

Gender issues of financial analysts

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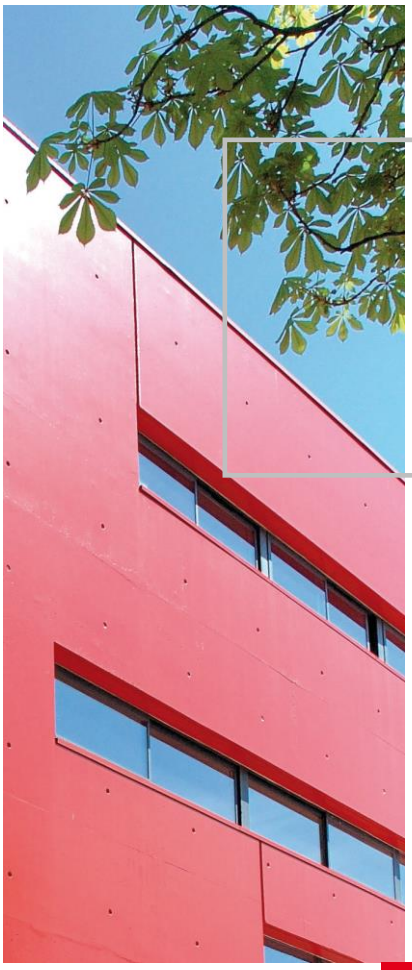
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Mémoire de recherche

Gender Issues of Financial Analysts

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Résumé

Une attention accrue a été portée à la disparité entre les sexes en milieu de travail. Cette dissertation est dédiée à donner un aperçu aux affaires de genre parmi des analystes financiers. Les profondes revues de littérature sont menées sur les affaires de genre et aux analystes financiers, respectivement, afin de comprendre les préoccupations existantes entre les sexes dans le monde des affaires, et le rôle et les fonctions des analystes financiers. Les projets de recherche sont décrits pour répondre aux deux questions suivantes: les analystes financières sont-elles plus susceptibles d'être des analystes «leader» ou des analystes "suiveurs", et les analystes financières sont-elles moins vulnérables aux conflits d'intérêts par rapport à leurs homologues masculins.

Mots clés : disparité du genre, analystes financiers, comportement des analystes financières

Abstract

Increased attention has been drawn to the gender disparity in workplace. This dissertation is dedicated to provide sight to the gender issues in financial analysts. Profound literature reviews are conducted about gender issues and financial analysts, respectively in order to comprehend the existing gender concerns in the business world, and role and functions of financial analysts. Research proposals are described to answer the following question: whether women financial analysts are more likely to be “leader” analysts or “follower” analysts, and whether women financial analysts are less vulnerable to conflicts of interest compared with their male counterparts.

Keywords: gender issues, financial analysts, behavioral pattern of women financial analysts

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1. Introduction

Diversity, including gender diversity, in workforce has been a heatedly-discussed issue in both academia and popular press. Today, the allocation of high profile jobs across gender is still unfavorable for women. This dissertation is dedicated to shed light on the future researches relating to the gender issues in the specific field of financial analysts, a subject that recently enters into the view of scholars and researchers and is not yet scrutinized. Given that abundant studies of gender issues have been documented in the other financial fields, i.e. corporate governance, banking, mutual funds, it would be of great use to a priori have a comprehensive understanding on this existing literature so as to address these gender concerns in the world of financial analysts. Hence, the dissertation is composed of three parts: section 1 concentrates on the review of extant literature concerning the gender issues; in the section 2, the researches pertaining to financial analysts are discussed; and finally, in the section 3, I will take a closer look at the application of existing theories in the field of financial analysts along with a summary of extant researches relating to this topic.

2. Literature Review of Gender Issues

In the last two decades, researchers were inclined to address the gender concerns in financial world by apply the fruit from psychology and sociology. The review of gender issues in the financial world would mainly focus on corporate board, since the majority of extant literature concentrates on this peculiar field. But researches related to other fields would also be mentioned if interesting articles have been found within the limit of time. In the following parts, would be discussed in detail the status quo for women leadership in the corporate board, the change observed subsequent to the presence of women members, relevant theories assessing the gender issues, and existing solutions to deal with such concerns.

2.1 Panorama for Women Representation

Before any profound analytically-oriented researches about the gender issues in finance, studies of descriptive nature such as the census of women figures, would be a priori an indispensable knowledge so as to depict a panorama for this particular subject. Customarily, two major statistics referring to the women representation in the boardroom are reported: the percentage of board seats occupied by women and the percentage of firms having one or more women directors on board (Burgess & Tharenou; 2002). And the preference to the percentage instead of the number of women directorship is attributed to the declining board size observed in the sample firms. Concerning this part, most of the available and accessible data are collected from U.S. companies.

Based on the data from unregulated firms listed in the Fortune 1000 from 1990 to 1999, earlier empirical findings of Farrell & Hersch (2005) confirm a considerable increase in the percentage of women board directors from 5.6% to 12.26% during the sample period. Moreover, the percentage of firms with no women representation in their board of directors has declined enormously from 47.02% in 1990 to 12.6% in 1999. However, it is worth mentioning that the majority of these sample firms (87.39% in 1999) documents three or even less seats held by women directors.

More recently, according the annual research launched by the Catalyst on basis of data collected within the America's largest corporations (Fortune 500), the total number of women board directors has enjoyed a steady increase since 1995 (from 9.6% to 16.6%[1] in 2012). As for the women executive officers, the descriptive statistics were not available until 2009, as presented in the following table, the presence of women executive officers has increased dramatically in 2010 before a notable decline in 2011.

Year	**2009**	**2010**	**2011**	**2012**
Women Executive officers	13.5%	14.4%	14.1%	14.3%

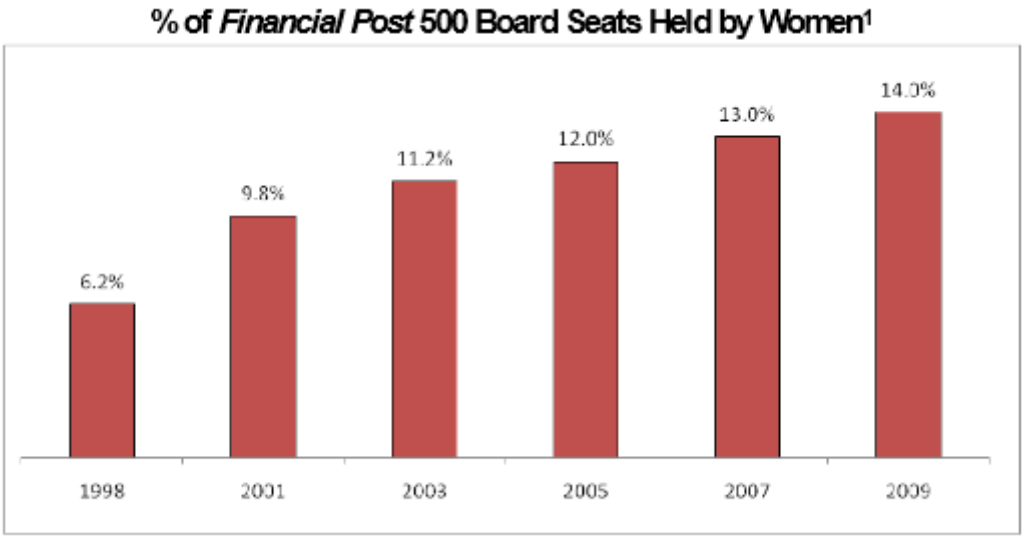
Notwithstanding the existing affirmative actions and quota-based policies, women remain as a minority in the arena of corporate governance: until 2012, one-quarter of the targeted firms have reported no women representations in their executive officer positions. A relatively better scenario was documented for the board of directors: women are completely excluded from the board in around one-tenth of the fortune 500. Nevertheless, Even within the sample firms where women figures are observed in their business of corporate governance, only one-fifth have at least 25% board seats held by women, while 27% of these firms recruit 25% or more women executive officers.

And among all the positions in board of directors, it is most likely for women to be nominated as members of Nominating and Corporate Governance Committee, followed by Compensation Committee, Audit Committee, and finally, the Executive Committee is proved to be the one where women representation is the lowest (Dalton & Dalton; 2010).

With regard to women representations of board directorship in other countries, data from Catalyst indicates that in Canada, the situation for the women board director is even dimmer than in the U.S., a frustratingly slow increase is documented from the survey organized by the

[1] Data available in the website: http://www.catalyst.org/knowledge/fortune-500-board-seats-held-women

Catalyst for the Fortune Post 500[2]: an increase of 7.8% from 1998 to 2009 is observed in Canadian major companies, which appears to be a fairly striking improvement. However, the women representation in Canada still considerably lags behind their American counterpart: 14.0% vs. 15.2% in 2009.



Finally, Adams & Ferreira (2009) documented in their paper that the percentage of female board directors in Australia, Europe and Japan is estimated to be respectively 8.7%, 8.0%, and 0.4%. Such variation in the women representation across the world suggests a noteworthy country-level difference in this field. In support of that, McKinsey & Company (2007) launched the international survey in 2006, the results of which indicate that there exists a sheer variation in percentage of women top executives within the top 50 firms per country from one European country to another: in Norway, women occupy 32% of executives committees against a striking 1% in Luxemburg.

2.2 Consequences Attributable to the Presence of Women Members

In this industrialized society, as more women enter the business world, increased attention is spared to women's different method in assuming their responsibility. For instance, targeting the women board directors in service, some empirical researches also seek to determine the consequences to the presence of women figures in the boardroom. Increasing attention has been paid to explore the role of women board directors, and their potential contribution to the effectiveness of boardroom, especially for certain countries where quota-based formal regulations/laws have been adopted: e.g. Norway.

[2] Data available in the website: "Women in Management in Canada" http://www.eurekablogue.ca/wp-content/uploads/2009/02/qt_women_in_mgmt_in_canada.pdf

In the early days, the appointed women board directors admitted that their directorship has a limited and tokenistic impact on the companies, mainly helping to establish a positive perspective for female employees working for the company, and increase the "board sensitivity to issues affecting female employees" (Burke; 1997). However, with the unceasing increase in the women directors on board, more profound impacts have been observed consequent to the female presence. For example, in view of the data collected from Standard & Poor's (S&P)[3] during the period from 1996 to 2003, Adams & Ferreira (2009) summarize from their empirical findings that women directors bring about notable changes to the corporate board in at least three principal aspects: 1) Board inputs: compared with male directors, the attendance problem with women is less severe in a general way, especially in monitoring-related committees, but more severe in compensation committees. And the attendance behavior of male directors is improved in the conjunction with the presence of increased women directors, given the fact that the possible effect of peer pressure has been ruled out. 2) Board governance: with a presence of gender-diverse board, CEO turnover is more sensitive to stock return performance and directors of board are more likely to receive equity-based compensation. But no significant impact of gender-diverse board is observed on the CEO's compensation and payment, consistent with less attendance of female directors in the compensation committees. 3) Corporate financial performance: on average, the presence of a greater gender diversity of board is associated with a worse firm financial performance, an alarming result contrary to the previous studies in which a positive association between the gender-diversity in the boardroom and firm financial performance has been concluded (e.g. Erhardt & Shrader; 2003, Carter et al.; 2008). The authors argue that additional board monitoring stemming from improved attendance of monitoring committees is detrimental to companies, especially those with an adequate existing governance mechanism. But on the other hand, diverse boards add value to firms with otherwise weak governance. Moreover, it should be noted that all the previous researches referring to the gender mix and firm financial performance assess merely the link between the two factors: no causation is determined!

