

Conflicts of Interests in the Financial Analysis Industry:

Why Did Europeans Get MAD?*

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Abstract: In an attempt to mitigate the conflicts of interest stemming from the interdependence of equity research and investment banking departments of brokerage houses, the European Commission has enacted the Market Abuse Directive (MAD) in 2003. We document that this reform was by and large inadequate and may have triggered counterproductive consequences. In particular, we first demonstrate that conflicts of interest were of minor importance in Europe. Also, we show that the scope of MAD appears narrow and leaves some potential conflicts largely unaddressed. More importantly, we find that investors were not materially affected by conflicted equity research. Indeed, they are sophisticated enough to see through biased research and internalize conflicted advises. Finally, we uncover that the passage of MAD reduced significantly the coverage that European firms receive. This loss of attention may lead to a damaging increase of their cost of capital.

Key words: Conflicts of interest, recommendations, Market Abuse Directive, European Community.

JEL classification: G12, G14, G24, G28, K22, M48

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1. Introduction

Over the past decade, securities firms and their analysts have largely been accused of producing overly optimistic research in order to attract and retain investment banking clients. To address this widespread concern regulators have taken various steps to curb conflicts of interest related to investment banking. This wave of regulatory reforms started in the U.S. with the passage of Reg FD, followed by the Sarbane-Oxley Act (section 501). In a similar vein, European regulators have responded in kind and enacted the Market Abuse Directive (MAD). Aping the U.S. regulatory changes, the purpose of MAD was to limit the influence of investment banking on equity research by limiting ties between research and investment banking departments and by creating stringent disclosure requirements. To restore trust in the European financial markets, the European Commission has literally copied the U.S. laws and provisions. In many respects, MAD stands out as an exact replica of the U.S. regulations applied to the European environment.

The stated objective of MAD was clear. However, its justification was less so. As a matter of fact, while an abundant literature has established the presence of conflicted equity research in the U.S. no similar evidence exists for Europe (Mehran and Stulz (2007)). Undeniably, this lack of perspective casts serious doubt on the real necessity to adopt MAD. Moreover the striking similarities between MAD and U.S. regulations raise many concerns about the adequacy of the European regulation, and points to its potential distorting effects on the European financial markets.

To shed light on these issues and to further understand how brokers and other market participants alter their behaviors in response to legal reforms, we analyze the extent of conflicted equity research in Europe and assess the economic impact of MAD. In order to proxy for potential conflicts of interest we follow the exact provisions of MAD. Under MAD, any recommendation made by a broker on a firm for which it has acted as underwriter or adviser over the last year is considered as being exposed to conflicts of interest. In line with existing studies, we refer to such recommendations as “affiliated”. Using a large sample of stock recommendations made on companies listed in thirteen European countries between 1997 and 2007, we find a mosaic of evidence that suggest that the adoption of MAD was not justified, and that the achievement of the regulation is limited.

We first document that the scope of MAD is narrow. Indeed, before the passage of MAD, recommendations issued by affiliated brokers were extremely rare. They represent only 2.3% of the sample and half the proportion identified in the U.S.¹ In favor of MAD, however, we do find evidence that affiliated brokers were overly optimistic before the passage of MAD. The distribution of recommendations issued by affiliated brokers tilt considerably towards more optimistic recommendations compared to non-affiliated brokers. This pattern is largely confirmed by a multivariate analysis. All else equal, recommendations made by affiliated brokers were systematically above the consensus. Several alternative specifications support the presence of an affiliation bias in Europe. Nevertheless, the definition of conflicted brokers in MAD is particularly conservative since it only considers investment banking ties as leading to potential conflicts of interest if they occur over the previous year. In further tests, we uncover that older investment banking relationships also lead to overly-optimistic recommendations. Hence, while the provisions of MAD appear to target the right brokerage houses, their reaches are too thin.

Next, we investigate whether, and if so, how the passage of MAD modified the behavior of conflicted brokers. Using a differences-in-differences approach, we estimate that MAD significantly reduces the affiliation bias. After MAD, affiliated brokers generally behave like unaffiliated brokers. Although MAD targets relatively few brokers, its provisions significantly attenuate the affiliation bias. In contrast to Hovakimian and Saenyasari (2009), we find no evidence that U.S. regulations spill over the European markets. We show that the attenuation of the affiliation bias truly comes from MAD and not from U.S. reforms enacted shortly before MAD. Yet, our analysis underscores again that the scope of MAD appears particularly restrictive. While the enactment of MAD limits overly optimistic recommendation of the targeted brokers, conflicted brokers that are not affected by the MAD provisions, i.e. brokers with older investment banking relationships, continue to exhibit a substantial affiliation bias.

To further quantify the real consequences of MAD, we examine its potential effect on the ultimate customers of equity research, i.e. investors. To do so, we focus on investors' reactions to

¹ See for instance Malmendier and Shanthikumar (2009).

conflicted stock recommendations. Before MAD, investors significantly discounted the recommendations issued by conflicted brokers. All else equal, a favorable recommendation issued by an affiliated broker triggered a market reaction that is 0.4% lower than a similar recommendation made by a non-affiliated broker. In line with U.S. evidence (Michaely and Womack (1999), Lin and McNichols (1998) or Agarwal and Chen (2007)), this result suggests that European investors did understand and internalized the tendency of conflicted brokers to be over-optimistic. Strikingly, MAD did not change the behavior of investors. Even after the passage of MAD, market participants continue to discount favorable recommendations issued by affiliated brokers. While MAD was designed to limit the adverse effects of misleading equity research, the behavior of European investors underlines that conflicts of interest are not of primary importance for them and that MAD does not elicit neglected (investment banking ties) information to the market. These findings cast further clouds on the legitimacy of MAD.

Finally, we assess how MAD modifies the organization of the European financial analysis industry. Indeed, any regulatory reform is likely to provoke unintended consequences. MAD is no exception. We document that MAD had a substantial adverse effect on scope of brokers' coverage. Notably, several multivariate analyses confirm the undesirable impact of MAD on analyst' coverage. Importantly, previous research suggests that loss of coverage negatively affect firms since less coverage increases their cost of capital, decreases the efficiency of their stock prices and lowers their liquidity; e.g. Hong and Kacperczyk (2010) , Kelly and Ljungqvist (2007), or Kecskes and Womack (2009). In this vein, our investigation points to potential large costs that MAD imposed on European firms.

Putting all our findings together this paper contributes to several strands of the literature. First, this study complements recent papers that examine the effect of regulations on sell-side analysts' research. Overall the European regulation had different effects than the recent U.S. reforms. In particular, Ertimur, Sunder and Sunder (2006) and Kadan, Madureira, Wang and Zach (2009) document that NASD Rule 2711, NYSE Rule 472 and the Global Analyst Research Settlement had some success in curbing conflicts of interest. Noticeably, investors in the U.S. did change their reactions to stock recommendation after the regulations, indicating that they effectively internalized

the change in brokers' practices. In contrast, while brokers reduced their optimism after MAD, investors in Europe perceive no such change. They continue to discount recommendations issued by conflicted brokers. In addition, MAD significantly pushed brokers to cut down their coverage. Collectively, our results are consistent with a limited achievement of MAD's objectives. Strikingly, while the provisions of MAD strictly mirror those of U.S. regulations, their effect and effectiveness are substantially different. Our results indirectly suggest that when it turns to regulations, one size does not fit all environments.

In addition, by focusing on the European financial analysis industry, our analysis deepens our understanding of the nature and implications of conflicted equity research. While existing studies unilaterally concentrates on the U.S. markets, our findings highlight that conflicts of interests due to investment banking ties is a universal phenomenon that also exist in Europe. Though, our estimates reveal that the intensity of conflicted research is much lower in Europe than in the U.S. Yet, similarly to U.S. investors, European investors are not naïve about brokers' incentives and systematically "debias" overly-optimistic recommendations. Hence, conflicts of interest arising from investment activities appear to be relatively benign in Europe. In line with Mehran and Stulz (2007) biased equity research has no systematic and persistent impact on the customers of equity research.

Finally, the results in this paper also indirectly shed light on the contagion of regulatory reforms. As a matter of fact, we show that that the European financial analysis industry was not directly affected by the enactment U.S. regulations. Strikingly, even brokers that have a global business and that were de facto subjected to U.S. reforms for their U.S. operations continued to issue biased research on European companies. Interestingly, our findings emphasize that global financial institutions react to local laws as opposed to their home-market legislation. In this spirit, our study reinforces the idea that regulations should be designed with an eye towards territorial applicability.

In the next section, we discuss the institutional setting of MAD. Section 3 describes the sample and present descriptive statistics. Section 4 tests for the presence of conflicted recommendations before the enactment of MAD. In section 5, we assess the real consequences of MAD. Section 6 presents our conclusions.

