Preventing Stock Market Crises (V):

Regulating Information Manipulation by Sell-Side Analysts

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Abstract [3]

Sell-side analysts possess potentially price-moving information gained through equity research. Its importance can be magnified by the publicity effect of a credible media outlet. The price-moving potential; publicity it gains; credibility of analysts' research and the disseminator; define the value of sell-side-analyst-generated information. These are the three pillars of the information monopoly of sell-side analysts.

In the current paper we present evidence that analyst-generated information has investment value, but mainly to informed investors by assisting them in their (often manipulative) trading strategies. It has marketing value to issuers. It misleads and could hurt uninformed investors. It also creates

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and frequently sets off mini-bubbles and long-term under-performance that are detrimental to investor protection, market stability, and even systemic security. In brief, sell-side analysts are often assistants or colluders in information-based manipulation. There are powerful measures targeting wrongdoing sell-side analysts in extant securities regulations. Repeated regional and global financial crises indicate, however, that more research needs to be performed; and effective remedies need to be provided targeting the trading around public release of analyst-generated information.

This paper proposes six measures for securities regulators that may be implemented to complement existing securities laws and rules. The first five together are meant to fairly regulate, through effective oversight, trading by the informed trader who utilizes analysts' information monopoly. They enable related trading information to be more transparent, and involved analysts and their firms to be highly responsible. The last measure proposes public service in equity analysis of every stock to all investors. These measures are all oriented to make the stock market a more level and transparent playing field for all participants, so the normal, even perfect competition for trading profits with fairness and transparency can be enhanced; investor protection improved; price volatility contained; and systemic risk reduced.

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1. Introduction

In the information loop from the issuer to investors making trading decisions, analyst-generated information is important, second only to issuer's annual reports and business newspaper articles in the eyes of individual investors (National Credibility Index, 1999). Earnings information is most relied on for investors to buy or sell shares, according to issuer managers' experience (Graham, Harvey, and Rajgopal, 2005). Sell-side analysts are considered experts in the stocks or sectors they follow. Their investment opinions are ranked number three by individual investors as more relied upon information for trading decisions (National Credibility Index, 1999).

Ideally, the earnings numbers are factual and complete, and the estimates are objective and transparent to investors and regulators. However, the reality has repeatedly brought about press allegations, regulatory enforcement, and class-action lawsuits against managers of public corporations for earnings manipulation, and against equity analysts for upward biased forecasts or recommendations. Yan *et al*. (2010c) presents extensive analysis of earnings manipulation and proposes regulatory measures, based on enforcement actions and private lawsuits in the past 50 years in the United States. This paper focuses on analyst-generated information and its impact on investors (particularly uninformed small investors), and its value to issuers, investment banks and brokerage firms in the global setting. To understand the characteristics of this type of information, we have to be clear on what similarities exist between analyst and issuer-generated information from the perspective of the impact on investors' trading decisions. These similarities determine what role analysts are actually playing in the stock market.

Since their earnings estimates, recommendations, and stock price forecasts are published, they seem to provide a public service to large numbers of investors. But do they truly act as public servants? We will review evidence of certain analysts reporting first to their proprietary trading

colleagues, and also providing their client institutions with research data before public release. They are also marketing favorites for investment bankers to attract underwriting business. They attend closed-door conferences with issuer executives. They sometimes privately scorn the stocks they give public "buy" ratings to as "junk". They frequently appear on TV channels such as *CNBC* or are reported by newspapers such as the *Wall Street Journal* or *Shanghai Securities News* (Ellis, 2009). So who are they? What is the actual role they are playing?

Generally, buy-side analysts do not publish their research results and have a sole responsibility to investors who are clients of their fund. They have only one master – their fund manager at the firm that may be a mutual fund, pension fund, or hedge fund. They do not serve other people (Reingold, 2006). In contrast, sell-side analysts publish their research. They publish free stock recommendations for the investing public. Their earnings estimates, or earnings per share (EPS) estimates, are circulated by financial data service firms. They are employed by investment banks, or brokerage houses, or research-only firms. The most influential ones are likely to be employed by investment banks. Because they are financially supported by the investment banking department, they seem to serve the investment banking business of the firm that has public firms among their clients. Since their recommendations can be used by any investor, they seem to provide public services, too. In other words, they have three masters (Fisch and Sale, 2003). Are they serving all of them? Or do they appear to serve them all but not equally in real terms? Massive evidence prompt questions if they are fairly and actually serving public investors.

This paper tries to identify who the sell-side analysts are actually serving, and who they seem to serve but actually mislead. What value do they have to their three masters? What underlies that value? We start with the well established regularity in stock price behavior around release of analysts' recommendations published in business media (which is presented in Section 2). Then we gather empirical data from the U.S. stock markets, other developed markets, and emerging

markets. The regularity reveals the key point to this paper: the potentially price-moving information, publicity and credibility jointly form an analyst' information monopoly. It describes the fact that only those informed of analyst-generated monopolistic information before release can surely profit. The uninformed are constantly misled and often lose in stock trading following analysts' recommendations.

Section 3 reviews how analysts are financially supported. Not surprisingly, some analysts, when facing conflict of interests, have to attend to the interests of their income sources; and in the mean time, very likely affect public interest. Recent records in several markets show repeatedly that numerous individual investors systematically lose in stock trading. Section 4 continues describing the essential link between analysts and their income providers that become informed of analyst-generated information before its release. It also determines why some analysts, in general, release upward biased recommendations and somehow spun earnings forecasts. Section 5 uses the well documented regularity of post-equity-offering underperformance in order to demonstrate how analysts' action is, *de facto,* similar to that of issuers' marketing professionals, with consequences for all market participants.

As a part of earnings guidance, public companies' management and participating analysts are sometimes engaged in a so-called "walk-down" throughout the annual cycle of the issuer's fiscal year. Section 6 collects mounting evidence that related analysts are information manipulators in the stock market, as part of proprietary trading strategies. In addition to their apparent role in generating trading commissions, they sometimes also leak potentially price-moving information, before release, to brokerage colleagues such as market makers and to preferred client institutional investors. Comparisons between sell-side analysts and corporate insiders are presented in Section 7. This section also describes why regulation of analysts needs to be similar to that proposed for corporate insiders. Section 8 addresses the issue of legal difficulties in prosecuting those wrong-

doing analysts. Our six regulatory measures are proposed in Section 9. Section 10 discusses the six measures in more details and analyses of several important regulations. Section 11 provides conclusions and comments.

2. How is the value of sell-side analysts' work defined?

Literature shows that dissemination of any analyst's recommendations and estimates produces short-term abnormal returns in accordance with the direction and magnitude of the forecast, recommendation revision, and target price set by the analyst (Lys and Sohn, 1990; Abarbanell, 1991; Womack, 1996; Francis and Soffer, 1997; Brav and Lehavy, 2003; Asquith, Mikhail, and Au, 2005; Mikhail, Walther, and Willis, 2007). In other words, any analyst's publications can move stock prices, and thus they have price-moving power.

Actually, any information about stocks, either analyst recommendations or stock-picking by renowned investors, media reporting, and even gossips (Kiymaz, 1999) [4] or rumors (Yan *et al*., 2010e) [5] on stocks, have price-moving potential to a certain extent. How much market reaction does the price-moving potential cause depends mainly on the publicity effect of the information disseminator. [6] The following section selects studies on stock recommendations by certain research analysts, published in business media columns. We pay attention particularly to how much and in what pattern the recommended stock price behaves before and after the time of the

[4] In the Istanbul Stock Exchange, Kiymaz (1999) investigated the effect of stock market gossip published in weekly economics magazine *Ekonomik Trend* between July 1996 and August 1997. He concluded that statistically significant abnormal returns in the pre-publication period existed and this would possibly be a sign of the profitable use of insider information by those who possess the information initially (quoted from Yazici and Muradoglu (2002)).

[5] Yan *et al.* (2010e) will devote detailed analysis to those rumors that move stock prices dramatically, such as the Emulex hoax of 2000 (SEC Litigation Release No. 17094).

[6] The credibility of the analyst, his firm and the publisher is a given when we address the price-moving power of his publicized research. We will address in great detail the importance of credibility in Yan *et al.* (2010e). In this paper, we mainly discuss the price-moving potential and publicity with a few occasions when credibility will be touched.

publication by the analysts' recommendation, revision or estimate. We also try to find out who might profit from the announcement effect and who might lose. For simplicity of presentation, we pay exclusive attention to "buy" recommendations. We begin with such recommendations in the related U.S. stock markets.

2.1 The U.S. markets

Starting with Lloyd-Davies and Canes (1978), several researchers have examined the effect on stock prices of the publication of analysts' recommendations in the *Wall Street Journal (WSJ)* column "Heard on the Street" (HOTS). Some studies are motivated by the well publicized conviction of R. Foster Winans, who was the column writer for HOTS from 1982 to 1984 (Liu, Smith, and Syed, 1990). They may have different interpretations in their results, but the results in different time periods share the same pattern, *i.e.*, price run-up prior to certain "buy" recommendations published in the column, followed, however, by price decline (often lasting) after the publication. Let us examine some examples in detail.

