively correlated with the former and negatively correlated with the latter. In order to take into account stock market trends and to mitigate the correlation between valuations and the 3-month Euribor rate, in our regression analysis we employ a time de-trended transformation of the Euro Stoxx 50 Index price-to-book ratio. Otherwise, the coefficient on this variable would also capture any changing trends in the portion of transactions carried out by financial

sponsors.

—Insert Table 4 about here—

#### *4.1.1. Results*

In this section we present the results and discuss the main findings of our aggregate level analysis. We estimate our model by either quarterly time-series regressions or industry-level panel regressions, depending on the model specification.<sup>16</sup>

Table 5 reports the coefficients and their standard errors (in parenthesis) for six alternative specifications of our model. Each one has a different dependent variable. In columns (3) and (6) the dependent variable is the fraction of LBOs over aggregate deal flow, measured on the basis of the number of deals and their value, respectively. To aid in the interpretation of the results of these regressions, we also present separate analyses of M&A and LBO deal volumes. In columns (1) and (4) the dependent variable is the volume of M&As, measured on the basis of their number and value, respectively. Columns (2) and (5) report the volume of LBOs, measured in number and value, respectively. We log-transform dependent variables in columns (1), (2),(4) and (5) so that the regression coefficients reported in the table can be interpreted as semi-elasticities and compared across models. In the first panel deals are aggregated quarterly; in the second panel by industry and year. All industry-level panel regressions include industry fixed effects aimed at capturing the within industry effects of varying market

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<sup>16</sup>We obtain analogous results by estimating a Tobit model in order to account for the potential censoring of the dependent variables. Results are available upon request.

conditions on the activity of different acquirer types.

Our aggregate level analysis uncovers substantial differences in the ways financial sponsors and strategic buyers react to shifts in the risk-free rate, credit risk premiums and stock market valuations. Indeed, our findings suggest that deal flows for different types of buyers are not synchronous and the relative composition of deal flow changes in response to varying market conditions. In particular, we find that the relative contribution of financial sponsors to the total volume of deals increases when the risk-free rate rises or the yield spread narrows, while it drops when stock market valuations rise.

Table 5 shows that higher levels of the 3-month Euribor rate, are associated with an expansion in financial sponsors' share of the aggregate deal flow. The corresponding coefficient is positive and significant both in terms of the number of deals in column (3), and their value in column (6). In particular, a one percentage point increase in the 3-month Euribor rate corresponds approximately to a 2.0% uptick in the relative contribution of financial sponsors to the quarterly number of deals, and a 3.2% rise in their share of aggregate deal value. We interpret this result as evidence of a greater sensitivity of financial sponsors to the credit cycle. Indeed, the corresponding coefficients in columns (1) and (2), as well as those in columns (4) and (5), show LBOs respond relatively more than M&As to changes in the 3-month Euribor rate. This is not surprising given the higher reliance of financial sponsors on debt funding. Yet the signs of the corresponding effects are not consistent with an explanation grounded on financial constraints.

In fact, a one percentage point increase in the 3-month Euribor rate corresponds to an increase of approximately 25.3% of the quarterly number of LBOs and 38.0% of their value, compared with an 11.3% increase in the number of M&As and no significant change in their value. In both cases, the difference between the corresponding coefficients is statistically significant at the 1%-level.

While higher rates point to a reduction in credit supply, Stock and Watson (1999) show they coincide with periods of greater expected growth and rising inflation. Therefore, while a change in the risk-free rate affects the financial constraints of acquirers, it also affects their valuation of the investment opportunities they have, but in the opposite direction. In our sample period, the latter effect seems to prevail for both acquirer types. Still, consistent with Martos-Vila et al. (2019), the contribution of financial sponsors to overall deal flow expands for higher levels of the risk-free rate.<sup>17</sup>

The effect of a change in the 3-month Euribor rate on financial sponsors' share of the aggregate deal flow is milder when we aggregate deals by industry and year. The corresponding coefficient is positive and significant both in terms of the number of deals in column (3) and their value in column (6), but only at the 10%-level. In this case, different acquirer types seem to respond to a similar extent to changes in the 3-month Euribor rate. Disparities in their corresponding coefficients in columns (1) and (2), and in columns (4)-(5), are not statistically significant.