Additionally, Krishnan & Parsons (2008) explore the association between gender diversity in senior management and earnings quality by comparing the quality of reported earnings for firms with higher percentages of women managers to those with fewer women. The authors use four proxies to measure the quality of reported earnings: asymmetric timeliness, earnings skewness, accrual management, earnings smoothness, loss avoidance tendency, and earnings

[3] Including S&P 500, S&P MidCaps 400, S&P SmallCaps 600

persistence[4]. Based on data from Fortune 500 companies in the 1996~2000 time frame, the results provide evidence that firms with higher percentage of women in senior managements enjoy a quicker recognition of bad news than good news, more negatively-skewed earnings distribution, less accrual management, lower earnings smoothing, lower tendency for loss avoidance and greater earnings persistence, all of which confirms a higher earnings quality for firms with higher percentage of women senior managers. Thereby, the authors conclude that quality of reported earnings is positively related to gender diversity in senior management.

As a large body of studies has explored in this area, the research scope has also been broadened: in addition to the aforementioned researches using data from a simple context: the U.S. companies, there is a growing number of non-U.S. studies emerging in the relevant literature, which facilitates the comparison among different countries (areas). For example, in purpose to fill the gap in studies concerning gender differences in developing countries, Ye et al. (2010) examine the relation between female top executives and firm earnings quality, using a large sample of Chinese public listed companies. Female Chief Executive Officers (CEO), female Chief Financial Officers (CFO) and female Chair of the Board (CB) are considered as top executive that influence most profoundly the earnings quality, which is measured, in the same vein of prior literature, respectively by earnings persistence, accuracy of current earnings in predicting future cash flows, association between earnings and contemporaneous stock price performance, and absolute magnitude of discretionary accruals. The sample consists of all public listed firms "with available data in the Chinese A-share market" in the 2001~2006 time window. The results find no evidence of earnings quality difference in companies led by female and male executives within the context of an emerging economy, China. The authors provide two plausible explanations for this phenomenon contrary to what has been documented for developed countries: 1) since the establishment of communist China in 1949, the "propagation of socialist egalitarian ideology" eliminates, especially in large cities and in well-educated circle, the gender difference in social role expectation and ethical values; 2) Chinese female executives confront more barriers in their

[4] "Asymmetry timeliness" refers to the phenomenon that the association between accounting earnings and stock prices is greater when the bad news is conveyed. Hence, greater asymmetric timeliness implies higher earnings quality. "Earnings skewness" is measured by skewness coefficient of earnings: a negatively-skewed earnings distribution indicates a greater accounting conservatism, a characteristic of high earnings quality. The accrual is measured by the difference between net income before depreciation and operating cash flows: less accrual management suggests greater conservatism. "Earnings smoothness" is the ratio of standard deviation of accounting earnings to standard deviation of cash flows, which is positively associated with earnings quality. "Loss avoidance tendency" is measured as the ratio of "small profits" to "small losses", which is negatively linked with earnings quality. "Persistence" implies the degree to which previous earnings predicts the current earnings. The greater earnings persistence indicates higher earnings quality.

career ladder to the top management, which prevents them from performing their competence in the corporate arena.

With regard to the corporate financial performance, a research conducted in Spain indicates that gender mix in the boardroom exerts a positive influence on the firm value (Campbell & Minguez-Vera; 2008). Another unique study concerning 201 Norwegian firms examine the contribution of women on board by surveys distributed to CEOs of Norwegian firms with 50~5000 employees (Nielsen & Huse; 2010). The analysis about the responded surveys reveals that the presence of women on boardroom would effectively increase the board development activities and at the same time reduce the level of conflicts, both of which eventually help to improve the board effectiveness after controlling for the interested variables like industry-specific effect, outsiders directors and CEO duality. Also, based on the data internationally collected from survey of KPMG and the Women on Boards Report from Governance Metrics International, Fernandez-Feijoo et al. (2012) document a close association between the women presence in the boardroom and the firm's disclosure of Corporate Social Responsibility (CSR), indicating that the presence of at least three women board directors would significantly improve the level of disclosure concerning the CSR strategy for the company. In summary, it seems that the presence of more women figures in the boardroom generates more benefits than detriments to the board dynamics.

In the context of banking, Beck et al. (2009) examine the influence of loan officers' gender on loan performance, using the data from commercial banks in Albania from January 1996 to December 2006. The tests reveal that arrear probability of female loan officers is 3.9% lower compared with male loan officers, with an average arrear probability of 13.5% for the whole sample. The findings suggest that female loan officers outperform their male counterparts, given that the loans screened and monitored by female are less problematic for both female and male borrowers, as demonstrated in the following table. And the authors further argue that the outperformance of female loan officers is not due to the different experience level, acceptance of applicants, and workload between genders. Rather, female loan officers exert monitoring their clients.

Average Arrear Probability			
	Female Borrowers	Male Borrowers	All Borrowers
Female Loan Officers	7.8%	13.5%	12%
Male Loan Officers	11.5%	16.6%	15.7%

2.3 Theories Addressing the Gender Disparity

Apart from the relevant consequences to women presence in financial world, researchers are also eager to ascertain the reason why women are persistently underrepresented in most of the circumstance. For instance, in corporate board, women directors remain minority despite all the potential benefits attributable to a more diversified boardroom. Theoretically, reasonable explanations for such a gender disparity could be broadly sorted into two main categories: one focuses on the dispositional factors that affect the self-selection, while the other advocates the gender discrimination caused by situational factors.

The **occupational self-selection hypothesis** insists on the gender difference in preference and abilities. This hypothesis is founded on the common sense that by nature and by nurture, women are different from men in many aspects, not only physically but also psychologically. And such dispositional differences originated from gender impel them to have different job preference and expectation when it comes to the career choice. Empirical findings in the domain of behavioral finance evidence gender differences in the following dispositional factors: 1) **Risk aversion**; women are more risk averse than men at least in the field studies (Eckel & Grossman; 2011), hence, once they enter the financial world, such stronger risk-aversion makes them reluctant to invest (Charness & Gneezy; 2012), unless sufficiently qualified information is available. 2) **Competiveness**; women may have less effectiveness than men in competitive environments, even if they are capable of the same performance within noncompetitive environments and the situation worsens when women have to compete with men instead of with other women (Gneezy et al.; 2003). Although competition has a positive influence on performance, such influence is stronger on men than on women. This might account for the rarity of women labors in financial world, which is labeled as a workplace full of competition. 3) **Ethnic values**; the consensus of psychological and sociological literature reveals that women usually attach more importance to ethnic values. More ethical, women executives are less intended to trade on insider information and exhibit more participative spirit in their leadership behavior compared to male leaders (Eagly & Johnson; 1990). Overall, they appear to have more sense of cooperation and care more about others' self-worth (Eagly et al., 2003). 4) **Overconfidence**; "Overconfidence" is usually measured in two methods: miscalibration and illusory superiority. The former refers to the tendency to overestimate the precision regarding the information value, while the latter, also referred to as better than average effect (BAV), indicates that one tends to overestimate his/her own positive qualities and abilities. Empirical research reveals that men are more

likely to be overconfident than women in many aspects including investment decision making.

For example, recently, in the context of corporate finance, Huang & Kisgen (2013) examine whether male executives also exhibit overconfidence in different corporate financial decision making relative to female counterparts. The research is based on a difference-in-differences framework which compares activity of firms before and after the male to female executive transition with a control group of firms always under the leadership of male executive; for the purpose of avoiding the selection bias. The sample consists of CEO and CFO with available information in ExecuComp in large U.S. listed firms in the wake of 1993 through 2005. The results suggest that female top executives are less likely to make acquisition and issue debt, which leads to a slower growth of firm size and a lower leverage ratio after the male-to-female executive transition. And the investors are well aware of the overconfidence exhibited by male executives: the cumulative abnormal returns toward the announcement of acquisition and debt issuance undertaken by male top executives are significantly lower compared with firms led by female executives. Further, the authors also find evidence that men executives are more likely to undertake value-destroying acquisitions and consequently are more likely to be replaced (staying less than four years in the same position), which rules out the competitive explanation of women risk aversion. All in all, the authors consent that male top executives are overconfident when making corporate decisions relative to female counterparts.

Alternatively, the **discrimination hypothesis** suggests that women suffer from gender discrimination in the recruitment as well as during their career life. For example, male-dominated workplace might prefer to recruit male rather than equally qualified women and that women candidates have to be over-qualified in order to overcome the discriminatory preference. Even worse, research indicates that even female interviewers tend to regard male applicants as being more qualified and competent (Graves & Powell; 1995), probably due to the existence of gender-based envy[5]: female interviewers might view the women candidates as their competitors, who will sabotage their career life in the future. Neumark (2006) has documented evidence of sex discrimination toward women applicants in restaurant hiring, significant differential confirmed in probability of receiving an interview as well as receiving a job offer between the two genders with comparable quality. Bellucci et al. (2010) have also

[5] In the dictator game conducted by Ben-Ner et al. (2004), in which individual is offered a fixed amount of money and asked how much, if any one would like to share it with another, the results show that women participants give less money in case that the receiver is also woman, confirming the existence of gender-based envy.

confirmed gender-based discrimination in credit market against female-owned business. Based on 7800 credit lines available to individually-owned small business in two Italian provinces from September 2004 and 2006, the authors provide evidence that female borrower, though not suffering from higher interest rates, are discriminated "in terms of collateral requirements and credit availability" after controlling for firm-specific characteristics in owner's business and relationship between borrowers and lending banks. And the authors further argue that this gender-based discrimination is not driven by lack of information, rather the lender's preferences toward male entrepreneurs and deeply rooted beliefs about female owners. However, researches addressing the existence of gender discrimination in the arena of corporate board present twisted opinions to date. The experience-based-bias hypothesis argues that women have not acquired enough professional talents, which ensure their position in the boardroom. In contrast, the sex-based-biased argument suggests that male-dominated mechanism cut women off from the board regardless of their qualification.

In the real world, obviously, there is no sharp cut-off between these two hypotheses. Researchers suggest that the existing underrepresentation of women in the financial world results from the factors rooted in both of the abovementioned hypotheses, e.g. gender stereotypes, lack of connection to the networks, and limited qualified candidates, all of which would be discussed in detail as follows:

2.3.1 Gender Stereotypes

The prejudice against women in the financial world is partially due to the long-existing gender stereotypes: a simplistic generalization about the roles and attributes of each gender. Sometimes, it appears that some gender-based stereotypes could potentially explain economic phenomenon, i.e. women being more risk averse than men (Charness & Gneezy; 2012), women demonstrating softer leadership than men (Eagly et al., 2003). However, the over-reliance on gender stereotype harms individual development and group dynamics as well. For instance, the fact that women directors possess different leadership from male directors does not necessarily imply that women-styled leadership will not succeed in contemporaneous organizations. In the light of social role theory, leaders' behavior in their professional life reflects the dual-influence from both gender role and leader role. While men and women assume different gender role in social division, which embodies the sexual stereotype, the leader role for both genders remain the same in the organizational level. Logically, in spite of possible gender role's effect on managers, leader role should exert the dominant effect when one assumes his/her organizational responsibility. According to the studies of leadership styles, three primary leadership styles have been labeled by prior researchers:

transformational leadership, transactional leadership and laissez-faire leadership. As cited from (Eagly et al., 2003),

> *"…Transformational leadership involves establishing oneself as a role model by gaining the trust and confidence of followers… transactional leaders, (are those) who appeal to subordinates' self-interest by establishing exchange relationships with them…laissez-faire style (refers to the style) that is marked by a general failure to take responsibility for managing."*

Abundant researches have confirmed the positive association between transformational leadership and group effectiveness. Further, the empirical findings substantiate that women's leadership style is more transformational than men's, even though the difference is small, implying that women are better leaders than men.