Lloyd-Davies and Canes (1978) worked with a sample of 597 "buy" recommendations and 188 "sell" recommendations published in HOTS between 1970 and 1971. They present data that the stock prices increase continuously two days prior to the publication date of a "buy" recommendation. After peaking on the publication day, the price immediately declines for a week or so. One of their conclusions is that analysts' recommendations do provide inside information and are not merely self-fulfilling prophecies. Liu, Smith, and Syed (1990) examined *WSJ*'s HOTS column from 1982 to 1985 and reported significant announcement date returns for "buy" recommendations. Consistent with other HOTS research, their findings repeat the pattern of a few days of price run-ups prior to the announcement date of "buy" recommendations, followed, however, by continuous sessions of price declines after the announcement. They attribute the

abnormal volume increases prior to announcement to advance trading by insiders.

Beneish (1991) examines the market reactions to publication of analysts' recommendations in HOTS using the period 1978-1979 and reports similar results to those of Lloyd-Davies and Canes (1978). Beneish (1991) also presents evidence that merely a secondary dissemination on *Wall Street Transcript* cannot explain the strong market reactions to the analysts' information published in HOTS that enjoys a much larger readership. Bauman, Datta, and Iskandar-Datta (1995) report that the short-term price behavior around publication of analysts' recommendations in HOTS are consistent with previous HOTS studies. Their data provide evidence that in a very volatile market in 1987, the pattern of price run-ups prior to HOTS publication and price declines in the post-publication week still held true. These studies investigated stock price behavior around the publication date of presumably already released analyst-generated information. Their results have established regularity. In other words for "buy" recommendations, the regularity is that price run-ups begin a few days prior to the publication date, and then the stock price declines occur in the post-publication week. The peak may be shifting from the publication date to one or two days after the publication date in a few studies, but the regularity otherwise remains.

If the HOTS column generates such regularity in market reaction, do other columns in the *WSJ* or different print media share this capability? Firstly, we survey several studies of the *WSJ*'s "Dartboard" column. Barber and Loeffler (1993) analyzed returns and volumes around the announcement of analysts' recommendations appearing in the monthly "Dartboard" column of the *WSJ* from October 1988 to October 1990. The 95 stocks selected by analysts experienced a 4.06% abnormal return over the two-day period consisting of the publication day and the subsequent day, and a -2.08% return from day 2 through day 25. Based on the 216 stocks picked by the analysts between January 1990 and November 1994, Liang (1999) also documented the reversion pattern in the "Dartboard" stock prices. The two-day announcement abnormal return of

3.52% starts to reverse from the third day through 15 days. Investors who followed the analysts' recommendations lost 3.8% on a risk-adjusted basis. Investors who followed the recommendations of returning first-place winners lost 5.08% on a risk-adjusted basis. Greene and Smart (1999) examined 199 stocks recommended by 100 analysts in the "Dartboard" column between October 1988 and December 1992. Like Barber and Loeffler (1993), they documented price run-ups before the publication day and price decline thereafter. They argued that the column generates uninformed trading from its readers. Most abnormal returns following the column's publication disappear within a few weeks. What drives abnormal volumes and abnormal returns is the reputation of the analyst recommending the stock. This reputation, or credibility, enhances the price-moving power when publicity is present.

Next we examine research on *Business Week*'s "Inside Wall Street" (IWS). Mathur and Waheed (1995) reported significant excess returns preceding the publication of 233 firms with positive recommendations in IWS from June 1981 to December 1989. Similar to the price pattern documented for HOTS stocks, the price run-ups prior to the publication day decline in the subsequent days. More outstanding than HOTS stocks, the abnormal gains begin to accumulate about two months before the publication date. One aspect of note is that only implicit recommendations are given in the column, which is different from the outright "buy" or "sell" ratings in HOTS. Sant and Zaman (1996) documented similar price behavior for 328 stocks recommended in the IWS column from January 1976 through December 1988. In line with Mathur and Waheed (1995), the negative returns of the recommended stocks add up to an average of 6.80 per cent after six months. Again, one can infer that price movements in connection with publications are due to the publicity effect on top of the potentially price-moving information generated by the recommending analysts.

2.2 Non-U.S. developed markets

Since 1990s, increasing numbers of researchers have examined international experiences of publicized second-hand analyst-generated information on financial media. We start with developed markets.

Wijimenga (1990) uses three weekly sources of Dutch stock recommendations for the period January 1978 until December 1983. He found strong and significant market reactions in the week of publication but no significant long-term abnormal returns. He also noted a slight reversal during 2 to 26 weeks after the recommendations. The price behavior is similar to HOTS stocks, *i.e.*, quick and sharp price run-up before publication and lasting decline thereafter. Pieper, Schiereck and Weber (1993) investigated "buy" recommendations of German stock published in the "*Effekten-Spiegel*" for the years 1990 and 1991. They concluded that abnormal returns could be realized only by buying the stock prior to the publication of the recommendation. With a different focus, Menendez (2005) analyzed "buy" and "sell" recommendations published in one of the most important Spanish business newspapers for the period 1997-1999. He reported positive and significant risk-adjusted returns on the days before the "buy" recommendation is made public. However, there is no significant reaction on the announcement day or on the following day.

Schuster (2003) surveyed major business media, print or electronic, publishing analysts' recommendations from the 1970s to 1990s in Germany, Holland, Turkey, UK, and US. He reviewed over 30 cases that displayed statistically significant excess returns at the time of the publication for stocks recommended explicitly or implicitly by analysts. He concluded that the publicity effect of the business media played an active role in inducing substantial sharp increases in trading volumes and influencing stock prices. The importance of the regularity is that abnormal

gains begin to accumulate a long time or shortly before the publication date. With few exceptions, a price reversal sets in shortly thereafter, and excess returns in recommended stocks are at least partially given up within a week. Many stocks slip into lasting under-performance, earning significant negative returns. These empirical findings repeatedly demonstrate that uninformed investors who initiate purchases after publication cannot profit systematically within a week; instead, they will lose in the long run. Why? Timing accounts for the difference. The initial price run-up prior to publication is of no use to the uninformed investor because they do not have the same opportunity as the informed to participate in it. However, those uninformed investors who follow the publicized recommendations participate in the decline of prices caused by the distribution by the informed.

Schuster (2003) summarizes that the process of price run-up generated by the publicized analysts' "buy" recommendations and the subsequent price reversal constitutes a permanent stable pattern. This pattern or regularity is firmly established in developed markets. Do the emerging markets display similar reactions to publicized analyst-generated optimistic information?

2.3 Emerging markets

Yazici and Muradoglu (2002) investigated whether published investment advice is helpful to small investors in generating excess returns by examining the stock recommendations of the Investor Ali column in the weekly-published popular economics magazine *Moneymatik* in Turkey. Their sample consisted of 206 "buy" recommendations on 89 distinct stocks by Investor Ali on every Sunday during the period December 5, 1993 to December 28, 1998. The results showed that stock prices were substantially affected by recommendations but uninformed small investors lost in general. Long-term performance of the recommended stocks was even poorer. However, the informed investors related to the investment advisor made cumulative abnormal returns of

5.39% over the one-week period from the 5 days before the publication to the event date. Their explanation was that informed investors receiving the information before the publication date place buy orders at that time. After the event date, those investors sell the already accumulated stocks at inflated prices and exploit the excess returns while uninformed small investors have no chance for sure profits.

In contrast to the large institutional constituency in the U.S. stock markets, trading by individual investors amounted to 79% of total trade in Taiwan in 2003 (Shen and Chih, 2009). Based upon a total of 1,072 company "buy" recommendations by analysts of brokerage firms covering the period June 1, 2000 through January 31, 2003, Lin and Kuo (2007) reported that statistically significant market reactions are found prior to and on the date of the publication in a major business newspaper of recommendations to the stocks listed in the Taiwan Stock Exchange. However, the return performance results, subsequent to the publication dates, were found to be significantly negative. Shen and Chih (2009) found a similar stock price pattern based on the "buy" recommendations published by analysts of investment banks in Taiwan from January 2000 to December 2003.

Similar to Taiwan, trading directly by individual investors is dominant in mainland China's stock markets. According to the China Securities Regulatory Commission (CSRC), individual investors held over 99.5% of the accounts in the A-share market by 2000 (Tan, 2005). This percentage varied little toward the end of December, 2004 when 97.23% accounts were held by individual investor on Shanghai Stock Exchange (Li and Wang, 2010). Lee and Liu (2008) documented 5,373 episodes of surging and receding of stock prices around the recommendations in the Shanghai Stock Exchange from 2000 to 2005. This was based on a large sample of recommendations in the weekly column "Stocks Recommended by The Most Analysts This Week" in the *Shanghai Securities News* on every Monday. The general pattern was that positive

abnormal returns are recorded both the day before and on the date of the analysts' recommendations. After the peak on the announcement date, the stock prices decline sharply the next day and do not rebound thereafter. Less liquid securities suffer even greater price fluctuations, *i.e.*, larger initial rises and larger subsequent falls. Lee and Liu (2008) suspected manipulation may be involved in these mini-bubbles regularly created and set off by financial analysts. But who are the manipulators who buy before the "buy" recommendations and sell immediately on the announcement dates?