In terms of the extra cost of borrowing that financial sponsors face as

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<sup>17</sup>More in detail, Martos-Vila et al. (2019) obtain equivalent results for 5-year Treasury Bond yields.

a results of the highly leveraged capital structure of their investments, this affects their relative contribution to deal flow in the opposite way. When the gap between the credit risk premium of high yield and investment grade issuers widens, i.e. when the difference between the borrowing costs of different types of buyers is larger, the relative contribution of financial sponsors to overall deal flow drops. The coefficient on the yield spread is negative and significant both in terms of the number of deals in column (3), and their value in column (6). In particular, a one percentage point increase in the yield spread corresponds to a 1.1% dip in the relative contribution of financial sponsors to the quarterly number of deals and a 1.8% decline in their share of aggregate deal value. This effect is the result of greater exposure of financial sponsors to shifts in the credit risk premium. Indeed, the corresponding coefficients in columns (1) and (2), as well as those in columns (4) and (5), show LBOs respond relatively more than M&As to changes in the yield spread. The impact of a one percentage point increase in the latter would correspond, in fact, to a fall of approximately 14.3% of the quarterly number of LBOs and 23.7% of their value, compared with just a 6.1% drop in the number of M&As and no significant change in their value. In both cases, the difference between the corresponding coefficients is statistically significant at the 1%-level. We get similar results when we aggregate deals by industry and year and we control for industry fixed effects. These results are in line with Martos-Vila et al. (2019), who find that financial sponsors decrease their contribution to overall deal volume when the yield spread widens, as debt overvaluation is corrected and they become

more financially constrained.<sup>18</sup>

Finally, stock market valuations affect the relative contribution of financial sponsors in a negative way. In fact, their contribution to overall deal flow drops when stock market valuations are high, but only with respect to the number of deals. The coefficient on the price-to-book ratio of the Euro Stoxx 50 Index is negative and significant in column (3) but not in column (6). More specifically, a unit increase in the price-to-book ratio corresponds to an 8.9% drop in the relative contribution of financial sponsors to the quarterly number of deals. This effect is the result of growth in M&A deal volume when valuations are high and financial sponsors pull back from deals. Indeed, the corresponding coefficient in column (1) shows a unit increase in the level of the price-to-book ratio would correspond to a 25.7% upsurge in the quarterly number of M&As and no significant change for LBOs. The difference between the corresponding coefficients is statistically significant at the 5%-level. We obtain similar results when we aggregate deals by industry and year and control for industry fixed effects.

Also these findings are consistent with the evidence provided by Martos-Vila et al. (2019) who corroborate the same link between financial sponsor activity and valuations. Furthermore, we show that the reduction in the relative contribution of financial sponsors to total deal volume can be attributed to the intensified activity by strategic buyers in response to higher valuations. In this regard, our results are also in line with predictions by

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<sup>18</sup>More in detail, Martos-Vila et al. (2019) calculate the borrowing costs for financial sponsors as the High-Yield spread over the 5-year Treasury Yield and the borrowing costs for strategic buyers as the spread between the average rate on commercial and industrial loans and the Federal Funds rate.

Shleifer and Vishny (2003) and Rhodes-Kropf and Viswanathan (2004).

—Insert Table 5 about here—

#### *4.2. Deal level analysis*

In order to corroborate our aggregate level results we further analyze, at the individual deal level, the effects of varying stock and debt market conditions on the likelihood of a deal being backed by a financial sponsor or by a strategic buyer. Moreover, we link financial market conditions to the size of the deals that different acquirer types undertake as well as the takeover premium they pay.

If we consider all the targets in our sample as a representative set of the investment opportunities available to financial sponsors, we can get further insight into the willingness of this type of buyers to acquire a company under varying conditions in financial markets. We do so by looking at the odds that a target in our sample will be acquired by a financial sponsor rather than a strategic buyer, across periods characterized by different credit conditions and valuations. In particular, if financial market conditions were to affect financial sponsors and strategic buyers in the same way, we would expect the odds of a target being acquired by a financial sponsor rather than a strategic buyer to stay constant over time. On the contrary, a rise or fall of the odds ratio would be interpreted as evidence of the adverse or favorable impact of debt and equity market conditions on financial-sponsors-related deal flow.

We test whether the odds that a deal at a given point in time will be backed by a financial sponsor vary significantly as a consequence of shifts in the risk-

free rate, the credit risk premium or valuations by means of the following logit model:

$$\text{logit}(Y_{i,j,t}) = \log\left(\frac{y_{i,j,t}}{1 - y_{i,j,t}}\right) = a + bX_t + \nu_j + e_{i,j,t} \quad (2)$$

The dependent variable is a dummy variable that takes the value of 1 for LBOs and 0 for M&As. As per our aggregate level analysis, independent variables include: the 3-month Euribor rate, the yield spread of the Bloomberg Barclays Euro High Yield Bond Index over the Bloomberg Barclays Euro Corporate Bond Index, and the price-to-book ratio of the Euro Stoxx 50 Index. Subscripts  $i$  denotes the deal,  $t$  denotes the month it is announced and  $j$  the industry of the target firm.  $\nu_j$  are target industry fixed effects.

Then, following the same rationale, we test whether the deal size or the takeover premium paid by different types of acquirers vary significantly as a consequence of shifts in stock market valuations and debt market conditions. To do so we use the following linear model:

$$Y_{i,j,t} = a + bX_t + \nu_j + e_{i,j,t} \quad (3)$$

In this case, the dependent variable is either the deal value or the takeover premium paid. The latter is aimed at ascertaining the extent to which a comparative increase or decline in the takeover premium paid by different acquirer types can explain variations in their relative contributions to aggregate deal volume, due to one type of acquirer crowding out the other. The



deal value dependent variable looks instead at the extent to which relatively larger or smaller adjustments of the size of deals by different acquirers types may eventually explain variations in their relative contributions to aggregate deal value.