2. Institutional Background

In 1999, the European Commission (EC) launched the Financial Services Action Plan with the aim of promoting a fully integrated European financial market. To this end, several directives were adopted, among which Directive 2003/6/EC on ‘Insider Dealing and Market Manipulation’. This Directive, known as Market Abuse Directive, was complemented by two implementing Commission Directives, CD 2003/124/EC and CD 2003/125/EC². Before becoming legally binding, European directives must be incorporated into national laws. The European Commission gave Member States until October 12th, 2004 to transpose MAD provisions into local legislation. Germany did so on October 30th, 2004, but most Member States transposed MAD into national laws during the second semester of 2005 (i.e. Finland, France, Ireland, Italy, Netherlands, Great Britain and Spain) and the first semester of 2006 (Belgium and Portugal).

The first objective of MAD is to preclude selective disclosures of information. A corporate manager disclosing relevant information “must make complete and effective public disclosure of that information, simultaneously in the case of an intentional disclosure and promptly in the case of a non-intentional disclosure” (Directive 2003/6/EC, article 6.3). Relevant information means price-sensitive information, i.e. “information which, if it were made public, would be likely to have a significant effect on the price” (CD2003/124, article 1).

The second objective of MAD is to harmonize standards for the “fair, clear and accurate presentation of information and disclosure of interests and conflicts of interest”³. In order to make financial analysts accountable for their recommendations, the identity of the persons who prepared the recommendation, i.e. their name and job title, and the name of the person legally responsible for the recommendation, must be disclosed. Therefore, recommendations made by teams of analysts without mentioning explicitly their names are forbidden⁴. Facts must be clearly distinguished from opinions and interpretations, and estimates, which include forecasts and price targets, must be labeled as such.

² See Ferrani (2004) and Hansen (2004). Investment recommendations are also submitted to Directive 2004/39/EC and Commission Directive CD 2006/73/EC, known as MiFID, which main objective is to increase consumer protection in investment services. Several articles include investment research activities. In particular, conflicts of interest are the subject of the Directive (Art.18.).

³ Official Journal of the European Community, December 24, 2003, L339/73.

⁴ Before the adoption of MAD, the proportion of recommendations issued by teams accounted for 20% of the recommendations issued by European brokers, see Bolliger (2004).

The methodology used to evaluate financial instruments must also be described. In addition to the time horizon and risk, the date at which the recommendation was released must be prominently indicated. Interestingly, any change in a recommendation that was issued during the last twelve months must be clearly indicated. Furthermore, financial institutions providing recommendations are required to disclose every quarter the proportion of “Buy”, “Hold” and “Sell” recommendations issued for all stocks they follow.

To limit the pernicious consequences of potential conflicts of interest the European regulator adopted a pragmatic strategy. To make investors aware of potential conflicts, MAD forces the disclosure of any relevant information that might potentially affect the nature of the recommendation. Financial institutions are required to disclose the “effective organizational and administrative arrangements set up [...] for the prevention and avoidance of conflicts of interest” (CD2003/125, article 6.2). They must report on how the remuneration of the person preparing the recommendation is tied to investment banking transactions. Any person involved in the production of the recommendation must release her links with the recommended firm. Brokers having acted as a lead manager or a co-lead manager in any securities offerings (stocks and bonds) or having advised the recommended firm in an M&A over the twelve months preceding the recommendation must disclose this information. Finally, disclosure must be made if the financial institution recommending a firm holds a stake of 5% or more in the capital of the recommended firm or, conversely, if the recommended firm holds a stake of 5 % or more in the capital of the financial institution.

The similarities between the provisions of MAD and those of RegFD, NASD Rule 2711, NYSE Rule 472 and SOX501 adopted earlier in the U.S. are striking. They all impose disclosure of information helping to understand research outputs and to identify potential conflicts of interests. There are, however, few notable differences. MAD does not make any reference to the individual protection of financial analysts from persons involved in investment banking activities working for the same financial institution. Nor does it refer to the educational level of financial analysts, or to the ban on reviewing the report before publication made on companies that are the subject of the research report. Also, NASD Rule 2711 and NYSE Rule 472 do not mention holdings (a stake of 5%) as a

source of conflict while MAD does. Except those minor differences, it is fair to say the MAD is an imitation of U.S. regulations.

3. Data and descriptive statistics

To identify the presence of potential conflicts of interest in the European financial analysis industry and analyze the impact of the new regulation, we look at the nature and informational content of analysts' recommendations. We focus specifically on stock recommendations rather than on earnings. Indeed, while earnings forecasts could have competing optimistic and pessimistic influences, no obvious incentive exists for analysts to provide pessimistic recommendations. Therefore recommendations represent a more natural laboratory to examine the value and bias of analysts' production. Moreover, stock recommendations were the focal point of many complaints about conflicts of interest and lie at the heart of the MAD provisions.

On this basis, our initial sample consists of all stock recommendations on EC firms listed in Austria, Belgium, Denmark, Finland, France, Germany, Great Britain, Ireland, Italy, the Netherlands, Portugal, Spain and Sweden from the I/B/E/S International Historical Detail File database. We cover a period that starts January 1st, 1997 and ends on December 31th, 2007. As MAD provisions apply specifically to brokers, we retain only recommendations issued by brokers who have their headquarters or a branch under the jurisdiction of a Member State of the EC.⁵ I/B/E/S reports ratings from 1 ("Strong Buy") to 5 ("Strong Sell"). To make the ratings system more intuitive, we reverse the scale (5 for "Strong Buy" and 1 for "Strong Sell") so that higher ratings correspond to more favorable recommendations. We further exclude recommendations with missing information on firm (country or currency codes) or broker. Kadan et al. (2009) notice that, after 2002, some U.S. brokers adopted a three-tier scale rating system in place of the five-tier scale they used previously. They report an

⁵ For US recommendations, Ljungqvist, Malloy and Marston (2009) find that 1.6% to 21.7% of matched recommendations are different from one download to the next. Their study do not examine international recommendations.

unusual number of recommendations made by these brokers on the switching days. As we identify a similar pattern in Europe, we exclude recommendations issued on switching days.⁶

[Insert Table 1 about here]

Table 1, Panel A, reports descriptive statistics on our sample of European stock recommendations. Overall, the sample covers 268'199 recommendations for 5'141 firms, issued by 267 brokers (brokerage houses and investment banks). The U.K., Germany and France account for 68.80% of the covered firms and 61.37% of the recommendations. Table 1 also reports the proportion of recommendations by ratings (Strong Buy, Buy, Neutral, Sell, and Strong Sell). Consistent with Jegadeesh and Kim (2006), the distribution is right skewed with 18.54% of "Strong Buy" and 28.54% of "Buy" recommendation compared to 12.63% of "Sell" and 5.30% of "Strong Sell". A quick comparison with similar U.S. figures confirms that the distribution of recommendations appears significantly more balanced in Europe⁷. Notably, the number of firms, brokers and recommendations, as well as their distribution across ratings seems stable over our sample period. Interestingly, we do not observe any important change after U.S. regulations were passed. We interpret this as evidence that these U.S. regulations did not spilled over in EC.

Following the provisions of MAD, conflicts of interests originate in the existence of investment business ties between recommended firms and brokers. To identify such ties, we gather information on European IPOs, SEOs, debt issuance and M&As from the Security Data Company's (SDC) database. In particular, we specifically collect the names of book-runners and managers, the amount and the date at which transactions took place. To merge I/B/E/S and SDC data, we use the broker name associated with the broker masked code and manually match the names of the book-runner(s), manager(s) and advisor(s) in the SDC database. To validate our matching procedure, we use Nelson Directories to determine which recommendations were issued by independent research firms with no brokerage business and no investment banking business. We find no recommendations made

⁶ We find thirty-two observations corresponding to a broker making more than two hundred recommendations on a single day. A closer look shows that six of them correspond to those reported in Kadan et al. (2009, Table 2). The remaining ones occurred more recently (three in 2003, two in 2004, one in 2005, four in 2006 and two in 2007).

⁷ In Jegadeesh and Kim (2006), 15.3% are Sell and Strong Sell in France, Germany, Italy and the UK and only 3.3% in the US. For the US, similar figures are available in Howe, Unlu and Yan (2009) where Sell and Strong Sell represent 5.7% over the 1994-2006 period.

by such firms in our sample. Finally, to gauge and provide the most accurate evaluation of the European regulation, we define investment business ties by following the exact provisions of MAD. Under MAD, any financial institution that issues a recommendation on a firm for which it has acted as an underwriter (SEO, IPO or public debt issuance) or a M&A advisor over the last twelve months is considered as “affiliated” (CD2003/125, Art. 6, al. 1d).⁸ We use definition to classify each broker as affiliated or non-affiliated.

4. Did Conflicts of Interest Exist in Europe before MAD?

The *raison d’être* of MAD is to curb the damaging effects of conflicted stock recommendations in Europe. Yet, while an abundant literature has highlighted the presence of conflicts of interest in the U.S., no study – to the best of our knowledge – establishes a similar fact in Europe.⁹ In this section, we look for such evidence. Specifically, we explore whether the European Financial Analysts industry was plagued by conflicted equity research in the pre-MAD era.

