Analysts' forecast revisions and informativeness of the acquirer's stock after M&A transactions

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Abstract:

Are mergers and acquisitions significant events that develop informativeness? Is the informativeness process the same in different countries? Looking only at cumulative abnormal returns (CARs) is insufficient and the results are sometimes contradictory. To answer to these questions we use the concept of informativeness to assess whether acquisitions improve the private information content of stock prices. We consider a sample of mergers and acquisitions in the US and Europe over the 2000–2013 period. We gauge informativeness by using different measures. First, we refer to the use of the synchronicity measure introduced by Roll (1988). We also refer to Amihud's (2002) illiquidity ratio and the Llorente et al.'s (2002) measure of informed trading to proxy informativeness. We relate these three measures to the analysts' activity to forecast EPS. We show that the disclosure process is partially linked to the sign and magnitude of the acquirer's abnormal return (CARs) at the announcement date. Informativeness of the stock price does not improve systematically between before and after the acquisition. It changes asymmetrically depending on the upward or downward forecast revisions after the acquisition.

Keywords: Analysts, earning forecasts, forecast revision, price informativeness, synchronicity, cumulative abnormal returns (CARs), acquisitions

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1. Introduction

A successful transfer of control instigates a major change in the economic story of a firm. This is obviously true for the target company, but it is also true for the acquirer who is setting up a new economic project and/or strategy in a newly merged group. This new economic entity will develop (greatly) different plans and perspectives. Information is delivered during the acquisition process to the shareholders of the target company and also to the general public of investors and analysts. This information should be sufficiently sensible to convince investors and result in a completed deal. The price paid to buy the target shares, the means of payment, the business plans, and all of the delivered qualitative information, are specific to the transaction and to its further consequences. The information environment changes as new information is released. Analysts and media coverage help to diffuse new information related to the deal.

After completion, this information becomes public and the informativeness of the stock price about the private and specific information disclosed after a transaction is expected to have increased. The research question is simple. Is it true? Are there some acquisition characteristics that develop informativeness more than others? Is the informativeness process the same between the different economic areas of the world?

The traditional way to tackle this problem is to look at abnormal stock returns. Acquisition is a discretionary decision and the market's immediate reaction is the proxy measure used to check if an announcement effectively modifies the stock price. This traditional approach compares a signal, which is expected to be positive, with positive abnormal returns. The latter will be a proxy for the creation (or the destruction if the signal is negative) of economic value ensuing from the transaction. We will not follow this approach as we prefer to track the informativeness of the market prices. This refers to the increase of private information reflected in stock prices after a transaction, not only at its announcement date. If the signal conveys any valuable idiosyncratic information, whatever positive or negative, it improves the informational

content of prices. If not, it is pure noise. The information process we refer to is based on manager's disclosures during the transaction, and on the analyst's activity. Particularly, analysts and investors may realize that they have incomplete knowledge about the firm's valuation and its future prospects. This can stimulate them to acquire more firm-specific information and to revise their forecast about the newly merged group. Hence, around acquisitions, there are two mechanisms that can cause price informativeness to change. The first is the signal from the event of acquisition itself, while the second is the increased information acquisition activities stimulated by completed mergers and acquisitions. This paper puts emphasis on the two channels by considering analysts' activity.

To gauge informativeness we first follow the Roll's (1988) intuition: A lower level of synchronicity between the stock price and the market return after a given event will indicate that the specific risk expands and incorporates new specific information. The Amihud's (2002) illiquidity ratio is an alternative measure of informativeness which is referred to in the literature. Llorente et al. (2002) also propose a measure to track the informational content of stock prices. Moreover we add other measures which are new: changes in analyst's activity around the acquisition announcement. Following Altinkilic and Hansen (2009) we will refer to some original quantitative variables to follow the issuing of new forecasts and revisions by analysts. We cross the informativeness proxies with changes in analyst's activity around the acquisition announcement. To our knowledge the three measures of informativeness proposed by Roll, Amihud and Llorente et al. have neither been used nor empirically tested within the framework of acquisition transactions. With the exception of Fernandes and Ferreira (2009) and Ferreira et al. (2011) this approach to track the channel of information integration by a set of different proxies is relatively uncommon in the literature.

Transfers of control are important events because they change the nature of the economic project of a firm by adding specific new perspectives or uncertainties to future cash flows. We use a sample of mergers and acquisitions in the US and in Europe to empirically test whether informativeness increases or decreases before and after an acquisition. The sample refers to the 2000–2013 period. Globally, we cannot demonstrate that informativeness has improved or diminished. What is important is the idiosyncratic decision to disclose private information during the acquisition process. This process is pegged on the CAR value as an initial input piece of

information. However, we can show that contractual variables are the most important in explaining the relevant diffusion of new and specific information. The cumulative abnormal return (CAR) at the announcement date is not of itself a sufficient signal. It follows a different rationale, and we show that it is not sufficient to explain informativeness. This result is important as it shows that analyzing the consequences of an event based only on the stock's abnormal moves is not comprehensive and can be misleading. Our results are also used to demonstrate that the informativeness processes are not different in North America and in Europe. Surprisingly, the analysts' activities are not strongly modified by the event; however, their optimistic bias regarding future earnings is reduced after an acquisition.

This paper is organized in five sections: Section 2 presents a review of the literature, Section 3 introduces our hypotheses and presents the sample of acquisitions; Section 4 presents the different measures of informativeness and related univariate analysis. The empirical tests are developed in Section 5. A conclusion follows.[2]

2. Acquisitions and informativeness: review of literature

The relevant literature describes two different avenues of research. First, we need to refer to the literature on mergers and acquisitions. More precisely, we will focus on the problem of the asymmetry of information when a transaction occurs as this specific and important event entails the delivery of new information. Then, we investigate how the concept of informativeness deals with the informational content of the stock price in the market.

2.1 Acquisitions and asymmetry of information

The process of mergers and acquisitions develops in the context of a double information asymmetry between the acquiring and target firms. Hansen (1987) was the first to mention the so-called "double lemons effect," where each party has private information about its own value and

[2] This paper presents strong similarities with La Bruslerie (2014), particularly the measures of informativeness and analysts' activity s in Section 2, as well as the methodological setup.

incomplete information about the nature of the assets to be received. The bidder buys assets of an uncertain value but, being risk averse, wishes to pay less when facing an information risk. The bidder may also want to share the valuation risk. The target shareholders will receive shares of the merged firm with newly forecast profits and synergies. They may also insure themselves by receiving cash and avoiding a share payment. The asymmetries of information explain the risk-sharing attitudes of the buyer and the seller, and consequently the choice of the mix of payment.

A risk-sharing explanation of acquisition prices and terms was developed by Berkovitch and Narayanan (1990) who introduced the sharing of the synergy gains between the buyer and the target firm's shareholders into the analysis. The seller's appropriation of the synergy gains is linked to the difference in information between the two parties. Chang and Mais (1998) expanded the idea that an exchange of information can help to solve the problem of double information asymmetry. They introduced a prior holding in the target's capital (a "toehold") as a means of reducing the buyer's asymmetry of information. In such a situation, the buyer has a better inside knowledge of the target, especially if he or she holds a large portion of capital (Goldman and Qian 2005).

The price (i.e., the acquisition premium) and the means of payment are set by joint agreement. When a hybrid payment scheme is used, it raises the question of the optimal ratio of cash/share payments. La Bruslerie (2012) highlighted the tradeoff between the percentage paid in cash and the percentage of the economic gain of the whole acquisition captured by the target's shareholders through the paid premium.

The means of payment may retroactively influence the offer price and the acquisition premium. The final takeover price is sensitive to the design of the payment scheme and to the disclosure of pieces of private information occurring during the negotiation process. The means of payment can be viewed as a signal to the market. Most analyses assume the acquirer has better private information about the overall outcome of the acquisition than the target, and that the shareholders of the target firm have less information about the new future value. A 100% cash offer is a good signal, indicating that the buyer has sufficiently reliable information about the target. Megginson et al.'s (2004) empirical study of the long-term performance resulting from mergers confirmed that a cash payment is a reliable signal of the future creation of value. The long-term underperformance of purely stock-financed deals has also been demonstrated by

Loughran and Vijh (1997), André et al. (2004), and Antoniou and Zhao (2004). The market-signaling role of the means of payment has also been studied in several event studies (Amihud et al. 1990; Bellamy and Lewin 1992; Martin 1996; Houston and Ryngaert 1997; Travlos 1987). Similar studies have been conducted by Fuller, Netter, and Stegemoller (2002) in the United States and by Da Silva Rosa et al. (2003) in Australia. Goergen and Renneboog (2004) have also provided evidence of the role of the means of payment in a sample of public European offers. However, these studies were mostly based on 100% cash or 100% share payments. Previous works have not explicitly considered the very specific cases of the hybrid payment scheme.

2.2 The concept of informativeness

Informativeness can be defined as the disclosure of specific information to the market, which is successfully incorporated in the stock price. Non-synchronicity as a measure of informativeness was first introduced by Roll (1988), and is a serious candidate for gauging informativeness. It has theoretical foundation (Velkamp 2006). Analyst activity is also referred to by Chan and Hameed (2006) or Altinkilic and Hansen (2009) as a way of tracking the process of integrating information into prices.

Signaling theory has been mainly tested by looking at the short-term market reaction estimated through CARs. However, if the idea is that the acquisition transaction sends an important signal about the future of the firm, then considering the market reaction alone is not sufficient. The acquisition transaction may correct past undervaluation effectively (and CARs are well adapted measures from that perspective). However, when considering future prospects, signaling involves incorporating specific and new information that was not known before. In that sense, the signal expands the set of specific idiosyncratic information and consequently a firm's non-systematic risk. Thus, the CAR may be a too narrow and short-term measure. This is why, for instance, Grullon and Michaely (2004) looked at the long-term operational performance of the firm. We need another measure to complement immediate market reactions, which can be vague or moderated; accordingly, we introduce the broader concept of informativeness.

Ferreira et al. (2011) questioned the concept of price informativeness. This concept covers many dimensions of information and merits several proxies, one of which is the probability of

informed trading (PIN), introduced by Easley et al. (1996). The PIN measure is commonly referred to in empirical studies dealing with US firms. We want to analyze price informativeness for an international sample of US and European firms. Unfortunately the PIN is not available for European firms. The other referred to proxies are the synchronicity measure (Roll, 1988) and the illiquidity ratio (Amihud, 2002). Llorente et al. (2002) propose another measure of price informativeness similar to the Amihud's proxy. They try to gauge the informed trading level in a stock. Llorente et al. (2002) consider excess trading volume with respect to a moving average of several weeks. More recently, Gassen et al. (2014) suggested to use the percentage of zero-returns days to gauge price informativeness. Furthermore, we will introduce additional measures of informativeness by comparing the analysts' forecast production before and after the acquisition.

2.2.1. R2 and non-synchronicity measure

An acquisition conveys new information that is considered useful to the market participants. This information is specifically oriented towards the firm's prospects and not linked to the global market returns. If the information delivered to the market was formerly private information and had not been anticipated, it is specific and not linked to market movements. The quantity of private information spread into the stock price can be measured by a decrease in the synchronicity of the stock price and the market movements, because the specific risk of the stock has increased. If the information is useless or the signal is weak, the specific risk will stay the same, as will the synchronicity. Non-synchronicity as a measure of specific private information delivered to the market is traditionally calculated using the R2 variable. With the presence of firm-specific information, stock price informativeness increases when the return on a stock becomes less correlated with market and industry returns and stock price informativeness increases (Durnev at al. 2004). Ferreira et al. (2011) pointed out that a firm's return variation may be explained by both flows of private and public new information. Public information is globally anticipated by market participants. Non-synchronicity variations capture firm-specific return variations. This explains why non-synchronicity should be associated with the incorporation of more information about the future earnings in the stock prices of the firm. This view is supported by the empirical work of Durnev et al. (2003), which shows that firms with lower synchronicity

exhibit a stronger association between current returns and future earnings, indicating that a better ability to predict a firm's future earnings is integrated into the stock prices.

The non-synchronicity measure is supported by and widely referred to in a large body of theoretical and empirical studies. It has been often used to assess the consequences of a given event such as the introduction of the International Financial Reporting Standards (IFRS; Beuselink et al. 2010; Loureiro and Taboada 2012) for explaining the real allocation decisions of firms' corporate cash holdings (Frésard 2012) or investment decisions (Chen et al. 2007; Foucault and Frésard 2014), or to develop international market comparisons (Morck et al. 2000; Bris et al. 2007).