But the reality confirms the opposite: leader role is presumed to be incompatible with female gender role. From the perspective of widely-accepted and deeply-rooted gender stereotypes, men are assumed to be "agentic", excelling at decision-making, independency as well as rationality, while women are expected to be "communal", possessing characteristics such as caring for others, warmth, and helpfulness (Hoyta et al.; 2009). By and by, since men dominate lead roles in the real business world, agentic traits have been considered to be masculine and closely associated with an effective leadership (Eagly & Karau; 2002). And women have to acquire such "agentic" traits if they want to have an equal likelihood to be promoted in their career ladder as their male counterparts (Kent & Moss; 1994). In support of this argument, Ledet & Henley (2000) document that people perceive "women in high positions as more masculine than men (women) in low positions and as masculine as men in high positions". Nonetheless, male are still more likely to be born with such masculine traits, which would naturally grant them with an increased chance to emerge as leaders in the corporate board under the conjecture that "agentic" traits account for an efficient leadership.

2.3.2 Connection to the Networks

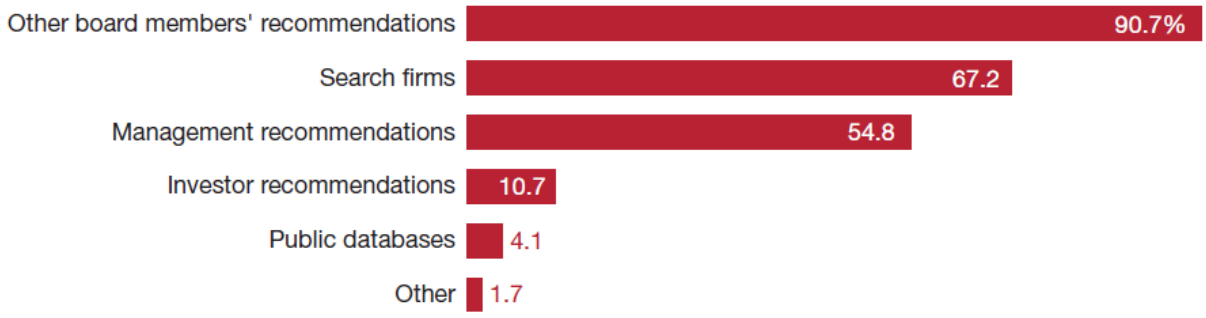
The lack of connection to the networks might also incur the underrepresentation of women in the labor market. Women employees always complain about their limited exposure to the old boys' club which is not sufficiently wide or pervasive (Jenner et al.; 2008). According to the "Clarkson Centre-PricewaterhouseCoopers 2009 Directors Survey in collaboration with the Institute of Corporate Directors[6]", the recruitment of new board directors still deeply relies on the recommendations from the board members in service, especially the attitude of CEO and Board Chairman (Burke;1997). Their immutable position in encouraging the diversity within

[6] http://www.pwc.com/en_CA/ca/directorconnect/publications/directors-survey-2009-11-23-en.pdf

the corporate board will undoubtedly impulse the representation of women directors into a new height.



Additionally, a more recent survey is launched by PricewaterhouseCoopers[7] alone, established on the data from their audit clients, composed of 860 public companies. The feedbacks reveal basically the same situation:



The most common resource used by the companies to recruit new board directors is the recommendation of someone they know well, e.g. the existing board members. Hence, such unavailability of the informal but crucially influential networks has hindered the women's presence in the corporate board, leaving them invisible to the companies searching the potential candidates for their board of directors. And for women who manage to enter the circle, generally speaking, their limited connection to the networks would hinge their "access to inside information in comparison to their men counterparts", even if they possess equal formal status (Bharath et al; 2009). The analysis of open market insider trading of shares in U.S. over the period January 1975 and October 2008 indicates that both male and female executives are capable of earn positive returns through insider information. However, men

[7] "Insights from the Boardroom 2012 Board evolution: Progress made, yet challenges persist" http://www.pwc.com/en_US/us/corporate-governance/annual-corporate-directors-survey/assets/pdf/pwc-annual-corporate-directors-survey.pdf

executives conduct more trade and yield greater returns than female executives, even after controlling for formal ranks. The authors argue that the outperformance of male executives is attributable to their better access to the information inside the network and summarize two reasons why female executives are less exposed to networks. The human capital perspective suggested by Ibarra (1992) asserts that women's lack of connection is caused by the gender differences in terms of achievement and formal position with men occupying most of the top executive position. On the other hand, the systemic barriers perspective proposed by Morrison & Von Glinow (1990) suggests that gender disparity in the connection to network results from the "expectations and biases of organizational members". Men are proved to be more likely to form homophilous tie across all kinds of networks (i.e. communication, advice, support, influence, and friendship networks[8]) while women show more heterophily in instrumental networks (i.e. communication, advice, support, influence networks) and only remain the homophily in expressive networks (i.e. friendship network) (Ibarra; 1992).

2.3.3 Qualified Women Candidates

Besides the insufficient connection to the network, the lack of seats occupied by women in the boardroom could also be attributable to the limited supply of qualified female candidates available in the labor market. Historical trajectory indicates that originally, a small proportion of female university graduates choose to stay in the top management position: in France, for instance, only 8% of the female university graduates in 1975 still work in the domain of top management 30 years after their graduation (McKinsey & Company; 2007), suggesting a root drain in the women candidates that hinges the increase of women participations in the business arena. And among those who survive, Burgess & Tharenou (2002) argue that women have less high-occupational experience in marketing and corporate operations within large-scale and for-profit companies. This shortcoming could eventually prevent them from obtaining the seat in the boardroom. And the "golden skirt" dilemma in the scene of Norwegian companies subsequent to the introduction of quota-based policy justifies, in another way, this factor affecting the underrepresentation of women board directors: in short of qualified women candidates, public companies desperate to fulfill the regulatory demands before the deadline have to recruit women who occupy already board seats in other equivalent companies. These busy women directors who accumulate the directorships in bulk are honored as "golden skirts" (Audun Farbrot; 2012). Huse (2011) has documented totally eight

[8] The terms of communication, advice, support, influence, and friendship networks refer to persons that are defined respectively as follows: (1)"with whom you discuss and exchange information"; (2) from whom you obtain professional advice; (3) "that you know you can rely on as allies"; (4) "of who you have personally affect the important decision"; (5) "who are friend to hang out after work".

women who possess accumulatively 16 board seats from 2007 to 2010, as cited by (Audun Farbrot; 2012), after a detailed analysis concerning the composition of boards in Norwegian public firms. Even in the country with no such enforced quota-based policy, the same scenario could also be found. As reported in the article of Crabtree (2011), the survey commissioned by the Financial Times from the Corporate Library identifies 21 women with four or more board seats in large U.S. companies, compared with 59 men in the same situation. Given the ubiquitous underrepresentation of women directors in U.S. (15.7% in the Fortune 500 in 2010), women are twice more likely to become super-connected directors, indicating a tremendous gap between the existing demand and supple. Clearly, are always in demand women candidates with desirable capacities subsuming strategic thinking, relevant experience, and professional skills in law or finance, as well as confidence (Jenner et al.; 2008).

2.4 Solutions to Surmount the Barriers

The persistent and universal under-representation of women directors in the boardroom has always been an intriguing issue attracting tremendous attention from both the academia and the public press. However, notwithstanding their common concerns, the former seeks to determine the impacts (both positive and negative) of demographic diversity on the corporate governance, while the latter rather purely concentrates on the gender parity, pursuing to increase the number of seats occupied by women in the boardroom. And this is what Fitzsimmons (2012) refers to as a noteworthy divergence in the major appeals between these two most active parties: **gender parity** *vs.* **good governance goal** of increased gender diversity. The former appears to be more superficial than the latter, sparing no effort to increase the number of women board directors itself rather than the benefits to be yielded from improved gender diversity in the boardroom.

Nevertheless, prior to the achievement of either goal, different impediments (as mentioned in section 1.3) should be surmounted for women to rise in hierarchies of influence and power. And after detailed and comprehensive studies on the gender issue in the boardroom, researchers have come up with several practical ideas to assess the existing issues. Hereafter, certain solutions would be presented and criticized.

2.4.1 Oriental Regulations

Due to the greater press exposure, shareholder's pressure and closer interaction with the government, large companies appear to be more motivated to develop the gender diversify in the boardroom in the interest of escaping from the public critics. Thus, in the spirits of agency framework, the preferential position of government might accelerate the corporation's

movement toward gender mix through the political role of outsider directors with background/earlier experiences in politics or laws. In other word, the gender diversity in board could be motivated in purpose to curry political favor and create political benefits, if government attaches great value to diversity or equal employment. However, earlier research fails to confirm the positive influence of governmental taste for diversity on the increase of women directorship (Agrawal & Knoeber; 2001). Using the sample of 264 U.S. manufactory firms for the year of 1987, the authors regress the number of women outsider directors on the importance of politics and compare it with the results from electricity utilities, which are assumed to attach more importance to politics subsequent to a transition toward retail competition in 1989. The findings provide little evidence that government's taste would exert positive influence on the women representation in the boardroom. The expertise and capacity of women directors still mostly account for their presence in the board. Hence, the policymakers have to introduce some compulsory regulations to orient the corporation's prospect in terms of demographic diversity, giving birth to the quota-based policy.

Indeed, it would be rather easier to achieve the pure gender parity in the boardroom by means of insuring women's access to the seat of board in a compulsory method supervised by the governmental institutions, as what the quota-based policies adopted by the regulators is aimed at, e.g. the new Section 6-11a of the Norwegian Public Limited Liability Companies Act which has entered into force on 1st January 2006, requiring the women representation in boardroom to attain in minimum 40% for all the Norwegian Public Limited Liability Companies in the wake of the following two years.

But, in no circumstance is the quotas-based policy the panacea to mitigate the prevalent gender disparity in the boardroom in spite of its immediate and significant effect on augmenting the proportion of women directors. Concerned more about the good governance goal, the relevant researches suggest that the impact of gender diverse board on the firm performance is fairly complex, and varies with the existing governance within the firm (Adams & Ferreira; 2009). In spirit of the market efficiency theory, any imposed interference from the authority risks to hinder its performance. And Ahern & Dittmar (2012) conclude from their empirical research that the voluntary approach works most efficiently in terms of finding the equilibrium between the increase of the firm performance and the improvement of gender diversity on boards. Although the coercive approach seem to have an immediate and significant effect on improving the demographic diversity, such an achievement is completed at the cost of the firm performance.

2.4.2 Firm-Specific Policies

The internal preference always works better than external pressure. Similarly, compared to the unobservable impact of governmental taste as well as rough quota-based policies initialized by the policymakers, it would be of more use and efficiency to launch firm-specific policies that best suit the corporate situations, so as to develop more diversified corporate ambiance. Different pipelines could be viewed as crucial to the appointment of women board directors, summarized as follows: 1) Sound **internal promotion system** to motivate women employees by providing career ladders (Burgess & Tharenou; 2002); 2) nominating at least three women on board Fitzsimmons (2012): one woman viewed as tokenism, two as conspiracy, the group of three or more women members starts to constitute a magic **critical mass** in the boardroom, beneficial for group dynamics (Konrad et al.; 2008); with the presence of at least three women, none of them is perceived to represent the entire gender, thereby, divergence in opinion is allowed to happen between women directors. And the fact that women do not always unanimously have the same opinion is a healthy phenomenon in the eye of male directors. 3) Broadening and professionalizing the **search** for women candidates: search firms could be mobilized in order to break the limits of "old boys' circle" and a nomination committee formed to standardize the recruitment procedures.

All of these aforementioned firm-specific guidelines are expected to improve the demographic diversity in the boardroom, but not at the expense of jeopardizing the normal function of corporate board.