Precisely delineating the pre-MAD era is not straightforward. As a matter of fact, the whole process leading to MAD was first initiated by the adoption of codes of ethics at the national and international levels, followed by European Commission Directives and, eventually, by the transposition of these directives into national laws. This lengthy process makes it difficult to precisely identify a unique date for the adoption of MAD. Since the enforcement of the law is ultimately country specific, we retain the date at which the corresponding law was enacted in each country. While this choice is conservative (i.e., it makes it more difficult to detect any effect of the regulation), we will assess the sensitivity of the results to this specific choice.

4.1. A first look at the data

Table 2 details the characteristics of stock recommendations by type of brokers. In Panel A, we note that the proportion of recommendations issued by affiliated brokers represents only 2.31% (6190 recommendations out of 268’199). These recommendations were issued by 101 different

⁸ Note that this categorization is similar to SOX501, sec.15d, b), 3).

⁹ See Mehran and Stulz (2007) for a detailed review of the literature on conflicted equity research in the U.S..

brokers (94 before and 63 after MAD), which issued 78 % of the recommendations in our sample (78.4 before and 74.1 after MAD). The proportion of recommendations issued by affiliated brokers is not substantially affected by the enactment of MAD either. While the fraction of recommendations issued by affiliated brokers represented 2.20% before MAD, it slightly increased to 2.65% after MAD. Panel A also indicates that this proportion has been stable over time, ranging from 1.34% to 3.04% per year.

Notably, the fraction of affiliated brokers appears to be smaller to what has been documented for the U.S. In particular, Malmendier and Shanthikumar (2009, Table I) report that 5.17% of all recommendations come from affiliated brokers.¹⁰ This difference is mainly due the structure of the European and U.S. financial industries. While “Pure Brokers” issue around 15% of the recommendations in the U.S., they represent 34.18% in our European sample; e.g. Cowen, Groysberg and Healy (2006) and Ertimur et al. (2007). This structural difference suggests that conflicts of interest rooting in investment banking activities may not be as pervasive as it is in the U.S.

[Table 2 about here]

When we specifically focus on affiliated brokers in the pre-MAD period, we note that the distribution of their recommendations tilts considerably toward more optimistic recommendations compared to non-affiliated. Indeed, while “Sell” and “Strong Sell” account for 18.09% of non-affiliated recommendations, they only represent 6.82% of the recommendations issued by of affiliated brokers. Likewise, the proportion of “Buy” and “Strong Buy” is larger for affiliated (62.29%) than for non-affiliated (46.71%). We observe a comparable pattern for all years preceding the enactment of MAD. For affiliated brokers, however, the distribution of their recommendations changes after the enactment of MAD. The proportion of “Sell” and “Strong Sell” recommendations increases to 10.59%, whereas the proportion of “Buy” and “Strong Buy” decreases to 53.11%. We do not see a similar shift for non-affiliated brokers (18.42/47.02 % for unfavorable/favorable recommendations). Consistent with the idea that the presence of investment banking ties leads to over-optimistic

¹⁰ Malmendier and Shanthikumar define a brokerage firm is *affiliated* if it has been a lead or co-underwriter for a firm's IPO in the past 5 years or for a firm's SEO in the past 2 years. Under MAD, a brokerage firm is *affiliated* if it has been a lead or co-underwriter for a firm's IPO/SEO in the past year.

recommendations, affiliated brokers are more optimistic than their non-affiliated peers irrespective of the considered period. Panel B further breaks down the distribution of recommendation by country. We observe cross-country differences in the fraction of affiliated recommendations. They range between 4.93% in Austria and 1.59% in Finland. Notably, no specific country appears to host the bulk of affiliated brokers.

4.2. Multivariate Analysis

To get more robust insight on the prevalence of biased research before the adoption of MAD, we turn to a multivariate analysis. To do so, we follow Ljungqvist, Marston, Starks, Wei and Yan (2007) and Loh (2009) and examine the effects of brokers' affiliation on their relative recommendation, that is, on the difference between their recommendation and the consensus recommendation. On this ground, we specify the following model:

$$\text{RelRec}_{b,i,c,t} = \alpha_b + \eta_t + \theta_c + \beta \text{Affiliated}_{b,i,c,t} + \gamma' \mathbf{X}_t + \varepsilon_{b,i,c,t} \quad (1)$$

where the subscripts b , i , c and t represent respectively the broker, the covered firm, the country where the firm is incorporated and the month of the recommendation release. The dependent variable, “ $\text{RelRec}_{b,i,c,t}$ ” is the recommendation issued by broker b on stock i at time t , minus the average recommendation across all brokers covering stock i at time t .¹¹ This variable provides a direct metric to assess whether a broker is optimistic, pessimistic or neutral compared to peer brokers that issued recommendations on the same stock less than a year ago¹². The variable of interest, “Affiliated” is a dummy that equals one for recommendations made by brokers classified as “affiliated” under MAD and zero otherwise.

In line with empirical studies on stock recommendations, the vector \mathbf{X} includes variables that control for other potential determinants of brokers' optimism. First, since large institutions may have

¹¹ More precisely, the average recommendation (consensus) is computed using the most recent recommendations issued by brokers covering the firm. We exclude recommendations issued more than a year before the current recommendation

¹² For each broker, we retain the most recent recommendation.

more resources to support research and may have better access to private information, we control for the size of the broker based on the number of companies followed over the past twelve months preceding the recommendation release.¹³ Then, to capture a stock's information environment, we include the number of analysts who issued at least one recommendation on the stock over the past twelve months preceding the recommendation release. To further capture the potential impact of differential information environment, we also consider whether a recommendation has been issued by another broker in the 10 days preceding the recommendation release and whether an earnings announcement occurs in the two days before the recommendation. We also include an indicator variable when a recommendation represents an initiation for the releasing broker. Finally, to account for the fact that brokers may become optimistic about a stock because it has performed well or because of market-wide optimistic sentiment, we include the stock return as well as the local market returns computed over the twelve months preceding the recommendation; e.g. Jegadeesh, Kim, Krische, and Lee (2004) and Kadan, et al. (2009). We detail the construction of all the variables in the Appendix. We also account for broker's heterogeneity, country and time specific effects ($\alpha_b, \theta_c, \eta_t$). We further adjust estimated standard errors for within-broker error clustering and heteroskedasticity¹⁴.

[Table 3 about here]

Table 3 reports regression results on the effect of brokers' investment banking ties on their relative recommendation over the pre-MAD period. Notably, the coefficient on affiliated brokers is significantly positive. After controlling for other determinants of relative optimism, affiliated brokers issue relative recommendations that are 0.172 higher on average (t-statistics of 8.69). Generally, the coefficients of the control variables have signs that are in line with related studies; e.g. Ljungqvist, Marston, Starks, Wei, and Yan (2007) and Loh (2009). Consistent with our previous descriptive figures, these first OLS results indicate that strong investment banking relationships incite more aggressive recommendations before the enactment of MAD. While previous empirical evidence was restricted to U.S. markets, our research document that it is also present in other countries. In particular,

¹³ The size of the broker is often approximated by number of analysts; we cannot use such a proxy because of teams.

¹⁴ Clustering at the broker level is justified by the fact that observations for the same broker may not be independent within our panel; see Petersen (2009)

the organization of the banking system (universal banks) does not eliminate optimistic recommendations.

Note, however, that the definition of affiliation provided by MAD is somewhat conservative as it concerns only small proportion (2.20 %) of recommendations. Hence, we may wonder whether the scope of MAD is large enough in targeting the right brokerage houses. To answer this question and further portray the nature of conflicted equity research in Europe, we alter the definition of conflicted brokers. First, we extend the period over which having investment business with a covered firms classify brokers as conflicted from one year to two years as in Malmendier and Shantikumar (2009).¹⁵ For that purpose, we define a new dummy variable “Affiliated_2yrs” that equals one for recommendations made by brokers that had investment banking with the firm between twelve to twenty-four months before the current recommendation is issued and zero otherwise. With this definition, we classify 2399 new recommendations as conflicted. Column 2 of Table 3 returns a positive and significant coefficient on this new variable. Interestingly, brokers that have had investment banking business are still more likely to issue more favorable recommendations.

Alternatively, we enlarge our definition of affiliation to embrace all brokers that generate some investment banking revenues over the past twelve months. Following Cowen et al. (2006) and Ertimur et al. (2007), investment banks may systematically issue optimistic recommendations to help attracting new business. So, “Investment Bank” is a dummy variable taking one for brokers that are active in the investment banking business and zero otherwise. In line with the MAD definition, Column 3 reveals that brokers are only too optimistic on firms with which that had investment business, as the coefficient on “Investment Bank” is not significant. Lin and McNichols (1998), Michaely and Womack (1999), and Bradley, Jordan, and Ritter (2003) further argue that only brokers with a lot of investment banking business are prone to issue favorable recommendations. To capture their argument, we rank brokers based on the annual proceeds raised in SEO/IPO, Debt and the size of the deals in M&A. Then, we classify a broker as a “Top Investment Bank” if it appears at least once in

¹⁵ SOX501, SEC 15D b) 3) requires disclosure if the recommended firm is or has been a client during the 1-year period preceding the appearance or date of distribution of the report.

the first deciles of one of these criteria. Here again, we observe that this variable is not significantly related to relative recommendations.