Non-synchronicity and informativeness have been used to explain real corporate decisions such as those about corporate cash holdings or investment. This avenue of research follows the idea that managers can learn about the prospects for their own firms from stock price information. This learning hypothesis looks at the real consequences of financial markets' informativeness on managerial decisions. When comparing two firms, the managers of firms with better informativeness will be able to take better decisions. Firm managers learn about their own firms' fundamentals from the informational content of stock prices and can incorporate this information into corporate investment decisions. Durnev, Morck, and Yeung (2004) found that firms with a high level of price non-synchronicity make more efficient investment decisions in the sense that their marginal Tobin's Q is higher. Chen et al. (2007) also examined corporate investment decisions, showing that the investment to price sensitivity (i.e., the marginal willingness of the firm to invest) is higher when a firm shows better informativeness. Frésard (2012) investigated corporate cash holding decisions and showed that private information derived from stock price (i.e., informativeness) is positively linked to a firm's saving choices. Foucault and Frésard (2014) also support the learning hypothesis when analyzing stock price informativeness and corporate investment decision.

Informativeness measured by non-synchronicity is also used in the literature for making cross-country comparisons: Morck et al. (2000) showed in a cross-country analysis that developed financial systems favor informativeness; Wurgler (2000) compared sensitivity to investment in countries by using a similar methodology; and Jin and Myers (2006) compared different stock markets using an R2 measurement. The latter refers to the concept of

informational environment based on the disclosure of firm-specific information. In a good informational environment, information is revealed to outsiders on a regular and organized basis, as a result return synchronicity should decrease. According to Jin and Myers (2006) insiders will disclose firm-specific information and control its delivery to share risk. The latter may play with opaqueness, limiting the risk-specific information delivered to outside investors, and, as a consequence, the R-squared value (R2) will increase. Jin and Myers (2006) showed a positive relationship between R2 values and opaqueness, which is the opposite of a good information environment. Even when they took into account differences between stock market development and the level of investor protection, Jin and Myers' (2006) study highlighted the importance of individual firm's transparency policy. An increase in the delivery of firm-specific information to investors will entail lower R2 values.

However, the R2 and the synchronicity measure have been questioned by Kelly (2005) as the R2 value can reflect the institutional context of the financial market. If transaction costs are high, if asymmetry of information is important, and if the number of analysts is low, the firm will exhibit a low R2. As a consequence, a low R2 does not measure price informativeness but a size effect. Kelly suggested using another measure: the breadth of institutional ownership. Alves et al. (2010) criticize the R2 measure in cross-country comparisons for the reason that it is unstable as they want to gauge structural characteristics of the financial markets. However this is exactly what is looked for at the idiosyncratic level because instability may reveal discretionary changes in information.

At the firm level, the link with analysts is underlined by Piotriski and Roulstone (2004). They show a positive relationship between analysts' revision of forecasts and return synchronicity and suggest that analysts' activity will incorporate more industry-level information in stock prices than firm-specific information. Disentangling industry-level information and firm-specific information is complex, however it shows that insider trade will convey firm-specific information. Pantzalis and Xu (2008) also argued that the association between synchronicity and price informativeness is essentially driven by a size effect. If confirmed, this questions the validity of the synchronicity measure. However, their empirical analysis was not based on individual firms but on industry portfolios. This methodology is critical as the portfolio will negate the firm-specific effect of idiosyncratic communication and information policies.

Dasgupta, Gan, and Gao (2010) have provided a theoretical framework where, in a transparent environment, synchronicity can improve when an anticipated event occurs. When the event actually happens, there is less surprise, as there is less information to be integrated into the stock price. In case of wholly new event (i.e., time variant information disclosure) with a "lumpy" early disclosure, they showed that return synchronicity may at first decrease and then increase once the information is totally revealed. They considered the effect of events such as seasoned equity offerings (SEOs) or American depositary receipts (ADRs) on the listing of foreign firms. At the time of disclosure, firm-specific return variations were higher (and synchronicity lower); however, after the disclosure and once the information has been impounded in the stock price, it will entail lower firm-specific returns and higher R2s. Dasgupta et al. (2010) assumed that all specific information is disclosed sooner or later in an efficient market. However, the time horizon they considered was wide as they looked at the R2s over a period of two to four years after the event. Dasgupta et al. were implicitly referring to markets that are strongly anticipating financial events to occur. In this framework, investors will begin to impound information into the stock price prior to the acquisition, and R2s may change before acquisition. When the information environment is good and markets are strongly efficient, the return synchronicity may be higher after the event (Dasgupta et al. 2010). In line with this hypothesis, their empirical analysis shows R2s improving moderately from an average 0.156 to 0.175. Informativeness is not a structural or permanent situation; rather, it exists as an endogenous mean reverting process in the stock market's informativeness. Conversely, Veldkamp (2006) provides a theoretical support to the use of price non-synchronicity as a measure for stock price informativeness. Particularly when the information production cost is high, she argues that investors purchase a limited subset of information that is common to many firms. As a consequence, stock prices show higher co-movement with the market and reflect less firm-specific information. This suggests a negative correlation between price synchronicity and the amount of firm-specific information incorporated into stock price.

Xing and Anderson (2011) presented an empirical analysis that supported an inverted U-shaped relationship between synchronicity and public information. As a measure of information flows they used the voluntary disclosures by management regarding both future earnings and initial public offerings (IPOs), which are seen as events that are supposed to introduce a break in the information environment of a firm. As a result, they claimed that the R2 cannot serve as a

monotonic indicator of the quality of a firm's information environment. Their empirical results are ambiguous as a one way negative relationship is evidenced between IPO dummy and synchronicity, what is not strictly in line with their U-shape hypothesis.

Gassen et al. (2014) underlines the relationship between changes in R2 and illiquidity. They measure illiquidity by zero-return days and show that illiquidity affects the measure of synchronicity in an international empirical study.

2.2.2 Amihud's illiquidity ratio

Another proxy measure for price informativeness is Amihud's (2002) illiquidity ratio(ILLIQ). This measure is defined as the annual average ratio of the absolute daily return to the dollar transaction volume of the day. The illiquidity ratio gives an absolute percentage change for $1 of order flow and is based on Kyle's concept of responsiveness to order flow. The higher the ratio is, higher the illiquidity. The magnitude of the price impact is supposed to be a positive function of the perceived amount of informed trading of a stock. In this sense, higher illiquidity is a measure of informativeness. However, illiquidity also reflects the existence of inventory costs associated with trading. Amihud (2002) expanded the meaning of his measure beyond the strict market liquidity when he said that

> "*another interpretation of ILLIQ is related to disagreements between traders about new information, following Harris and Raviv (1993). When investors agree about the implication of news, the stock price changes without trading while disagreement induces increase in trading volume. Thus ILLIQ can also be interpreted as a measure of consensus belief among investors about new information.*" (art. cit. p. 34, footnote 3)

Thus, news conveying information seen globally as either positive or negative by most traders and investors will result in an increase in the ILLIQ ratio calculated after the event compared to the ratio calculated before.

2.2.3 The Llorente et al.' measure

Llorente et al. (2002) propose another measure of price informativeness similar to the Amihud's proxy. They develop a model using daily returns and trading volumes to analyze the impact of information asymmetry on the dynamic volume-return relationship. They gauge the informed trading level in a stock using time series regressions for each firm. The idea is that more informed-based trading will (ceteris paribus) display positive autocorrelation in periods of high volume. The regression coefficient named c_2 and estimated in their dynamic volume–return model will measure the degree of asymmetry of information. If the delivered information matters we can expect that the c_2 coefficient will lower or become negative between before and after the repurchase transaction.

2.2.4 The analysts' activity and changes in forecasts

The production or the update of individual forecasts is the ultimate measure of an analyst's activity. This approach to gauging the role of analysts in the dissemination of private information has been developed by Piotroski and Roulstone (2004), Chan and Hameed (2006) and Altinkilic and Hansen (2009). It is based on statistics that are designed to indicate the different dimensions of an analyst's activity. Piotroski and Roulstone (2004) and Altinkilic and Hansen (2009) focused on the analysts' revisions of forecasts, while Chan and Hameed considered the number of analysts covering a stock. Piotroski and Roulstine present mitigated results where stock return synchronicity appears inversely associated with insider trades, consistent with transactions conveying firm-specific information. Chen and Hameed show that coverage was positively related to synchronicity, and Alinkilic and Hansen were raising doubts on the information transmission role of recommendation revisions.

3. Hypotheses and M&A sample

3.1 Hypotheses

We formulate the following hypotheses about informativeness in stock prices. Basically, we focus on variations in informativeness due to an acquisition event, and we suppose that variations in informativeness occur with the delivery of new and private information to the

market. This is first due to the announcement of the acquisition and to the agreement of the financial terms of the deal by both the acquirer and the seller. This is also a consequence of the process of integration where analysts generate and issue new pieces of information.

The CAR and informativeness are different measures of the consequences of the same initial signal. CAR is the short-term integration of newly publicized information. Synchronicity presents itself as a measure of firm-specific information integrated in stock price. Synchronicity should decrease after an event which discloses firm-specific private information. The illiquidity ratio and the Llorente et al.'s measure present themselves as relevant proxies to gauge informativeness through the presence of speculative trades.

The first question which arises is methodological: Is informativeness identified through the set of proxies proposed by Roll (1988), Amihud (2002) and Llorente et al. (2002), a better concept as compared with CAR? Or are these measures redundant compared with CAR? CAR is the immediate market reaction of the whole investors. If the answer is positive it will justify focusing only on CARs to analyze the acquisition decisions and it will explain why the informativeness measures have not been extensively used in the literature. CAR will capture the new information integrated in the stock price around the announcement. If identical, the CAR and the other candidate informativeness proxies should move together.

By acquiring new firms, managers tell outside investors that their firms have good prospect to create value and synergies. Conversely they may signal that they are overvalued, particularly if they pay with share issues. In both cases these are firm-specific new information disclosed to the market and immediately incorporated into stock price. The finding of CAR values both positive and negative around the acquisition announcement supports this argument. If acquisitions were acted as an effective and clear signal, there would be a consensus in the market, with traders placing orders in the same direction and analysts revising forecasts accordingly. If this does not hold, what we will test below, then the markets are not able to incorporate immediately and totally the information coming from the signal. Given that acquisitions may signal very different future prospects for the firm (different growth options, agency problems, undervaluation of stocks, among many others), a non-increasing consensus in the market after the event would point out the inability of financial markets to react and incorporate totally the new piece of information. This provides our first hypothesis:

H1: Informativeness increase independently from CARs.

Many reasons may explain why CARs are not correlated with changes in price informativeness. The stimulated analysts' activity and informed investors trading will incorporate firm-specific information into stock price in a long-run period. The information from analysts and informed investors may be complementary to the announcement signal and to information disclosed by managers, since the signal is vague and does not completely reveal all information to the market. Therefore, the informational content of CAR around buyback announcement is, partially, different from the information content of price informativeness change. This can explain the non-redundancy between CAR and informativeness change described in the H1 hypothesis.

We consider the disclosure of information around an acquisition as a major and unique event in the life of a firm. This event may have been anticipated by the analyst or the market participants; however, its timing is rarely publicly known. The event is often a surprise and an acquisition is publicly announced only once it is agreed. This category of event is not comparable to SEOs or ADR listings, which are announced before they become effective. Then the issuer explains the change in the firm after the issue of new equity, delivers information during road shows, and advertises the condition of the issue. So, Dasgupta et al.'s (2010) argument that the market is only moderately surprised at the issue date because the event is anticipated applies well, which may explain why R2 effectively increases in the 1–2 years after the SEO operation. The same is true for ADR listing, where firm-specific information is delivered before the operation. However, these arguments are not valid for mergers and acquisitions, which is why we follow Jin and Myers' (2006) hypothesis that new firm-specific information will, at least in the short term, yield a decrease in synchronicity and improve informativeness.

Moreover, we can imagine that a context of homogeneous information will facilitate the process for the integration of new specific information. When the target and the acquirer are facing the same regulations, the same accounting rules, and the same legal context, it results in better informativeness (H2a). We will consider the EU and North America (i.e., US and Canada) as separate homogeneous financial areas. This hypothesis contradicts Dasgupta et al.'s (2010) view that synchronicity should increase similarly after the event in larger informative environment. It is relevant to consider regions of the world where the same regulations, the same

accounting principles, and similar practices for acquisitions have been developed. This is the case for acquisition within the EU or North America. Cross-border acquisitions over both sides of the Atlantic Ocean face heterogeneous information environments. As a corollary, if the hypothesis is valid and if the context partially explains the information diffusion process, we may have regional differences in informativeness changes, particularly when considering cross-border transactions (H2b). Thus:

> H2: (a) Informativeness should increase for acquisition transactions within a homogenous informational context; (b) the informativeness process should be different according to the informational context, particularly if transactions are cross-border acquisitions.

The terms of the deals are set jointly. The means of payment are important instruments for dealing with the asymmetry of information in an acquisition process. Cash payments are associated with the issuing of a good and sound signal about future economic prospects whereby the buyer accepts the risk resulting from the transaction—it has some visibility. As a consequence the delivered information in the deal process may be considered more reliable (H3).

> H3: More cash provides positive private information about the acquirer's future prospects and improves informativeness.

Hybrid payments are specific. All-cash and all-share payments are less informationally optimal because they are "corner solutions." Mixed cash/share payments are a more fine-tuned approach and may cope with the risk of asymmetric information to which the seller and the buyer are exposed (La Bruslerie 2013). The mix per se represents information. The setting of the mix is an element of the deal contract that shows that some private information has been shared between the acquirer and the seller. This characteristic is a signal of the potential disclosure of idiosyncratic information to the market.