To summarize these studies in both developed economies and emerging markets, across the range of financial newspapers to business magazines in the last 40 years, evidence repetitively demonstrates the price patterns around publication of analysts' "buy" recommendations. The patterns are significant price run-ups prior to the publicized "buy" recommendations and the subsequent price declines. This confirms that analyst-generated information contains price-moving potential. [7] But in general, it does not benefit the uninformed. Only the insiders and the informed can make profits who have access to the recommendation prior to publicity. Next we will pay particular attention to the difference that publicity makes.

2.4 The publicity effect on market reaction

What is the effect of publicity in causing a substantial market reaction after publication of secondhand information in a widely circulating business newspaper? Stice (1991) presented evidence that the method of disclosing and cost of acquiring earnings information make a significant difference. His results indicated significant market reactions to the *WSJ* earnings announcements, but not to the filing of 10-K and 10-Q reports with the Securities and Exchange

[7] Womack (1996) finds from empirical data that analysts' recommendations have investment value. However, he does not distinguish the informed and uninformed regarding who profits and who may lose. Nor does he point out the decisive difference that timing of initiation of trades makes in the outcome.

Commission (SEC), although the filings are eight days earlier than the *WSJ* announcements. Regarding analyst-generated information, Han and Suk (1996) reported that the publication of the Research Reports column of *Barron's* significantly affected stock prices. For the positive recommendations, the market reaction on *Barron's* publication date was stronger than that on the analyst report issuance date 15 days earlier. The difference is a larger audience and the easier accessibility of *Barron's*. In other words, the credibility of *Barron's* in the eyes of investors is probably high. Evidently, the publicity effect by a credible publisher magnifies the price-moving potential of issuer- or analyst-generated information to the investing public.

The effect can be confirmed if comparisons with the original issuance of the information are made. Based on 1,460 recommendations published between January, 1998 and December, 2001, Schlumpf, Schmid, and Zimmermann (2008) investigated the impact that publicity in *Finanz und Wirtschaft*, Switzerland's major financial newspaper, had on dissemination of the same information released earlier by analysts to their firms' customers and asset management departments. The uniqueness of Schlumpf, Schmid, and Zimmermann (2008) is that they analyzed how the first- and second-hand effects related to each other with respect to the size of the announcement effects as well as the persistence of the abnormal returns. Their results confirmed HOTS research with respect to price behavior around the publication date, albeit the announcement returns reported are in general smaller than those already reported. Again, it is the pronounced publicity by a credible newspaper that makes the difference.

These three observations clearly and repeatedly show that credible publicity empowers the price-moving potential of the recommendations. [8] Now when the price-moving potential of analysts'

[8] Repeated business news reporting enhances the publicity effect on some star analysts. Gasparino (2005, p. 43), when telling about the alleged former star analyst Henry Blodget, who helped Merrill Lynch generate one investment banking deal after another from February 1999 to 2000, counts that *The Wall Street Journal* mentioned him nearly 100 times during his three years since his Amazon call (one-year target price of

recommendations goes hand in hand with the publicity of widely circulating media, who benefits and who incurs losses? This is a very critical question.

2.5 Uninformed investors are often misled or hurt by analysts' recommendations

If certain analysts sometime intend to induce retail investors to buy shares that their related institutional investors distribute, the consequence is the later losses by retail investors who follow those analysts. The losses are immediate and increasing when stock prices are falling. De Franco, Lu and Vasvari (2007) provided solid evidence that some analysts strategically misled and harmed retail investors in order for related institutional investors to distribute large numbers of shares when stock prices were falling. This was documented during the dot-com meltdown, based on the alleged financial firms and their analysts in the Global Research Analyst Settlement (GRAS) of 2003. [9] Shen and Chih (2009) and Lin and Kuo (2007) presented evidence from the Taiwan Stock Exchange that the proprietary trading division of 30 investment banks and 8 brokerage firms repeatedly traded against the stocks that their analysts recommended to the investing public through newspaper publications, when the stock prices were falling in the period 2000 to 2003.

From this research, the pattern of the significant price run-up prior to the publication of the analyst recommendations and its decline after the publication is repeatedly identified. But do any uninformed public investors profit from "buy" or even "strong buy" recommendations? Timing of trades makes a substantial difference. Analysts, like those corporate insiders analyzed in Yan *et al*.

$400), while *The New York Times* cited him about 60 times and *The Washington Post*, a little more than 50. In 1999, Blodget appeared on TV nearly 80 times, an average of once every three workdays.

[9] Gasparino (2002), the *Wall Street Journal* article, reports that brokers were "hyping stocks to win lucrative investment-banking work from corporate clients, and were misleading investors in the process." Also in Gasparino (2005, p. 309), the alleged former "Queen of the Internet" analyst Mary Meeker said after the Global Settlement of 2003, "People did lose money on the stocks I recommended."

(2010d), are the generators of the recommendations before publication. Hence, they have an information monopoly in these recommendations. In other words, they are information setters.

It is probably hard to refuse the temptation available to analysts and their firms and not to try to benefit from time to time, from the information monopoly generated by their hard earned research before publication. All investors, besides the analysts, are information takers. Thus, the timing of getting the information is a key for profitable trades. Anybody who gets the information before publication is more likely to be able to make profitable trades. Those who do not get the information in advance are in a much worse condition. Within a week after the publication day, the later they start buying, the more likely they lose. [10] Who can get the information before publication? They are analysts' colleagues, their employer's preferred clients, analysts' family members and friends, and other people who are in charge of uploading the potentially price-moving information for publication. If they trade, these people would make an almost sure profit. Uninformed before the publication of the recommendations are public investors who often naively follow the information. If these uninformed investors trade according to the recommendations, most of them cannot profit, but instead, their chances of losing are high.

In summary, analysts' recommendations (buy) contain price-moving potential (price increase) that determines the direction of trading (buyer-initiated trade) for a larger group of uninformed investors. The recommendations can move the market in a significantly stronger way when published in a widely read newspaper such as the *WSJ*, than if deposited in a less accessed database. It evidences that credible publicity makes a quantitative difference. Price-moving potential and credible publicity together construct the information monopoly, comprising the core value of sell-side analysts to insiders and the informed as well as issuers. However, the value

[10] Exceptions are the short-sellers who begin short trades soon after the publication of the "buy" recommendations. But the majority of retail investors are not short-sellers. In some markets such as Shanghai Stock Exchange, short-selling is not allowed.

turns into a disservice to the uninformed investors. In the following, we will find out why analysts do not fairly treat public interests but often mislead public investors and examine the empirical findings to understand the consequences of this disservice. After the examination, we will show how sell-side analysts can provide tremendous marketing power to issuers and special value to the manipulative trading strategies in their firm's proprietary trading arms when profit is made (or loss is avoided) out of conflict of interests.

3. Analysts can hardly attend to public interests fairly

3.1 Analysts are not financially independent

What is the ultimate reason for financial firms to employ sell-side analysts? It is to generate business (Eccles and Crane, 1988). What is more treasured by these firms in their sell-side analysts' skills? Winning underwriting business or forecast accuracy? Inducing large and sustainable trading volumes or outperforming recommendations? Groysberg, Healy, and Maber (2008) worked with senior sell-side analysts' compensation data from one large investment bank from 1988 to 2005. They found that financial firms design analysts' compensation packages according to how much analysts can create value for their firms. For investment banks, the value lies in corporate finance fees. For brokerage houses, the value lies in trading commissions.

Groysberg, Healy, and Maber also found that total compensation is positively correlated with analysts' rankings by *Institutional Investor* as voted by fund managers. Surprisingly, no evidence was found that analysts' compensation had a direct link with earnings forecast accuracy and stock recommendation performance. Michaely and Womack (2005) listed three factors that contribute the most to analysts' total compensation. They are the annual *Institutional Investor's* All-American Research Teams poll, investment banking fees generated, and stock transaction

commissions induced by analysts' coverage. In addition, Michaely and Womack cited some estimates that investment banking departments cover more than half of the research department costs. Based on Unger (2001), sell-side analysts were assigned by investment banks or brokerage firms to attract and retain client issuers, and to generate trading volumes. Frequently, analysts own some shares of the stocks they cover. Fisch and Sale (2003) argued that analyst salaries reflect their perceived "star quality," which has more to do with their skill at public relations than with objective research. Daniel Reingold, a former star analyst, sighs that Wall Street often rewarded the powerful and connected over the merely smart (Reingold, 2006, p. 22). Gerry Rothstein, a former veteran analyst, answered his son's question if he should become a stock analyst, "Don't do it, unless you want to be a servant for investment banking." (Gasparino, 2005, p. 10)

One can see that sell-side analysts are not financially independent. Rather, they are part of the profit oriented business strategies such as attracting underwriting deals, maintaining lasting good relationships with institutional investors, and issuing price-lifting recommendations to induce huge buying volumes for their own firms to distribute shares. In the process, can they provide fair service to the public? Not really, as long as they are not paid primarily by retail investors but are supported through investment banking fees, brokerage commissions, and proprietary trading profits by issuers, investment banks, client institutions and brokerage firms (Fisch, 2007). Practitioners verify the reality (Reingold, 2006; Saumya, Sinha, and Jain, 2006). Actually, analyst-generated information often hurts the uninformed and numerous retail investors in particular.