#### *4.2.1. Results*

In this section we present the results and discuss the main findings of our analysis at deal level. Table 6 reports regression coefficients and their standard errors (in parenthesis) for five different models. Column (1) presents the results of our logit model for the odds of observing a deal at a given point in time being backed by a financial sponsor rather than a strategic buyer. Columns (2) and (3) show the estimates of our regressions of the takeover premiums for M&As and LBOs, respectively. Columns (4) and (5) instead give the results of our regressions of deal values for M&As and LBOs, respectively.<sup>19</sup>

The likelihood of a deal being carried out by a financial sponsor is greater when risk-free rates rise, and lower when the extra cost of borrowing for financial sponsors increases (compared to strategic buyers) or when valuations rise. Consistent with our evidence at the aggregate level, we find the odds of observing an LBO are positively related to the 3-month Euribor rate and negatively related to the yield spread and stock market valuations. This confirms that the results of our aggregate level analysis are not driven by the alternative criteria we employ to aggregate deals. More specifically,

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<sup>19</sup> Analogous results can be obtained with the inclusion of both industry and country fixed effects. These results are available from the author upon request.

the coefficient on the 3-month Euribor rate in column (1) is positive and significant at the 1%-level, suggesting that for a one percentage point increase in the latter, the odds of an LBO increase by approximately 11.7%. The coefficient on the yield spread is instead negative and significant at the 1%-level. For a one percentage point rise in the yield spread, the odds of an LBO drop by approximately 10.6%. Also the coefficient on the price-to-book ratio is negative and significant, but only at the 10%-level. In this case, for a one unit increase in the price-to-book ratio, the odds of an LBO plummet by approximately 40.3%.

Shifts in credit conditions and stock market valuations may affect the relative contributions of M&As and LBOs to the aggregate deal volume through changes in the takeover premium of deals undertaken by different types of acquirers. In order to explore this channel, columns (2) and (3) report the results of our regressions of takeover premiums for M&As and LBOs, respectively. We find that the yield spread has a significant effect on the takeover premium of deals backed by strategic buyers, but not for those backed by financial sponsors. The corresponding coefficient is positive and significant at the 1% level only in column (2). In particular, a one percentage point uptick in the yield spread results in 2.0% rise in the takeover premium paid by strategic buyers, which would be equivalent to an increase by approximately \$17 million for the average deal in our sample. This finding may have two alternative explanations. First, strategic buyers may inflate the takeover premium they pay when the yield spread widens because they bid more aggressively. Second, the takeover premium

may increase as a consequence of lower target valuations. To discard one or the other we look into the relationship between the equity-to-book value transaction multiple of M&A deals in our sample and our three variables of interest. Remarkably, we don't find any significant relationship. Thus, we conclude that the observed positive relationship we observe between the yield spread and the takeover premium in M&As is not attributable to the fact that strategic buyers bid more aggressively (with respect to the book value) when the yield spread widens. Instead this must be due to the fact that stock market prices are comparatively low and the takeover premium is consequently higher. Moreover, this effect is not large enough to explain the crowding-out of financial sponsors by strategic buyers that we see at the aggregate level and in column (1). The difference between the corresponding coefficients in columns (2) and (3) is not statistically significant.

Finally, shifts in credit conditions and stock market valuations may affect the relative contribution of financial sponsors to aggregate deal flow through changes in the size of the deals undertaken by different types of acquirers, rather than by their willingness to undertake a transaction. In order to explore this channel, columns (4) and (5) report the results of our regressions of deal values for M&As and LBOs, respectively. We find that the level of the risk-free rate has opposite effects on the size of deals carried out by different acquirer types. In fact, higher 3-month Euribor rates are associated with relatively larger LBOs and relatively smaller M&As. The corresponding coefficients in columns (4) and (5) are both significant and suggest that for a one percentage point increase in the 3-month Euribor rate,

the size of an M&A deal would drop by approximately 118.3 million euros while an LBO would grow by 147.5 million euros. The difference between the coefficients is significant at the 10%-level. For the yield spread, instead, we find the opposite effects. A higher differential in the cost of borrowing between high yield and investment grade borrowers results in larger M&A deals and smaller LBOs. While the corresponding coefficients in columns (4) and (5) are not statistically significant, their difference is significant at the 10%-level.

Overall, these results suggest that variations in the composition of deal flows over time are the result two concurrent factors. First, the propensity of different acquirer types to embark on a transaction under varying financial market conditions. Second, how far different buyer types go to adjust the size of the deals they undertake in response to changing market conditions. On the contrary, the differential between the takeover premium different buyers pay seems to have little impact.