> H4: Hybrid means of payment are particularly suited to the disclosure of private information and will improve informativeness.

The size of the deals will influence the process. The disclosure of new and private information is costly. The size of the transaction may spread this cost and large deals may

facilitate the diffusion of new information (H5). Conversely the "acquirer's supply" hypothesis may be challenged by an informational request from the target's shareholders, who may need to be convinced to accept the deal. The contractual analysis of a transaction where the agreement comes from both sides does not depend directly on the size of the deal. The alternate to H5 is the "contractual demand" hypothesis, which means that the spreading of information is linked to the specific story about a given deal and the necessity of having to convince either large or small targets. The acquirer's supply hypothesis means that the acquirer is more prone to deliver information on the deal when the cost of elaborating and disclosing the information is lower, and this marginally decreases with the size of the transaction. Thus,

> H5: The size of a transaction will positively impact on the disclosure of private information and consequently its informativeness.

3.2 Sample

The deals considered were from the Thomson Financial database and over the period 2000–2013. Transactions were filtered according to the following rules:

- Only completed deals
- Minimum value of 50 million USD
- Target and acquirer are publicly listed firms[3]
- Targets are located either in Europe or in North-America[4]
- Acquirers are only from Europe or North America[5]
- Targets and acquirers exclude financial firms, governments, and agencies
- Acquisitions are paid only in cash or shares (or a mix of the two)
- Share repurchases are excluded.

[3] We restricted the sample to listed companies as we wanted the firms to be in a similar informational context. The informational context is important (Jin and Myers 2006). Non-listed targets are in a different informational context but with less pressure from outside investors and analysts. Mixing acquisitions involving listed and non-listed targets in the same sample would have introduced situations with larger information discrepancies, which may have tainted the results for variation in informativeness that we wanted to measure.

[4] The countries are restricted to Belgium, France, Germany, Italy, Netherlands, Spain, the United Kingdom, the USA and Canada.

[5] The acquirer countries are restricted to the same target countries.

The basic sample includes 1051 firms. These restricted criteria were chosen to identify significant transactions at the acquirer level, whereas small deals will not put the acquirer in a situation where disclosing information is important. In developed countries public acquisitions should conform to regulated processes, whether in the EU or USA. This implies the delivery of some information to the target shareholders. The restriction that the acquirer should come from the same set of countries avoids exotic takeovers where the bidders do have not the same pressure to disclose information, for instance, when they are listed in China or Russia. The quality of financial information is not the same. Since we want to measure the specific private information in the acquirer's market using its stock price, this market needs to be regulated and to be located in comparable countries. Also, we eliminate buyback or self-tender transactions (and divestitures such as split-offs or spin-offs).

The considerations and means of payment, which are available in the Thomson Financial database, were examined. An unknown structure of payment often refers to private transactions. The split between cash, shares, or other considerations has been reviewed as some inconsistencies may appear when looking at a synopsis of the transaction. Liability payments (and convertible bond and preference share payments) were considered to be the equivalent to cash payment, and the percentage paid in cash has been recalculated. We restricted the hybrid payment category to refer to mixed cash/share payments where the percentage paid in cash was between 0% and 100%. Payments using warrants were treated as share payments.

INSERT TABLE 1 ABOUT HERE

4 Measures of informativeness and univariate analysis

We used a set of three measures of informativeness, respectively synchronicity, illiquidity, and Llorente et al.' proxy..

4.1 Estimation of synchronicity

The R2 values were calculated using weekly price moves and two windows of observation, before and after a transaction. We considered 52-week windows before and after the announcement. Weekly observations are better suited to this analysis because daily moves are not always available. Thus, missing dates are often replaced in databases by doubling the previous quote, which generates artificial zero-moves in the regressions. Therefore, in line with Durnev, Morck, and Yeung (2004), we chose weekly observations. Jin and Myers (2006) also used weekly returns to avoid the problem of thin markets, as did Dasgupta et al. (2010). The following models were estimated:

$$R_{i,t} = a_i + b_i R_{m,t} + \varepsilon_{i,t} \quad (1)$$

$$R_{i,t} = a_{m,s} + b_{m,s} R_{m,t} + c_{m,s} \varepsilon R_{s,t} + \varepsilon_{s,t} \quad (2)$$

Subscript *t* belongs either to the "before" or the "after" windows.

The first equation (1) is the simple market model. It is used as a benchmark to assess the importance of the industry effect. We regressed the stock return on both the industry index and the market index in model (2). The R2 of the regression using the two indexes R_m and R_s directly as explicative variables is the privileged variable in the synchronicity measure. A simplified methodology was used by both Morck et al. (2000) and Chan and Hameed (2005), who used the R2 calculated from one variable market model (1). Alternate estimation was proposed by Ferreira et al. (2001), who used the Fama-French three-factor model (with daily returns) to estimate synchronicity. However, when comparing it with a two-factor return model using market and industry indexes, they concluded with similar findings (art cit., p. 530, footnote 14).

The indexes used are the Stoxx Europe 600 index and the Stoxx North America 600. The Stoxx 600 Europe index covers firms in 18 European countries and is euro based. The Stoxx 600 North America index covers US and Canadian firms and is US dollar based. Both have industry sub-indexes. We used 19 industry or sector categories.

To compute the synchronicity measure, we define stock return synchronicity as:

$$S = \log (R2/(1-R2)), \quad (3)$$

where R2 is the coefficient of determination obtained from estimating the model (2). We recall that synchronicity is the inverse of informativeness. The log transformation changes the R2 variable, bound by zero and one, into a continuous variable with a more normal distribution. This transformation is commonly used in the literature (Durnev, Morck, and Yeung 2004; Chan and Hameed 2006). We could only obtain 828 observations of synchronicity from the Thomson Financial database because of unavailability of data. Some stock prices were missing or the stock did not have related sector indices because these were introduced later.

As a high value of synchronicity S reflects a low firm-specific informativeness of stock prices, we can expect both the R2 and *S* to decrease between "before" and "after" because of the delivery of private information due to the completion of the acquisition process. Durnev et al. (2003) and Piotroski and Roulstone (2004) computed the stock return synchronicity for the calendar year. This approach is not relevant here because the analysis is not linked to the calendar year but to the random announcement of a transaction. A neutral period around the announcement date is acknowledged. This period is from −7 to +7 calendar days around the announcement date. We decided to neutralize seven days before because in this period the acquisition project may be diffused to privileged investors or to analysts. Thus, the stock price may move due to insider trading. A time period of seven days after the announcement date is necessary for the transaction to be assessed by investors. The date *t* is the announcement. Durnev et al. (2003) and Piotroski and Roulstone (2004) used larger yearly windows to calculate the R2 values. We consider windows of 52 weeks before and 52 weeks after the neutral period. Therefore, the two calculation periods are [-53, -1] weeks before and [1, 53] weeks after the announcement.

We calculated the synchronicity between the stock return and the market indices. The synchronicity is given by the R2 of the regression. In order to compare the *S* estimates, we used two similar windows before and after the announcement. The average R2 resulting from the sample is 0.35 before and 0.37 after;[6] therefore, it increases with time. This may seem to contradict our basic hypothesis of the improvement of private information due to the nature of the process of a deal. We computed synchronicity as the continuous variable $S = log\ (R2/(1-R2))$. The value of synchronicity *S* turns negative because of the log transformation. The raw values of

[6] These values are not different at the 1% level.

the synchronicity show the same pattern with an increase in the *S* values from −0.95 to −0.79. However the difference between the before and after values is not significant when considering the 1% level.

We used the difference-in-difference approach as the synchronicity variation of a firm should be benchmarked by another firm that is not exposed to the event. Finding an identical individual peer was difficult and we chose to consider the industry returns as being representative of an average similar firm belonging to the sector. Industry synchronicity is a relevant control for the specific firm analysis. Disclosure behaviors have a significant industry effect. Voluntary disclosures by some firms seem to provoke other firms of the industry to make related disclosures (Dye and Sridhar, 1995; Meek et al. 1995). Healy et al. (1999) used industry peers to analyze the firm coverage by analysts trying to evidence differences between pre and post-event. Moreover the information integration process is conducted by analysts who are very often specialized by industry (Jacob et al. 1999)._We follow the Healy et al. (1999) method by referring to industry as a whole benchmark instead of finding a peer firm. This average similar firm is associated with the returns of the specific firm that initiated an acquisition. We subtracted the relevant sector synchronicity from the individual stock synchronicity. An acquisition is by definition a firm decision that is linked to its idiosyncratic risk. It needs to be controlled for by the industry synchronicity. As a consequence we took into account the fact that, within the same period, the global industry synchronicity has increased. The average R2 of the industry indexes when regressed on the market index improved from 0.60 to 0.62 over the announcement period. This difference is significant at the 5% level. This phenomenon may explain part of the increase of the individual R2 values. This explains that we look at the difference of the firm's R2 with a notional peer firm which is the average industry R2s, both before and after the transaction. When doing this we get a synchronicity measure that is lower after the announcement than before the announcement (−1.32 before, decreasing to −1.33 after). The difference-in-difference is moderately negative (−0.01), meaning that synchronicity seems to decrease around the event. However, this variation is not significantly different from null. This adjusted variation in synchronicity is labelled VAR_SYNC. We get similar results when using trimmed data (average synchronicity moving from −1.33 before to −1.34 after). On average, the corrected synchronicity decreases over time, but this situation covers very opposed situations where synchronicity

increases for some firms but decreases for other. In particular, the synchronicity measure decreases in only in 51.6% of the 812 trimmed synchronicity moves.

INSERT TABLE 2 ABOUT HERE

If private information is measured by non-synchronicity, we would expect it to decrease between before and after because of the delivery of some private information due to the completion of the acquisition process. The univariate test leads to conclude that a lowering in synchronicity means a disclosure of private information integrated in the stock prices.

4.2 Amihud's measure and Llorente et al.'s measure estimations

The illiquidity ratio is calculated by considering the daily absolute return of each stock divided by the trading volume of the day. We considered one calendar year before and after the acquisition announcement, but we neutralized at −7 to +7 calendar days around the event date. The illiquidity ratio was calculated on the basis of approximately 250 trading days before and after the repurchase. The daily transaction volume was obtained by multiplying the closing price by the number of traded stocks. The data came from the Thomson Financial. The ILLIQ variable is calculated according the following formula:

$$ILLIQ = \frac{1}{D}\sum_{t=1}^{D}\frac{|r_t|}{VOL_t} \times 10^6 \qquad (4)$$

where D is the annual number of transaction days, VOL is the dollar volume of transactions on day t, and r_t is the absolute daily stock return for a given stock. We obtained two values of the ratio $ILLIQ_{bef}$ and $ILLIQ_{aft}$, respectively, for the one-year periods before and after the announcement (see Table 3). The mean of the illiquidity measure is pulled by extreme values as show the medians. We computed the difference VAR_ILLIQ by subtracting $ILLIQ_{bef}$ from $ILLIQ_{aft}$. Its average value is −39.61 before winsorizing and −0.0039 after. It is non-significantly

different from zero, particularly if we eliminate extremes values. Using Amihud's measure, we cannot conclude that there is an increase in illiquidity and consequently in informativeness around an acquisition announcement. The number of increases in the illiquidity measure represents only 34.8% of the sample. The average daily turnover volume shows a positive variation of an average of US$48 million. This increase is not statistically significant

INSERT TABLE 3 HERE

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The Llorente et al. (2002) proxy follows from the equation:

$$R_{it+1} = c_0 + c_1 R_{it} + c_2 (V_{it} \times R_{it}) + \varepsilon_{it+1} \quad (5)$$

where $R_{it+1}$is the daily return of stock i and V_{it} is the daily turnover of the stock in the market.[7] The c_2 term is the regression coefficient of the cross-product of daily return and daily turnover. According to Llorente et al., positive and important values of the c_2 coefficient are associated with speculative trades. Negative c_2 are associated with hedging trades. They show that c_2 values of firms are positively associated with situation of asymmetry of information. We estimate c_2 coefficients before and after the repurchase announcement using two sub-periods of 250 business days around a neutral period of +/1 week straddling the announcement date. These sub-periods are the same as those used for the illiquidity ratios. Similarly to Llorente et al. (2002), turnovers are detrended using a 5 days moving average. We get two estimated c_2 coefficients for each before and after sub-periods. Globally the average of the c_2 estimates has lowered over the period. The number of negative c_2 estimates has increased, indicating a lower presence of speculative (and informed) trades. However a z-test of the difference VAR_C2 shows that it is not significantly different from zero. The number of individual decrease of c_2 coefficient represents only 55% of the total number of variations. We cannot assess that globally the c_2 coefficient have decreased and that asymmetry of information have consequently lowered with the announcement of a share repurchase.

[7] Turnovers are expressed in monetary unit by multiplying the daily number of exchanged shares and the closing price.