In short, out of the consideration that sell-side analysts have to attend to the interests related to their compensation, they can hardly treat the interest of a majority of public investors with

sufficient attention; or they do not pay attention to it to begin with. This is opposite to the expectation that analysts should serve as so-called "public watchdogs" (Hutton, 2002). It does not appear that analysts' research is up to "public good" which is referred to by Fisch and Sale (2003). It is not consistent with academic assumptions that analysts act as independent financial information intermediaries (for instance, Brooks and Wang, 2004). [11]

3.2 Individual investors systematically lose in stock-trading

In the academic publications on trading performance of individual investors, researchers have discovered quantitative evidence that individual investors lose systematically in the stock market. Odean (1999) randomly selected 10,000 trading accounts active in 1987 from a discount brokerage firm and examined all trades made in those accounts from January 1987 through December 1993. Taking out factors such as liquidity demands, tax-loss selling, portfolio rebalancing, or a move to lower-risk securities, these investors traded excessively in the sense that their returns are, on average, reduced through trading. Barber and Odean (2000) warned individual investors that trading is hazardous to their wealth after examining 66,465 households with accounts at a discount broker from 1991 to 1996. These individual investors, engaging in active trading, underperformed the broad market significantly. Barber and Odean (2000) showed graphically that the more frequently these investors traded the lower performance they achieved relative to the S&P 500 Index. These two studies are focused on individual investors in the U. S. markets. Similar or even worse trading performance of individual investors is reported for international stock markets such as in Australia (Fong, Gallagher, and Lee, 2009) Finland (Grinblatt and Keloharju, 2000) and Taiwan (Barber, *et al*., 2009). We elaborate on these findings below in chronological order.

[11] The actual behavior of analysts is not surprising, since they are not paid by the public, but by their employer. They do not have fiduciary responsibilities to the investing public (Fisch, 2007a). However, they are found to mislead or harm the investing public repeatedly while attending other interests.

Grinblatt and Keloharju (2000) examined all trades on the Helsinki Stock Exchange from 1995-1996 and found that households statistically underperform relative to sophisticated foreign institutional investors. Barber *et al*. (2009) used data on all trades on the Taiwan Stock Exchange from 1995-1999 to show that individual investors have an annual performance penalty of 3.8 percent per year (2.2 percent of Taiwan's GDP) when trading against institutions. Fong, Gallagher, and Lee (2009) found that individual investors incur losses to institutional investors as a group, and that this is consistently the case from intraday trading, after going through the trading records on the Australian Stock Exchange over the 16-year period from 1990 to 2005.

The general lessons from these researchers' empirical findings are that individual investors systematically lose in stock trading, and the more they trade, the more they lose. With the earlier amassed evidence, one would outcry how do uninformed investors have any chance to profit in the stock market in the presence of the joint manipulative power by analysts and other informed parties?

Going through Yan *et al*. (2010a-d), there is obviously trade-based manipulation in the secondary market. At each stage in the information loop from issuers to investors, there exists some form of manipulation. There is earnings manipulation by issuers, recommendation manipulation by sell-side analysts, and other types of information-based manipulation to be analyzed in Yan *et al*. (2010e). If the information sources highly trusted by individual investors may all involve manipulation or even fraud, is it possible that they will not loose systematically in trading stocks? The aforementioned research results echo with a repenting analyst (Reingold, 2006) that individual investors have no chance playing trading games on the uneven field of insider information flowing among only related institution investors, issuers and analysts. Some research, particularly in the field of behavior finance (for example, Daniel, Hirshleifer and Teoh, 2002;

Hirshleifer and Teoh, 2009), attributes such a dismal reality to numerous individual investors' naïveté or credulous acting upon analyst-generated information and information from other sources. If there are no insider trading and manipulative trading strategies against them, would they still systematically incur trading losses?

4. Analyst-generated information benefits the informed

In the following sections, we will analyze how sell-side analysts serve the business interests of their employers, their client issuers, and institutional investors, but can hardly serve uninformed investors.

4.1 Analysts' recommendations are inconsistent with their earnings estimates

Bradshaw (2004) questions why analysts' recommendations are not consistent with their earnings estimates, after examining 4,421 distinct firms for 46,209 firm-month observations over the years 1994-1998. Earlier research explained this puzzle as the analysts' incentive to "curry favor with management" (Francise and Philbrick, 1993), or to enhance investment banking relationships (Lin and McNichols, 1998), or to "herd" with other analysts (Graham, 1999). Malmendier and Shanthikumar (2007) suspect if analysts are really optimistic about the stocks they cover or are just publishing optimistic recommendations to induce retail investors to buy shares. Using 2,515 securities for 2,485 firms from February 1994 through December 2002, their findings show that analysts can speak in two tongues, targeting the more sophisticated investors with the earnings forecasts, and the less sophisticated ones with the recommendations. The reason is that the less sophisticated investors follow recommendations only, while the more sophisticated ones follow forecasts but will discount recommendations. Their conclusion is that analysts may distort

recommendations upwards to trigger small-investor purchases, but may not distort forecasts which are more scrutinized by large institutional investors.

Mikhail, Walther and Willis (2007) investigated small and large investors' trading responses to recommendation revisions by using 50,076 recommendation changes issued by 2,794 analysts covering 5,419 firms during 1993 to 1999. Mining transaction level data, they found that small traders tend to react more to the mere occurrence of a recommendation, but do not properly consider analyst incentives when reacting to recommendations. Mikhail, Walther and Willis provided additional evidence that small investors react in a more naïve way to analysts.

4.2 Analysts have been overoptimistic for decades

Bradshaw, Richardson and Sloan (2006) documented analyst overoptimism for the period from 1975 to 2000 when examining their marketing role in corporate external financing.
Goedhart, Raj, and Saxena (2010) found that analysts have been persistently overoptimistic for the past 25 years, with earnings growth estimates ranging from 10 to 12 percent a year, compared with actual earnings growth of 6 percent. On average, analysts' forecasts have been almost 100 percent too high. What is more, after the Global Settlement of 2003, the first three years since (2003-2006) witness that the estimates are more in line with actual earnings. Then analysts' estimates surpass actual earnings again in the following three years (2007-2009). Why are analysts' optimistic appearances necessary in most events? [12]

[12] Because sell-side analysts in general issue optimistic recommendations and forecast, affiliation or non-affiliation is not a focus in this study. Affiliated analysts may release more optimistic reports than unaffiliated analysts on many occasions (Dugar and Nathan, 1995; Lin and McNichol, 1998; Michaely and Womack, 1999), but both appear favorable to extant or potential client issuers based on their desire to retain or win investment banking business. Analysts of brokerage firms with or without underwriting functions have to report positive research for client institutions, too (Cowen, Groysberg and Healy, 2006).

There is asymmetry in "buy" and "sell" recommendations relative to the trading volume generated. Positive initiation or revision of stock coverage opens up more opportunities to trade, especially inducing more new buyers. In contrast, negative coverage will be acted on by investors that already own the stock or who are willing to incur the additional costs of short selling (Cowen, Gyogoky and Healy, 2006).

Several empirical studies show the rationale behind many analysts' lasting optimism on the stocks they follow and the market in general. For example, McNichols and O'Brien (1997) argued that conflict of interest causes analysts to choose to cover firms for which they have more positive views. At least a portion of the observed overoptimism in recommendations is due to coverage selection, implying that conflict of interest and genuine overoptimism likely co-exist. Michaely and Womack (1999) surveyed a sample of about 30 investment professionals on whether the optimism bias is intentional or based on conflicts of interest or other incentives. Most responses were consistent with the intentional or conflicts of interest incentives. Using a large panel of information on the brokerage house employment and earnings forecast histories of roughly 12,000 analysts working for 600 brokerage houses between the years of 1983 and 2000, Hong and Kubik (2003) found that these brokerage houses apparently rewarded optimistic analysts who promoted stocks. Considering the stock market mania in the 1990s, Hong and Kubik argued that investment bankers who underwrite a new issue to market want optimistic forecasts to place the shares at high prices. Stockbrokers want optimistic forecasts to get new buyers and thereby earn trading commissions, since not many institutions or individuals are willing to short.