2.4.3 Self-Perfection for Women

Last but not the least, it would be of great importance and necessity for women to persist in their self-perfection and self-development, especially when they want to earn their place in a masculine arena. In the spirit of director nominee wish list gleaned in the "PwC's Annual Corporate Directors Survey" (2012), the corporations commonly highlight the industry expertise, followed by financial expertise at the occasion of replacement or new recruitment of board directors. The concerns for demographic diversity are, however, ranked as secondary issues. Hence, it could be seen that women candidates have to acquire specific and profound knowledge so as to be accepted as a qualified directors. Practically, Burgess & Tharenous (2002) have gleaned several advices for women to obtain their directorship: 1) creating a public image to increase the visibility; 2) extending the professional skills and high-profile experiences through training and development; 3) developing the networks to make acquaintance of the "right person" or the potential mentors who could give them recommendations and advices.

All in all, the review of exiting literature about gender issue in the financial world depicts the status quo and provides possible explanation and solution to women's underrepresentation, which will with no doubt shed light on the issues about women financial analysts. In the following section, researches concerning financial analysts are discussed in detail.

3. Literature Review of Financial Analysts

Financial analysts are assumed to play an important role in the allocation of economic resources. Given their importance and indispensability, since 1990s, a large body of researches is dedicated to explore this subject with different perspective and directions. Scholars are intended to define different roles of financial analysts, determine input that analysts work on, study different aspects of analyst's productions, analyze the potential bias, document market reactions to their different outputs and explore the impact of relevant regulations, all of which will be presented as follows.

3.1 Roles of Financial Analysts

By definition, financial analysts are "individuals who perform investment research and examine the financial condition of a company or group of companies in an industry and in the context of the securities markets" (Barron's Finance & Investment Dictionary). They interpret the public information while collecting private information useful in determining the appropriate price of followed stocks (Ramnath et al; 2006). Having long been seen as sophisticated processors of financial information, they are presumed to help the "naïve" investors to allocate their resource in a more efficient and rewarding way. And broadly speaking, they could be categorized into different groups on basis of different criteria. In principal, according to analyst's core business field, there are two main types of financial analysts: credit analyst and equity analyst. The former evaluates firm solvency, while the latter measures firms' future prospects as well as profitability. Alternatively, according to their workplaces, financial analysts can be sorted into three categories: sell-side analysts (usually employed by a stock brokerage house, bank, or investment institution), buy-side analysts (working for institutional investors) and independent analysts (in independent research firms).

Evaluation	Dependency
Credit analyst	Sell-side analyst
Equity analyst	Buy-side analyst
	Independent analyst

Usually, ordinary people are most familiar with the sell-side ("Street") analysts, because the information about their productions (stock recommendations, earning forecasts, target prices and research reports) is, in most circumstance, publicly available. Thus, it is possible for the market to measure their performance by different criteria: forecast accuracy, stock coverage and other non-quantifiable factors such as the client service, brand relationship and so on. It is their main task to provide external customers with insights on the firms they cover. More specifically, their role of information dissemination could be described as gathering the information, analyzing the collected information to form recommendation/forecasts, and eventually presenting to the "buy-side" customers their outputs and financial models (Michaely & Womack; 1999). And their compensation is primarily based on two parts. The first is analyst's external reputation: whether analyst is listed or not in the *Institutional Investor All-American Research* team or the *Wall Street Journal's Survey of Award Winning Analysts*. The other part pertains to analyst's ability to create profits and revenues for his employers (not for his clients), generally stemming from analyst's involvement in the underwriting business and commission generated by the transactions for stocks covered by analysts (Michaely & Womack; 1999). In the later section would be discussed the conflicts of interest due to the two different revenues sources.

3.2 Inputs of Financial Analysts

Financial analysts need to collect various information available to them, before conducting their analysis. Information that they have access to is determinant to what they could deliver to their clients. Earlier researchers have used different methods to ascertain the information that analysts use to produce outputs: surveys, content analysis, protocol analysis, laboratory experiments, and archival studies, as summarized by (Ramnath et al. 2006). Generally, financial analysts obtain abundant information by studying public records and filings disclosed voluntarily and mandatorily from the covered company (e.g. corporate annual reports, financial statement), as well as by participating in public conference calls which provide them with opportunities to directly communicate with the management. Hence, large companies usually have a greater analyst following, in that they are intended/ obliged to disclose more information to the market. Further; analysts also rely on management for additional and private information, a phenomenon that induce the adoption of Regulation of Fair Disclosure and Sarbanes-Oxley Act, respectively aimed to forge an equal access to information for all investors and to increase the amount and quality of disclosed information.

3.3 Outputs of Financial Analysts

The output variables of financial analysts consist of earnings forecasts, target prices forecasts (much less used), investment recommendations and conceptual reports which present extensive quantitative and qualitative analysis rationalizing the three key measures.

3.3.1 Forecasts

The financial analysts' forecasts (FAF) is assumed to play an important role in the marketplace, which could be justified by four motivations as summarized by Coën et al. (2009): 1) basically all the valuation models are based on the earnings forecast; 2) the expected earnings, measured by the FAF, are essential to the research about financial statement information and stock returns; 3) the FAF is linked with the predictability of stock returns; 4) FAF, treated by the market as a source of information per se, could influence the "level and volatility of stock price". Conventionally, analysts issue forecasts about earnings and target price, although the latter becomes less common in the present days. In the researches related to earnings forecasts, two indicators are frequently applied: forecast accuracy and forecast dispersion.

3.3.1.1 Forecast Accuracy

The forecast accuracy, defined as the absolute/square earnings forecast error, is important to both investors and individual analysts. For investors, the accurate forecasts are the essence to a profitable investment. And for the individual analysts, their reputation and compensation are largely dependent on their ability to issue accurate forecasts (Ramnath et al; 2006). It is universally acknowledged that financial analysts differ in their professional skills of forecasting and a large body of studies has examined the factors that could explain the variation of forecast accuracy observed in the marketplace. Theoretically, greater analyst's aptitude along with more efforts and information availability introduce higher forecast accuracy. In spirits of that, Jacobs et al. (1999) are attempted to offer reasonable explanations to the variation of forecast accuracy by regressing forecast errors[9] on the following variables:

Regressor	Coefficient sign
Forecast horizon	+
Change in analyst	?
Experience	-

[9] Contrary to most researches that use the absolute/square value of forecast errors to proxy for the forecast accuracy, the authors use the two alternative methods to avoid the difference in forecasting complexity: 1) the ratio absolute forecast error (AFE) of individual analyst divided by mean AFE following the company minus 1; 2) the rank among all AFE for the same company-quarter.

Company followed	+
Frequency	-
Industry specialization of analyst	-
Broker house size	-
Industry specialization of broker house	-
Turnover in broker house	-

As presented in the table above, the forecast accuracy increases when the forecast horizon decreases since normally more information, both public and private one, would be available in the market. And when analysts have more company-specific experience, their forecasts also appear to be increasingly accurate. Hence, it seems that analysts learn to better forecast the followed companies as time goes by. Also, forecast frequency is positively associated with forecast accuracy. On the other hand, forecasts become less accurate when the analyst follows more companies. The authors argue that as the workload increases, the subsequent diffusion of focus would result in less effort spared to refine the forecast. But no decisive evidence is found that change in the analyst following company would induce decrease in analyst forecasting accuracy. Turning to the internal environmental factors, the findings suggest that forecast accuracy augments with broker house size and industry specialization probably because larger and industry specialized broker houses process closer liaison with company managers, thereby have easier access to information. Moreover, the increase of outgoing turnover, probably caused by broker house's inability to retain well-performed analysts leads to a reduction in forecast accuracy. However, among all the aforementioned findings, the authors query the validity of the positive effect that analyst experience exerts on the increase of forecast accuracy, arguing that it might result from the survival of most competent analysts or "optimal" analyst company pairing. In order to test the robustness of effect from experience, the authors rerun the regression after controlling for the analyst's company-specific expertise. The outcome indicates that analyst's experience exerts no significant influence on the level of forecast accuracy. Further, the authors create subsamples according to analyst-company and analyst-brokerage realignment, which allows to "measure accuracy of analysts with different types of forecasting experience". The lack of learning among the successors observed in the regressions confirms the conjuncture that experience does not account for analyst's performance in forecast accuracy.

Apart from that, the company that analyst follows also affect analyst's forecasting accuracy. The types of earnings (profits vs. losses) and the variation in earnings (increases vs.

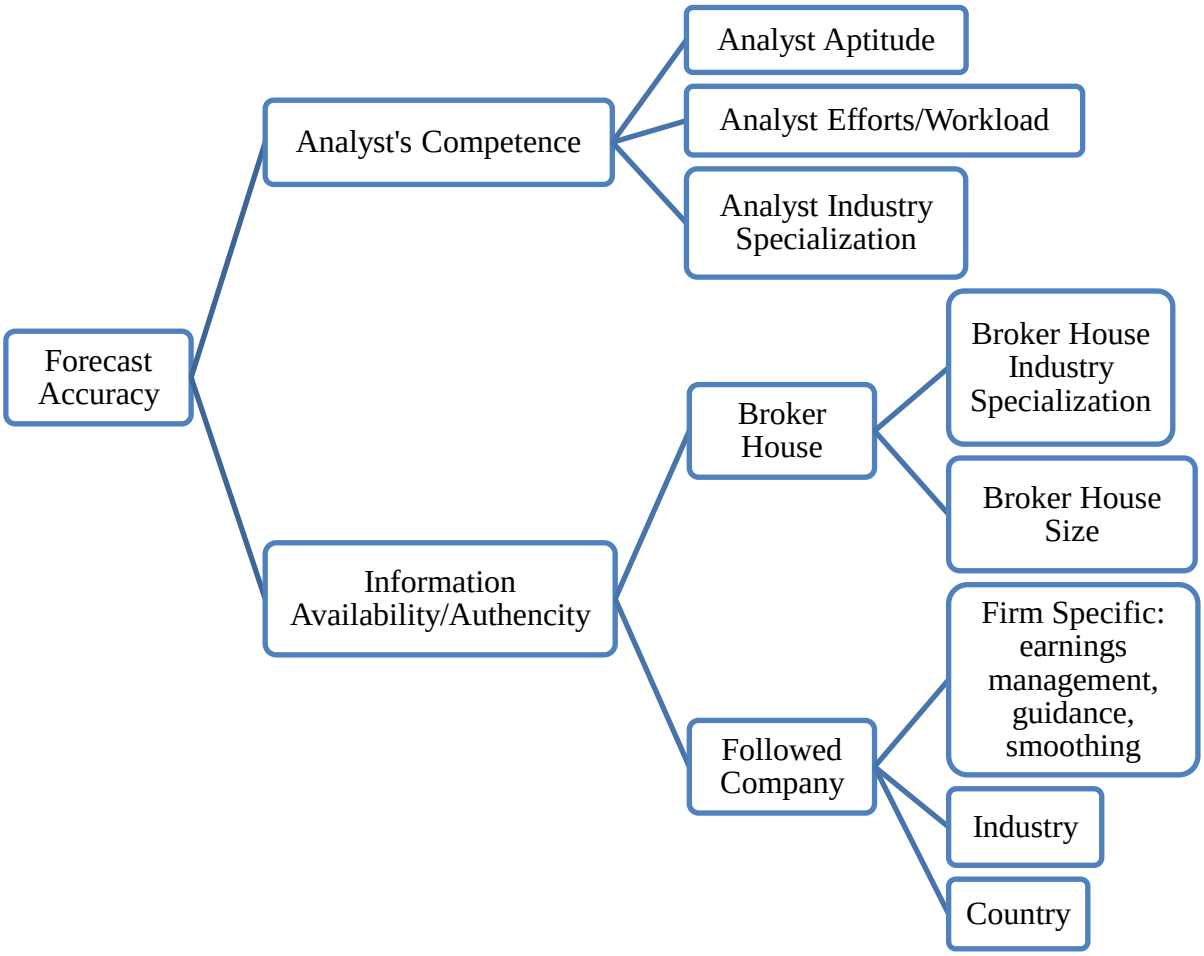
decreases) are considered to two main factors associated with forecast accuracy. Based on data from 18 countries and 11 industries from 1990 to 2006, the multiple regressions of Coën et al. (2009) on the forecast accuracy in different horizons indicate that after controlling for the country- and industry-specific effects, the forecast is more accurate when the covered firm enjoys profits and earnings increases. The authors consent that companies that suffers from losses or earnings decreases have more propensity to adopt earnings management or smoothing that will increase the task complexity for analyst's forecasting. Further, forecast accuracy is also proved to be positively associated with the analyst coverage. Since analyst followings are regularly used to proxy for the level of information disclosure for companies, this findings confirms the hypothesis that more information would induce more accurate forecasts.