4.3 Analysts' activity

An acquisition announcement is new information that may contribute to a change in individual earnings per share (EPS) forecasts. Revisions of forecasts can be retrieved from the Institutional Brokers' Estimate System (IBES) database. We looked at a period of 400 calendar days straddling the announcement date. For each transaction day, we referred to the number of analysts covering the stock, the mean EPS forecasts, and the standard deviation of forecasts. Due to non-worked days the window covers around 140 business days before and 140 business days after the event. For each sub-period before and after the announcement, we calculated the number of business days where relevant data were available, the cumulative value of the mean forecasts for each available business day, the cumulative value of the standard deviation of individual forecasts, the cumulative number of analysts present each day, and the cumulative number of changes in daily mean forecasts (differentiating between an increase and decrease in EPS forecasts). A change in the average forecast can be due to a variation in analysts' coverage (i.e., due to the arrival or the departure of an analyst) or to particular changes in individual forecasts, or to both. In our sample, the total number of analysts/day presences in the preceding sub-period was 4,444,971 and was 6,542,896 in the sub-period following. This is explained by the availability of IBES data, which is lower in the period afterwards because that sub-period covers an average 118.5 transaction days compared to 132.7 days for the period before.[8]

We calculated the total number of changes in mean EPS forecasts both before and after the announcement of a repurchase (see Table 1). The probability of a change in mean forecast occurring daily is higher (16.7%) after the announcement than before (13.9%). The average number of analysts stays stable around the event with an average coverage of 15 analysts. The standard deviation of individual forecast shows a decrease suggesting higher consensus.

INSERT TABLE 4 HERE

[8] The non-equality between the two sub-periods explains because we look at the change in forecasts. The before sub-period expands until the first day after the announcement date where a change of forecasts occurs. Typically it takes 7 days for the first change of forecast to happen after the announcement.

Analysts' activity, as measured by the change in mean forecasts, seems to increase after a repurchase announcement. As analysts are viewed as a key driver in the production and spreading of information in the market, the level of analysts' activity is a relevant proxy for the informativeness around an event that is supposed to convey private information to the market.

The proportion of increases in the EPS forecast is lower after the announcement compared to before. A total of 54% of the changes in mean forecasts are upside oriented before an acquisition. This compares with 49% of upside changes in forecasts after the event. As the number of upside changes is above 50% before the event, this illustrates the traditionally positive bias of analysts' forecasts. Analysts are less inclined to optimism after the announcement of an acquisition. For each stock, we compare the propensity to revise a mean forecast (either up or down) over each before and after sub-period. This probability is weighted by the effective length of the two sub-periods. On average, the probability of having the mean forecast changed increases by 2.4% with the event. This covers very different situations with sometimes very busy activity with many changes and sometimes no changes after the event, as is shown by a high standard deviation value. In 567 cases out of 842 (67%), there is an increase in the frequency of changing a forecast, that is, an increase in the revision activity. This allows us to test the hypothesis concerning an increase in analysts' activity after the event compared to before. A univariate z-test shows a 0.00 p-value, which indicates a significant increase in analysts' activity as measured by the probability of changing the mean forecast after the event compared to before the event. A non-parametric test on the number of increases in analysts' revisions confirms this result (see Table 5, Panel A). We draw the conclusion that analysts' activity increases after an acquisition.

The EPS forecast themselves are compared over each of the sub-periods. Average EPS forecasts are expressed in dollar terms. Individual forecast changes in money terms show an average increase of US 9 cents in the EPS forecasts. We also consider the percentage changes of the individual EPS forecasts after the announcement compared to before: a median increase of 7% is highlighted. However, these two statistics cover very different situations where several individual analysts increased their forecasts but were (partly or largely) balanced by others who decreased their EPS forecasts. Globally, the number of upgradings of the EPS is significantly

greater than the number of decreases. Even if the move in the EPS forecast is small (and non-significant) in dollar terms, the EPS revision is significantly positive as a percentage variation (see Table 5, Panel B).

Dispersion among analysts is usually appraised by the standard deviation of individual EPS forecasts. Dispersion increased in 60% of the cases after an acquisition announcement (see Table 5, Panel C). The average change of EPS forecasts is negative but it is drawn by extreme values. The median of changes in dispersion is positive showing a decrease in the consensus between individual analyst's forecasts. This improvement is in line with the enhancement of revision activity. The consensus between analysts seems to lower as dispersion indicates heterogeneity. However, the average increase in dispersion is not significant according a z-test. A non-parametric test of the number of increases in forecast dispersion is however positive as increases in dispersion represent only 60% of the occurrences.

Analysts' activity seems to be reinforced after the announcement of an acquisition. Their activity involves issuing forecasts, and traditionally the probability of upgrading a forecast is generally higher than the probability of lowering a previously issued EPS forecast. However, the enhancement of the revision activity after an acquisition breaks this trend since at that stage analysts seem to be less optimistic and more rigorous about assessing the firm's future. The informational context changes after the announcement of an acquisition with analysts issuing a lower number of upgrades compared to before the event.

INSERT TABLE 5 HERE

We used the following variables to identify analysts' activity:

- D_PROB_CHGE: variation of probability of forecast revision, comparing the periods before and after announcement adjusted for length.
- D_EPS_ABS: change in mean EPS forecasts calculated before and after the announcement (i.e., D_AV_EPS_$$_{after}$$ minus D_AV_EPS_$$_{before}$$ in dollar terms).
- D_EPS_PERC: change in mean EPS forecasts calculated before and after calculated in percentage evolution as the ratio of D_AV_EPS_$$_{after}$$ over D_AV_EPS_$$_{before}$$ minus 1.

- D_STD_DEV: measure of dispersion calculated each day as the standard deviation of dispersion around the mean forecast. The standard deviations are averaged over each before and after subperiods.[9]

The first variable focuses on analysts' "quantitative" activity of issuing or revising forecasts. The following two variables consider how EPS forecast identify increase or decrease in future earnings. They focus on the mean forecast, i.e. the analysts' consensus. The last variable questions the variation into the consensus and its role in the process of information integration. These variables allow checking whether an acquisition conveys positive or negative information.

The cross correlations between our different measures of informativeness are weak and non-significant, except for variations in EPS forecasts. The variations in EPS forecasts between before and after are strongly correlated when assessed in dollar terms, in percentage movement, or in normalized terms (i.e., divided by the stock price).[10]

4.4. Other variables and descriptive statistics

4.4.1. CARs and excess returns

We calculated CARs by looking at a window of two calendar weeks around the announcement date. The announcement date occurs during a business day, so the effective window is −5 business days to +5 business days around the event. We looked at abnormal returns in two ways. A simple CAR calculation subtracts the relevant market index return from the stock return. This gives a negative average abnormal return of −0.81%. The standard CAR is calculated using returns from the market model and subtracting them from the stock returns. The market model is estimated on a previous window of weekly returns from 52 weekly observations (i.e., t-

[9] We have also considered variations in coverage between before and after the transaction. In not reported results this variable is correlated with the changes in the frequency to issue new forecasts D_PROB_CHGE. The cross correlation between these two variables is +0.13

10 Variations of EPS normalized by the stock price (D_EPS_OV_SH) are not considered afterward because they are highly correlated with other EPS forecast measures. The correlation between D_EPS_OV_SH and D_EPS_ABS is +0.70. The cross correlation between D_EPS_ABS and D_EPS_PERC is +0.22.

53w to t-1w). This gives a negative average CAR value of −1.59%. However the CARs are not significantly different from zero (see Table 6). Particularly the number of positive CARs is important (45% or 47% of the total according to the considered sample).

INSERT TABLE 6 HERE

We calculated the stock market movements before and after the announcement. This showed an average yearly excess return before the announcement (EXRETB) of 16.8%. Pre-event excess returns were positive 544 times out of 828. Pre-announcement excess returns are significantly positive. Post-event excess returns (EXRETA) were also positive and significant (average overall yearly excess return of 6.6%).

INSERT TABLE 7 HERE

4.4.2 Other variables

The transaction is appraised by its value (TRANS_VALUE). The characteristics of the deals are identified through dummies: challenged deals, private block acquisitions, or same sector transactions. We set up dummies if the transaction had developed with targets and acquirers located within Europe or within North America. These broader economic zones reflect the economic integration of countries, particularly in Europe. A dummy (CROSS) is used to point out the cross-border acquisitions between Europe and North America. The process of acquisition is identified with a dummy for privately negotiated deals. The means of payment is a key dimension of a deal. We considered three possible payment regimes: full cash (DUM_CASH), full share (DUM_SHARE), and mixed cash/share payment (DUM_HYBRID). The variable PERC_CASH provides the percentage of the cash payment in the deal for each transaction. Two variables were constructed to assess the asymmetry of information between the acquirer and the target. We considered that the relative size of the target compared to the acquirer is a relevant

proxy for potential risk ensuing from asymmetry of information. A large acquirer is less exposed to risk of information asymmetry when buying a small target firm. Our proxy does not measure the unknown asymmetry of information but the potential risk for one party attached to the information on the other one. This variable was introduced by Hansen (1987), and like Hansen we used the ratio of net book asset value (ASYMMETRY).

Market data are assessed through the excess return of the acquirer's stock price before the transaction (EXRETB), which takes a possible run-up effect into account. The premium at the announcement date (PREMIUM) is calculated using a four-week time lag. The abnormal return around the announcement date (CAR) is considered, as well as it absolute value (ABSCAR). A proxy to take into account the possible disequilibrium between offer and supply during the transaction is introduced by subtracting the percentage of shares sought by the initiator and the percentage effectively obtained after the deal (DISEQ).

The change in informativeness before and after the transaction is VAR_SYNC. It is obtained by subtracting the synchronicity estimated before the acquisition from the synchronicity estimated afterwards. The variation of Amihud's illiquidity measure is termed D_ILLIQ and the change in the Llorente et al. c_2 coefficient is labelled VAR_C2. A list of the variables is presented in the Annex and Table 8 provides the descriptive statistics for the sample.

INSERT TABLE 8 HERE

5. Empirical tests

In a first step we need to see if the same determinants explain the CAR and the informativeness measures. If the determinants are the same and play in the same way, this will indicate that the synchronicity and other informativeness measures are worthless, and that the information disclosure is totally effective when the transaction is done. In a further step, we will see if the CARs are valuable information per se and explain or not subsequent increases in stock price informativeness. The determinants of the increases in informativeness will then be empirically tested.

5.1 Determinants of CARs

The CARs are an immediate market reaction to acquisitions. A first look identifies a low correlation (−0.03) between the CAR and VAR_SYNC variables. This is expected as CAR is immediate and VAR_SYNC takes into account the timely process by which information is integrated into market prices.

Table 9 presents the determinants of both CARs and absolute CARs. . The market reactions to an acquisition announcement are *ex ante* either positive or negative. The CARs are non-significantly different from zero, with a median value of −0.7%. The estimated constants in regressions 1 to 3 of Table 9 are negative and significant. This is coherent with market reactions that are negative at inception at around −3%. Most studies show that average univariate CARs are not significant around an acquisition announcement, although they are negative on average. Significant negative CARs at the acquirer level are evidenced for large deals and/or stock payment (Moeller et al. 2004). Conversely, cash payment will often yield positive CARs for the acquirers.

INSERT TABLE 9 HERE

The conclusions are in line with what was expected: CARs react to firm-specific data disclosed at the transaction announcement. Two elements of the context of the transaction explain the size of the CARs: the size of the transaction and same sector acquisitions. If the transaction is small, the amount that is invested is limited, along with the risk of loss. If the absolute value of the transaction assessed by the TRANS_VAL variable is important, so is the risk of loss. The coefficient of the TRANS_VAL variable is negative and significant, which explains negative values for CARs. The SAME_SECTOR variable explains positive CARs. Transactions developed in the same sector are less risky as the acquirer has better information on their prospects. We considered the relative risk exposure with the ASYMMETRY variable, which is the ratio of the target's net asset book value to the acquirer's net book value: it is not significant. Table 10 shows that only a few variables are candidates for explaining the CARs. The premium is

not significant, which is not really surprising as this variable is complex and its meaning needs to be rigorously analyzed. For instance, a high premium may indicate an overvalued target, but it may also mean good prospects for future profit. The disequilibrium variable DISEQ corresponds to the difference between the percentage of shares sought in the deal and the percentage actually acquired. This discrepancy between demand and supply may explain price movements in the acquisition process, and therefore abnormal returns. However, it is not significant. Cross-border or intra-zone transaction characteristics do not influence CARs.

We have considered the two key terms of an acquisition as regressors: premium and means of payment. The latter is highly significant. As widely documented in the literature, a cash payment is a positive signal. The value of CARs in a situation of full-cash payment is increased by 4%. This offsets the negative constants of −3 to −4% in Equations 1 to 3. A cash payment per se turns negative investors' reactions into a close to zero abnormal return. However, this result is purely an association because cash/share payments are endogenous variables in the transaction, and they are determined by other factors such as information asymmetries. The partial correlation between the percentage of cash payment and asymmetry of information is negative and strongly significant. Higher asymmetry will lead to the joint setting of a lower premium and a cash payment in the transaction process. This point is documented in Ismael and Krause (2010) and in La Bruslerie (2013). When the PERC_CASH variable stands on the right-hand side of the model with the ASYMMETRY variable, the model is badly specified as the characteristics of the deals are not independent from the level of ASYMMETRY.