—Insert Table 6 about here—

## 5. Conclusions

In this paper we have analyzed why the portion of financial buyers over total deal making activity varies in the time series. In particular, we have linked the activity of financial sponsors and strategic buyers to risk-free rates, credit risk premiums and stock market valuations in an effort to shed light on the possibly conflicting effects on the composition of deal flow. This question is vital because of the effect that the acquirer type has on the

target companies potentially acquired, as financial sponsors and strategic buyers differ with regard to several dimensions, including strategic goals.

We have shown within a euro area sample several non-trivial implications related to the relative intensity of M&A activity by financial sponsors and strategic buyers. Overall, the picture that emerges from our analysis is consistent with Martos-Vila et al. (2019) and Haddad et al. (2017) and can be interpreted in light of mispricing in debt and equity markets. Indeed, our analysis suggests that the relative contribution of different acquirer types to overall deal flow changes over time depending on the mispricing of debt and equity markets. Financial sponsors increase their share of total deal volume when the yield spread narrows, while strategic buyers expand theirs when stock market valuation rise. In the former case, mispricing in debt markets relaxes the financial constraints of financial sponsors comparatively more. In the latter case, mispricing in the equity markets favors strategic buyers instead. The rest of the fluctuations in the composition of the deal flow is explained by the expectations regarding economic growth and inflation, as captured by the risk-free rate. Better economic prospects are associated with relatively more activity by financial sponsors. The high returns required by their investors, combined with their shorter investment horizon and higher pressure to invest, lead financial sponsors to accelerate their investments to deploy their capital.