Finally, additional to the studies of firm-specific characteristics of covered firm, numbers of researches have also been dedicated to the variation in forecast accuracy at industry/country level. The descriptive statistics of absolute forecast errors documented for 14 industries in U.S. from 1983 to 1996 are provided in Brown (1997). The findings reveal that earnings forecast errors for firms in certain industry (e.g. oil and gas extraction) are sufficiently larger than others (e.g. food and consumable products). Such industry-specific difference in forecast accuracy might be linked with accounting methods available for specific industry and the level of information disclosure required within specific industries. At the country level, Capstaff et al. (2001) demonstrate, by comparing forecast accuracy of nine European countries[10] in the February 1987~December 1997 time window, that there is a country-specific difference in the EPS forecast across the nine countries: Italian and Spanish analysts issue least accurate forecasts while EPS forecasts in Netherlands and UK are most accurate. The authors argue that such difference across countries could be caused by several factors. First, accounting practices differ in European countries, while lead to variation in information available to analysts by affecting the "timeliness, frequency and scope" of information disclosure. Second, the time series earnings behaviors affect the ease with which analysts foresee the EPS: analysts in countries with high volatility of earnings have more difficulty in issuing accurate forecast, compared to the rest. However, chances are after controlling for industry, the country-specific difference in earnings volatility might disappear, since certain industries are more developed in some countries than in others. Hence, the sharp contrast in industry structure could be the origin of country-specific difference in earnings volatility.

[10] The nine European countries studied by Capstaff et al. (2001) are Belgium, France, Germany, Ireland, Italy, Netherlands, Spain, Switzerland, and United Kingdom.

Finally, the degree of stock market association[11] also influences the forecast accuracy. One might expect that in countries with larger and more developed stock market (e.g. France, Germany, U.K. etc.), analysts have more incentive to process higher forecast accuracy so that excessed returns can be earned.

In summary, the factors that affect forecast accuracy are classified as follows:



3.3.1.2 Forecast Dispersion

Normally, different forecasts could be issued by different financial analysts for the same stock, leading to the forecast dispersion due to the lack of consensus. Technically, forecast dispersion is measured as the standard deviation in analyst forecasts, which reflects the "extent of analyst disagreement about" the covered firm's forthcoming earnings (Ramnath et al; 2006). Primarily, there are two concerns of interest about forecast dispersion: its origins and its impacts. Prior researches find evidence of two different causes for the forecast dispersion: information asymmetry and uncertainty. And are documented controversial

[11] The stock market association refers to the proportion of adjusted market returns that could be achieved by anticipating the forthcoming earnings change.

relation between forecast dispersion and stock price. In the research of Barron et al. (2008), the authors have thoroughly examined the underlying components of forecast dispersion as well as the association between level/changes of dispersion and stock returns by applying the model of Barron, Kim, Lim, & Stevens (1998)[12]. The sample stems from the quarter and annual earnings forecasts listed in the I/B/E/S in the seventeen-year window (from 1986 to 2003). The regressions relating to the level of dispersion for both short-term and long-term forecasts indicates that the preannouncement uncertainty accounts for most part of the observed dispersion, consistent with the theory that both public and private information helps to reduce the uncertainty and the forecast dispersion on average alike. And with regard to the regressions on the change of dispersion before and after the earnings announcement, the authors provide evidence supporting that the change in information asymmetry which significantly increases following the earnings announcement better explains the dispersion change. Further, the authors regress the future stock returns on the two theoretical components mentioned above. The findings suggest a negative relation between level (change) of dispersion and future stock returns attributable to the uncertainty caused by idiosyncratic risk (information asymmetry).

3.3.2 Stock Recommendations

The stock recommendations issued by financial analysts are intended to guide the investors in their portfolio composition. And there is an overall shift from five-tier ratings system (strong buy, buy, hold, sell and strong sell) to the three-tier ratings system (buy, hold and sell) subsequent to the appearance of Global Analyst Research Settlement in 2003. As summarized by Clarke et al. (2011), four key characteristics of analysts' recommendations are of interests for researchers specialized in this subject: the market reaction around the recommendation announcements, whether the recommendation was a strong buy, whether it was accompanied with "contemporaneous earnings forecast", and whether this earnings forecast is of high innovation.

3.3.2.1 Recommendation Distribution

Apart from the ratings, researchers are also intrigued by the distribution of recommendations, which previously unavailable for the individual investors, has to be presented with the issuance of stock recommendation, under the requirement of regulations approved by SEC

[12] The BKLS model measures the individual forecast, mean forecast, and actual EPS respectively, demonstrating that the divergence between the individual forecast and mean forecast expresses the information asymmetry (lack of BKLS consensus:1-ρ) and that the divergence between mean forecast and actual EPS interpret the common uncertainty (V). Hence, the divergence is expressed as the product of lack of BKSL consensus and common uncertainty, i.e. D=V*(1- ρ).

since 2002 (i.e. NASD 2711, NYSE 472). Extant studies indicate that buy recommendation enjoyed an overwhelming preponderance over the other ratings, peaking at 74% of the total in the second quarter of 2000 (Barber et al.; 2006). However, the arrival of economic recession and new regulations in the following years brought about a significant change to the distribution of recommendations issued by financial analysts in the brokerage firms. Barber et al. (2006) consent that a pronounced reduction of buy recommendations was observed in the last six months of 2002, during which the buy recommendations decreased from 60% to 45%. The interest to study the distribution of stock ratings is mainly due to its link with the potential future return of brokerage firms' recommendations. Theoretically, this relationship will exist as long as: 1) stock ratings have investment value; 2) market cannot fully and immediately react to the information contained in the recommendations and rating distributions; 3) different ratings criteria are used by different analysts, due to either the implicit differences (deliberate mis-ranking of covered stocks) or the explicit differences (different definition of "buy", "hold" and "sell" ratings), as summarized by Barber et al. (2006). Using the data collected from *Thomson Financial*'s First Call database, they confirm the presence of persistence for the different proclivity to issue favorable recommendations among different brokers, despite a limited reversion to the mean value. And even if the investors could not immediately recognize the information contained in the nature of ratings distribution at the date of recommendation announcement, the buy recommendations issued by those brokers who are less likely to issue buys are still proved to outperform those who are more intended to do so, and the contrary situation is documented regarding the sell recommendations.

3.3.2.2 Recommendation Changes

After the initiations, the first recommendation issued for a followed firm, analysts are always intended to revise their recommendations either because of the arrival of new information (publicly or privately available) or because of their different interpretation/processing about the extant information. And the revision could be sorted into three categories: reiteration, upgrade and downgrade. Sorescu & Subrahmanyam (2006) study stock price reactions to the nature of recommendation changes as well as different analyst attributes by sorting the recommendations into different "strength" and "weight"[13]. Recommendation data collected from the I/B/E/S for the period December 1993 to December 2002 are classified into five categories according to their recommendation levels: respectively, "strong buy", "buy",

[13] "Strength" represents the "dramatic nature of recommendations" while "weight" means the analysts' experience or the reputation of brokerage to which analysts are affiliated.

"hold", "sell" and "strong sell". Thereby, the "strength" is used to proxy for the change of categories with any three or four-category jump defined as dramatic changes. And the "weight" is measured by either the years of experience for individual analysts or the numerical measure of reputation for brokerage firms to which the analysts belong. The analysis pertaining to the short-term abnormal return reveals that even though the stock price generally move in the direction of recommendation, investors remain skeptic as dramatic changes occur. Nonetheless, analysts' "weight" is deemed to mitigate investors' skeptics, given that are documented significantly greater price reactions to the recommendation with a dramatic nature issued by highly weighted analysts. The analysis about the long-term abnormal return confirms the abovementioned conjecture. Moreover, Sorescu & Subrahmanyam (2006) also find evidence of price drift subsequent to the low strength and high weight recommendation and reversals subsequent to the high strength and low weight recommendation, especially for the upgrades, indicating that the recommendation changes of highly experienced analysts outperform those of less experienced analysts.

More recently, Hobbs et al. (2012) provide evidence that recommendation revisions issued by analysts who frequently change their recommendations promise a higher profitability for investors who follow their advice, especially for those analysts with lower past performance and without accompany of earnings forecasts. And this conclusion remains robust after the authors control for analyst affiliation, star statues, the number of stocks covered by analysts, and their past performance, with an exception for the analyst experience. In support of Sorescu & Subrahmanyam (2006), the authors argue that experienced analysts who issue frequently recommendation revisions are more likely to outperform their less frequently revising counterparts. A possible explanation provided by the authors regarding the outperformance of frequently revising analysts is that they react more quickly to information events other than earnings announcements, demonstrating higher ability to uncover the non-public information.

3.3.3 Interaction

Stock recommendation and earnings forecast, as two key outputs of financial analysts, have received respectively exhaustive studies in prior literature. However, most of researches examine these two outputs in isolation, neglecting possible association between them. Loh & Lian (2006) analyze the relation between forecast accuracy and recommendation profitability of sell-side security analysts by regressing the latter on the former. The findings indicate that analysts with more accurate earnings forecasts are more likely to issue profitable recommendations. The authors interpret the findings as that better assessment of future

earnings enables financial analysts to better advice their clients, which leads to higher investment return. In spirits of that, Ertimur et al. (2007) examine the relationship between forecast accuracy and recommendation profitability of analysts in a more detailed way. First, the authors reinvestigate the conclusion drawn in Loh & Lian (2006) after controlling for analyst expertise in the regression framework. Technically, Analyst expertise is jointly measured by analyst's firm-specific experience (number of years when analyst supplies forecasts for specific firm), analyst's information resources (size of brokerage house) and timeliness (Leader and Follower Ratio[14]).The authors argue that the positive association between forecast accuracy and recommendation profitability documented in Loh & Lian (2006) might be due to the fact that forecast accuracy is a proxy for analyst expertise. However, the results reveal that recommendations issued by analysts with higher forecast accuracy yield more excessed return, confirming that the strong positive relation between the two outputs' performances holds even after controlling for analyst expertise. Nonetheless, this positive association disappears in case that earnings of covered firms are value-relevant. Further, are analyzed the effects of conflicts of interest. By sawing analysts into three different subsamples to proxy for the intensity of conflicts of interest from investment banking business, the authors find that for buy recommendations, non-conflicted analysts are enable to translate accurate forecasts into profitable conflicts. Conversely, for sell recommendations, recommendation profitability of conflicted analysts increases the most with forecast accuracy. All these results are consistent with effects of conflicts of interest on recommendation informativeness previously discussed. In support of that, Kecskes et al. (2010) find evidence that market reactions to recommendations accompanies by earnings forecast are significantly greater than those to recommendations supported by discount-rate estimates and growth-rate estimates. The authors assert that the reliance on earnings-based recommendation changes is reasonable since analyst's earnings forecasts are based on harder information that is supported by hard numbers and justifications, and accuracy of earnings forecasts can be verified ex poste when firms officially announce earnings.

3.4 Bias

Apart from the informativeness of analyst's outputs, a plethora of studies have suggested and investigated the bias existing in analyst's outputs. Financial analysts, working as information intermediary in the market, are assumed to remain neutral as they convey information to

[14] The LFR equals to the "cumulative number of days by which the preceding two forecasts lead forecast k divided by the cumulative number of days by which the subsequent two forecasts follow forecast k". Hence, analyst with more timely forecasts enjoys a greater LFR.

investors. However, articles in financial press have long criticized that analysts might deviate from their true predictions, intentionally or unintentionally. The unintentional bias, known also as cognitive bias, refers to the fact that analysts tend to cover firms for which they intuitively have favorable and optimistic views; while due to the incentive bias, they may also strategically add upward or downward bias to their forecast reports.