This first set of results confirms the presence of brokers issuing recommendations that appear to be systematically above the consensus. As targeted by MAD, optimistic brokers are those possessing strong investment business ties with the firms they cover. Hence, our results suggest that the European regulator identified recommendations that are prone to conflicts of interest. Yet, the scope MAD appears to be especially restrictive. While investment banking ties undeniably affect the nature of stock recommendations, the period of time during which an investment bank relation is supposed to give rise to potential conflicts is excessively short.

4.3. Sensitivity Analysis

Before exploring more in detail the consequence of MAD, we want to make sure that conflicts of interests were really at work in Europe before the adoption of the law. To do so, we extend our analysis in two dimensions. First, we employ several alternative specifications to check that our inference is not misstated. Second, we gauge whether the presence of conflicted equity research is universal problem in Europe.

[Table 4 about here]

Table 4 present the results of various estimation procedure. The first column report the regression results when we estimate equation (1) using the Fama and MacBeth (1973) approach. We continue to find that relative recommendations are larger when brokers are affiliated. In column 2, as suggested by Ljungqvist, Marston, Starks, Wei, and Yan (2007), we remove the assumption that brokers' heterogeneity is time-invariant (e.g. the inclusion of broker fixed effects) and estimate equation (1) using a broker random-effect model.¹⁶ The results remain virtually unchanged. Similarly, we replace the broker fixed effects by stock fixed effects, thereby removing any stock-specific optimism. Our conclusion is not altered. Finally, because the dependent variable is bounded in the $[-4, 4]$ interval, we estimate an Ordered Probit specification (column 4) where the dependent variable can take three

¹⁶ Specifically, we estimate equation (1) using a GLS estimator with broker random effects.

different values: unfavorable (“Sell” and “Strong Sell”), neutral and favorable (“Buy” and “Strong Buy”). Remarkably, our results remain qualitatively unchanged. Affiliated brokers have a larger likelihood of issuing above-consensus recommendations.

[Table 5 about here]

Next, we exploit the cross-sectional dimension of our sample and estimate equation (1) for each of the thirteen sample countries. Table 5 reports the country-by-country estimations. Across the thirteen European countries, ten exhibit significant (nine at 5 % or lower and one at 10 %) positive effects of brokers’ affiliation on their relative recommendation. The overall impact of affiliation appears particularly important in large markets such as the U.K., France and Germany. In contrast, although slightly positive, we detect no significant affiliation-driven optimism bias on smaller markets, i.e. Belgium, Ireland, and Portugal. Given that these three countries account for only 5.1 % of all the recommendations during the pre-MAD period, these cross-country results confirm that, before the adoption of MAD, strong underwriting and advising ties led effectively to biased recommendations. This optimism was widespread in almost all European stock markets.

5. The economic impact of MAD

Our results so far confirm that European equity research is tainted by conflicts of interest between investment banking and research departments of brokerage firms. In this context, a natural question arises: Was the European regulation effective? To shed light on this question, this section analyzes three sets of related questions. First, we examine whether MAD did curb the biased behavior of conflicted brokers. Second, to further quantify the consequences of the new law, we explore whether and how the customers of equity research, i.e. the investors, perceive any benefits from the adoption of MAD. Finally, we assess the potential unintended effects of MAD by exploring how brokers reorganized their research departments in the aftermath of MAD.

5.1 Did MAD curb affiliated brokers’ optimism?

As a first step to appraise the impact of MAD, we look at how affiliated brokers reacted to the provisions of MAD. Similarly to Kadan et al. (2009), we use a difference-in-difference approach

designed to measure how did the difference in relative optimism between affiliated and non-affiliated brokers change following the adoption of MAD. Specifically, we estimate the following specification:

$$\text{RelRec}_{b,i,c,t} = \alpha_b + \eta_t + \theta_c + \beta \text{Affiliated}_{b,i,c,t} + \lambda \text{PostMAD}_{i,c,t} + \psi [\text{Affiliated}_{b,i,c,t} \times \text{PostMAD}_{i,c,t}] + \gamma' \mathbf{X}_t + \varepsilon_{b,i,c,t} \quad (2)$$

Similar to specification (1), the dependent variable, “RelRec” measures the recommendation relative to the consensus, “Affiliated” characterizes whether the recommendation is issued by an affiliated broker. The variable “PostMAD” equals one after MAD has been enacted in country c and zero otherwise. The set of control variables as well as the broker, country and time effects are defined as previously. The coefficient of interest in equation (2) is on the interaction between Affiliated and PostMAD (ψ). To wit, the coefficient ψ measures whether MAD had any impact on the over-optimism bias exhibited by affiliated brokers. As such, if MAD contains provisions that effectively limit the manifestation of conflicts of interest, one should observe a reduction of the affiliation bias ($\psi < 0$).

[Table 6 about here]

Table 6 displays the estimates of the difference-in-difference regressions. As previously, we find that affiliated brokers issued recommendations that were relatively more optimistic before MAD. Notably, the coefficient on “PostMAD” is negative and strongly significant. Strikingly, the enactment of MAD significantly lessens the optimism bias of affiliated brokers. A F-test of the difference between “Affiliated” and “Affiliated×PostMAD” further reveals that MAD almost completely curbs such a bias ($0.181 - 0.148 = 0.033$ statistically different from zero at 11 %). It is also interesting to notice that MAD by itself had no significant effect on the level of the remaining of recommendations. The control variables have the expected sign and are close in magnitude to what was found in Table 3. In order to assess the sensitivity of our results to MAD adoption date, we modify the variable PostMAD and consider the relevant date to be the adoption of the Commission Directive (December 23rd, 2003) and not the date at which each country transposed MAD into a national law. In column 2, we remark that this modification has no effect on our conclusions. After MAD, affiliated brokers substantially modified their behavior and stopped issuing overly optimistic recommendations.

Next, we assess whether MAD also altered the over-optimism of brokers that had previous investment banking ties with recommended firms but that are not in the scope of MAD. Again, those correspond to brokers that had investment banking with the firm between twelve to twenty-four months before the current recommendation. In column 3, we see that they continue to issue biased recommendation after the enactment of MAD. The coefficient on “Affiliated_2yrs×PostMAD” is not significant. Whereas the passage of MAD limits overly optimistic recommendation of the targeted brokers, conflicted brokers that are not affected by the MAD provisions, continue to exhibit a substantial affiliation bias.

While the above results suggest that MAD was effective in mitigating conflicts of interests of targeted brokers, a skeptic may argue that the observed patterns are mainly due to the universal effect of U.S. regulations. Hovakimian and Saenyasari (2009) report that optimism of analysts’ earnings forecasts has declined in forty countries due to recent changes in U.S. regulations. On this ground, since RegFD, NASD Rule 2711 and NYSE Rule 472 were enacted shortly before MAD, there is a possibility that our estimates reflect the spillover effect that U.S. regulations have on European markets. To rule out this possibility, we individualize the contribution of MAD by defining three consecutive sub-periods. The pre-U.S. regulation period begins on January 1st, 1997 and ends with the adoption of each U.S. regulation. The interim period goes from the adoption of the U.S. regulation to the adoption of MAD (December 23rd, 2003). Finally, the last sub-period goes from the adoption of MAD to the end of the sample period (December 31st, 2007). Two U.S. regulations are considered, RegFD (October 23rd, 2000) and NASD Rule 2711 and NYSE Rule 472 (November 6th, 2002). Independently of the U.S. regulation under consideration (i.e. RegFD or NASD/NYSE), we observe that the relative optimism of affiliated brokers only decreased after – and only after – MAD was passed. Interestingly, U.S. regulations had no significant impact before the enactment of MAD.

To further characterize these results, we look in more details at the behavior of brokers that have operations in the U.S. and in Europe. Until now, we have assumed that brokers comply with the rules of the country in which the recommended firm is located. Implicitly, this is equivalent to assuming that brokers target their recommendations to the local markets. However, European banks with important stakes in the U.S. have no reason to restrict the diffusion of their reports to a specific

country.¹⁷ By the same token, U.S. banks following European firms do not restrict the diffusion of recommendations to European investors either. U.S. and European financial institutions with their headquarters, a branch, a subsidiary or simply making business in the U.S. (hereafter global banks), should comply with the U.S. regulation as soon as they release reports directed toward U.S. investors; e.g. Becker, Yim, and Greenawalt (1999).¹⁸ Therefore, it could be that affiliated brokers with global operations have transmitted the effect of U.S. regulations and released less optimistic recommendations subsequently U.S. laws were passed. In unreported results, we find that this is not the case. Both global and local brokers display identical patterns.