The relative stock price movement in the previous year (EXRETB) identifies a possible run-up of the stock price. On average the excess return is positive and is 17% above the stock index. If the stock price experiences an excess return in the period preceding the acquisition, the transaction may signal an overpriced stock. The CAR reaction to EXRETB is effectively negative and significant. The magnitude of the coefficient in Equations 1 to 3 is around −1.7%. This means that the stock overperformance before the event is corrected when the acquisition occurs and leads the investor to re-assess the value of the acquiring firms. The CARs are not only explained by the acquisition project itself but also by the reassessment of the share value and the deals by the investors, which may signal a stock overvaluation.

We also considered the absolute magnitude of abnormal returns, the results of which are presented in Table 9, Equations 4. The magnitude of CAR reaction is enhanced by the pre-event excess return and is more limited when the transaction is paid with shares.

5.2 Determinants of variation in synchronicity

A negative value of the synchronicity variation VAR_SYNC indicates an increase in informativeness. Descriptive analysis reveals that on average VAR_SYNC is not different from zero. As a result in the regressions we can expect the constant to be non-significant. This is confirmed in Equations 2 and 4 displayed in Table 10. As primary source of information we refer to the CAR value. However, it is never significant in the regressions (see Table 10, Equations 1 to 5). The market reaction at the date of the transaction does not involve a better informativeness of the stock price, as suggested by more idiosyncratic information on the stock price. Thus, the immediate market reaction does indicate increased informativeness of the stock price. However, the signal attached to CAR may be not symmetrical. We split CARs according their positive and negative values. The two variables POS_CAR and NEG_CAR stay not significant in Equation 4. In not reported tests we use ABSCAR as a regressor, but this is not significant. At the acquisition announcement date, a large change in the CAR, whatever its sign, has no link with synchronicity.

INSERT TABLE 10 HERE

The size of the transaction is an important key variable in understanding better informativeness. The disclosure of private information may depend strongly on the size of the transaction. The TRANS_VAL variable appears significant and is associated with increased synchronicity. Large acquisitions will reduce the informativeness of the acquirer's stock market price. This may seem paradoxical. Large transactions are not those which convey additional specific information to be integrated into the stock price after the event. We can interpret this fact because large transactions are implemented by large firms that are much more closely scrutinized by analysts in the market. Since such acquisitions are more often anticipated in advance of the

event, their consequences are better appraised and the part played by genuine specific information attached to the event is lower. This contributes to a positive value of VAR_SYNC, meaning that the event does not improve the informativeness of stock prices. This supports the Dasgupta et al.'s (2010) finding that synchronicity improves if the event has been well anticipated by the market. If the firm-specific information is impounded into the market price before and at the event date, informativeness decreases dynamically after the event.

We tested if the terms of the acquisition, namely, the means of payment and the premium, could convey some private information to the market. The PREMIUM variable is not significant in Equation 3. The mean of payment may also enter in the model. It is significant when the constant is (see Eq. 3). Equation 2 and 4 integrates ASYMMETRY. This variable determines the joint setting of the acquisition terms PREMIUM and PERC_CASH.[11] To assess the role of the terms of the transaction (i.e., PREMIUM and ASYMMETRY), we need to consider a model using either ASYMMETRY or PREMIUM (as in Equations 3). The asymmetry of information has non-significant coefficient in Equations 2 and 4. Mixed cash/share payments follow a specific payment regime (La Bruslerie, 2013). Theoretically, the disclosure of private information should be higher for hybrid payments as the fine tuning of the cash/share mix discloses more private information than the "corner solution" of 100% cash or 100% share payment. A dummy variable signals hybrid payment schemes. These are complex and are presumably fine-tuned to manage the double asymmetry of information (La Bruslerie 2012). Table 10 shows that hybrid schemes of payment contribute strongly to lower VAR_SYNC and improved informativeness.

In the opposite direction, the DISEQ variable does not matter. The quantitative discrepancy between what the acquirer wants to buy and what he or she gets is no longer important once the transaction has occurred. The rationale is similar when looking at the EXRETB variable: it affects the CARs, but once the deal is done it does not impact on the informativeness in the market. Context variables, such as challenged deals and cross-border acquisitions, are not significant. The hypothesis that the informativeness process is better in North America than elsewhere is not supported.

[11] ASYMMETRY is correlated with PREMIUM (−0.17) and PERC_CASH (−0.34).

We introduced a set of variables describing higher activity developed by analysts; it turns out to be significant when considering revision in EPS forecasts. An increase in EPS forecasts will entail higher synchronicity and downward revision of forecast means lower synchronicity. The D_EPS_ABS variable is highly significant. This shows an asymmetrical informational effect where downside revisions are new pieces of information. When we split the D_EPS_ABS variable into positive and negative changes in Equation 3, upside revision are not relevant and do not improve informativeness. Downward revisions remain highly significant and add to informativeness. This is what is expected as analysts' activity is a key channel for the delivery of specific new information to the market. The Equation 6 tests if the set of variables relevant to explain the CARs around the announcement date (i.e. pre-event excess return, EXRETB, percentage of cash payment, PERC_CASH) are significant and contribute for explaining the changes in the informativeness of the stock price. We removed the CAR and replace it by the determinants of the CARs and the residual of the CAR equation (CAR_RESID) which is orthogonal information orthogonal to the CAR determinants (Equation 4 in Table 9). The two step equation 6 shows that anything linked to the CARs do not contribute to decrease synchronicity, and hence to increase informativeness.

This leads us to the following temporary conclusions: (i) CAR does not cover all the information features and informativeness deals with larger set of information which is not redundant to the information conveyed by the CARs; (ii) private information is disclosed by analysts and modifies the synchronicity of the acquirer's stock price in the market; this diffusion process is not systematic, since sometimes informativeness improves after the deal or sometimes it is lower, and on average it does not improve or deteriorate; (iii) the analysts activity is the channel conveying informativeness into the stock price. However the integration of new information is more linked to negative revisions in EPS forecasts (iv) the means of payment and the premium are public information delivered at the inception of the transaction and as such they do not contribute clearly to decrease synchronicity; and (v) the size of the transaction lessens the informativeness of the acquirer's stock price.

5.3 Determinants of variation in illiquidity and analysts' activity measures

The non-significant role of CAR in the change in informativeness is confirmed when we consider the VAR_ILLIQ variable that proxy for illiquidity. Table 11 shows the determinants of the Amihud's illiquidity measure. The absolute CAR values are not significant in Equation 1. The split of the CAR variable into two negative and positive CAR variables (Equations 2 and 3) allowing for an asymmetric effect does not change the results. The hybrid payment of a deal is a public feature that conveys specific information to the market. This information is public but it signals complex deals which need to be analyzed more in details. The percentage of cash payment is not significant, neither the ASYMMETRY variable. Although the turnover is integrated in the Amihud's value, changes in volume do not explain change in informativeness (in the Amihud's sense). Turning to analyst's activity, the variation in EPS forecast expressed in percentage move (D_EPS_PERC) is negative and moderately significant (only at the 10% level). A rise in the forecasted EPS does not improve informativeness. Conversely what is important and significant are downward revisions of EPS forecast. Similarly to the synchronicity measure these are associated with more informativeness in stock prices.

INSERT TABLE 11 HERE

The Llorente et al.'s measure is tested in Table 11 - Equations 5 and 6. They clearly refer significantly to the CAR value. This is important since it means that individual CARs are relevant information per se and help to improve informativeness. We expect a decrease in asymmetry of information as measured by a negative variation of the c_2 coefficient. Positive CARs are relevant information as they weigh negatively on the VAR_C2 variable (due to the negative coefficient). A positive CAR signals creation of wealth for the acquirer's shareholder resulting from the acquisition. It means high expected futures profits due to expected synergies. However negative CARs are not favoring informativeness as they raise question on the profitability of the acquisition. The balancing effect is given by the analyst's activity D_EPS_ABS which contributes to decrease the c_2 coefficient when the revisions of EPS forecast are downward oriented. This means that analysts by revisiting down their forecasts will inform the market

relevantly and answer the question raised by a negative CAR which is difficult to interpret by investors. In that sense the Llorente et al. measure cover a process based on raw information raised by the sign of the CAR and the analysts revising down or up their forecasts. We can imagine a positive CAR revealing a positive immediate appraisal by the market and completed by analysts rising up their forecasts. This does not add anything to public CAR information and at the end informativeness may not have increased. The Llorente measure shows that CARs are useful input in the information integration process particularly when they are positive (what only happens in 45% of the cases).

CARs and the three considered measures of informativeness focus on different dimensions of the information set and the information process. The three informativeness measures are poorly cross-related.[12] They are largely independent. Even if the Llorente et al. measure integrates CAR values, it is also based on other variables such as the analysts' revision activity after the transaction. We needed to investigate further whether a joint process explaining the immediate market reaction at announcement and the variation in synchronicity over a longer period can be found. Separate regressions may hide possible interactions. Each measure of informativeness focuses on specific dimension of the process. From the previous result we can identify that:

- Synchronicity is sensible to the disclosure of private information by analysts and focusses particularly on negative revisions;
- The illiquidity ratio identifies the condition of a better consensus between investors (Amihud, 2002). The condition for the consensus to improve (i.e. for the illiquidity ratio to increase) is to add new information by which analysts confirm a decline in expected future EPS. Both the synchronicity and the illiquidity measures show an asymmetry by weighting more the negative news than the positive ones;
- The Llorente c_2 coefficient relies on the CAR signal question in the information process. Here the process is also not symmetric. Positive CARs are "good" information and improves informativeness of the stock price. However more than half of the observed CARs are negative and yield question. It stimulates the analysts to revise their EPS forecast to confirm

[12] The correlation between VAR_SYNC and VAR_ILLIQ is +0.04. It is +0.03 between the latter and VAR_C2.

or not the "bad" new. This will lower the relative weight of speculative trade as captured in the c_2 coefficient.

5.4 Simultaneous equation models and robustness check

The conclusion drawn from the three measures are not contradictory. Each one considers one aspect of a general issue: the informativeness of stock price after a major event. As a robustness check we will estimates jointly the determinants of the three measures of informativeness. An estimation using a system of equations should give coherent results.

The first equation will explain changes in synchronicity, VAR_SYNC; the second one, changes in illiquidity ratio and the third one, changes in the c2 coefficient. Better informativeness will be characterized by a joint decline in synchronicity and in the c2 coefficient and increase in illiquidity ratio.

A first set of threes Equations 1A, 2A and 3AB use constants. We set the equations by looking at the relevant variables in the unidimensional estimate of Tables 11 and 12.The results of the system of simultaneous equations are shown Table 12, Panel A. They confirm those displayed in Tables 10 and 11.The asymmetric role of analyst's activity is confirmed with negative revisions of forecasts improving the informativeness in each of its three measures (i.e. decreasing synchronicity and c2 coefficient and increasing illiquidity ratio). In panel B we removed the constant terms (when non-significant, see Equations 2A and 3A) and we split the CAR variable into positive and negative CARs. The CAR story is reinforced as this signal now enters in the illiquidity ratio variation: it increases significantly (at the 1% level) the illiquidity ratio (and consequently informativeness) when it is positive. The same is true for the coefficient c2 measure where only positive CARs will cause better informativeness. Negative CARs are raising questions to be answered by analysts. The latter's answer is also asymmetrical. For instance in Equation 1B we separated upward and downward revisions. The only ones contributing to better informativeness are downside revisions.

INSERT TABLE 12 HERE

The hybrid payment regime is no more significant. We cannot support our hypothesis H5. The Dasgupta et al. (2010) scheme for an increase in synchronicity is partly confirmed by the positive TRANS_VAL variable (only at the 10% confidence level). The dummy WITHIN_AM is not significant and supports the idea the process of integration of information are similar in Europe and in America.

The results of the simultaneous equations estimation help us to assess our hypotheses:

- The hypothesis H1 is supported: informativeness is a process which may use the CAR signal of information but is larger and develops partially independently from CARs.
- The informativeness process ensuing from an acquisition does not seem to be different in North American and in European markets. This result holds also if we consider cross-border acquisitions. Our hypothesis H2(a and b) is rejected. The informativeness processes resulting from an acquisition are heterogeneous and idiosyncratic within a geographical zone. Sometimes informativeness improves, sometimes not depending on the transaction specific context. We reject the idea that informativeness generally increases after an acquisition.
- Cash payments do not systematically improve the informativeness of an acquirer's stock price (H3). Hybrid payments do not particularly contribute to better informativeness (H4).
- The size of the transaction does not lower synchronicity but increases it (H5). We do not find evidence for better informativeness in large deals. What is important in an acquisition is its contractual nature, as the target's shareholders need to be first informed and convinced, whatever the transaction size.