According to prior literature, financial institutions to which analysts belong would be a reason for analyst to report outputs other than their true beliefs. Broadly speaking, any analysts who are not employed by independent research institution could have propensity to deliberately decorate their outputs in a way most beneficial to them. Such propensity would induce the "forecast bias", referred as the relative forecast error. In support of that, Dugar & Nathan (1995) document that due to the fact that their compensations are closely related to the transaction volume, the recommendation issued by the "Street" analysts are accused of being over-optimistically biased in order to generate more transactions. Theoretically, all the "sell-side" financial analysts work for the one of the following three major kinds of financial institutions: universal banks, brokerage firms and investment banks, which are in the most circumstance, accused of imposing distorted incentives for analysts to issue "biased" outputs. Recently, investment banks are engaged in three core business activities: 1) investment banking; 2) trading; 3) asset management, which could create conflicts of interest within the investment bank. And what matters to financial analysts are the conflicts between the corporate financing department and equity research department. The former, responsible for dealing with the IPO, SEO and M&A for his current or potential clients would like to the latter to dissimilate favorable information to the market so as to facilitate the operations, even if it puts at stake the profits of individual investors as well as the reputation of the brokerage department. Thereby, provided that no clear "wall" to protect the equity research department against the pressure from corporate financing department and brokerage department, analysts would constantly confront the conflicts between their responsibility toward investors and their incentive to increase the revenue from the deals of corporate finance (Michaely & Womack; 1999).

Empirical research reveals that, as predicted by the theory of conflicts of interests, a favorable recommendation might arise from the delicate relation between research and investment banking division: the latter are intended to lay pressure on the former for sake of their potential clients (Balog; 1991). Similarly, by studying the performance of analysts employed by investment banks and independent research firms respectively during the bull and bear market, Barber et al. (2007) find evidence that during the bear market (from March 2000 to

June 2003), buy recommendations issued by analysts in research firms significantly outperformed their counterparts in the investment banks, especially when arrives the initial public offering (IPO) and secondary equity offering (SEO) announcements; while analysts in the investment bank won an edge over in the years leading to the market peak (from February 1996 to March 2000). As for the hold/sell recommendations, analysts employed by investment banks continue to outperform those in research firm throughout the whole sample period. Hence, the authors assert that analysts belonging to investment banks are reluctant to downgrade stocks of firms covered that might be the potential clients of investment banks, compared to their counterparts in the independent research firms, consistent with the theory of conflict of interests.

However, controversy exists over the puzzle: whether compared to non-affiliated analysts, analysts employed in an investment banks involved in the underwrite business with the covered firm (affiliated analysts) are more intended to issue positively biased recommendations in order to facilitate the undergoing business. A large body of researches is dedicated to this topic. Dugar & Nathan (1995) unveil that affiliated analysts indeed issue more favorable investment recommendations and earnings forecasts than unaffiliated analysts, and that well aware of the existing conflicts of interest among the affiliated analysts, market discounts the outputs of affiliated analysts and more relies on non-affiliated analysts.

Michaely & Womack (1999) study the impact of underwriting relation on the recommendations issued by affiliated analysts and its market perception, using the data for IPO from 1990 to 1991. By regressing the three-day excess return surrounding the recommendation announcement on the underwriter's buy recommendations, the authors find evidence that market reactions to the buy recommendations issued by analysts whose brokerage firm established an underwriting relationship with the followed firms are significantly lower, confirming the conflicts of interest hypothesis. And the buy recommendations from the underwriters are always issued following the price decline, suggesting the intention of underwriter to give the poorly performing underwritten firms a booster shot. Finally, the analysis about the one-year excess return in the post-buy-recommendation period reveal a universal phenomenon that market reactions to the underwriter's buy recommendations are even lower and that firms receiving a buy recommendation from non-underwriters are more likely to perform a higher positive excess return in the future. All these findings verify the common wisdom that non-underwriter's recommendations are more objective, deprived of underwriting relationship with the covered firms.

In addition, the research of Clarke et al. (2011), based on the sample spanning the November 2000 through December 2007 period, confirm that investors discount the upgrades conducted by affiliated and unaffiliated analysts to the same degree, but the downgrade recommendations issued by affiliated analysts arise a significantly stronger market reactions especially during the time period prior to the regulation changes in 2003. The findings suggest that investors are convinced that affiliated analysts, constrained by the investment banking relation with the covered firms, are more reluctant to issue unfavorable recommendations. Nonetheless, one might argue that the over-optimistic recommendations issued by the affiliated analysts could be unintentional: analysts issue positively biased recommendations just because they are convinced that the underwritten companies would have a good performance in the future; otherwise, investment banking department would not meddle in such underwriting deals at the risk of dramatic loss and reputation destruction. However, the empirical findings refuted this hypothesis. In the questionnaire distributed to investment bankers and investment managers, Michaely & Womack (1999) conclude that in the eye of these personnel most involved in the underwriting deals, the over-optimistic recommendations announced by affiliated analysts are intentional.

An opposite argument has also been proposed: the currying favor hypothesis, asserting that non-affiliated analysts are more likely to issue positively biased outputs for the sake of attracting new clients for the investment banking department. And affiliated analysts, on the contrary, might issue relative unbiased outputs given that they have superior information about the underwritten firms. Under this conjecture, market would discount the positive recommendation issued by non-affiliated analysts to a larger extent. The study of Bradley et al. (2008) investigates the recommendations following the IPO launched during the "Bubble Period" from 1999 to 2000, totally 683 IPOs included. According to the investment bank's involvement in the IPO, analysts are classified into three broad subsamples: lead underwriters, co-managers, and non-affiliated analysts[15]. The findings suggest that after controlling for the timing of initiations[16], the authors provide evidence that market does not discount the initiations issued by affiliated analysts. Moreover, the market reactions to the upgrades and downgrades issued by affiliated analysts are significantly stronger. Thereby, Bradley et al. (2008) consent that unaffiliated analysts are more vulnerable to the conflicts of interest and

[15] The syndicate members are also included in the "non-affiliated" subsample, since they have less at stake in an IPO deal, compared to "lead managers" and "co-managers".

[16] The SEC prevents affiliated analysts to issue recommendations within the 25 days after the date of IPO, the so-called "quiet period". Thus, the authors sew the recommendations into two parts: those issued during the 25th to 30th day following the "quiet period" and those issued during the following 11 months.

face greater pressure from the investment banking department, in that they have to compete for the "incumbent's advantage" of the managing underwriters if they want to attract the attention of future deal mandates.

And consequently, the existence of such biased analysts even prevents the unbiased analyst from publishing all the relevant information to the investors, which will mislead the market in pricing the firm value. Fortunately, the necessity of maintaining the reputation and avoiding the litigation problems from the part of both individual financial analysts and financial institutions issuing the recommendations will offset, at least to some extent, the financial analysts' intention to bias their recommendations.

But interestingly, despite that recommendations issued by investment banks, especially by underwriters are document ubiquitously to be upward biased, earnings forecasts emanating from these parties are documented to be as accurate as independent analysts, even for earnings forecasts emanating from underwriters. For instance, Dugar and Nathan (1995) provide evidence that on average, earnings forecasts issued by investment banks are as accurate as those of noninvestment banker analysts. Two possible explanations are underlying this phenomenon. First, earnings forecasts are more measurable while investment recommendations are relatively vague information. Thereby, analyst's reputation rely mostly on earnings forecasts because forecast errors are more perceptive for investing clients. Second, the market is segmented in the way that investment recommendations are oriented to the "naïve" investors, while earnings forecasts are oriented to sophisticated investors.

Apart from upward bias primarily due to the dependency of financial institutions, analysts' outputs are also vulnerable to the downward bias imposed by covered firms: the firms followed by analysts could also set barriers for them to issue informative and unbiased outputs, since firms, large and small, are all willing to manage the reported earnings as well as the market expectation if possible, in order to beat or at least meet the expectation of earnings forecasts issued by financial analysts. And the firms that succeed in meeting or beating the earnings expectation (MBE) would enjoy a higher return than those who could not, as suggested by the MBE theory. Commonly, reported earnings manipulation could be achieved by the use of accrual accounting, while expectation management need firm managers to deliberately dampen the analyst's forecast prior to the earnings announcement. Regardless of different tunnels used in two managements, they share the same objective: creation of a positive earnings surprise to the market. In the study of Bartov et al. (2002), the authors examine in detail the MBE theory on the basis of firm quarter earnings forecasts spanning in the period from January 1983 to December 1997 documented in the I/B/E/S database. The

multiple regression of cumulative abnormal return around the quarter earnings announcement suggests that after controlling for the forecast errors measured relative to the earliest earnings forecasts documented), the positive earnings surprise (the difference between the reported EPS and latest earnings forecast) contributes to the observed excess returns. And independent of the magnitude of positive earnings surprise, market grants a constant premium to all these MBE firms, additionally more to the firms in financial distress or regarded as "habitual beater" of expectation. This finding is in line with the hypothesis that market would reward the firms with MBE, justifying company mangers incentive to manipulate reported earnings or expectation. Moreover, the decomposition of forecast errors into forecast revisions and earnings surprise[17] allows the authors to confirm that investors response less to the forecast changes than the reported EPS, a relieving news for the firms intended to adopt expectation intervention since they do not need to worry much about the possible stock price decline triggered by the downgrades issued financial analysts. And contrary to the common sense, the reward of MBE does not stem from investors' subjective overreaction, since no reversal price drift during the one/two-year time window following the MBE is observed. Rather, the MBE is informative in predicting the company's future performance. Apart from that, the authors also study the nature of "faked" MBE, achieved by earnings manipulations or expectation interventions. The descriptive statistics evidence that negative forecast errors are more prevalent than negative earnings surprises, and that the likelihood of negative forecasts ended with positive earnings surprises is much higher than that of positive forecast errors finally leading to negative earnings surprises, all verifying the existence of "forecast guides". Eventually, by adding dummy variables to investigate the impact of earnings manipulation (measured by unexpected accruals) and expectation intervention, the authors argue that even though investors discount the MBE premium (the MBE's ability to predict firm's future performance) once they detect the "faked" MBE, firms with "faked" MBE still enjoy an excess return and a better future performance compared to the firms who fail to MBE.

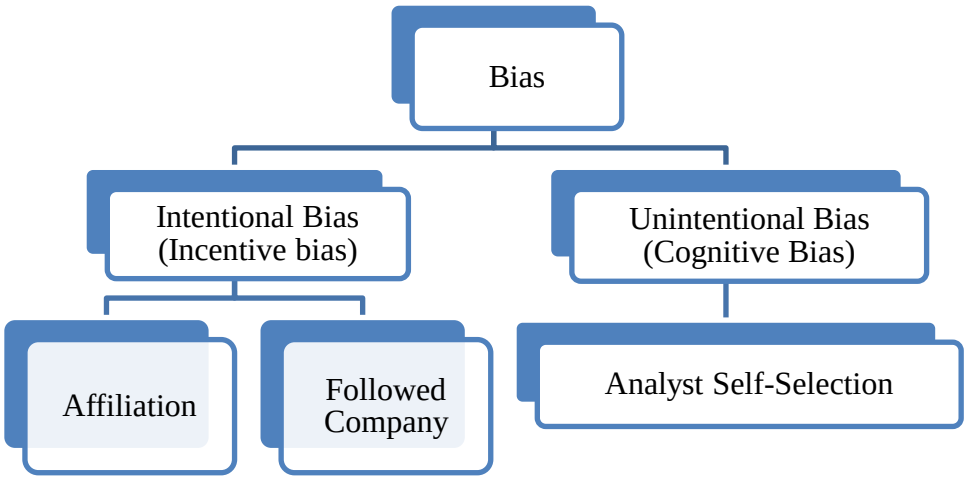
Cumulative excessed return	Firms without MBE<firms with "faked" MBE<firms with "genuine" MBE
Firm's future performance	Firms without MBE<firms with "faked" MBE<firms with "genuine" MBE

[17] Bartov et al. (2002) define as follows: forecast errors= EPS - earliest forecast; forecast revision=earliest forecast-latest forecast; earnings surprise = EPS-latest forecast. Hence, by definition, ERROR = REVISION + SURPRISE.