Despite its limited scope, MAD appears to have had a material impact on affiliated brokers. After the enactment of MAD, we find no systematic differences between recommendations made by affiliated and unaffiliated brokers. The results in this section suggest that the European regulation did succeed in neutralizing conflicts of interest inherent in sell-side research. Moreover, the results further reveal that the U.S. regulations have had effectively little impact in Europe. In contrast to Hovakimian and Saenyasari (2009) our results stress that even when firms have global activities, regulations do not necessarily transmit internationally unless local laws are passed.

5.2 Did MAD change the stock price reaction to recommendations?

Hitherto, the main finding is that MAD substantially lowers the number of unduly optimistic recommendations. The next natural question is to ask whether the market perceives any change in the information released by brokers subsequently to MAD. Previous research argues and provides evidence that the market understands the conflicts at play and is able to “debias” recommendations; e.g. Michaely and Womack (1999) and Lin and McNichols (1998). Hence, even if recommendations made by affiliated brokers were biased, it is not clear whether such recommendations had really an adverse impact on market participants.

¹⁷ Deutsche Bank was part of the Global Research Settlement.

¹⁸ Anecdotal evidence shows that recommendations sent to customers included information on conflicts of interest well before the CD 2003/125/EC was passed. Recommendations of non-US stocks released by UBS for US customers mentioned investment banking business as soon as the second semester of 2002. Société Générale released these conflicts as early as the beginning of 2003.

To further understand the real consequences of MAD and assess whether it significantly helped restoring trust among market participants, we study investors' reaction to stock recommendations. We gather daily stock prices and national stock market indices from Datastream from January 1st, 1997 to December 31st, 2007 and estimate cumulated market adjusted return ("CMAR")¹⁹ over a three-day period surrounding each recommendation releases; e.g. Stickel (1995), Womack (1996), Salva and Sonney (2006), Ertimur et al. (2006), Jegadeesh and Kim (2009). We then estimate the following specification:

$$\text{CMAR}_{b,i,c,t} = \alpha_b + \eta_t + \theta_c + \beta \text{Affiliated}_{b,i,c,t} + \lambda \text{PostMAD}_{i,c,t} + \psi[\text{Affiliated}_{b,i,c,t} \times \text{PostMAD}_{i,c,t}] + \gamma' \mathbf{X}_t + \varepsilon_{b,i,c,t} \quad (3)$$

where Affiliated and PostMAD are two dummies defined in Section 3. To analyze how MAD modified investors' perception of conflicts, the model includes the interaction of PostMAD with Affiliated. As before, we introduce our set of control variables (\mathbf{X}_t). We divide the sample into four sub-samples corresponding to "Favorable", "Neutral" above the consensus, "Neutral" below the consensus and "Unfavorable" recommendations. We take the consensus as a benchmark because recommendations are not revised very frequently (average age is xx) and the consensus was easily available on the web (after 2000) for most firms. We split "Neutral" in two sub-samples since we expect a positive (negative) reaction for upgrades (downgrades).

[Table 7 about here]

Table 7 reports the results. Considering favorable recommendations, we observe a significantly negative coefficient on "Affiliated". A favorable recommendation issued by an affiliated

¹⁹ Returns are computed over two consecutive working days with non missing prices. Recommendations with missing prices at the beginning or the end of the [-1, +1] period are excluded.

We also estimated the cumulated excess return with the market model over [-250,-11] and corrected for infrequent trading as in Maynes and Rumsey (1993). According to Datastream conventions and following Lesmond, Ogden, and Trzcinka (1999), we define a stock price as missing if the following conditions are fulfilled: a) the current stock price is equal to its previous value, b) trading volume is nil and c) the current value of the market index is different from its previous value. Non-working days are days for which the stock index is equal to its previous value. We require at least 100 trading days for the estimation of the market model; 16850 additional recommendations are excluded from the sample. The results (not reported) are qualitatively unchanged.

broker triggers a market reaction that is 0.4% lower than a similar recommendation made by a non-affiliated broker. Similarly to U.S. investors, European investors do understand the overall affiliation bias. Taken at face value, this result casts some doubt on the justification of MAD. As put forth by Mehran and Stulz (2007), conflicts of interests should only be addressed when they have a systematic and persistent impact on the customers of equity research. Our estimates indicate that this was not necessarily the case in Europe. Unsurprisingly, we find no difference for neutral or unfavorable recommendations.

Next, we observe that the coefficient on “Affiliated×PostMAD” is not significant. Remarkably, the law did not change the market discounting of affiliated recommendations. Even after the passage of MAD, market participants continue to place a substantial discount on favorable recommendations issued by affiliated brokers. Even though we document a material drop in the affiliation bias in the earlier table, the market perceives no attenuation of the affiliation bias. This result contrasts with the patterns observed in the U.S. Indeed, as shown by Ertimur et al. (2006) and Kadan et al. (2009) investors did change their reactions to stock recommendation after the passage of NASD Rule 2711, NYSE Rule 472 and the Global Analyst Research Settlement. In the U.S. investors effectively internalized the change in brokers’ practices. On the contrary, European investors continue to sort out conflicted recommendations. While these differences may originate in the fact that investors are intrinsically dissimilar in Europe (Jegadeesh and Kim (2006)), another possibility could be that the enforcement of the law is less stringent in Europe. Concomitantly with the adoption of the U.S. regulations, ten big banks were alleged of having issued fraudulent research reports in violation of various sections within the Securities Exchange Act of 1934.²⁰ They faced lawsuits and had to pay large fines. To date, no similar enforcement exists in Europe. As suggested by Coffee (2007), enforcement resulting from existing laws could be the key variable that curbed conflicts of interest and not additional laws.

²⁰ See for instance <http://www.sec.gov/news/speech/factsheet.htm>

MAD was originally designed to limit the pernicious consequences of conflicted equity research and, more specifically, to protect individual investors. Our results show that, on average, investors are not adversely affected by conflicts of interests.²¹

5.3 MAD and brokers' coverage

In this section we investigate whether and how brokers reorganized their research departments in the aftermath of MAD. As brokers are free to decide which firm they follow, the provisions of MAD may have altered their choice. Typically, if the costs of following a firm exceed expected brokerage profits, brokerage houses should stop coverage. Since MAD forces the decoupling of investment banking profits and brokerage profits, there is a possibility that MAD makes it more costly for certain brokers to cover certain firms. This section examines this claim.

To do so, we start by looking at the evolution of the analysts coverage received by European firms around the passage of MAD. For each firm, we define “Coverage” as the number of analysts that issue at least one recommendation over the year. Specifically, we construct an annual (unbalanced) panel consisting of all listed firms for which brokers issued recommendations between 1997 and 2007.²² Following existing research we specify a model of firms' coverage; e.g. Bhushan (1989), Brennan and Hugues (1991), Hong, Lim, and Stein (2000), Rock, Sedo, and Willenborg (2001), or Chang, Dasgupta, and Hilary (2006). Our specification is as follows:

$$\text{Coverage}_{i,t} = \nu_i + \eta_t + \theta_c + \lambda \text{PostMAD}_{c,t} + \zeta' \mathbf{Z}_{i,t} + \varepsilon_{i,t}, \quad (4)$$

where the subscripts i , c and t represent respectively the covered firm, the country where the firm is incorporated and the year. We also estimate Model (4) with a log transformation of the dependant

²¹ It could be that less informed investors are still affected by too optimistic recommendations. Malmendier and Shantikumar (2007) and Mikhail, Walther and Willis (2007) give credence to this hypothesis. However, they only provide indirect evidence since investor's name is not made public. Assuming a correspondence between order size (small/big) and investor's category (small/large), Mikhail and al. (2007) find small investors to be net purchasers either after a positive or a negative recommendation. This shows that small investors incorporate new information with lag compared to skilled investors.

²² When a firm is listed but does appear in IBES during the year, the number of analysts following the firm is set to 0 for the corresponding year.

variable. In this specification, the coefficient of interest is PostMAD. It measures the marginal impact of MAD on analysts' coverage. The set of control variables \mathbf{Z} consists of firm's size (log of market capitalization), its past volatility and past returns. These variables are defined in the Appendix. We also account for firm's heterogeneity, country and time specific effects (v_i, θ_c, η_t) . Again, the estimated standard errors are adjusted for within-firm error clustering and heteroskedasticity.²³

[Table 8 about here]

Table 8 reports the results. After controlling for industry and country effects and firm-specific characteristics, we again find that analyst's coverage decreased after the enactment for MAD. The coefficients associated to PostMAD are negative and statistically significant at 1%. The results are robust to a change in the dependent variable (log transformation) or to the model specification (Poisson regression). The control variables are highly significant. Note also that positive past returns do not translate immediately in more analysts following the firms.