According to the testimony given by the then Acting Chair of the SEC, Laura Unger (2001), there are external pressures on analysts to remain optimistic about the stocks they cover. One is from institutional investors, such as mutual funds, that are clients of the analyst's firm. They may have a significant position in the stock covered by an analyst. An analyst may be inhibited from issuing

a rating downgrade that would adversely affect the performance of an institutional client's portfolio. The most important career concern for an analyst is his *Institutional Investor* rating which is based on the voting by fund managers. Another pressure is from issuers. The management of companies an analyst follows may pressure him to issue favorable reports and recommendations. Otherwise, an issuer may threaten to cut off an analyst's access to its management if the analyst issues a negative report on the company. [13] Without earnings guidance from the issuer management, the analyst's forecast accuracy loses foundation, and a string of less accurate forecasts would cost him dearly in both career path and outside reputation. Internally, the investment banking department could pressure an analyst for favorable coverage of client issuers. [14]

An analyst's compensation is substantially dependent on gaining and retaining underwriting deals, and he may have to compromise research objectivity for business interest. In a brokerage firm, an analyst's compensation is tied with the trading volume his research reports and recommendations can generate (Irvine, 2001). The firm also desires to keep a good relationship with institutional investor clients. This would force the analyst to issue optimistic reports on the covered stocks. Often times, an analyst holds shares of the stocks he follows (Schack, 2001). For his self interest, an analyst would have to remain optimistic about those stocks.

In brief, sell-side analysts' optimistic attitude may be a business rule across the entire financial industry. The basis is the investment banking and trading interests. The market environments during the mania in the 1990s and meltdown in 2000 and 2001 provided a magnifier to look closely at the actual reasons and purposes of analysts' optimism.

[13] In order to increase the market value of their firm, management often calls up analysts and complains about ratings that are "too low" and tends to "freeze out" analysts who do not give positive recommendations (Francis, Hanna and Philbrick (1997)).
[14] Siconolfi (1992) tells a vivid story how an investment banking colleague pressured an analyst with according compensation: "He wanted to know only whether she was 'going to help him get the deal done.'"

5. Value of analysts' recommendation and forecast to issuers

With potentially price-moving information and credible publicity in hand, analysts' work has multifaceted value to issuers. First, their marketing power based on the price-moving potent can be utilized by issuers when conducting initial public offerings (IPOs) or secondary equity offerings (SEOs). Second, they can "walk down" in earnings guidance games played by issuers. This multifaceted value to issuers can be seen from the insistence on reputation and a multitude of analysts by issuers when shopping for underwriters (Krigman, Shaw, and Womack, 2001). [15] According to the "selection bias" explanation, firms are likely to choose underwriters whose analysts are more optimistic about their prospects (McNichols and O'Brien, 1997). Chen and Ritter (2000) reason that investment bankers sell not only underwriting service *per se*, but also favorite analyst coverage. We proceed with reviewing a seasoned equity offering (SEO) demonstration, initial public offering (IPO) and SEO long-term underperformance, and "walk-downs".

5.1 Analysts serve as marketing professionals for issuers

Arthur Levitt, the former SEC Chairman, claims, "… analysts' employers expect them to act more like promoters and marketers than unbiased and dispassionate analysts." (Levitt (2001)) [16] We will investigate how analysts can provide marketing services to their client issuers.

Earnings manipulation is pervasive and persistent for the past 50 years in the United States, and more recently in other economies (Yan *et al*., 2010c). To demonstrate how sell-side analysts might assist issuers in earnings manipulation, we select a SEO process. Numerous researchers

[15] Liu and Ritter (2010) find a strong reason for issuers to stick to their main IPO underwriters for future offerings if the top executives are spun by the underwriters.
[16] This quotation is from Jackson (2005).

document how some managers manipulate earnings through accruals or real economic activities, so they expect to sell more SEO shares at inflated stock prices (Teoh, Welch, and Wong, 1998; Rangan, 1998; Gunny, 2005; Zang, 2007; Cohen, Dey and Lys, 2008). How do managers turn their offerings into ultimate success on their own terms? Two elements must be under managers' control before their attempts. One element is to prevent opposition from potential "public watchdogs", auditors and sell-side analysts. The other element is to turn them into the issuer's marketing partners.

Since auditors are paid by the issuer, often times they choose to be silent even when they are aware of an earnings manipulation attempt. Their signatures raise the credibility of the issuer's earnings and other financial information disclosed to the investing public. Sell-side analysts are not paid directly by the issuer. But their lucrative pay raises greatly depend on the underwriting business they can attract for their employer underwriter. On the other end, the issuer can threaten the underwriter by withdrawing from the underwriting business, which transforms into pressure from the underwriter to the analysts. [17] The issuer can also directly pressure the analysts by not providing them earnings information advantage (Francis, Hanna and Philbrick, 1997). Either willingly or unwillingly, some analysts compromise by distorting their actual research findings for optimistic coverage. [18]

Next, we elaborate on how sell-side analysts can provide marketing services to the issuer. First, they cover the issuer's stock with favorable recommendations and rising target prices which can

[17] Demonstrating the pressures exerted by issuers on sell-side analysts, the *Wall Street Journal* has reported several alleged incidents of top executives withholding underwriting business from investment banks whose analysts reduce earnings forecasts or downgrade their firms' stock ratings. See Paltrow (1999), Siconolfi (1998), and Hutton (2002).

[18] For example, an investigation of Merrill Lynch by the New York State Attorney General prior to the GRAS, revealed an analyst who publicly recommended certain securities for purchase, but privately described these same securities as "junk". An analyst at Salomon Smith Barney who rated an issuer as a "buy" was discovered to have indicated to two colleagues that the company was a "pig" and should instead be rated "underperform" (Colombo, 2007).

induce huge buying volume and support the issuer's stock price. Second, they publish optimistic short-term and long-term earnings per share (EPS) growth forecasts that serve the issuer's lasting interest. This is because issuer's earnings information and sell-side analysts' ratings are the top information pieces for retail investors to make trading decisions (National Credibility Index, 1999). Retail investors are likely to be convinced to buy in the issuer's shares and push up the share prices, unaware of the issuer's earnings manipulation together with the sell-side analysts' touting recommendations (Bradshaw, Richardson and Sloan, 2003). Then the issuer successfully sells out the SEO shares at inflated prices. Some managers and other corporate insiders may also sell some of their stocks or options at inflated prices (Yan *et al.*, 2010d). Involved analysts may make some profits from insider trading (Schack, 2001). Obviously, the issuer is the biggest winner. The underwriter also benefits from the underwriting fees. Sell-side analysts get pay raise or bonus because of their marketing contributions. Sometimes, they make insider trading profits.

The Global Settlement of 2003 followed investigations into alleged conflicts of interest between investment banking and securities research at top Wall Street banks. Large scale evidence uncovered by the investigations showed that the marketing strategies played by sell-side analysts are pervasive in the equity markets (for instance, Fisch and Sale, 2003; Colombo, 2007).

5.2 Evidence of analysts' marketing service for issuers' SEOs and IPOs

Lin and McNichols (1998) examined 2,400 SEOs in U.S. markets by domestic issuers for which there were 1,069 earnings forecasts and 769 recommendations by lead underwriter analysts during the period 1989-1994. They found that lead and co-underwriter analysts' growth forecasts and recommendations were significantly more favorable than those issued by unaffiliated analysts. But current and subsequent year earnings forecasts issued by affiliated analysts both before and after seasoned equity offerings are generally not more favorable than those issued by unaffiliated

analysts. For a sample of 63 IPOs recommended by underwriter analysts only, in the 2-year span from January 1990 to December 1991, Michaely and Womack (1999) provided evidence that stock recommendations by affiliated analysts are more favorable but performed worse in the 30-month horizon. These two authors emphasize that "buy" recommendations of affiliated analysts after an IPO perform worse than those of unaffiliated analysts, both at the time of the recommendation and in the months that follow. They concluded that affiliated analysts recommendations are intentionally upward biased because of their interest in the issuer through the underwriting business. Dechow, Hutton, Sloan (2000) directly linked the overoptimism in analysts' forecasts around equity offerings to the post-offering underperformance, using a sample of 1,179 firm-offerings made by 1,006 firms in the period 1981-90. They found that sell-side analysts' long-term growth forecasts were systematically overly optimistic around equity offerings. They also documented that the post-offering underperformance was most pronounced for firms with the highest growth forecasts made by affiliated analysts. [19]

After surveying the literature in analyst studies, Ritter (2003) advocated that more research is needed to study the marketing assistance that security analysts have provided to the issuers in corporate financing. To investigate comprehensively if sell-side analysts are involved in the marketing campaign for corporate financing, Bradshaw, Richardson, and Sloan (2006) used broad datasets with financial statements and returns data for 99,329 firm-year observations in debt and equity financing spanning 1971–2000 . They also used analyst data in forecasting variables, including short-term earnings per share (EPS) forecasts, long-term EPS growth forecasts, stock recommendations, and target prices from 1975 to 2000. Among several solid findings is a strong positive correlation between net external financing and overoptimism in analysts' forecasts. This relationship holds true for short-term EPS forecasts, long-term EPS growth forecasts, stock

[19] Affiliated or unaffiliated, analysts are generally upward biased. We do not emphasize affiliation when addressing analysts' overoptimism.

recommendations and target prices. This evidence indicates strongly that analysts serve as the marketing professionals for issuers in the overpricing of security issuances.