All in all, firms have incentive to guide financial analysts to report downward biased outputs just before the official earnings announcement since failure to meet investors' earnings expectation leads to serious consequences. Investors' low expectation on firm's future profitability would cause the decrease of stock price and increase in cost of capital.

Contrary to the aforementioned evidence proving the existence of intentional and strategic forecast bias, in the research of McNichols & O'Brien (1997), the authors propose that financial analysts tend to cover firms for which they intuitively have optimistic views and deliberately drop the firms by stopping updating the predictions once they receive unfavorable news about the firm's future performance. Such behavioral pattern of analysts results in over-optimism in analyst's overall outputs subsequent to censoring pessimist errors. The findings concerning the distribution of recommendations suggest that after controlling for sudden change in focus, analysts assign a higher rating for newly-added stocks than for stocks that analysts have already covered. And conversely, the distribution of recommendations for stocks dropped by analysts is skewed to "Strong Sell" compared to those whose coverage continues. Further, the authors find evidence that stocks for which analysts discontinue to rate underperform those that remain in the list of analyst's coverage, while newly-added stocks enjoy a better performance than those with previous coverage. All these findings indicate that the ubiquitous and persistent over-optimism in analysts' recommendation and forecast is at least partially due to the unintentional cognitive bias stemming from analyst's self-selection.

In summary, the existing literature have document following factors that contribute to the biased outputs of financial analysts:



3.5 Market Responses to the Outputs of Financial Analysts

The theory of market efficiency has been disputed since founded. The efficient market hypothesis (EMH) asserts that stock price impounds all the information available. However, this hypothesis fails to explain certain phenomenon happening in the real financial market, e.g. price momentum. On the other hand, in spirits of gradual information diffusion, market is slow and cautious in responding to information, including one that is impounded in financial analyst's outputs. According to prior literature, the market reactions to the outputs issued by financial analysts depends on 1) analyst's ability to process the information; 2) analyst's access to information; 3) analyst's credibility; 4) extent to which the outputs are anticipated, in terms of both timing and rating, as summarized by Bradley et al. (2008). A concern regarding those findings: Most of the researches about the equity market are conducted under the assumption of instantaneous market reaction to the information. However, empirically is documented an insufficient and delayed price adjustment process, at least when it pertains to the outputs of financial analysts, primarily due to two different reasons: market inefficiency or omitted risk variables.

Using data from the I/B/E/S in the time frame from October 1993 to December 1998, Gleason & Lee (2003) examine the post-revision price drift to determine whether the market can understand the information conveyed by the revisions in a proper and rapid way (market efficiency). Four factors are taken into consideration to explain the different patterns of market reactions to the revision: revision quantity, revision quality, firm's information environment and other firm-specific characteristics.

Revision Quantity	Magnitude and direction of forecast revisions
	Abnormal return surrounding the revision
Revision Quality	Revision Innovation
	Analyst Ranking
Firm Information Environment	Analyst Coverage
Other Firm Characteristics	Momentum
	Firm size
	Book to Market Ratio

A) Revision Quantity

Two empirical proxies are used to measure the quantity of forecast revision signal: the **magnitude and direction of forecast revision** expressed as the firm's closing price on the day prior to the issuance of revision divided by the revision and the **firm's size-adjusted**

abnormal return during the three days around the revision announcement. Even though both of the two factors have a good explanatory power toward the future returns, neither of them enjoys the same importance as the level of innovation discussed later.

B) Revision Quality

Similar with the methodology used by abovementioned Sorescu & Subrahmanyam (2006), two factors proxy for the revision quality: the nature of revision and the analyst attributes. The **revision innovation** depends on the relation between individual forecast revision and analyst's own/consensus prior forecast. A revision is classified as a high innovation good-news revision provided the forecast revision is greater than both prevailing consensus and analyst's own prior forecasts, contrarily, high-innovation bad-news revision is the one less than both consensus and analyst's own prior forecasts. The rest of revisions are all defined as low-innovation revisions. The findings indicate that market fails to distinguish the high-innovation revision from the low-innovation ones.

Apart from the innovation level of revision, the **analyst's ranking** also matters. The findings of Gleason & Lee (2003) provide convincing evidence that investors tend to pay less attention to the superior analysts (Wall Street Journal Earnings-Estimators) than to the celebrate analysts (Institutional Investor All-Stars), the former eliciting a more pronounced price drift than the latter.

C) Firm Information Environment

The overall disclosure of information related to the covered firms also affects the informativeness of individual forecast revision. The **analyst coverage** could be an appropriate proxy to measure the level of information available about the firm in the conjecture that more accessibility of information would lead to a larger analyst following. For firms with less information disclosure, analyst forecasts principally acting as catalysts, cannot serve as a compensation for this lack of information, thereby, viewed as valueless. In support of that, Gleason & Lee (2003) show that the post-revision price drift is more pronounced for firms followed by fewer analysts.

D) Other Firm Characteristics

Eventually, the firm-specific factors (i.e. **price momentum, firm size, book-to-market value**) could also influence the forecast revisions issued by the financial analysts. The **firm size** is used as proxy for information available in the market since large firms are naturally under greater pressure and have more incentive to disclose exhaustive information about their functions.

The multiple regression analyses in Gleason & Lee (2003) reveal that revision innovation is the laureate of the most crucial factor affecting the level of post-revision price drift, while other variables of interest including analyst ranking, analyst coverage influence the future return only by amplifying or mitigating the market reaction to the information conveyed by innovation levels. All in all, Gleason & Lee (2003) consent the market-inefficiency explanation that market is slow and cautious to respond to the outputs of financial analysts, especially when the distributed information is considered of high innovation. However, the assimilation of information could be accelerated and completed in a more thorough way when analysts who issue the information are of higher ranking and when the firms have a higher analyst following.

3.6 Regulations

In order to facilitate the intermediary role played by the financial analysts, several important regulations have been enacted in the past decades in the U.S. (i.e. Regulation of Fair Disclosure, Sarbanes-Oxley Act, and Global Analyst Research Settlement). Consequently, a large body of researches has been dedicated to explore the changes consequent to the introduction of the new regulations by means of event studies, thereby helping to determine whether the regulations' objective has been well achieved as planned.

3.6.1 Regulations of Fair Disclosure of 2000

Approved in August 2000 by SEC, **Regulation Fair Disclosure** (Reg FD) became effective in October 2000 with the purpose of attenuating the information asymmetry between different analysts (e.g. individual investors and institutional investors) caused by selective disclosure favored by companies. The simultaneous disclosure of information is required to ensure the equal access for all the investors. The scholarly interests about the Reg FD mainly concentrate on its impact on the analyst forecast proxied by forecast accuracy (at the level of individual analysts and consensus forecast as well) and by forecast dispersion. Based on the earnings forecasts for quarters collected from I/B/E/S databases during March 1995 through June 2004 time period, the research of Agrawal et al. (2006) pertaining to the performance of sell-side analysts yield the findings presented as follows: first, by separating the earnings forecasts into two categories: early forecasts and late forecasts[18], the authors find that analyst forecast errors for both individual forecasts and forecast consensus increase in the post-Reg FD period, particularly for early forecasts, suggesting that analyst are generally less informed relative to

[18] Earnings forecasts issued in the 2 months period before a quarter begins is defined as “early forecasts”, while “late forecasts” refer to those issued during the 2 months before the earnings announcement.

the pre-Reg FD period. Second, the dispersion of analyst forecast increases following the adoption of FD Rules, but such dispersion dampens as approaching to the earnings releases.

All in all, this research confirms the effect of Regulation FD on reducing the selective guidance, which eventually results in a decline of accuracy and an increase of dispersion for analysts' forecasts. And these impacts seem to increase with the passage of time.

3.6.2 Sarbanes-Oxley Act of 2002

The **Sarbanes-Oxley Act** (SOX) was passed by the U.S. Congress in July 2002, subsequent to a series of scandalous meltdowns of large corporations in the U.S. (e.g. the accounting scandal of Enron in 2001). Different from the regulations of Fair disclosure previously enacted to the end of ensuring an equal access to the information provided by the firms, the SOX was intended to increase the accuracy of information by guaranteeing as well as improving the quality of financial reporting and corporate governance so as to rebuild the investors' confidence on the financial market. The new accounting standards introduced following the SOX warrant more empirical analysts about the analysts' performance, which relies on the quality and quantity of information disclosed in the post-SOX period. Stephen et al. (2012) examine the impact of enactment of SOX on the forecast accuracy by analyzing the consensus quarter earnings forecasts for S&P 500 index and S&P Small Cap 600 alike in the wake of March 1996 through December 2006 to avoid the emergence of financial crisis since the beginning of 2007. The research findings reveal that the absolute forecast error increased after the adaptation of SOX (i.e. a decrease of forecast accuracy) and that financial analysts became more pessimist in the post-SOX period, particularly when issuing forecasts for large firms. Also, the companies are more reluctant to disclose information in fear of the possible allegation toward the CEOs. And the replicate of research yields basically the same results after the authors rule out the contamination from the Reg FD introduced in 2000. Overall, Stephen et al. (2012) question the effectiveness of SOX in improving the information accuracy by suggesting that the information environment has not become more efficient in the post-SOX period.

3.6.3 Global Analyst Research Settlement of 2003

Consequent to the investigation against the misconduct of Merrill Lynch's analysts, in April 2003 was announced the **Global Analyst Research Settlement,** established between the SEC, the NASD, the NYSE, the New York Attorney General, and ten (later twelve) U.S. investment firms. Along with NASD Rule 2711 and NYSE Rule 472 previously enacted by the self-regulatory organizations (SROs), all these regulations on the sell-side research entered into power to curb the perceived conflict of interests between equity research and investment

banking operations within the same investment bank, enforcing a Chinese wall to sever the ties between the two interdependent departments. More technically; the regulations prohibit any compensation based on the business of investment banking department for analysts in the research department. Also, personnel outside the equity research department are banned from reviewing the reports prior to the publication.

According to the findings documented by Barber et al. (2006), the implementation of NASD Rule 2711 has significantly promoted a more balanced distribution of stock recommendations, remarkably decreasing the ratio of Buy/Sell numbers from 35:1 to 3:1. And with references to prior literatures, study of Kadan et al. (2009) provides an exhaustive view over the impacts of these particular regulations on the outputs of financial analysts, using the data from IBES. Through a detailed comparison between the analysts' stock recommendation issued respectively in the wake of pre-REG (November 2000–August 2002)and post-REG (September 2002–December 2004) period, the authors reach to several meaningful conclusions: 1) the overall informativeness of stock recommendations as measured by the investors' price reactions, has decreased in the post-REG period, even though the informativeness of optimistic recommendation has become more informative; 2) with regards to the attenuation of conflicts of interests related to underwriting relationships, affiliated analysts are still proved to be more reluctant to issue pessimistic recommendations compared to their non-affiliated counterparts, despite that they become as likely as non-affiliated analysts to issue optimistic recommendations after the introduction of relevant regulations; 3) investors discount to a lesser extent the neutral recommendations issued by the affiliated analysts during the post-REG period, but such phenomenon has not been replicated for either optimistic or pessimistic recommendations.