Note that a decrease in analyst coverage has various undesirable consequences that contribute to increase the cost of equity. First, less coverage reduces information dissemination (e.g. Brennan and Subrahmaniam (1995)) and lowers the speed at which this information is incorporated into stock prices; e.g. Brennan, Jegadeesh, and Swaminathan (1993). Second, it also reduces the number of investors who know about the firm; e.g. Merton (1987). Overall, a loss of coverage translates into an increase in firms' cost of capital. For instance, Kelly and Ljungqvist (2007) show that share prices fall by 110 basis points on the announcement that a stock has lost all coverage. Kecskes and Womack (2008) document similar perverse effect of analysts' drops. Accordingly, the loss of coverage occasioned by MAD may well have increased the average costs of capital of European firms.

6. Conclusion

The main message of this paper is that the adoption of MAD was largely unjustified. Our analysis first reveals that conflicts of interest arising from the interdependence between equity research and investment banking departments of financial institutions were of minor importance in Europe

²³ Clustering at the broker level is justified by the fact that observations for the same broker may not be independent within our panel; see Petersen (2009)

before the introduction of MAD. Although affiliated brokers issue recommendations that are systematically biased, these recommendations account for a tiny fraction of the total. Moreover, we document that the scope of MAD turns out to be especially narrow and leaves some potential conflicts unaddressed. More importantly, we find that investors are sophisticated enough to see through biased research and discount conflicted advises. Finally, we uncover that the passage of MAD considerably reduces the coverage that European firms receive. While our results are consistent with a limited achievement of MAD's objectives, we cannot conclude that conflicts of interest in equity research need not be addressed.

Ultimately, the results in this paper raise several questions. In particular, the loss of coverage triggered by MAD can potentially have dramatic consequences on European firms. Indeed, previous research documents that firms greatly benefit from analysts' coverage through lower cost of capital, increased liquidity and more efficient stock price. From a different perspective, although MAD is an exact replica of recent U.S. regulations (RegFD, professional codes of ethics, NASD and NYSE rules), we show that its consequences are largely different of what has been observed in the U.S. Why is it so? One potential explanation could be that laws are enforced differently in Europe and in the U.S. Anecdotal evidence indicates that conflicts of interest in the financial analysis industry have been sanctioned. For instance, several big banks faced important lawsuits and had to pay large fines. To date, no similar actions have been observed in Europe, suggesting that the enforcement is less stringent. We look forward to additional research on these and related issues.

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Appendix: Definition of the variables

Variable	Definition
RelRec	$RelRec_{b,i,c,t} = Rec_{b,i,c,t} - Rec_{.,i,c,t}$ where $Rec_{b,i,c,t}$ is the recommendation issued by broker b on firm i of country c at time t and $Rec_{.,i,c,t}$ is the consensus (mean of the last recommendations issued by brokers following firm i during the year preceding t)
Affiliated	1 if broker b had investment banking business with firm i during the year preceding t
Affiliated 2yrs	1 if broker b had investment banking business with firm i from one to two years ago
Investment Bank	1 if broker b had investment banking business with any firm in the EC during the year preceding t
Top Investment bank	1 if broker b was a Top Ten underwriter in terms of amount raised (either in IPO/SEO, Debt) or as an advisor in M&A.
PostMAD	1 if the recommendation is released after MAD was enacted in country c (or after December 23th, 2003 when explicitly specified)
PostRegUS	1 if the recommendation is released after the corresponding regulation (RegFD or NASD/NYSE rules)
Follow	1 if the current recommendation is consistent with the previous recommendation (both recommendations are either favorable or unfavorable).
CER	1 if earnings are released during the event window and 0 otherwise
PastRetF	Firm i stock returns during the year preceding t
PastRetM	Stock market returns of country c during the year preceding t
Coverage	$Cover_{i,c,t} = \ln(NbAn_{i,c,t})$ where $NbAn_{i,c,t}$ is the number of analysts following firm i during the year preceding t
BrokerSize	$Broksize_{b,t} = \ln(Nbrec_{b,t})$ where $Nbrec_{b,t}$ is the number of firms followed by broker b during the year preceding t

Initiation	1 if broker b did not issued recommendations on i before t .
CMAR	three-day cumulated market adjusted returns surrounding broker's b recommendation on i at t . CMAR is expressed in local currency.
$Vol_{i,t}$	Annualized standard deviation of stock return i during the year preceding t
MkCap	Firm i market capitalization at time t (in EUR).

Table 1: Descriptive statistics

This table reports summary statistics of recommendations issued by brokers over the 1997-2007 period. Panel A (B) reports the information sorted by year (country). Column 1 and 2 indicates the country and the corresponding enactment date. Column 3 indicates the number of firms by country (year). Columns 4 to 8 show the proportion of recommendations by level (Strong Sell, Sell, Neutral, Buy, Strong Buy). Columns 9 and 10 show respectively the number of firms covered and the number of brokers.

MAD		Recommendations						N of Firms	N of Brokers
Year	Enactment	Total	Strong Sell	Sell	Neutral	Buy	Strong Buy		
Panel A: By year									
1997-2007	-	268199	5.30%	12.63%	34.99%	28.54%	18.54%	5141	267
1997	-	23803	7.64%	8.05%	38.40%	22.06%	23.85%	2514	152
1998	-	25245	6.50%	10.79%	36.61%	26.32%	19.78%	2594	153
1999	-	24971	4.72%	9.43%	34.36%	30.88%	20.60%	2660	156
2000	-	21748	3.59%	8.88%	32.67%	33.59%	21.27%	2571	149
2001	-	24909	5.19%	13.08%	36.42%	28.36%	16.95%	2538	133
2002	-	24420	4.66%	16.16%	32.31%	31.44%	15.42%	2283	128
2003	-	24875	5.64%	17.73%	35.31%	29.25%	12.07%	2271	130
2004	-	22749	5.21%	14.11%	34.24%	30.25%	16.19%	2350	146
2005	-	24516	4.69%	14.73%	36.82%	27.29%	16.47%	2611	161
2006	-	25037	4.97%	13.62%	33.85%	27.89%	19.66%	2710	161
2007	-	25926	5.30%	11.96%	33.70%	27.26%	21.79%	2569	158

Panel B: By country

AUT	01.01.2005	2902	3.10%	9.34%	41.08%	25.91%	20.57%	111	74
BEL	10.03.2006	7668	3.87%	12.17%	38.55%	27.11%	18.30%	144	96
DEU	31.10.2004	41020	6.31%	12.23%	39.31%	24.49%	17.66%	669	133
DNK	23.02.2005	7723	6.91%	17.66%	29.35%	29.78%	16.29%	162	91
ESP	11.11.2005	15315	7.06%	15.25%	30.93%	27.46%	19.30%	144	110
FIN	12.10.2004	10564	5.09%	20.21%	27.08%	34.30%	13.32%	138	98
FRA	27.07.2005	44086	4.56%	14.97%	29.84%	30.78%	19.85%	722	143
GBR	01.07.2005	79482	4.90%	9.47%	36.54%	29.25%	19.84%	2146	157
IRL	01.10.2005	1940	1.55%	5.72%	31.24%	36.80%	24.69%	63	59
ITA	12.05.2005	15849	3.26%	11.60%	40.82%	29.19%	15.13%	286	118
NLD	01.10.2005	21420	6.59%	11.07%	38.36%	24.51%	19.48%	201	136
PRT	15.03.2006	4095	6.76%	14.07%	32.67%	28.45%	18.05%	63	64
SWE	01.07.2005	16135	5.82%	17.30%	30.21%	30.85%	15.82%	292	111

Table 2: Recommendations released by affiliated and non affiliated brokers before MAD

This table reports summary statistics of recommendations sorted by investment bank affiliated to the recommended firm and non affiliated (investment with no previous business with the recommended firm and brokers without investment banking business) over the 1997-2007 period. Panel A (B) reports the information sorted by year (country). Column 2 indicates the proportion of recommendations issued by affiliated brokers. Columns 3 to 7 and 8 to 12 show the proportion of recommendations by levels for affiliated and non-affiliated brokers.