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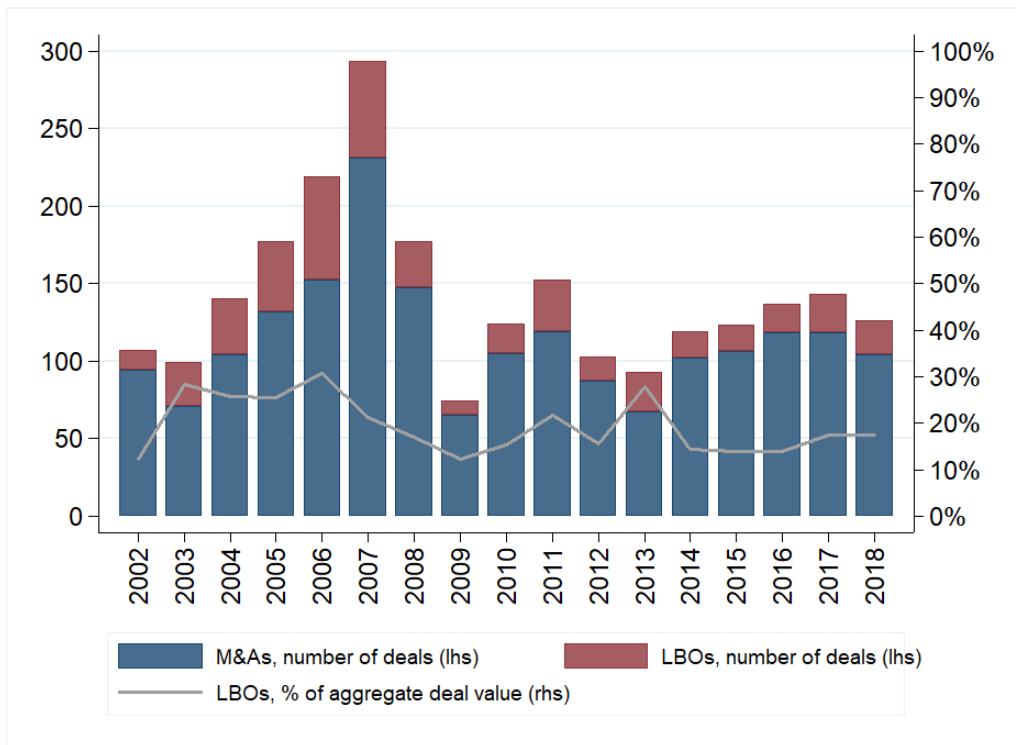
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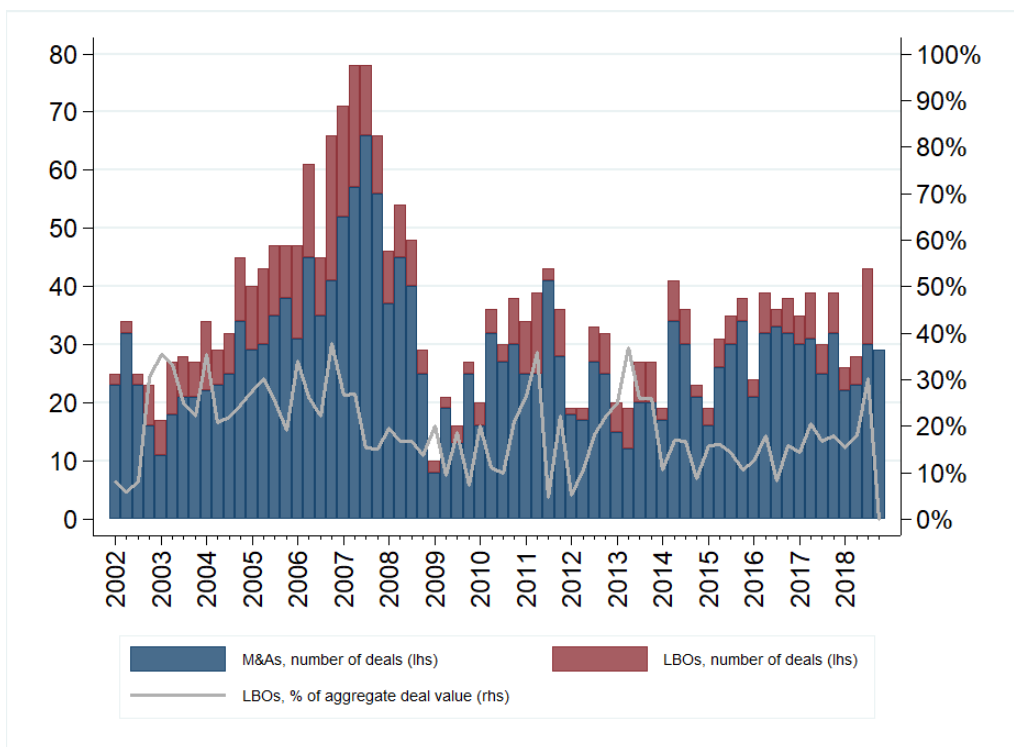
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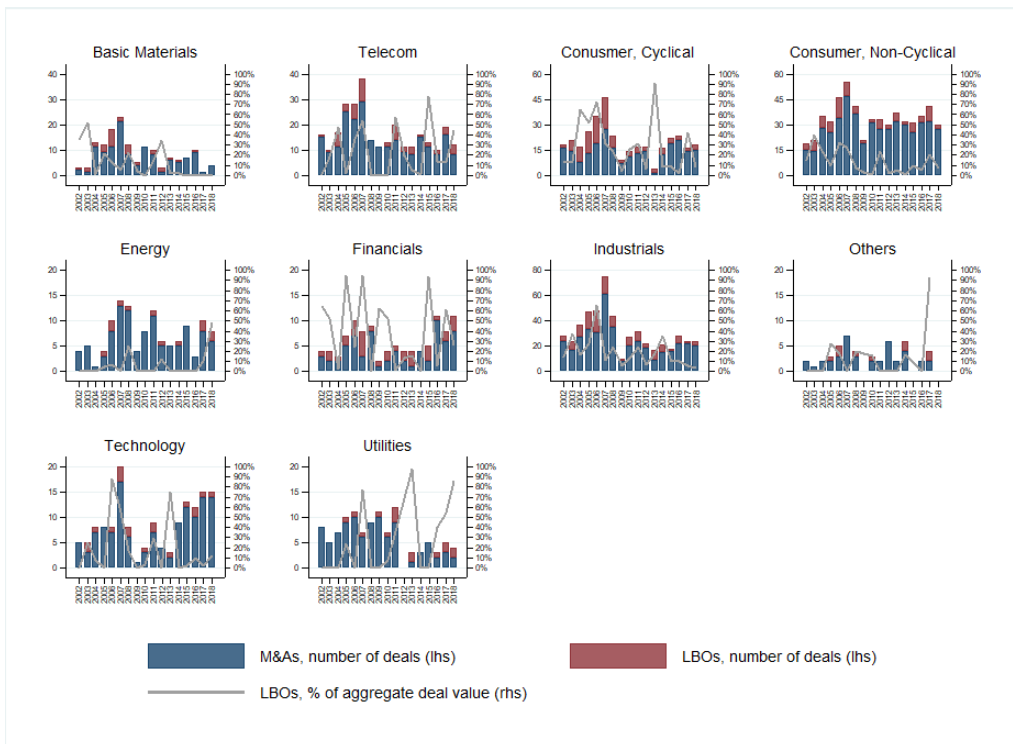
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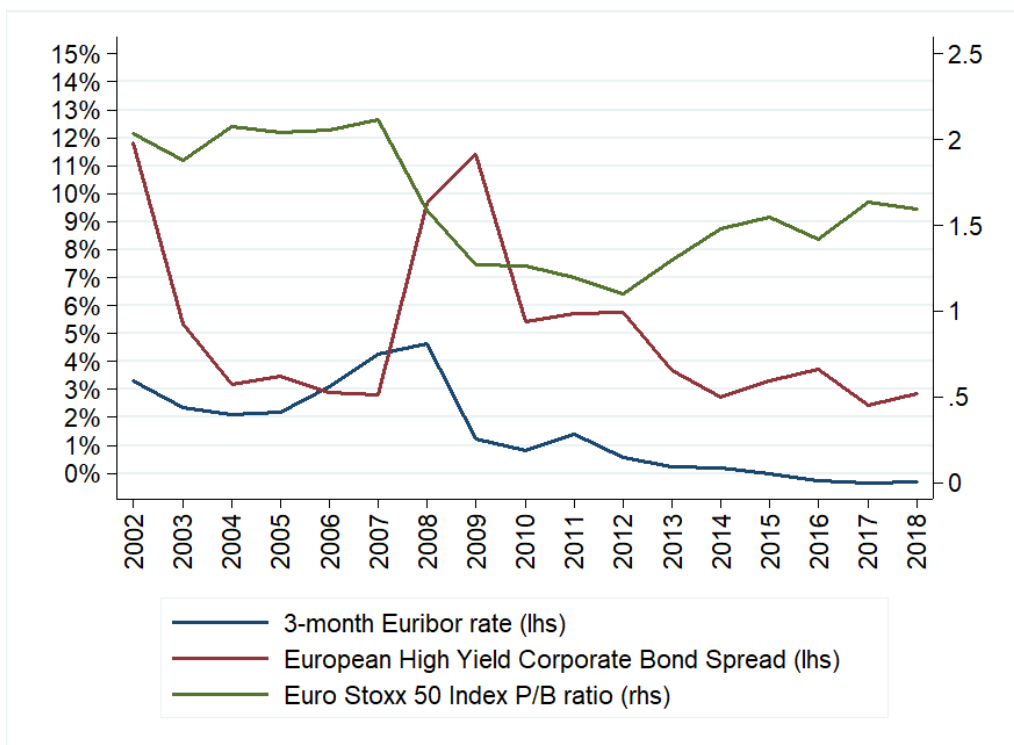
**Figure 1:** This figure illustrates the yearly breakdown of the number of deals (bars) made by financial sponsors (LBOs) and strategic buyers (M&As) and shows the relative contribution of the former to aggregate deal value in the euro area (line).