Two other robustness checks have been implemented. We used the variation in coverage by analysts between before and after the transaction. It does not change the regression results in Tables 10 and 11 (not reported). Contrary to Chan and Hameed (2006) this variable is not significant in explaining changes in informativeness. Furthermore a (not reported) test using random drawing of the analysts' revisions of forecast D_EPS_ABS and D_EPS_PERC was implemented. We want to simulate their influence on the three measures of informativeness considered in the paper. It shows that these our informativeness measures are effectively relevant proxies as they are only sensitive to the relevant revisions in EPS forecast.

Conclusion

An acquisition is an event which globally discloses private information to the market. However informativeness is a complex notion which is tracked in the paper through three different measures. Our empirical test shows that the use of the Roll's synchronicity, Amihud's illiquidity ratio and Llorente et al.' c_2 coefficient are justified beside the traditional CAR measure. The different proxies of informativeness are not redundant. It is demonstrated that the private information delivered when considering an acquisition is related to the analysts' activity. Revision of EPS forecasts is the mechanical channel conveying information to the market. Looking at each firm or each deal individually gives contrasting results: the idiosyncratic informativeness of stock prices may or may not increase. We show that the process of information integration relies asymmetrically on the analysts' activity according to upward or the downward revision of EPS forecasts.

CARs are incomplete and cannot proxy the whole information incorporated in the stock market price. They correspond to a change in market value and constitute the market's immediate reaction in price to the creation (or destruction) of value ensuing from an acquisition. They also have a retrospective dimension as we show that they correct stock price overperformance in the period before an acquisition. But the paper shows that CARs are relevant piece of information which enters in the information integration process. The CAR value sends a sophisticated signal to investors: it raises questions when it is negative and appealing to analyst' reactions or delivers "good" information on the acquisition when it is positive. Negative CARs introduce a specific pressure as the contribution of analysts to the informativeness process is stronger in this case. The question arises of whether the process of delivering private information alongside the development of an acquisition is equally efficient in the US and in European markets. Our results do not show that the process in North American markets is more or less efficient.

We show that the two dimensions of the market's immediate reaction and informativeness are not redundant. Each one follows its rationale and is explained by a genuine set of different determinants. Informativeness focuses on the individually successful or unsuccessful disclosure of private information issued by analysts alongside the acquisition process. Sometimes, the

information delivered is noisy or useless and does not improve the idiosyncratic dimension of the (newly merged) firm. Thus, informativeness highlights another dimension of the market for transfer of control. The latter has the well-known economic function of reallocation of capital and creation of value. It has also an informational function of disclosing information and improving informativeness to investors. As a consequence, the assessment of acquisitions only on the basis of their creation of value using CARs is not entirely satisfactory. The efficiency of the market for control should also be assessed by examining its information triggering function.

References

Allen F., Bernardo A., Welch (2000) A theory of dividend based on tax clientele, J. of Finance 55, 2499-2536

Altinkilic O., Hansen R. (2009) On the information role of stock recommendation revisions, Journal of Accounting and economics 48(1), 17-36

Alves, P., Peasnell K., Taylor P. (2010). The use of the R2 as a measure of firm-specific information: A cross-country critique, Journal of Business Finance and Accounting 37(1/2), 1-26.

Amihud Y. (2002) Illiquidity and stock returns: cross-section and time-series effects, Journal of Financial Markets 5, 31-56

Amihud Y., Lev B., Travlos N. (1990) Corporate Control and the Choice of Investment Financing: The Case of Corporate Acquisitions, Journal of Finance 45(2), 603-616

André P., Kooli M., L'Her J. F. (2004) The Long-Run Performance of Mergers and Acquisitions: Evidence from the Canadian Stock Market. Financial Management, Vol. 33, No. 4, available at SSRN: http://ssrn.com/abstract=635001

Antoniou A., Zhao H. (2004) Long-run Post Takeover Stock Return: the Impact of Overlapping Return, Takeover Premium, and Method of Payment, CERF working paper University of Durham

Bellamy D., Lewin W. (1992) Corporate takeovers, method of payment, and bidding firms' shareholder returns: Australian evidence, Asia Pacific Journal of Management

9, n°2, 137-149

Berkovitch E., Narayanan M, (1990) Competition and the medium of exchange in takeovers, Review of Financial Studies, vol.3, 153-174.

Beuselinck, C., Joos, P., Khurana, I., Van der Meulen, S. (2010), Mandatory IFRS Reporting and Stock Price Informativeness. Working paper. Tilburg University.

Chan K., Hameed A. (2006) Stock price synchronicity and analyst coverage in emerging markets, Journal of Financial Economics 80, 115-147

Chang S., Mais E. (2000) Managerial motives and merge financing, The Financial Review 35, n°4, 139-152

Chen, Q., Goldstein, I., Jiang W. (2007) Price Informativeness and Investment Sensitivity to Stock Price. Review of Financial Studies 20, 619-650.

Da Silva Rosa R., Velayuthen G., Walter T. (2003) The sharemarket performance of Australian venture capital-backed and non-venture capital-backed IPOs, Pacific-Basin Finance Journal 11, n°2, 197-218

Dasgupta, S., Gan, J., Gao, N. (2010) Transparency, Price Informativeness, and Stock Return Synchronicity: Theory and Evidence. Journal of Financial and Quantitative Analysis 45, 1189-1220.

Durnev, A., Morck, R., Yeung, B., Zarowin, P. (2003) Does Greater Firm-Specific Return Variation Mean More or Less Informed Stock Pricing? Journal of Accounting Research 41, 797-836.

Durnev, A., Morck, R., Yeung, B. (2004) Value-Enhancing Capital Budgeting and Firm-Specific Stock Return Variation, Journal of Finance 59, 65-105.

Easley D., Kiefer N., O'Hara M. (1996) Cream-skimming or profitsharing? The curious role of purchased order flow, Journal of Finance 51, 811-833

Fernandes N., Ferreira M., (2009) Insider trading laws and stock price informativeness, Review of Financial Studies 22(5), 1845-1887

Ferreira D., Ferreira M., Raposo C. (2011) Board structure and price informativeness, Journal of Financial Economics 99, 523-545.

Foucaut T., Frésard L. (2014) Learning from peers' stock prices and corporate investment, Journal of Financial Economics 111(3), 554-577

Frésard L. (2012) Cash savings and stock price informativeness, Review of Finance 16(4), 985-1912

Fuller K., Netter J., Stegemoller M. (2002) What Do Returns to Acquiring Firms Tell Us? Evidence from Firms That Make Many Acquisitions, Journal of Finance 57, 1763-1793

Gassen J., LaFond R. Skaife, H. A. Veenman D. (2014) Illiquidity and R2 available at SSRN: ssrn.com/abstract=2405465

Goergen M., Renneboog L. (2004) Shareholder wealth effects of European Domestic and cross-border takeover bids, European Financial Management 10, 9-45

Goldman E., Qian J. (2005) Optimal toeholds in takeover contest, Journal of Financial Economics 77, 321-346

Grullon, G., Michaely, R. (2004) The information content of share repurchase programs, Journal of Finance 59, 651-680.

Hansen R. (1987) A theory for the choice of exchange medium in mergers and acquisitions, Journal of Business 60, 75-95

Healy, P., A. Hutton and K. Palepu, 1999, Stock performance and intermediation changes surrounding sustained increases in disclosure, Contemporary Accounting Research 16, 485-520.

Houston J.F., Ryngaert M. (1997) Equity issuance and adverse selection: A direct test using conditional stock offers, Journal of Finance 52, 197-219

Ismail A., Krause A. (2010) Determinants of the method of payment in mergers and acquisitions, Quarterly Review of Economics and Finance, 50, p. 471–484

Jacob, J., Lys T., Neale M., 1999, Expertise in forecasting performance of security analysts, Journal of Accounting and Economics 28, 51-82.

Jin, L., Myers, S.C., (2006) R2 around the World: New Theory and New Tests, Journal of Financial Economics 79, p.257-292.

Kelly, P. J. (2005). Information efficiency and firm-specific return variation, Arizona State University doctoral dissertation.

La Bruslerie H. de (2012) Corporate acquisition process: Is there an optimal cash-equity payment mix?, International Review of Law and Economics 32, 83-94

La Bruslerie H. de (2013) Crossing takeover premiums and mix of payment: An empirical test of contractual setting in M&A transactions, Journal of Banking and Finance 37, 2106-2123

La Bruslerie H. de (2014) Share repurchase: Does it increase the informativeness of market prices? www.ssrn.com

Loughran T., Vijh M. (1997) Do long-term shareholders benefit from corporate acquisitions, Journal of Finance 52, 1765-1790

Loureiro G., Taboada A. (2011) The Impact of IFRS Adoption on Stock Price Informativeness, available at SSRN: http://ssrn.com/abstract=1952593

Martin K.J. (1996) The method of payment in corporate acquisitions, investment opportunities, and management ownership, Journal of Finance 51, 1227-1246

Martynova M., Renneboog L., (2009) What determines the financing decision in corporate takeovers: Cost of capital, agency problems, or the means of payment? Journal of Corporate Finance 15, 290-315

Meek G., Roberts C., Gray S (1995) Factors influencing voluntary annual report disclosure by US, UK and continental European multinational corporation, Journal of International Business Studies, 26(3), 555-572

Megginson W., Morgan A., Nail L. (2004) The determinants of positive long-term performance in strategic mergers: corporate focus and cash, Journal of Banking and Finance 28, 523-552

Moeller, S., Schlingemann F., Stulz R. (2004) Firm size and the gains from acquisitions, Journal of Financial Economics, 73, 201 – 228

Morck, R., Yeung, B., Yu, W., (2000) The Information Content of Stock Markets: Why Do Emerging Markets Have Synchronous Stock Price Movement? Journal of Financial Economics, vol.58, p.215-260

Pantzalis C., Xu Z. (2008) Is Stock Return Synchronicity Important in Terms of Stock Price Informativeness?, Working Paper (University of South Florida).

Piotroski J., D. Roulstone (2004), The influence of analysts, institutional investors, and insiders on the incorporation of market, industry, and firm-specific information into stock prices, The Accounting Review 79, 1119-1151.

Roll R., (1988) R^2, Journal of Finance vol.43, 541-566.

Travlos G. (1987) Corporate takeover bids, method of payment, and bidding firm's stock returns, Journal of Finance 42, 943-963

Veldkamp, L. (2006) Information Markets and the Comovement of Asset Prices, The Review of Economic Studies 73(3), 823-845

Wurgler J. (2000) Financial markets and the allocation of capital, Journal of Financial Economics 58, 187-214

Xing X., Anderson R. (2011) Stock price synchronicity and public firm-specific information, Journal of Financial Markets 14, 259-276

Annex List of variables

ABSCAR	Absolute value of CAR. See CAR.
ASYMMETRY	Relative size of the target compared to the acquirer in net book value. Ratio of TARG_NET_ASSET over ACQ_NET_ASS. Data are trimmed using the 1%-99% range.
CAR	Cumulative abnormal stock return. Returns are cumulated over the period 1 week before and 1 week after the announcement date (10 business days). Market model is used to get the abnormal returns. Model parameters are priory estimated using 52 weekly returns. Data are trimmed using the 1%-99% range.
CAR_INDEX	Cumulative abnormal stock return. Returns are cumulated over the period 1 week before and 1 week after the announcement date (10 business days). Market stock index is used to get the abnormal returns. Data are trimmed using the 1%-99% range.
CROSS	Dummy for cross-border acquisitions with an acquirer coming from EU(North America) and a target located in North America (EU)
D_EPS_ABS	Change in mean EPS forecasts calculated after and before the announcement. Change in dollar terms.
D_EPS_OV_SH	Change in mean EPS forecasts calculated after and before calculated standardized by the stock value. Ratio of D_EPS_ABS over the acquirer's share value 4 weeks before the transaction.
D_EPS_PERC	Change in mean EPS forecasts calculated after and before calculated in percentage variation as the ratio of mean EPS after forecast over mean EPS before forecast, minus 1.
D_PROB_CHGE	Variation of probability of forecast revision, comparing after and before announcement periods adjusted for length. Daily probabilities of forecast revision are calculated by dividing the number of revision in forecasts by the number of days of the subperiod.
D_STD_DEV	Variation in average standard deviation among individual analyst forecasts. Standard deviations are averaged over after and before subperiods and are subtracted. .
DISEQ	Disequilibrium at the transaction between the percentage of shares sought in the transaction and the percentage of shares effectively acquired. Calculated using the percentage of the target owned after the transacation minus teh percentage sought.
DUM_CASH	Dummy for full cash payment
DUM_CHALL	Dummy for challenged deals.
DUM_HYBRID	Dummy for mixed cash-shares payment
DUM_PRIVATE	Dummy for private deals or block transactions.
EXRETA	Stock excess return after the announcement over the [t+53w, t+-1w] period. Relevant market index is subtracted from the stock returns (no dividend).
EXRETB	Stock excess return before the announcement over the [t-53w, t-1w] period. Relevant market index is subtracted from the stock returns (no

	dividend).
PERC_CASH	Percentage of the transaction paid in cash, from 0% (full share payment) to 100% (full cash payment).
PREMIUM	Offer price to target stock price 4 weeks prior to announcement (in %). Data are trimmed using the 1%-99% range.
SAME_SECTOR	Dummy if both target and acquirer belong to the same industry sector using the Thomson Financial mid sector categories.
TRANS_VALUE	Value of transaction (M$)
VAR_C2	Variation in the Llorente et al. coefficent c2. Coefficent c2 before is subtracted from the coefficient c2 before the transaction. Each C2 value is te regression coefficient on daily business day date over a 52 weeks before and after the -1w, +1w period around the announcement date. The Amihud's illiquidity measure, after minus before. Illiquidity is calculated over 52 weeks before and after the announcement of an acquisition.
VAR_ILLIQ	Variation in Amihud's illiquidity measure, after minus before. Illiquidity is calculated over 52 weeks before and after the announcement of an acquisition.
VAR_SYNC	Variation in synchronicity measure, after minus before. Individual synchronicity values are corrected using the synchronicity of the industry. Synchronicity S of the stock price are calculated over two 1 year subperiods, respectively after and before the announcement of an acquisition. The R2 of the regression versus the relevant market and the sector indices is used. We use the transformation S = log (R2/(1-R2)).
VAR_SYNC_RAW	Variation in synchronicity measure, after minus before. Synchronicity S of the stock price are calculated over two 1 year subperiods, respectively after and before the announcement of an acquisition. The R2 of the regression versus the relevant market and the sector indices is used. We use the transformation S = log (R2/(1-R2)).
VAR_TURN	Variation in daily turnover volume. Average are calculated over 1 year subperiods after and before the announcement,
WITHIN_AMERICA	Dummy if target and acquirer firms are from either the USA or Canada.