Are related issuer's so-called successes and involved analysts' marketing victories good news to all investors? Maybe not. Next we analyze who does not benefit from the "successes".

5.3 Analysts' marketing precipitates the post-offering underperformance

After an IPO or SEO and a "quiet" period, analysts start coverage of the newly offered or re-offered stock. Let us examine how a reality check fairs for both the performance of the stock and the analysts' recommendations to the public investors.

With price-moving potential and credible publicity embedded in analyst-generated information and the prior empirical evidences, we may have better insight into the well established phenomenon of the post-offering underperformance in IPOs and SEOs (Loughran and Ritter, 1995; Spiess and Affleck-Graves, 1995; Ritter and Welch, 2002). The long-term underperformance is similar to the post-distribution phase in the Accumulation-Lift-Distribution scheme (A-L-D) of trade-based market manipulation (Yan *et al.*, 2010a). Because of no large buy volumes to support the inflated prices after the offerings, the share prices will decline persistently even for years.

Marketing activities for the IPOs and SEOs by certain issuers such as road shows, and by related analysts such as overly optimistic target prices and recommendations, are comparable to the A-L-D manipulator's fictitious trading. This is because they share the same objective: to lift the share price for planned distribution (Yan *et al.*, 2010b). However, these artificial efforts, some of them are even fraudulent, target only temporary price-lifting, so issuers can offer IPO or SEO shares at

inflated prices. Once planned shares are distributed to the market, issuers can hardly put in any substantial and genuine efforts to keep their share prices stabilized. The marketing power of underwriters' analysts can hardly last long, even though their favorable coverage and price forecasts are still in place. [20] With no new large buy volumes entering the market, the share prices will naturally decline, even for a long time. In brief, affiliated analysts' marketing services to issuers seemingly help to inflate share prices, but *de facto* precipitate the subsequent decline in the new share price, even long-term post-offering underperformance. Numerous uninformed individual investors, some small fund managers, or other not well connected institutional investors can be trapped in this post-offering misery (Gasparino, 2005; Reingold, 2006).

5.4 Analysts' "walk-down" in the full-year cycle of EPS estimates

Hutton (2002) documented that most analysts provided beatable estimates for Enron for 16 quarters in a row since the first quarter in 1998 until its bankruptcy filling in December 2001. Cisco and Lucent both have their "14 quarters" stories during the dot-com bubble (Yan *et al*., 2010c). Do analysts predict very accurately every quarter without insider information? Not necessarily. Issuers communicate with lead analysts to present earnings guidance shortly before each earnings announcement (Reingold, 2006). The guidance makes some analysts seem to be more frequently accurate than others. It also enhances their careers and increases their reputations. In the end, their potentially price-moving information together with their reputation and publicity, and thus their marketing power, are increased. Maintaining a good relationship between analysts and issuers is mutually beneficial for both parties.

[20] An extreme example is seen in the Enron scandal. On October 31, 2001, just two months before the company filed for bankruptcy, the mean analyst recommendation listed on First Call for Enron was 1.9 out of 5, where 1 is a "strong buy" and 5 is a "strong sell." (Healy and Palepu (2003)). In other words, analysts' marketing power is limited because Enron's share price fell continuously from the end of 2000 to its bankruptcy filling in December 2001 in spite of overly optimistic recommendations.

How is "walk-down" played out in a full-year cycle of EPS estimates? Analysts start with an overly optimistic estimate for the first quarter, then "walk down" to the final quarter of the fiscal year so issuers can constantly meet or beat the EPS consensus out of all the analysts' estimates (Richardson, Teoh and Wysocki, 2004; Jensen, 2005). One can see that "walk-down" of analysts' estimates in the full-year cycle is dependent on the "earnings-guidance game" initiated by issuers and joined by analysts (Levitt, 1998; Cotter, Tuna, and Wysocki, 2006). The purpose is to paint a rosy picture of the issuer's performance so its stock may keep holding investors and attract new buyers. Jensen (2005) uses the word collusion to describe the relation between sell-side analysts and their client issuers. In the process, uninformed investors are fooled in the double play.

Sell-side analysts do possess tremendous marketing power for issuers. This is particularly true during boom times. However, during the period of market-wide panic-selling such as the dot-com crash when stock prices were falling precipitously, their overoptimistic recommendations became evidence in public and private litigation of their manipulative disservice to the uninformed investing public (De Franco, Lu and Vasvari, 2007). In other words, analysts' marketing power for issuers lies in the price-moving potential, their reputation, the credibility of the disseminator, and the publicity of their touting opinions about issuers. Without the publicity, the marketing power is non-existent. Buy-side analysts provide live examples.

6. Value of analysts' work to investment banks and brokerage firms

What is the value of the work of sell-side analysts to their employers, investment banks and brokerage firms? In particular, what is their value to proprietary trading divisions? [21]

[21] In this article, both investment banks and brokerage firms are those that have proprietary trading divisions.

6.1 Analysts' collusive role in proprietary trading strategies

Investigating a sample of 50 firm-events covering the period March 1999 to July 2002 identified in the Global Settlement of 2003, De Franco, Lu and Vasvari (2007) provided direct evidence on how analysts' misleading behavior, as part of the trading strategies by the GRAS firms, enriched institutional investors but harmed individual investors. These analysts of alleged top Wall Street firms compromised their private beliefs for business incentives and issued untruthful public reports. During the period, these GRAS firms' institutional holdings declined significantly. When they sold massive shares at the analysts' "buy" recommendations, a great number of individual investors were induced to buy. They were stuck in the falling market immediately. Shen and Chih (2009) found that analysts of investment banks in Taiwan provided the market with "buy" recommendations, while their proprietary trading divisions were selling the very same recommended stocks. These types of conflicts of interest gain profits for investment banks at the expense of numerous individual investors. Their data included 30 investment banks with proprietary trading divisions. The analysts of these banks issued recommendations in every Sunday's *Commercial Newspaper* and *Economic Newspaper*, respectively, from January 2000 to December 2003. The apparent conflicts of interest were part of manipulative trading strategies practiced by investment banks, whose proprietary trading division traded against the stocks recommended by their own analysts during market-wide price falling. Lin and Kuo (2007) documented similar conflicts of interest by analysts of eight brokerage firms in Taiwan from 2000 to 2003. Proimos (2005) documented an Australian case of a large investment bank selling heavily (about $17.5 million in proceeds) against its own analysts' "buy" recommendations on an internet company in March and May 2000 when the dot-com crash was in its early phase.

6.2 Analysts generate trading commissions for brokerage firms

In addition to their collusive role in the manipulative trading strategies used by brokerage firms, analysts' work have marketing value to their firms in generating trading volume, and thus commission revenue. By working with every trade of the largest 100 companies on the Toronto Stock Exchange for the period September 1, 1993 through August 31, 1994, Irvine (2001) found that analysts' coverage of a particular stock results in a significantly higher broker volume in that stock. On average, brokers increased their market share in covered stocks by 3.8% relative to uncovered stocks. Trading incentives are important because every forecast or recommendation can potentially generate trade for the analyst's employer.

Using the same dataset as in Irvine (2001), Irvine (2004) found further that analysts' "buy" and "strong buy" recommendations allowed their brokerage firms to capture significantly higher market shares in trading than did "hold", "sell", or "strong sell" recommendations. The important implication, based on the finding, is that as long as stock research is paid for with trading commissions, the potential for upwardly biased recommendations remains. Jackson (2005) used detailed data on the trades generated by 23 institutional brokerage firms for all stocks in the Australian market for the period January 1992 to December 2002. He found optimistic analysts generated more trading volume for their brokerage firms. Also using Australian data, Aitken, Muthuswamy and Wong (2001) reported that brokerage analysts' "buy" recommendations led to a higher market share in an event window around announcement, while sell recommendations did not. This finding contributes to the reasons why brokerage analysts' recommendations are optimistic in general. Cowen, Groysberg, and Healy (2006) found that brokerage analysts release more optimistic opinions than other financial analysts, based on a large dataset containing earnings forecasts, long-term earnings growth forecasts, and stock recommendations in U.S.

markets during the period January 1996 - December 2002. The optimism exists in both boom times and downturns, which is explained as being tied with trading interests.

6.3 Analysts tip preferred client institutional investors

Brokerage firms highly value their relationships with institutional clients. These relationships allow the firms to generate commission revenue and improve analysts' compensation (Irvine, 2004). As analysts' research has price-moving potential, credibility and publicity once released, the release will create profitable opportunities in a short run. Whoever obtains the monopolistic information prior to the release will make an almost certain trading gain. Based on this regularity established firmly in the stock market, some analysts prefer to provide tips about their reports to client institutional investors prior to their information release to the public.