**Figure 2:** This figure illustrates the quarterly breakdown of the number of deals (bars) made by financial sponsors (LBOs) and strategic buyers (M&As) and shows the relative contribution of the former to aggregate deal value in the euro area (line).



**Figure 3:** This figure illustrates for each industry the yearly breakdown of the number of deals (bars) made by financial sponsors (LBOs) and strategic buyers (M&As) and shows the relative contribution of the former to aggregate deal value in the euro area (line).



**Figure 4:** This figure plots the annual evolution of the 3-month Euribor rate, the yield spread of the Bloomberg Barclays Euro High Yield Bond Index over the Bloomberg Barclays Euro Corporate Bond Index and the price-to-book ratio of the Euro Stoxx 50 Index over the sample period.

**Table 1: Summary Statistics: Sample.**

This table reports summary statistics for the whole sample and for subsamples of deals realized by strategic buyers (M&As) and financial sponsors (LBOs), respectively. Descriptive statistics for deal and target firm characteristics are reported in Panel A and Panel B, respectively. Value represents the value of the deal as announced in millions of euros. It includes the announced equity value and the target net debt. Premium refers to the percentage difference between the offer price and the undisturbed market price of the target before the announcement. Equity to Book Value is the ratio between the announced equity value of the deal and the book value of the target. The latter has been winsorized at the 2.5% level on both sides to drop outliers. All target financials figures correspond to the ones reported in the last financial statements released in the 12 months before the deal. Growth rates are computed with respect to the previous year. Post-deal changes are computed on the basis of the first financial statements released in the 12 months following the deal. Cash represents cash and marketable securities expressed as a percentage of total assets. Leverage is computed as long and short term financial debt over total assets. Differences in means across subsamples of deals are shown in the last column of each Panel. The superscripts \*, \*\*, \*\*\* denote the significance of the T-tests of differences in means across subsamples at the 10%, 5% and 1% levels, respectively.

<b>Panel A: Deal characteristics</b>							
	All		M&As		LBOs		Diff.
	Obs.	Mean	Obs.	Mean	Obs.	Mean	
Value (Euro Mil.)	2,406	897.1	1,922	912.3	484	836.8	75.5
Premium (%)	469	30.4	426	31.6	70	23.1	8.5**
Equity to Book Value	639	4.2	511	4.2	128	4.3	-0.1