Country	Prop. Aff.	Affiliated					Non-Affiliated				
		Strong Sell	Sell	Neutral	Buy	Strong Buy	Strong Sell	Sell	Neutral	Buy	Strong Buy
Panel A: By year											
Before MAD	2.20%	1.12%	5.70%	30.89%	38.31%	23.98%	5.47%	12.62%	35.20%	28.71%	18.00%
After MAD	2.65%	2.91%	7.68%	37.00%	34.21%	18.91%	5.14%	13.28%	34.56%	27.18%	19.84%
1997-2007	2.31%	1.42%	6.25%	32.58%	37.17%	22.57%	5.39%	12.78%	35.05%	28.34%	18.44%
1997	1.34%	2.19%	4.39%	34.80%	29.78%	28.84%	7.72%	8.09%	38.45%	21.96%	23.78%
1998	1.65%	0.24%	4.09%	29.33%	38.22%	28.13%	6.61%	10.90%	36.74%	26.12%	19.64%
1999	2.21%	1.27%	2.54%	26.13%	39.75%	30.31%	4.80%	9.59%	34.55%	30.68%	20.38%
2000	2.76%	0.67%	2.50%	24.79%	40.60%	31.45%	3.67%	9.07%	32.89%	33.39%	20.98%
2001	3.04%	1.32%	6.86%	31.13%	34.17%	26.52%	5.31%	13.28%	36.58%	28.17%	16.65%
2002	2.10%	0.59%	7.62%	29.49%	39.45%	22.85%	4.75%	16.35%	32.37%	31.27%	15.26%
2003	2.00%	0.80%	10.44%	37.95%	41.37%	9.44%	5.73%	17.88%	35.26%	29.01%	12.12%
2004	2.44%	1.26%	6.14%	32.67%	40.97%	18.95%	5.31%	14.31%	34.28%	29.98%	16.12%
2005	2.76%	2.22%	8.73%	36.24%	35.06%	17.75%	4.76%	14.90%	36.83%	27.07%	16.43%
2006	2.64%	1.21%	6.95%	33.84%	37.01%	21.00%	5.07%	13.80%	33.85%	27.64%	19.63%
2007	2.48%	3.42%	7.00%	41.21%	32.35%	16.02%	5.35%	12.08%	33.50%	27.13%	21.93%

Panel B: By country

AUT	4.93%	0.00%	0.70%	41.96%	29.37%	27.97%	3.26%	9.79%	41.03%	25.73%	20.19%
BEL	2.48%	0.00%	10.00%	38.95%	33.16%	17.89%	3.97%	12.22%	38.54%	26.96%	18.31%
DEU	2.43%	2.11%	6.12%	35.54%	35.14%	21.08%	6.42%	12.38%	39.40%	24.22%	17.58%
DNK	1.72%	2.26%	9.02%	28.57%	44.36%	15.79%	7.00%	17.81%	29.37%	29.53%	16.30%
ESP	2.53%	3.09%	6.19%	31.44%	32.22%	27.06%	7.17%	15.48%	30.92%	27.33%	19.10%
FIN	1.59%	1.19%	11.31%	36.90%	29.76%	20.83%	5.16%	20.35%	26.92%	34.37%	13.20%
FRA	3.09%	0.88%	7.19%	31.40%	41.97%	18.56%	4.68%	15.22%	29.79%	30.42%	19.89%
GBR	1.84%	0.82%	3.56%	29.06%	37.83%	28.72%	4.98%	9.58%	36.68%	29.09%	19.67%
IRL	2.11%	0.00%	4.88%	29.27%	34.15%	31.71%	1.58%	5.74%	31.28%	36.86%	24.54%
ITA	2.50%	1.77%	6.57%	39.65%	37.12%	14.90%	3.29%	11.73%	40.85%	28.99%	15.14%
NLD	2.21%	2.54%	5.29%	34.04%	30.66%	27.48%	6.68%	11.20%	38.45%	24.37%	19.30%
PRT	3.69%	1.99%	7.28%	33.77%	37.09%	19.87%	6.95%	14.33%	32.63%	28.12%	17.98%
SWE	1.79%	1.38%	12.80%	25.61%	43.60%	16.61%	5.90%	17.39%	30.29%	30.62%	15.80%

Table 3: Conflicts of interest and optimistic recommendations before MAD

This table reports the coefficients estimated by OLS and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). The dependent variable is *RelRec*, a metric assessing the optimism of broker *b* compared to peer brokers that issued recommendations on stock *i*. *Affiliated* is a dummy variable that equals 1 if broker *b* had investment banking business with firm *i* during the year preceding *t*. *Affiliated 2yrs* is a dummy variable that equals 1 if broker *b* had investment banking business with firm *i* from one year to two years before *t*. *Investment Bank* is a dummy variable that equals 1 if broker *b* had investment banking business during the year preceding *t*. *Top Investment Bank* is a dummy variable that equals 1 if broker *b* was in the top decile in terms of SEO/IPO or Debt proceeds underwritten or deals amounts in M&A. *Follow* measures the number of recommendations issued by other analysts on the same firm during the ten-day period preceding the current recommendation. *CER* is a dummy variable that takes the value 1 if the recommendation is contemporaneous to an earnings announcement. *PastRetF* is the stock market return of firm *i* during the year preceding *t*. *PastRetM* is the stock market return of country *c* during the year preceding *t*. *Cover* is the logarithm of the numbers of analysts having issued recommendations on firm *i* during the year preceding *t*. *Broksize* is the logarithm of the number of firms followed by broker *b* during the year preceding *t*. *Init* is a dummy variable that equals 1 if broker *b* did not issue a recommendation on firm *i* before *t*. These variables are defined in the Appendix. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Independent Variables	Dependent variable: <i>RelRec</i>			
	(1)	(2)	(3)	(4)
Affiliated	0.172*** [8.69]	0.175*** [8.77]	0.172*** [8.67]	0.173*** [8.76]
Affiliated 2yrs		0.114*** [5.61]		
Investment Bank	-		0.01 [0.44]	-
Top Investment Bank	-	-		-0.014 [0.53]
Follow	0.212*** [19.05]	0.212*** [19.04]	0.212*** [19.05]	0.212*** [19.05]
CER	-0.009 [0.71]	-0.009 [0.70]	-0.009 [0.70]	-0.009 [0.71]
PastRetF	-0.014*** [2.99]	-0.014*** [2.94]	-0.014*** [2.99]	-0.014*** [2.99]
PastRetM	0.072*** [3.16]	0.072*** [3.16]	0.071*** [3.14]	0.071*** [3.15]
Coverage	-0.004 [0.24]	-0.004 [0.23]	-0.004 [0.23]	-0.005 [0.24]
BrokerSize	-0.084*** [3.18]	-0.084*** [3.17]	-0.084*** [3.18]	-0.084*** [3.22]
Initiation	0.034*** [3.97]	0.035*** [4.10]	0.034*** [3.96]	0.034*** [3.96]
Broker FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
# Recommendations	200318	200318	200318	200318
R-squared	0.04	0.04	0.04	0.04

Table 4: Conflicts of interest and optimistic recommendations before MAD

This table reports the coefficients estimated by OLS and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). The dependent variable is *RelRec*, a metric assessing the optimism of broker *b* compared to peer brokers that issued recommendations on stock *i*. Independent variables are defined in the Appendix. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Independent Variables	Dependent Variable: RelRec			
	Before 2004	Random-Effects	Firm FE	Ordered Probit
	(1)	(2)	(3)	(4)
Affiliated	0.164*** [7.36]	0.172*** [14.88]	0.209*** [13.98]	0.353*** [21.68]
Follow	0.230*** [17.86]	0.212*** [55.82]	0.229*** [40.64]	0.407*** [84.17]
CER	-0.008 [0.57]	-0.009 [0.76]	-0.006 [0.49]	0.064*** [4.15]
PastRetF	-0.015*** [3.09]	-0.014*** [5.16]	-0.013*** [4.06]	0.125*** [33.89]
PastRetM	0.012 [0.52]	0.071*** [5.85]	0.070*** [5.66]	-0.052*** [3.60]
Coverage	-0.036 [1.73]	-0.004 [0.77]	-0.046*** [4.59]	-0.100*** [14.24]
BrokerSize	-0.071** [2.33]	-0.084*** [8.58]	-0.067*** [10.38]	-0.085*** [16.26]
Initiation	0.026*** [2.80]	0.034*** [6.29]	0.047*** [7.72]	0.149*** [22.83]
Broker FE	Yes	No	No	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
# Recommendations	142952	200318	200318	200318
$R^2/Pseudo-R^2$	0.05	0.04	0.04	0.04

Table 5: Conflicts of interest and optimistic recommendations before MAD by country