Based on brokerage analysts' 9,065 "buy" and "strong buy" initiations from March 31, 1996, to December 31, 1997, and from March 31, 2000, to December 31, 2000, Irvine, Lipson and Puckett (2007) investigated the trading behavior of institutional investors before the public release of these positive initial recommendations in the US equity markets. They found statistically significant increases in the levels of institutional trading and net buying in the period beginning about five days before the public release. Their results evidence the prerelease leakage of analysts' reports to client institutional investors. [22]

[22] Although we focus on positive revisions by sell-side analysts, there are a few studies that show shorting-selling increase prior to analysts' downgrade. Francis, Venkatachalam, and Zhang (2005) work on a sample of NYSE and NASDAQ stocks with monthly short positions during the period January 1992 – December 2000. They find that security analysts revise downward their earnings forecasts following the event month of unexpected short interest positions. Christophe, Ferri, and Hsieh (2010) show a sharp increase in short-selling one to three days before analyst downgrade announcements, using daily short sales in Nasdaq stocks between 2000 and 2001. They attribute this pre-downgrade increase of short-selling to tipping by the analysts prior to the downgrade announcements.

By focusing on brokerage analysts' recommendation revisions that were reversed in a relatively short period of time, Berglund, Farooq and Westerholm (2007) sort through trading data on the Helsinki Stock Exchange over 10 years period spanning from 1995 to 2004. In 139 out of 147 cases, they discovered there were some clients trading against the recommendations made by their brokerage analysts. In other words, Berglund, Farooq and Westerholm showed that some of the recommendation changes issued by analysts may have been issued in order to facilitate trading by their brokerage firm's clients. Choi, Lee, and Jung (2009) tried to determine a direct link between information leakage and institutional trading by differentiating trading behaviors of clients from non-clients. By using a dataset that contained upward revisions by brokerage analysts and matching daily transaction data for each stock traded on the Korea Exchange from 2001 to 2006, they found evidence in great detail that brokerage analysts routinely tip their client institutional investors before the public release of research reports.

Choi, Lee, and Jung (2009) also documented anecdotal evidence about information leakage. For example, the *Korea Times* reported in the article on September 2, 2007 that "in the case of the 104 reports in which analysts raised recommendations, stocks rose 7.18 percent on average during the 10 days until the issuance of the reports, and recorded a 5.05 percent gain during the five days until the report publication. After printing of the reports, however, stocks rose only 0.38 percent in the first five days, and 1.92 percent in 10 days... It also means ... that the buy recommendation reports may be leaked in advance."

6.4 Analysts inform brokerage colleagues

Using NASDAQ data based on analyst recommendations for Nasdaq-listed firms during the period from January 1, 1999 to July 31, 1999, Li and Heidle (2004) investigated if brokerage firm analysts leak information, directly or indirectly, to the market makers of the same firm prior to

release. They found that the changes in the recommending market makers' quoting behavior before recommendation revisions are statistically significant and are also economically meaningful. In addition to research information leakage to client institutions, Li and Heidle pointed out that analysts of a brokerage firm may leak their research information before release to the firm's proprietary trading teams and market makers who are firm insiders. Once the proprietary trading teams get tipped from their colleague analysts, the former can initiate trades with the information ahead of uninformed investors and exit by trading against the released information.

The worst scenario for uninformed investors is when analysts' recommend the stocks with "buy" ratings, which then experience continuous price falling, while the proprietary traders are selling heavily at the same time. That was a typical scenario during the dot-com crash (De Franco, Lu and Vasvari, 2007). Lin and Kuo (2007) used a total of 1,072 "buy" recommendations from June 1, 2000 through January 31, 2003 from eight brokerage firms published on every Sunday in *Economic Daily News,* a major financial newspaper in Taiwan. Examining the changes in selling volumes on the recommended stocks traded by the brokerage firms whose analysts published the recommendations, Lin and Kuo found that analysts recommended majority of technology stocks which increasingly underperformed from June 2000 to January 2003. This is while the traders of the dealer department increased selling volumes on the recommended technology stocks. Unger (2001) reported from regulatory actions that analysts inform investment bankers of recommendation revisions. The *Wall Street Journal* reported that in 2004, a SEC fine of $10 million was levied over Bank of America's delay in submitting evidence that a senior executive traded on unreleased research reports by the firm's own analysts (Smith, 2004).

Similar to corporate insiders, the brokerage firm insiders' incentive is loss-avoidance when the price of a stock they own has substantially declined. However, uninformed investors are misled into this trap and experience immediate and increasing losses.

In sum, recent studies increasingly reveal the actual role sell-side analysts play in the proprietary trading and other brokerage functions. One word that describes it accurately is collusion. In any scenario, analysts possess information monopoly, in the form of publicized credible information of price-moving potential, to aid information-based manipulators or to provide insider information for others to execute manipulative trading strategies.

7. Comparison of sell-side analysts and corporate insiders

From the above evidence that proprietary traders sell against colleague analysts' "buy" recommendations to avoid further losses, one important lesson can be extracted. Sometimes analysts' recommendations are not objective, but they still carry price-moving potential. This untruthful information has potentially detrimental consequences mainly to individual investors and some small fund managers or uninformed institutional investors. [23] What makes it so prevalent and powerful? Publicity effects. So separating publicity from the price-moving potential is the essence in preventing the harm that can be caused by dishonest recommendations to the investing public, and eventually to the whole exchange and even the entire financial system. Before proceeding to regulatory measures over sell-side analysts' various misuse of their price-moving potential, we compare them with corporate insiders in terms of the types of information monopoly.

[23] Gasparino (2005) states that not only small investors, but also sophisticated institutional investors, closely followed what some "star" analysts had to say about the markets and the stocks they covered.

Sell-side analysts and corporate insiders are both generators of potentially price-moving information relative to other investors who are information-takers. Hence both information-generators have information monopolies. According to the information loop from issuer-generated information to analyst-generated information and eventually to trading decisions, the former possess more price-moving potential than the latter (National Credibility Index, 1999). After release and free dissemination, analyst-generated information gains publicity in addition to their reputation and credibility of the disseminators. Similarly after disclosure, in addition to the credibility, issuer-generated information gains publicity. Therefore, the information generated by both has price-moving potential, credibility and publicity. In Yan *et al*. (2010d), we propose four measures to regulate corporate insiders by targeting their trading that is prone to being based on insider information. Can we apply the same measures to the trading by the informed investors around public release of analysts' research? To answer this question, we need to examine the differences and similarities between analysts and corporate insiders, and between analyst-generated information and issuer-generated information.

The differences are summarized as follows:

(1) Analyst-generated information is voluntarily released and disseminated irregularly, while issuers are required by securities regulations to disclose regularly. An exception is that issuers occasionally disclose some material information voluntarily, such as financial restatements.

(2) Analyst-generated information is intended to benefit the analyst's firm to begin with, while issuer-generated information is intended to benefit corporations above all.

(3) Analysts have small or no shareholdings on the stocks they cover, while corporate insiders usually have large shareholdings of their company's stock.

When one includes the price behavior around the information release, the following commonality can be summarized:

(1) There is price run-up long or shortly preceding announcement of the information, being either issuer-generated or analyst-generated.

(2) The trading by the informed – corporate insiders or analysts' informed partners – shortly after the information release is always against the information and the induced trading.

Since the two measures proposed in Yan *et al*. (2010d) would regulate corporate insiders' misbehavior by targeting their trading, apparently they can be applied to sell-side analysts by targeting their partners' trading. Sometimes, analysts have small number of shares to trade against the publicly released information, albeit the shareholdings are trivial compared to their partners' in the stocks they cover.

8. Legal difficulty in prosecuting wrongdoing by sell-side analysts

Analysts-generated information has price-moving potential, *i.e*., it can affect investors' trading decisions significantly. Once it gets published by one or multiple credible media outlets, its price-moving potential together with its publicity and credibility form information monopoly. It can prompt large numbers of investors to trade according to its face value. Once the information monopoly is utilized in a trading strategy, the latter becomes information-based manipulation.

Repeated international evidence shows that proprietary trading teams of investment banks and brokerage firms collude with their colleague analysts in their manipulative trading strategies.

From all the empirical evidence presented in this article, it is clear that a part of the manipulative trading strategy is for analysts to disseminate recommendations to the investing public for free. The costly research generates large trading volume because of the credibility of the analysts and their firms as well as the media outlets that publish the recommendations which carry publicity effect. The information monopoly thus produced enables analysts to serve also as the marketing professionals for issuers. To be accurate, analysts provide information to assist the issuers' information-based manipulation strategies. The intent behind analysts' publications may be to gain profit or avoid loss for the analysts' firms, investment banks or brokerage houses, their client issuers and institutional investors, as well as other insiders. However, the subsequence of the strategy causes numerous uninformed individual investors to lose on trading.