<b>Panel B: Target characteristics</b>							
	All		M&As		LBOs		Diff.
	Obs.	Mean	Obs.	Mean	Obs.	Mean	
Total assets (Euro Mil.)	331	424.9	250	460.2	81	315.8	144.4
Total assets (% Growth)	287	5.0	221	5.0	66	5.2	-0.2
Revenues (Euro Mil.)	234	218.9	180	228.9	54	185.9	42.9
Revenues (% Growth)	206	5.4	159	4.7	47	7.5	-2.8
Cash (% of Tot. assets)	308	7.4	236	7.5	72	7.0	0.5
<i>Post- vs. pre-deal</i> ( $\Delta$ )	244	-0.5	184	-0.6	60	-0.1	-0.5
Leverage (%)	313	21.2	237	22.0	76	19.0	3.0
<i>Post- vs. pre-deal</i> ( $\Delta$ )	243	-2.7	182	-3.9	61	1.3	-5.2**
Debt/Ebitda (x)	197	8.0	148	8.7	49	5.9	2.8*
<i>Post- vs. pre-deal</i> ( $\Delta$ )	135	1.0	102	0.0	33	4.0	-4.0**
Ebitda margin (%)	240	15.9	187	15.3	53	18.1	-2.8
Ebit margin (%)	278	9.2	218	8.5	60	11.7	-3.2
Return on assets (%)	293	4.4	225	4.0	68	5.8	-1.8*
Return on equity (%)	272	15.1	210	13.8	62	19.5	-5.6*

**Table 2: Sample Industry Breakdown.**

This table shows the distribution of M&A and LBO deals in our sample across industries, according to Bloomberg's industrial sector classification. This includes 10 categories: Basic Materials, Communications, Consumer-Cyclical, Consumer-Non Cyclical, Energy, Financials, Industrials, Technology, Utilities and Others.

	M&As	LBOs	Total
All Industries	1,992	484	2,406
Basic Materials	119	29	148
Communications	236	51	287
Consumer, Cyclical	240	102	342
Consumer, Non-Cyclical	480	92	572
Energy	110	12	122
Financial	70	33	103
Industrial	403	123	526
Others	40	9	49
Technology	129	18	147
Utilities	95	15	110

**Table 3: Summary Statistics: Deal Volumes.**

This table reports summary statistics for our measures of deal flows by financial sponsors (LBOs) and strategic buyers (M&A) and the relative contribution of the latter to aggregate deal volume. Panel A gives summary statistics for the number of LBOs and M&As per quarter, as well as per year and within each industry. Panel B provides the same statistics for the total value of LBOs and M&As.

<b>Panel A: Number of deals</b>						
	Quarterly					
	Obs.	Mean	St. Dev.	Min	Median	Max
M&As	68	28.3	11.0	8	27	66
LBOs	68	7.1	4.9	0	7	25
LBOs (%)	68	19.4	8.7	0	18.5	37.9
	Industry and Year					
	Obs.	Mean	St. Dev.	Min	Median	Max
M&As	170	11.3	10.1	0	8	61
LBOs	170	2.9	3.5	0	2	19
LBOs (%)	166	19.8	17.1	0	16.7	75.0

<b>Panel B: Deal value</b>						
	Quarterly					
	Obs.	Mean	St. Dev.	Min	Median	Max
M&As (Euro Mil.)	68	25,785.2	23,807.5	2,042.9	20,232.8	141,928.3
LBOs (Euro Mil.)	68	5,955.7	10,492.6	0	2,051.1	57,076.9
LBOs (%)	68	17.3	17.7	0	10.5	71.1
	Industry and Year					
	Obs.	Mean	St. Dev.	Min	Median	Max
M&As (Euro Mil.)	170	10,314.1	16,252.3	0	5,041.2	132,309.5
LBOs (Euro Mil.)	170	2,382.3	5,200.7	0	552.6	36,768.1
LBOs (%)	166	20.4	25.3	0	10.4	97.3



**Table 4: Summary Statistics: Macroeconomic and Financial Variables.**

This table reports in Panel A summary statistics for the 3-month Euribor rate, the yield spread of the Bloomberg Barclays Euro High Yield Bond Index over the Bloomberg Barclays Euro Corporate Bond Index and the price-to-book ratio of the Euro Stoxx 50 Index over the sample period, observed quarterly. Panel B gives their correlation matrix.

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<b>Panel A: Summary statistics</b>						
	Obs.	Mean	St. Dev.	Min	Median	Max
Euribor-3m(%)	68	1.49	1.59	-0.33	1.07	4.98
Yield Spread (%)	68	5.07	3.41	1.93	3.64	18.01
P-to-B	68	1.62	0.35	1.01	1.58	2.35

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<b>Panel B: Correlation matrix</b>			
Euribor-3m	1		
Yield Spread	0.36	1	
P-to-B	0.56	-0.23	1

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**Table 5: Aggregate Level Analysis**

This table reports the coefficients and their standard errors (in parenthesis) for six alternative specifications of the model:  $Y_{j,t} = a + bX_t + \nu_j + e_{j,t}$ . In columns (3) and (6) the dependent variable is the fraction of LBOs over aggregate deal flow, measured on the basis of the number of deals and their value, respectively. In columns (1) and (4) the dependent variable is the number of M&As, measured on the basis of the number of deals and their value, respectively. In columns (2) and (5) it is the number of LBOs, measured on the basis of the number of deals and their value, respectively. Dependent variables in columns (1), (2), (4) and (5) are log-transformed. In Panel A deals are aggregated quarterly, while in Panel B they are aggregated by industry and year. All industry-level panel regressions include industry fixed effects. Independent variables are the 3-month Euribor rate, the yield spread of the Bloomberg Barclays Euro High Yield Bond Index minus the Bloomberg Barclays Euro Corporate Bond Index and the price-to-book ratio of the Euro Stoxx 50 Index. The latter is time-detrended. The superscripts \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% levels, respectively. For Wald tests of equivalence of coefficients across models, the p-value is reported.