Table 1 Sample characteristics

(European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; North American transactions: acquisition with Canadian or US targets and acquirers; European transactions: targets and acquirers are indifferently from Belgium, France, Germany, Italy, Netherlands, Spain, or United Kingdom; Cross: targets are located in North America (Europe) and acquirers are located in North America (Europe); source: Thomson Financials; period 2000-2013; N: 1051)

Panel A			
	North American transactions	European transactions	Cross
Total amount (B USD)	835.6	852.0	201.2
Average transaction (M USD)	1619.4	2218.8	1332.7
Standard deviation (M USD)	4437.3	3761.7	1241.2
N	516	384	151
Panel B			
Acquirer's country		Year	
USA	456	2000	215
UK	177	2001	102
France	108	2002	66
Canada	120	2003	56
Spain	54	2004	64
Germany	50	2005	72
Netherlands	36	2006	87
Italy	36	2007	114
Belgium	14	2008	78
		2009	39
		2010	49
		2011	37
		2012	40
		2013	32

Table 2- Synchronicity comparison before and after acquisition transactions

(European, Canadian and US acquisitions ; sample of external acquisitions without buybacks and assimilated transactions, transactions paid to the seller in cash, shares or a mix; period 2000-2013; 52 weeks window used to calculated the R2s; weekly stock and index variations; Before: [-53, -1] weeks window before the announcement date; After: [+1, +53] weeks window after the announcement date; $R2_{raw}$: R-square of equation $R_{i,t} = a + b\ R_{m,t} + c_{m,s}R_{s,t} + \varepsilon_{i,t}$; $Synch_{raw}$: raw synchronicity measure $S = log\ (R2/(1-R2))$ where $R2_{raw}$ is used; Industry benchmark: synchronicity measure of the industry index using $R2_{industry}$;; $Synch_{ind}$: modified synchronicity measure of the industry index using $R2_{industry}$; $Synch_{diff}$: Modified synchronicity using a correction where the synchronicity of the industry has been subtracted from the raw synchronicity; Diff-in-diff : after announcement modified synchronicity minus before announcement; P-value: p-values of a t-test of the difference between before and after announcement variables are between parentheses; N=828)

	Before		After			
Variable	Mean	Median	Mean	Median	Difference in Mean	Difference in Median
$Synch_{raw}$ (p-value)	-0.955	-0.680	-0.793	-0.637	0.162 (0.02)**	0.043
Industry benchmark (p-value)	0.364	0.597	0.536	0.743	0.172 (0.01)**	0.146
$Synch_{diff}$ (p-value)	-1.319	-1.325	-1.329	-1.304	diff-in-diff estimator	
					-0.010 (0.91)	

Table 3 Amihud's measure and Llorente et al.' measure - Comparison before and after acquisition

(ILLIQ: Amihud's illiquidity ratio which is defined as the annual average ratio of the absolute return to the dollar transaction volume of the day, see Equation (3) in the text; VAR_ILLIQ is the difference between ILLIQ after and ILLIQ before; c_2 coefficient: estimate of the coefficient $c_2$of the Llorente et al. (2002) model corresponding to the regression of daily return with a cross-product variable of the previous return times the turnover (see Equation (4) in the text; VAR_C2: difference of the c2 coefficient after and before the repurchase announcement; p-value: test of a null difference between before and after announcement variables; # <0: number of negative c2 estimates over the total number of estimates; global sample of repurchase and assimilated transactions; North America and Europe; source: Thomson Financial; 2000-2013 period; one calendar year of trading days window used to calculated the daily stock absolute returns and the Llorente et al. regressions; before: [-53, -1] weeks window before the announcement date; after: [+1, +53] weeks window after the announcement date; winsorizing below 1% and above 99% distribution of VAR_ILLIQ; N=828)

	Mean/Median	Std dev
ILLIQ		
Before	594.81/36x10-4	17071.02
After	556.37/34x10-4	15971.24
VAR_ILLIQ	Mean	Std dev
N=802	-39.61	1115.46
z-test (p-value)	(0.32)	
#>0	282/802	
VAR_ILLIQ_{win}		
N=784	-0.0039	0.0690
z-test (p-value)	(0.18)	
#>0	274/786	
c_2 coefficient	Mean	# <0
c_2 before	-0.0147	441/778
c_2 after	-0.0156	457/795
VAR_C_2	-0.0026	403/735
z-test (p-value)	(0.56)	

Table 4 Analyst's forecast activity

(European, Canadian and US acquisitions; completed transactions with minimum value of 50 million dollars; only payment by cash or share or hybrid; only publicly listed and non-financial firms; Forecasts are analysts' EPS forecast for the current fiscal year; source: Thomson Financials and IBES; period 2000-2013; N=860 and 866 (respectively for the number of changes in the before sub-period and the after sub-period) ;Before and after are sub-periods of 200 calendar days before (resp. after) the announcement date of the acquisition)

	Before	After
Total number of mean forecast changes	14178	19232
Number of daily mean forecasts ov. the sub-period	101948	114928
% of daily mean change ov. the number of daily mean forecasts	13.9%	16.7%
Average number of analysts per stock	15.0	14.8
Average daily standard deviation of individual forecast	1.211	1.011

Table 5 Indicators of analysts' activity

(European, Canadian and US acquisitions; completed transaction with minimum value of 50 million dollars; repurchase or self-tender; only repayment by cash; only publicly listed and non-financial firms; Forecasts are analysts' EPS forecast for the current fiscal year; source: Thomson Financials and IBES; period 2000-2013; Before and after are sub-periods of 120 calendar days before (resp. after) the announcement date of the acquisition; non trimmed data)

Panel A		
	Before	After
% of positive changes in forecast	54.4%	48.8%
Average variation (Std. dev) in the probability of forecast revisions, After minus Before	2.4%	(7.8%)
z-test (p-value)	p:0.00	
% of increase (decrease) in frequency of change in forecast	67.3%	(32.7%)
Binomial test (p-value)	p:1.00	
Panel B		
	Change in EPS forecast ($)	Change in EPS forecast (%)
Median change in EPS	0.09$	6.6%
# positive change	593	587
# negative change	256	248
% of increase in EPS forecast	69.8%	70.3%
z-test (p-value)	0.31	0.00
Binomial test (p-value)	1.00	1.00
N	849	835
Panel C		
	Change in dispersion	
Average (median) change in EPS dispersion	-0.189	(0.005)
# positive change	506	
# negative change	343	
% of increase in dispersion	59.6%	
z-test (p-value)	0.45	
Binomial test (p-value)	1.00	
N	849	

Table 6 Abnormal returns at the acquisition announcement date

(Sample of acquisitions; North America and Europe; source: Thomson Financial; 2000-2013 period; cumulative abnormal returns calculated during a period of 10 business days [-1w,+1w]; parameter of the market model are estimated using weekly returns during an estimation period of 52 weeks prior to the estimation, period [t-53w,t-1w], R_t-R_m is the simple difference between the stock return and the index return, CAR(MM) is the abnormal returns calculated using the market model returns data are trimmed using the 1-99% range of initial observations; 827 observations)

	CAR ($R_t - R_m$)	CAR (MM)
Mean	-0.0081	-0.0159
Standard dev.	0.0891	0.1012
(p-value)	(1.00)	(1.00)
Trimmed data (N=812)		
Mean	-0.0071	-0.0136
Standard dev.	0.0770	0.0821
(p-value)	(1.00)	(1.00)
# negative CARs	55.2%	52.6%

Table 7 Stock price moves and weekly excess returns before and after the acquisition announcement

(Sample of acquisitions; North America and Europe; source: Thomson Financial; 2000-2013 period; excess returns are calculated by subtracting the relevant market returns to the stock returns for the two time periods; market indexes are SXXE euro index and SX North America index; Before: before announcement (52 weeks prior period [t-53w,t-1w]); After: after announcement (52 weeks subsequent period [t+1w,t+53w; 828 usable observations)

Excess return	Before	After
Mean	0.0032	0.0013
Standard dev.	0.0098	0.0175
Annualized rate	16.8%	6.6%
(p-value)	(0.00)***	(0.04)**

Table 8 Descriptive statistics

(European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; deals with not enough observations to calculate informativeness and CARs excluded;*: trimmed 1-99%; source: Thomson Financials; period 2000-2013)

Series	Obs	Mean	Std Error	Minimum	Maximum
ABSCAR	810	0,0602	0,0568	0,0000	0,3393
ASYMMETRY	987	0,4286	0,7402	-0,1821	6,1039
CAR	810	-0,0136	0,0817	-0,3393	0,1980
CAR_INDEX	810	-0,0070	0,0770	-0,2555	0,2165
CROSS	1051	0,1437	0,3509	0,0000	1,0000
D_EPS_ABS	831	0,2875	1,4564	-10,4864	10,5395
D_EPS_OV_SH	705	0,0260	0,1413	-0,6206	1,0974
D_EPS_PERC	817	0,1367	0,4537	-0,6746	4,8008
D_PROB_CHGE	824	0,0229	0,0593	-0,1447	0,2993
D_STD_DEV	831	0,0409	0,3037	-1,8616	2,3361
DISEQ	1037	-1,1997	5,6369	-66,3800	2,3450
DUM_CASH	1051	0,6775	0,4677	0,0000	1,0000
DUM_CHALL	1051	0,0733	0,2607	0,0000	1,0000
DUM_HYBRID	1051	0,1313	0,3379	0,0000	1,0000
DUM_PRIVATE	1051	0,1427	0,3500	0,0000	1,0000
EXRETA	828	0,0013	0,0175	-0,0558	0,4573
EXRETB	828	0,0032	0,0098	-0,0256	0,1393
PERC_CASH	1051	73,8351	40,9656	0,0000	100,0000
PREMIUM	892	39,4681	36,8842	-41,9200	223,6000
SAME_SECTOR	1051	0,5195	0,4999	0,0000	1,0000
TRANS_VAL	1051	1797,2129	7337,5291	50,0000	164746,8560
VAR_C2	751	-0,0026	0,1106	-0,2836	0,2654
VAR_ILLIQ	784	-0,0039	0,0690	-0,8164	0,4895
VAR_SYNC	810	-0,0044	1,3748	-4,2037	4,4614
VAR_SYNC_RAW	810	0,1452	1,0829	-2,6367	3,4225
VAR_TURN	807	35,8849	267,3616	-1480,4113	2225,9875
WITHIN_AM	1051	0,4910	0,5002	0,0000	1,0000

Table 9 - Determinants of CARs

(European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; deals with not enough observations to calculate synchronicity and CARs excluded ; dependent variable are CAR and ABSCAR; ABSCAR: absolute value of CAR; ASYMMETRY: relative size of the target compared to the acquirer in net book value; CAR: cumulative abnormal stock return calculated using the market model return; CROSS: Dummy for cross-border acquisitions with an acquirer coming from EU(North America) and a target located in North America (EU); DISEQ: Disequilibrium at the transaction between the percentage of shares sought in the transaction and the percentage of shares effectively acquired; DUM_CASH: dummy for full cash payment; DUM_CHALL: dummy for challenged deals; DUM_HYBRID: dummy for mixed cash-shares payment; DUM_PRIVATE: dummy for private deals or block transactions; EXRETB : stock excess return before the announcement over the [t-53w, t-1w] period; PERC_CASH: percentage of the transaction paid in cash, from 0% (full share payment) to 100% (full cash payment); PREMIUM : offer price to target stock price 4 weeks prior to announcement (in %); SAME_SECTOR: dummy if both target and acquirer belong to the same industry sector using the Thomson Financial mid sector categories; TRANS_VALUE: value of transaction (M$); source: Thomson Financials; period 2000-2013; data are trimmed 1-99%; OLS corrected taking into account robust covariance estimators; ***: 1% significance level; **: 5% significance level; *: 10% significance level)