This is particularly the case during market-wide collapses when analysts issue upward biased recommendations or price targets for their firm to distribute masses of shares. It is hard to prove legally that analysts start with a *scienter* or bad intent, even though the later development of their business interest *de facto* hurts uninformed investors. Therefore, the securities regulations that require proof of *scienter* before conviction makes them hardly enforceable. [24] This may explain why public lawsuits against sell-side analysts are negligibly few. Regulatory additions that target the trading around public release of analyst-generated information are needed to enhance the effectiveness and efficiency of enforcement.

[24] Fishel and Ross (1991) and Markham (1991) point out the difficulty of legally prosecuting market manipulators. Gasparino (2005, p. 311) records that "A federal judge, Milton Pollack, hurt investors even more by throwing out the research cases that have come his way, many of them involving Blodget's research, on the grounds that … that he was 'utterly unconvinced' that Merrill was purposely attempting to mislead investors through Blodget's research."

9. Regulatory proposals

Since analyst-generated information has multifaceted value to analysts' firms being either investment banks or brokerage houses, client issuers, and institutional investors, but can hardly be a fair service to uninformed investors, we propose the following measures to prevent manipulative trading around public release of sell-side-analyst-generated information.

1. Before public release, a sell-side analyst must disclose his and his firms' as well as the client investors' shareholdings in the target stock in the release to the regulating agency in confidence at least 24 hours in advance.

2. The regulating agency oversees his and his firm's trading activities in the target stock after this filing. Trading by the firm's clients in the target stock is monitored at the same time.

3. The regulating agency can call off or postpone sufficiently long the public release of the analyst-generated information and start investigation if the stock in question has displayed abnormal price behavior prior to the release date. Abnormal stock behavior can be defined as a significant price run-up prior to a buy recommendation or a price decline prior to a sell recommendation. The numerical threshold value of "significant" price change can be established based on the past history of the stock, for example 1% above (or below for a decline) the average daily return of the previous one month. [25]

[25] Monitoring pre-event volume increase is another regulatory dimension. A quantitative threshold can be produced using previous month daily average as a benchmark.

4. For each trading day on the day of and after the release, if trading against the released information, the analyst, (or his firm or the client investors), can transact up to 1% of the absolute volume of his (or his firm's or the client investors', respectively) pre-release shareholding or the 3% of the previous month daily average volume (Yan *et al.*, 2010a), whichever is smaller.

5. If he (or his firm or the client investors) are trading in the target stock according to his information release, then their daily transaction is subject to the 5% of the previous month daily average volume only to prevent large trading speed (Yan *et al.*, 2010a).

In addition to the five measures proposed above, we need one more measure to address the issue that some small stocks never get equity analyst coverage.

6. The regulating agency can create its own research department. The researchers in the department are not sell-side or buy-side but public analysts. [26] They issue research reports covering all stocks by requiring each and every issuer to pay a fee. [27] To be objective, those reports should contain no recommendations or target prices. The department needs to publish the equity research through a

[26] Fisch (2007b) proposes to establish a SEC Analyst Website. It maintains a central database of equity research. But collusion between an analyst and his proprietary trading colleagues can not be prevented by disclosure requirement only. However, the capacity for the investing public to track sell-side analysts' historical performance would be certainly beneficial.

[27] Choi and Fisch (2003) propose a voucher system for issuers to pay analysts, auditors and other financial intermediaries. Once the fund is collected from issuers, then the objectivity of analysts' research reports is in question. Our proposal is for issuers to pay regulators. Then regulators sponsor analysts. This design solves the conflict of interests by avoiding direct financial transactions between issuers and analysts.

credible media outlet. Furthermore, these analysts are also accountable if any significant price run-up or decline occurs prior to their publications. [28]

10. Discussion of the regulatory proposals

10.1 Discussion of the six measures

We begin the discussion of the above six measures in the reverse order.

Measure 6 is to make analysts became more like true public "watchdogs" as expected by existing securities regulations and the public. Their responsibility becomes to analyze publicly listed companies. They would provide in-depth analysis of each and every listing company's economic health for investors' reference but not advice. [29] Hence every listing company, large or small, would get basic coverage and exposure. The public analysts would also be accountable for any misconduct because they possess potentially price-moving information and credibility as well as publicity.

As of today, sell side analysts (their firms and client investors) are similar to corporate insiders in that they all have the potential of making unfair trading profits based on their information monopoly. Therefore, measures 1-5 are, in principle, similar to the regulatory proposals targeting trading by corporate insiders (Yan *et al.*, 2010d).

[28] Fisch (2010) questions if the regulating agency can be competitive enough to hire and keep research analysts compared to the private sector. This concern may be valid to countries with insufficient financial resources allocated to their regulating agencies and strong private sectors such as the U.S. It may not be a problem for strong government states such as China. Hereby we provide an option. Equity analysis can be contracted by the regulating agency to academic researchers if the agency is unable to keep public analysts.
[29] Some small stocks have never been followed by any analysts. This adverse-selection problem can only be solved by creation of public analysts.

We have demonstrated that the hidden purpose of publicizing a sell-side analyst' research is perhaps often to "tout or trash" the target stock. [30] It can be a part of a manipulative trading strategy. It can also be a marketing tool for the issuer. The more thorough regulation of sell-side analysts' activity would mean to separate publicity from potentially price-moving information. That is, to prevent sell-side analysts from disseminating any stock-related information to the public, and to prevent them from talking about stocks in the media of any form. In this version, analysts could disseminate their research results to paid subscribers only. [31] This regulatory proposal would have the merit of reducing stock price volatility. It would mitigate market wide mania cultivated by sell-side analysts' long term overoptimistic recommendations. Therefore, such a recommendation could be a key element in preventing stock market crises. In our opinion, this proposal might be implemented only by regulating agencies who weigh the consequences of financial crisis more seriously than any other issues.

10.2 Relevant regulations in Sarbanes-Oxley Act of 2002

The Sarbanes-Oxley Act targeted the conflict of interests of the analysts involved in gaining and retaining investment banking business from issuers. It requires analysts to reveal their conflicts of interest, regarding the stocks they discuss, in their reports or media presence. This is a very effective measure. This indicates that regulating sell-side analysts has become an important part of evolution of equity markets.

[30] Perminov (2008, p. 19 and p. 29) argues that information-based manipulation is preferred because mass media has gained enough power over investors to influence their trade decisions. In the meantime, biased analyst opinions have become common. He further argues that massive manipulations of analysts' upward biased opinions may provoke stock market bubbles such as the "dot-com bubble" of the late 1990s.
[31] This proposal *de facto* turns sell-side analysts to buy side.

10.3 China's regulations of 2005

In 2005, the China Securities Regulatory Commission issued a new regulation. Brokerage houses and analysts are prohibited from 1) explicitly or implicitly assuring investors of any investment profits; 2) from colluding with affiliated entities to manipulate stock prices; 3) from providing relevant information to affiliated entities before making evaluations, predictions or recommendations; and 4) from making any recommendations that are in the interest of affiliated entities at the expense of other investors (Lee and Liu, 2008). These are all powerful and targeted regulations. This implies that establishing comprehensive regulations of equity analysts becomes the trend.

10.4 Dodd-Frank Act of 2010

Dodd-Frank Act of 2010 requires separation of proprietary trading from investment banking. The separation may be able to avoid one type of conflict of interests, *i.e.*, the bank serves as the underwriter or advisor to one stock's issuer and a large trader for or against the stock at the same time. This may mean that regulating sell-side analysts needs multiple considerations.

Considering the importance and comprehensiveness in regulating sell-side analysts, our research is aimed at finding proposals to regulate the manipulative trading around public release of analyst-generated information. A set of recommendations made in this paper is expected to provide a more preventive and practical solution that is easy to implement, in order to complement existing securities regulations so that they become more effective, efficient and complete.

11. Concluding remarks

Repeated and large scale evidence from global stock markets in the last 40 years indicate that sell-side analysts possess an information monopoly in terms of price-moving potential, reputation and publicity of their published research through credible media. The information monopoly can turn into great marketing power for issuers; attract underwriting business for investment banks; generate large trading volume and commission revenue for brokerage firms; as well as lift the price in information-based manipulation strategies initiated by proprietary trading departments. However, uninformed investors are not among the primary intended beneficiaries of analysts' information monopoly. Rather, analyst-generated information misleads them and may result in their systematic investment losses.

To improve investor protection, particularly for the uninformed investors, effective measures are proposed for securities regulators as additions to existing regulations. The essence of these proposals is to effectively prevent informed investors from completely utilizing analysts' information monopoly around public release of equity research in their unfair trading strategies. They are expected to substantially reduce the degree of potential price volatility and prevent stock market crises caused by such manipulation based on information monopoly. The final proposal is aimed to reinforce the public "watchdogs" nature of analysts employed (or contracted) by the regulating agency.

The proposals target not only investor protection, they also have direct effects in reducing market volatility and preventing market-wide mania, which, based on the global financial history, often leads to develop into panic. They have constructive effects to building more normal or even perfect competition in the stock market with fairness and transparency.

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