<b>Panel A: Quarterly</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
Euribor-3m	0.1137*** (0.0242)	0.2530*** (0.0469)	0.0198*** (0.007)	0.0117 (0.0656)	0.3791*** (0.1322)	0.0315** (0.0146)
Yield Spread	-0.0607*** (0.0125)	-0.1426*** (0.024)	-0.0108*** (0.0036)	-0.0383 (0.0339)	-0.2372*** (0.0683)	-0.0175** (0.0075)
P-to-B	0.2567* (0.1443)	-0.3713 (0.2804)	-0.0888** (0.0421)	0.8646** (0.3917)	-0.1539 (0.7898)	-0.0323 (0.0871)
Obs.	68	67	68	68	67	68
Adj. $R^2$	0.49	0.42	0.11	0.14	0.20	0.08
<i>Wald tests:</i>	<i>(1)=(2)</i>			<i>(4)=(5)</i>		
Euribor-3m	0.0049			0.0049		
Yield Spread	0.0013			0.0045		
P-to-B	0.0337			0.20879		
<b>Panel B: Industry-year</b>						
	(1)	(2)	(3)	(4)	(5)	(6)
Euribor-3m	0.1484*** (0.0344)	0.1668*** (0.0265)	0.0154* (0.0090)	0.2447** (0.0965)	0.4515*** (0.1418)	0.0251* (0.0138)
Yield Spread	-0.0452** (0.0221)	-0.0961*** (0.0171)	-0.0172*** (0.0058)	-0.1336** (0.0621)	-0.3267*** (0.0912)	-0.0170* (0.0089)
P-to-B	0.3492 (0.2266)	-0.1146 (0.1746)	-0.1118* (0.0593)	0.1466 (0.6348)	0.6528 (0.9332)	0.0749 (0.0910)
Industry F.E.	Yes	Yes	Yes	Yes	Yes	Yes
Obs.	170	132	166	170	132	166
Adj. $R^2$	0.65	0.68	0.19	0.32	0.40	0.13
<i>Wald tests:</i>	<i>(1)=(2)</i>			<i>(4)=(5)</i>		
Euribor-3m	0.6648			0.1828		
Yield Spread	0.0619			0.0531		
P-to-B	0.0968			0.6202		

**Table 6: Deal Level Analysis**

This table reports the coefficients and their standard errors (in parenthesis) for two different models. Column (1) present the results of the logit model:  $\text{logit}(Y_{i,j,t}) = \log\left(\frac{y_{i,j,t}}{1-y_{i,j,t}}\right) = a + bX_t + \nu_j + e_{i,j,t}$ . The dependent variable is a dummy variable that takes the value of 1 for LBOs and 0 for M&As. Columns (2) to (5) include the results of four different specifications of the linear model:  $Y_{i,j,t} = a + bX_t + \nu_j + e_{i,j,t}$ . In columns (2) and (3) the dependent variables are the takeover premiums for M&As and LBOs, respectively. In columns (4) and (5) the dependent variables are the size of deals (expressed in billions) for M&As and LBOs, respectively. All regressions include industry fixed effects. Independent variables are the 3-month Euribor rate, the yield spread between the Bloomberg Barclays Euro High Yield Bond Index over the Bloomberg Barclays Euro Corporate Bond Index and the price-to-book ratio of the Euro Stoxx 50 Index. The latter is time-detrended. The superscripts \*, \*\*, \*\*\* denote significance at the 10%, 5% and 1% levels, respectively. For Wald tests of equivalence of coefficients across models, the p-value is reported

	(1)	(2)	(3)	(4)	(5)
Euribor-3m	0.1107*** (0.0339)	-1.3961 (1.0151)	-0.9125 (1.5222)	-0.1183** (0.0596)	0.1475* (0.0885)
Yield Spread	-0.1124*** (0.0290)	1.9941*** (0.7395)	0.4150 (1.7571)	0.0284 (0.0419)	-0.0767 (0.0715)
P-to-B	-0.5174* (0.2693)	7.0482 (7.4117)	-9.9302 (13.2341)	0.6924 (0.4406)	0.8097 (0.6916)
Industry F.E.	Yes	Yes	Yes	Yes	Yes
Obs.	2406	426	70	1922	484
Pseudo/Adj. $R^2$	0.03	0.03	0.07	0.01	0.04
<i>Wald tests:</i>		(2)=(3)		(4)=(5)	
Euribor-3m		0.7879		0.0531	
Yield Spread		0.4623		0.0829	
P-to-B		0.3171		0.8205	