	Eq1		Eq2		Eq3		Eq4	
Dependent	CAR		CAR		CAR		ABSCAR	
Variables	Coeff	Signif	Coeff	Signif	Coeff	Signif	Coeff	Signif
Constant	-0.0393	0.00***	-0.0332	0.01**	-0.0348	0.00***	0.0770	0.00***
PERC_CASH	0.0003	0.00***			0.0004	0.00***	-0.0003	0.00***
DUM_CASH			0.0391	0.00***				
PREMIUM	-0.0000	0.80	-0.0000	0.64			4.1x10-6	0.95
TRANS_VAL	-0.0000	0.09*	-0.0000	0.12	-0.0000	0.04**	5.1x10-7	0.15
DUM_CHALL	-0.00013	0.88					-0.0073	0.21
DUM_HYBRID			0.0117	0.38				
SAME_SECTOR	0.0104	0.08*	0.0116	0.05**			0.0058	0.15
DUM_PRIVATE	0.0007	0.94					-0.0117	0.09*
WITHIN_AM			-0.0101	0.11				
EXRETB	-1.3354	0.02**	-1.7621	0.00***	-1.6602	0.00***	0.6479	0.10
CROSS	0.0092	0.20					-0.0051	0.31
DISEQ	0.0006	0.15	0.0005	0.18			-0.0002	0.30
ASYMMETRY			-0.0042	0.37				
R2	0.07		0.09		0.07		0.09	
N	698		673		810		698	

Table 10 Determinants of variation in synchronicity

(European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; deals with not enough observations to calculate synchronicity and CARs excluded ; dependent variable is VAR_SYNC; ASYMMETRY: relative size of the target compared to the acquirer in net book value; CAR: cumulative abnormal stock return calculated using the market model return; CROSS: Dummy for cross-border acquisitions with an acquirer coming from EU(North America) and a target located in North America (EU); D_EPS_ABS: change in mean EPS forecasts calculated after and before the announcement. Change in dollar terms; D_EPS_PERC: relative change in mean EPS forecasts calculated after and before calculated in percentage variation; D_PROB_CHGE: variation of probability of forecast revision, comparing after and before announcement periods adjusted for length; D_STD_DEV: variation in average standard deviation among individual analyst forecasts; DISEQ: Disequilibrium at the transaction between the percentage of shares sought in the transaction and the percentage of shares effectively acquired; DUM_CASH: dummy for full cash payment; DUM_CHALL: dummy for challenged deals; DUM_HYBRID: dummy for mixed cash-shares payment; DUM_PRIVATE: dummy for private deals or block transactions; EXRETA: stock excess return after the announcement over the [t+53w, t+-1w] period; EXRETB : stock excess return before the announcement over the [t-53w, t-1w] period; PERC_CASH: percentage of the transaction paid in cash, from 0% (full share payment) to 100% (full cash payment); PREMIUM : offer price to target stock price 4 weeks prior to announcement (in %); SAME_SECTOR: dummy if both target and acquirer belong to the same industry sector using the Thomson Financial mid sector categories; TRANS_VALUE: value of transaction (M$); VAR_SYNC: variation in synchronicity measure, after minus before. Individual synchronicity values are corrected using the synchronicity of the industry; WITHIN_AMERICA: dummy if target and acquirer firms are from either the USA or Canada; NEG_VAR_EPS(POS_VAR_EPS): negative (positive) changes in analysts' forecasts taken from D_EPS_ABS; CAR_RESID: residual from the CAR equation 3 from Table l9 explaining CAR by a constant, PERC_CASH, TRANS_VAL and EXRETB; source: Thomson Financials; period 2000-2013; data are trimmed 1-99%; OLS corrected taking into account robust covariance estimators; ***: 1% significance level; **: 5% significance level; * 10% significance level)

	Eq1		Eq2		Eq3		Eq4		Eq5		Eq6	
Variable	Coeff	Signif	Coeff	Signif	Coeff	Signif	Coeff	Signif	Coeff	Signif	Coeff	Signif
Constant	-0.1010	0.08*	-0.1018	0.13	0.3598	0.02**	-0.0077	0.93				
PERC_CASH					-0.0031	0.05*					-0.0005	0.57
CAR	-0.4193	0.52	-0.1287	0.84	-0.4218	0.57			-0.4214	0.53		
NEG_CAR							-0.1587	0.86				
POS_CAR							-0.2557	0.86				
TRANS_VAL			1.3x10-5	0.03**			0.0000	0.06*	1.2x10-5	0.04**	1.2x10-5	0.04**
DUM_HYBRID			-0.03337	0.04**	-0.4067	0.01**	-0.2868	0.06*	-0.3169	0.04**	-0.3142	0.04**
DUM_CHALL			0.0765	0.67								
WITHIN_AM					-0.0954	0.38	-0.0569	0.58	-0.0990	0.21	-0.0606	0.58
CROSS									-0.0695	0.53	-0.0262	0.85
PREMIUM					-0.0010	0.45						
EXRETB											1.7425	0.82
CAR_RESID											-0.4119	0.56
ASYMMETRY			-0.0203	0.85			0.0144	0.87				
SAME_SECTOR							-0.1340	0.17				
D_PROB_CHGE	0.0530	0.94	0.4728	0.53								
D_EPS_ABS	0.0869	0.06*	0.0920	0.04**			0.0811	0.05*	0.0902	0.02**	0.0939	0.02**
NEG_VAR_EPS					0.2398	0.02**						
POS_VAR_EPS					0.0570	0.25						
D_STD_FOR	0.1607	0.43	0.2152	0.32								
R2	0.01		0.02		0.03		0.02		0.02		0.02	
N	682		668		689		706		707		699	

Table 11 Determinants of Amihud's illiquidity and llorente et al. c_2 coefficient

(European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; deals with not enough observations to calculate synchronicity and CARs excluded; ABSCAR: absolute value of CAR; ASYMMETRY: relative size of the target compared to the acquirer in net book value; CAR: cumulative abnormal stock return calculated using the market model return; CROSS: Dummy for cross-border acquisitions with an acquirer coming from EU(North America) and a target located in North America (EU); D_EPS_ABS: change in mean EPS forecasts calculated after and before the announcement. Change in dollar terms; D_EPS_OV_SH: change in mean EPS forecasts calculated after and before calculated standardized by the stock value; D_EPS_PERC: relative change in mean EPS forecasts calculated after and before calculated in percentage variation; D_PROB_CHGE: variation of probability of forecast revision, comparing after and before announcement periods adjusted for length; D_STD_DEV: variation in average standard deviation among individual analyst forecasts; DUM_HYBRID: dummy for mixed cash-shares payment; PERC_CASH: percentage of the transaction paid in cash, from 0% (full share payment) to 100% (full cash payment); PREMIUM : offer price to target stock price 4 weeks prior to announcement (in %); SAME_SECTOR: dummy if both target and acquirer belong to the same industry sector using the Thomson Financial mid sector categories; TRANS_VALUE: value of transaction (M$); VAR_C2: variation in the Llorente et al. coefficent c2; VAR_ILLIQ: variation in Amihud's illiquidity measure, after minus before; VAR_TURN: variation in daily turnover volume; WITHIN_AMERICA: dummy if target and acquirer firms are from either the USA or Canada; NEG_CAR (POS_CAR): negative (positive) CARs values; source: Thomson Financials; period 2000-2013; data are trimmed 1-99%; OLS corrected taking into account robust covariance estimators; ***: 1% significance level; **: 5% significance level; *: 10% significance level)

	Eq1		Eq2		Eq3		Eq4		Eq5		Eq6	
Dependent Variable	VAR_ILLIQ Coeff	Signif	VAR_ILLIQ Coeff	Signif	VAR_ILLIQ Coeff	Signif	VAR_ILLIQ Coeff	Signif	VAR_C2 Coeff	Signif	VAR_C2 Coeff	Signif
Constant	-0.0057	0.26	-0.0076	0.08*					-0.0049	0.31	-0.0039	0.72
PERC_CASH	0.0000	0.54	0.0000	0.44								
ABSCAR	0.0195	0.63										
CAR									-0.1420	0.00***	-0.1812	0.00***
NEG_CAR			-0.0370	0.23	-0.0081	0.82						
POS_CAR			0.0599	0.29	0.0217	0.70						
PREMIUM											0.0001	0.42
DUM_HYBRID	0.0085	0.07*	0.0086	0.07*	0.0059	0.18						
SAME_SECTOR											-0.0196	0.03**
WITHIN_AM					-0.0037	0.20					0.0020	0.85
CROSS											0.0220	0.13
TRANS_VAL					-2.1x10-7	0.17					-6.8x10-7	0.05**
ASYMMETRY					0.0037	0.20						
D_PROB_CHGE							-0.0137	0.61	-0.0051	0.94		
D_ EPS_PERC	-0.0078	0.09*	-0.0079	0.09*	-0.0077	0.07*	-0.0096	0.07*				
D_EPS_ABS									0.0080	0.05**	0.0086	0.03**
D_STD_DEV	0.0019	0.69					0.0022	0.57	-0.0127	0.44	-0.0007	0.97
VAR_TURN	7.6x10-13	0.49	7.3x10-13	0.37								
R2	0.01		0.01		0.01		0.01		0.02		0.03	
N	675		684		686		673		652		588	

Table 12 Simultaneous equations

(Equation 1 has VAR_SYNC as dependent variable; Equation 2 has VAR_ILLIQ as dependent; Equation 3 has VAR_C2 as dependent; Models A and B are multivariate 2LS simultaneous three equations estimates; European, Canadian and US acquisitions; completed deals with minimum transaction value of 50 million dollars; buybacks and self-tender transactions excluded; acquirers and targets are publicly listed and non-financial firms; CAR: cumulative abnormal stock return calculated using the market model return; D_EPS_ABS: change in mean EPS forecasts calculated after and before the announcement. Change in dollar terms; D_EPS_PERC: relative change in mean EPS forecasts calculated after and before calculated in percentage variation; D_STD_DEV: variation in average standard deviation among individual analyst forecasts; TRANS_VALUE: value of transaction (M$); VAR_C2: variation in the Llorente et al. coefficent c2; VAR_ILLIQ: variation in Amihud's illiquidity measure, after minus before; VAR_SYNC: variation in synchronicity measure, after minus before. Individual synchronicity values are corrected using the synchronicity of the industry; VAR_TURN: variation in daily turnover volume; WITHIN_AMERICA: dummy if target and acquirer firms are from either the USA or Canada; NEG_CAR (POS_CAR): negative (positive) CARs values; NEG_VAR_EPS(POS_VAR_EPS): negative (positive) changes in analysts' forecasts taken from D_EPS_ABS; source: Thomson Financials; period 2000-2013; N:628 and 637; ***: 1% significance level; **: 5% significance level; *: 10% significance level)

Panel A	Eq. 1A		Eq. 2A		Eq. 3A	
Dependent	VAR_SYNC		VAR_ILLIQ		VAR_C2	
	Coeff	Signif	Coeff	Signif	Coeff	Signif
Constant	-0.1153	0.05**	0.0017	0.26	-0.0059	0.38
CAR	-0.5334	0.43	0.0173	0.19	-0.1391	0.02**
DUM_HYBRID	-0.2432	0.13	0.0066	0.03**	-0.0104	0.44
TRANS_VAL	1.1x10-5	0.06*				
WITHIN_AM			-0.0027	0.19	0.0001	0.99
D_EPS_PERC			-0.0054	0.02**		
D_EPS_ABS	0.1001	0.03**			0.0099	0.01**
D_STD_DEV			-0.0042	0.27	-0.0115	0.48

Panel B	Eq. 1B		Eq. 2B		Eq. 3B	
Dependent	VAR_SYNC		VAR_ILLIQ		VAR_C2	
	Coeff	Signif	Coeff	Signif	Coeff	Signif
Constant	-0.00802	0.92				
POS_CAR	-1.9729	0.18	0.0729	0.00***	-0.1627	0.14
NEG_CAR	0.3132	0.76	-0.0162	0.39	-0.1230	0.12
DUM_HYBRID	-0.2252	0.16	60	0.06*	-0.0121	0.36
TRANS_VAL	1.1x10-5	0.05**				
WITHIN_AM			-0.0029	0.12	-0.0049	0.52
D_EPS_PERC			-0.0074	0.00***		
D_EPS_ABS					0.0092	0.02**
POS_VAR_EPS	0.0458	0.40				
NEG_VAR_EPS	0.2888	0.01***				
D_STD_DEV			-0.0038	0.24	-0.0129	0.42