This table reports the coefficients and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). *RelRec* is a metric that assesses the optimism of broker *b* compared to peer brokers that issued a recommendation on stock *i*. Independent variables are defined in the Appendix. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Countries	AUT	BEL	DEU	DNK	ESP	FIN	FRA	GBR	IRL	ITA	NLD	PRT	SWE
Affiliated	0.311*** [4.28]	0.047 [0.60]	0.161*** [3.98]	0.145** [2.17]	0.169*** [3.47]	0.176 [1.77]	0.107*** [3.02]	0.222*** [5.03]	0.141 [0.73]	0.157** [2.51]	0.168*** [3.09]	0.089 [0.79]	0.199*** [3.18]
Follow	0.137*** [3.20]	0.161*** [5.27]	0.152*** [8.01]	0.207*** [9.21]	0.269*** [10.75]	0.253*** [11.18]	0.298*** [9.64]	0.186*** [10.77]	0.187*** [2.96]	0.192*** [8.11]	0.214*** [11.27]	0.203*** [3.48]	0.190*** [10.33]
CER	-0.194 [1.59]	0.01 [0.11]	-0.033 [0.78]	0.013 [0.17]	-0.149** [2.41]	-0.108 [1.23]	-0.035 [1.04]	0.012 [0.58]	-0.187*** [2.78]	0.082 [1.65]	0.022 [0.43]	-0.063 [0.62]	0.048 [1.09]
PastRetF	-0.049 [1.73]	-0.041 [1.30]	-0.005 [0.89]	-0.037 [0.88]	-0.059 [1.67]	-0.012 [0.42]	-0.018 [1.93]	-0.017** [2.56]	-0.066 [1.65]	-0.032 [1.66]	-0.015 [0.65]	-0.052 [0.84]	-0.015 [0.60]
PastRetM	0.253** [2.26]	-0.003 [0.03]	0.248*** [5.38]	0.076 [0.81]	0.088 [1.03]	-0.078 [1.74]	0.049 [0.81]	0.174*** [2.76]	0.07 [0.48]	0.138 [1.66]	0.149** [2.12]	-0.012 [0.07]	0.092 [1.51]
Coverage	0.263** [2.26]	0.120*** [2.63]	0.044 [1.54]	0.106 [1.53]	0.062 [0.95]	-0.088 [1.95]	0.031 [0.40]	0.008 [0.27]	0.146 [1.22]	0.066 [1.80]	-0.018 [0.51]	0.093 [0.68]	0.066 [1.27]
BrokerSize	0.02 [0.19]	-0.034 [0.30]	-0.018 [0.45]	-0.129 [1.26]	0.111 [1.85]	-0.186*** [4.01]	-0.191** [2.45]	-0.07 [1.60]	0.109 [1.30]	-0.1 [1.80]	-0.092** [2.37]	0.089 [1.07]	-0.112 [1.65]
Initiation	-0.009 [0.19]	0.034 [1.05]	0.060*** [2.64]	0.037 [1.01]	0.076 [1.93]	0.04 [1.22]	0.019 [0.80]	0.049*** [3.10]	0.05 [0.96]	0.052** [2.51]	0.039 [1.70]	0.045 [0.79]	0.070*** [2.85]
Broker FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
# Rec. by Country	1851	6131	27924	5678	11714	6451	35158	60395	1502	10824	17821	3200	11669
R ²	0.13	0.05	0.04	0.06	0.07	0.07	0.08	0.04	0.17	0.06	0.05	0.1	0.06

Table 6: The impact of MAD on the relative optimism of affiliated brokers

This table reports the coefficients and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). *RelRec* is a metric that assess the optimism of broker *b* compared to peer brokers that issued a recommendation on stock *i*. Independent variables are defined in Appendix 1. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Independent Variables:	Dependent Variable: RelRec				
	Baseline	After 2003	Affiliated 2yrs	RegFD	NASD
Affiliated	0.181** [9.13]	0.194** [9.05]	0.183** [9.20]	0.168** [6.64]	0.193** [8.65]
PostMAD	-0.021 [1.19]	0.022 [0.26]	-0.021 [1.15]		
Affiliated*PostMAD	-0.148** [5.45]	-0.133** [5.71]	-0.148** [5.46]		
Affiliated 2yrs			0.127** [5.97]		
Affiliated 2yrs*PostMAD			-0.060 [1.68]		
PostRegUS				0.052 [1.22]	-0.099** [3.37]
PostRegUS*PostMAD				-0.021 [1.20]	-0.022 [1.23]
Affiliated*PostRegUS				0.02 [0.64]	-0.039 [1.39]
Affiliated*PostRegUS*PostMAD				-0.155** [5.44]	-0.121** [3.86]
Follow	0.211** [19.31]	0.211** [19.31]	0.211** [19.29]	0.211** [19.30]	0.211** [19.32]
CER	0.000 [0.04]	0.000 [0.01]	0.000 [0.03]	0.001 [0.04]	-0.001 [0.08]
PastF	-0.019** [4.02]	-0.020** [4.04]	-0.019** [3.98]	-0.019** [3.97]	-0.019** [4.03]
PastMkt	0.073** [3.22]	0.072** [3.16]	0.073** [3.22]	0.079** [3.42]	0.070** [3.10]
Cover	0.011 [0.60]	0.011 [0.60]	0.011 [0.61]	0.011 [0.61]	0.012 [0.64]
Brokesize	-0.073** [2.68]	-0.073** [2.68]	-0.073** [2.68]	-0.072** [2.60]	-0.072** [2.65]
Init	0.041** [4.99]	0.041** [4.99]	0.041** [5.15]	0.041** [5.04]	0.041** [5.01]
Broker, Country and Year FE	Yes	Yes	Yes	Yes	Yes
# Recommendations	264920	264920	264920	264920	264920
R-squared	0.04	0.04	0.04	0.04	0.04
Affiliated+Affiliated*PostMAD	0.11	0.00	0.09		
Affiliated 2yrs+Affiliated 2yrs*PostMAD			0.04		

Table 7: Market reaction to recommendations and the Market Abuse Directive

This table reports the coefficients and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). Favorable, neutral and unfavorable recommendations are respectively in column (1), (2) and (3). *CMAR* is the cumulative abnormal return defined in Section 4.2. It measures the market reaction of broker's *b* recommendation on firm *i* incorporated in country *c*, released at date *t*. Independent variables are defined in the Appendix. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Independent Variables	Dependent Variable: CMAR			
	Favorable	Neutral above consensus	Neutral below consensus	Unfavorable
Affiliated	-0.004** [4.02]	-0.006 [1.52]	-0.002 [1.76]	-0.006 [1.47]
PostMAD	0.001 [1.76]	-0.000 [0.05]	0.001 [1.43]	0.001 [0.90]
Affiliated*PostMAD	0.000 [0.16]	-0.006 [1.09]	-0.010** [3.14]	-0.014 [1.67]
Follow	0.000 [0.14]	0.001 [1.59]	0.000 [0.12]	-0.002*** [2.69]
CER	0.009** [5.63]	-0.000 [0.12]	-0.001 [1.07]	-0.004** [1.98]
PastRetF	0.001 [1.94]	0.001 [1.03]	0.001 [1.72]	0.002 [1.68]
PastRetM	0.002* [2.17]	0.002 [0.82]	-0.004* [2.20]	-0.008*** [3.27]
Coverage	-0.001 [0.60]	0.005** [5.40]	0.014** [3.87]	0.005*** [3.85]
BrokerSize	0.004 [1.83]	0.001 [1.07]	0.001 [0.76]	0.001 [0.35]
Initiation	-0.001* [2.43]	0.004 [0.55]	0.001 [1.76]	0.004*** [3.16]
Broker FE	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes
Observations	124559	30365	62327	47669
R ²	0.01	0.01	0.01	0.01

Table 8: Analyst coverage and the Market Abuse Directive

This table reports the coefficients and the t-stats adjusted for within-broker error clustering and heteroscedasticity (in brackets below). *NbAn* is the number of brokers following firm *i* over the last twelve months. *PostMAD* is a dummy variable that equals 1 after the transposition of MAD into national laws and 0 before. *MkCap* is the market capitalization of firm *i*. *Vol* is the annualized standard deviation of firm's *i* stock returns. *PastF* is firm's *i* stock returns during the year preceding *t*. Column (1) and (4) report the OLS estimation, Column (2) reports the estimation of a Poisson model for count data and Column (3) and (5) report the OLS estimation with firm fixed effect. These variables are defined in the Appendix. Coefficients significant at the 1% (5%) are respectively marked with *** (**).

Independent Variables	Dependent Variable: NbAn			Dependent Variable: Ln(1+NbAn)	
	OLS (1)	Poisson (2)	FE (3)	OLS (4)	FE (5)
PostMAD	-0.817** [13.44]	-0.288** [19.10]	-0.236** [4.47]	-0.152** [13.32]	-0.056** [5.28]
MkCap	0.000** [36.01]	0.000** [41.49]	0.000* [2.42]	0.000** [30.66]	0.000** [3.57]
Vol	-2.406** [29.71]	-1.583** [30.97]	-0.298** [5.14]	-0.660** [38.94]	-0.176** [12.74]
PastRetF _{<i>i,c,t</i>}	-0.491** [12.63]	-0.163** [12.80]	-0.447** [14.38]	-0.071** [9.55]	-0.071** [12.89]
PastRetF _{<i>i,c,t-1</i>}	-0.079* [2.04]	-0.005 [0.41]	-0.052 [1.56]	0.025** [3.33]	0.024** [3.99]
PastRetF _{<i>i,c,t-2</i>}	0.308** [7.79]	0.115** [10.51]	0.248** [7.56]	0.115** [15.12]	0.087** [14.53]
Firm FE	No	No	Yes	No	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Country FE	Yes	Yes	Yes	Yes	Yes
Observations	32727	32727	32727	32727	32727
R ² /Pseudo-R ²	0.47	0.24	0.87	0.33	0.82