Additional to the findings drawn by Kadan et al. (2009), Clarke et al. (2011) take a closer look at the differential impacts of these regulations on the independent analysts. Using data collected from IBES in a larger time span (from November 2000 to December 2007), Clarke et al. (2011) suggest that featuring a relative smaller brokerage size and less experienced analysts, the independent research firms newly established thanks to the penalty paid by sanctioned banks did not provide recommendations of the same quality as their counterparts existing prior to the enactment of new regulations. Furthermore, even though taken as whole, independent analysts are more likely to issue recommendations supported by earnings forecast revisions or even by high innovative forecast revisions than affiliated and non-affiliated

analysts in the post-REG period[19], their informativeness have decreased significantly possibly due to the fact that the resources available to independent analysts are still "not comparable to that at top Wall Street firms", as claim the authors.

All in all, the abovementioned researches confirm a substantial influence of regulation reforms in the 2002~2003 time window. However, Barber et al. (2007) suggest that the requirement for independent research reports provided to clients as mentioned in the Global Analyst Research Settlement should be applied to all the investment banks rather than merely the ten sanctioned ones since the their separate analyses concerning banks sanctioned by SEC, non-sanctioned banks acting as lead underwriters, and banks of non-lead syndicate members reveal that analysts in all these investments uniformly issued biased recommendations, underperforming their counterparts working for independent research firms to different extent. However, it would be difficult to distinguish the effect of one particular regulation from another, especially when there exists an overlapping period.

Generally speaking, regulations studied in the previously mentioned researches are effective: Fair Disclosure Rules are proved to be effective in guarantying an equal access to information for all investors and analysts, while the SROs Regulation and the Global Settlement are confirmed to help guarantying the independence of analysts.

But there is a common limit of all the researches: all the samples are based on U.S market, probably because the information concerning U.S. public firms is most publicly available. But such singularity of samples might limit the ability of generalizing the empirical results. Thus, further research could take into consideration the well-elaborated market outside U.S.

4. Application of the Existing Literature in the Gender Dimension of Financial Analysts

Like in the corporate board, gender disparity also exists in the field of financial analysts. Gender issues such as the over-underrepresentation of women financial analysts has received an arising concern in the recent years, which has not yet incurred exhaustive researches in this traditionally masculine workplace. Nevertheless, the previous review about the extant literature in the field of corporate board might shed light on the possible future researches in the background of financial analysts. In the following parts, the nature of financial analysts would be presented in detail, followed by the description of status quo for the women

[19] The independent analysts are defined in spirit to Jacob et al. (2008): analysts whose employers never worked as a leader or co-manager in any equity deal or advised for the target/acquirer in any acquisition during the sample period. Affiliated analysts are those who advised the covered firms once in the past 3 years and the rest analysts in the investment bank are viewed as non-affiliated analysts.

financial analysts; in the end, the future direction of the relevant researches would be discussed.

4.1 The Status Quo for Women Financial Analysts

In response to the arising concerns about the gender issues in the workplace of financial analysts, some recent studies are aimed at revealing a panorama of the status quo for women financial analysts. The empirical findings suggest that generally speaking, although continuous affirmation actions have been launched in the wake of the past years against gender discrimination in recruiting the financial analysts, women's representation in analyst positions still does not enjoy a remarkable increase, in some case, even suffers from a drop. For instance, Green et al. (2007) observe a decrease of women financial analysts from 16% in 1995 to 13% in 2005, based on the data collected from Wall Street. Even if such an empirical result might not well represent the general condition for female women financial in the rest of world, it does provide us with some insight into this issue especially when we are in lack of raw data for descriptive statistics about women analysts from other countries.

4.2 Future Research Directions

The current lack of systematic investigation on women financial analysts leaves a board gap for the future researches to fulfill, especially for the countries outside U.S. And greater interest could be paid to the European countries, in which a high-level uniform has been achieved in institutional and commercial level since the foundation of European Union in 1993 while a wide variety could still be observed at the cultural and social dimension. As follows is presented the possible future research directions that await further studies in the field of gender issues for financial analysts:

The priority would be given to the descriptive nature of women financial analysts: the percentage of women financial analysts, percentage of financial institutions having one or more women financial analysts, even their age, marital status, numbers of children could be reviewed, as suggested by Burgess & Tharenou (2002). For example, based on the data about investment firms in Wall Street available in the I/B/E/S (Thomson Reuters' Institutional Brokers' Estimate System) in the period of 1995-2005, Green et al (2007) report an alarming fact that the percentage of women financial analysts drops from 16% in 1995 to 13% in 2005. This kind of statistics obtained from different databases would lead to a further industry-level or country-level comparison to determine which kind of brokers/countries employs more women financial analysts and analyze their specific characteristics. Additional to the researches about U.S. condition, based on the European samples, the country-level census and comparison could be conducted in purpose to detect any likely country-level difference. Even

though the North-South difference in Europe is a cliché, it is interesting to investigate whether women representation in financial analysts differ in the geographic level and find out the factors that attribute to such difference.

The data sample could consist of six countries commonly classified as Northern or Southern Europe[20].

Northern European Countries	Southern European Countries
Norway, Sweden, United Kingdom	Greece, Italy, Spain

The raw data about financial analysts could be obtained from I/B/E/S. However, since I/B/E/S does not provide analyst's gender, this information should be hand-collected by searching analyst's full name in different member directory, e.g. *CFA institute*, *Yahoo! Finance* or other financial websites. And the country-specific information could be collected from the database of Eurostat, which provides detailed statistics about EU countries.

Additionally, it would be of interests to take a close look at the job performance of women financial analysts, which could be measured by their stock coverage, forecast accuracy, etc. Further, the behavioral pattern of women analysts could also be studied to investigate whether the gender would affect the choice of followed firms, the frequency of forecast/ recommendation issuing or renewal. Several previous researches have already been documented in this direction. However, the use of different data pool results in different conclusions: Kumar (2010) reveals that female financial analysts are intended to issue bolder but more accurate forecasts relative to male analysts, by means of pooling the data from May 1983 to June 2006. On the other hand, relying on the data from I/B/E/S during the period of 1995-2005, Green et al (2007) confirm a reduced coverage and lower forecast accuracy from women financial analysts, indicating that they are less competent compared to male analysts, but the authors still allege that "women are significantly more likely to be designated as All-Stars, which suggests they outperform at other aspects of the job such as client service".

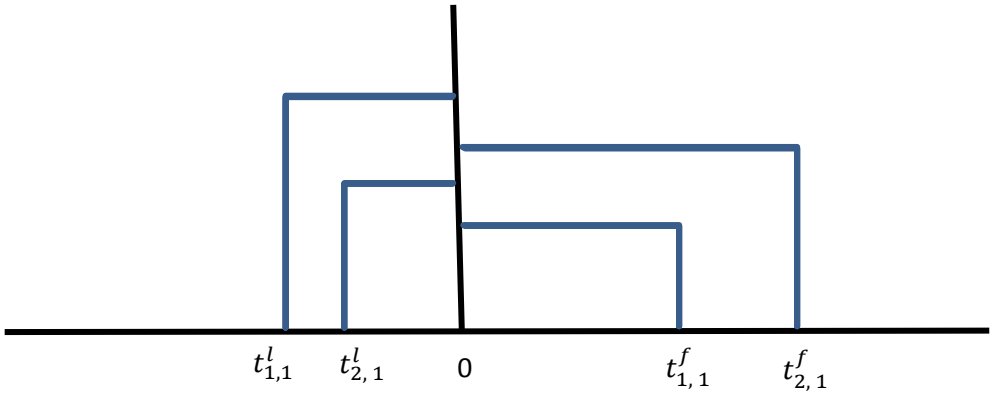
Besides the topics already addressed by researchers, it is also of interest to investigate whether women analysts are more likely to be leaders, who take initiative to bring innovative information to the market, or followers, who herd on the earnings forecast issued by lead analysts. Earlier research findings in the field of psychology suggest that women are more risk-averse while men are more likely to be overconfident relative to their opposite sex.

[20] The classification is based on definition by the United Nations in its official filings "Composition of macro geographical (continental) regions, geographical sub-regions, and selected economic and other groupings".

Hence, hypothetically, women analysts should be less likely to be lead analysts provided that the prior theory is tenable. Usually, lead analysts can be identified by the timeliness of their earnings forecasts (Cooper et al; 2001). We use Leader-Follower Ratio of Cooper et al. (2001) to determine whether an individual women analyst should be classified as "leader" or "follower". As cited from Ertimur et al. (2007),

> *"For each forecast k analyst i issues for firm j, we calculate LFR as the cumulative number of days by which the preceding two forecasts (issued by other analysts) lead forecast k divided by the cumulative number of days by which the subsequent two forecasts follow forecast k."*

which could be well depicted by following figure for each selected women analyst.



Thereby, in line with formula proposed by Cooper et al. (2001), the cumulative lead-time for K forecast issued by analyst i is

$$T_l = \sum_{k=1}^{N} \sum_{i=1}^{2} t^l_{i,k}$$

And similarly, the cumulative follow-time for K forecast issued by analyst i is

$$T_f = \sum_{k=1}^{N} \sum_{i=1}^{2} t^f_{i,k}$$

Thereby, Lead-Follower Ratio is determined by

$$LFR = \frac{T_l}{T_f}$$

By definition, a "leader" analyst is entitled with the LFR greater than one because she is more likely to the first move, resulting in a T_l greater than T_f. We would rank the analysts (both men and women analysts in the same list) according to their LFR. And by comparing women analysts' proportion on the 1st and 10th quintile with their proportion on the total number, we

could have a rudimentary conclusion whether women are intended to be "leader" or "followers".

Further, a regression model would be applied in the purpose to investigate whether women's LFR could be explained by their level of experience and affiliation situation or the fact of being a women does exert marginal influence on the intention to be "leader"/"follower". In the light of prior literature, analysts with more experience tend to be leader and affiliated analysts often react more quickly to the event in that their close connection with covered firm provide them with latest information. Thereby, the following regression is proposed:

$$LFR = \alpha_0 + \alpha_1 WOMEN + \alpha_2 EXPER + \alpha_3 AFFILI + \varepsilon$$

, where WOMEN is a dummy variable taking value of one in case that analyst is female; EXPER refers to analyst experience; and AFFILI accounts for analyst affiliation.

Additional to women's behavioral pattern in issuing earnings forecasts, it is worth investigating whether women financial analysts are less vulnerable to conflict of interests than their male counterparts. Prior literature about women mentality indicates that women attach more importance to ethnic value than men. Therefore, women might be less likely to surrender to the external pressure to issue biased outputs. In order to test the informativeness of outputs under the influence of conflicts of interest, we examine the stock recommendations issued by both men and women financial analysts and price reaction to them, in that "recommendations were the focal point of the complaints about conflicts of interest" (Kadan et al; 2009). While the gender identification still needs to be hand-collected, the information of stock recommendation could be obtained from I/B/E/S databases, which classifies all the recommendation into five scales from strong sell to strong buy. The conflicts of interest is measured by analyst affiliation: are labeled "affiliated" for those recommendations issued "during the two years following the equity offering by analysts who are employed by either its lead underwriter(s) or the co-manager(s)" (Kadan et al; 2008). The distribution of recommendations could be drawn respectively for male and female analysts to see whether there is a gender difference.

To examine whether gender is associated with difference price reaction to recommendations under different level of conflicts of interests, the following model is estimated for all recommendations issued by both men and women analysts:

$$\text{ABNRET} = \alpha_0 + \alpha_1 OPT + \alpha_2 NEU + \alpha_3 PES + \alpha_4 PASTFIRMPERF + \alpha_5 PASTMKTPERF + \alpha_6 MKTSTD + \alpha_7 STRENGTH + \alpha_8 EXPER + \varepsilon,$$

where *ABNRET* is the value of the size- and industry-adjusted abnormal returns surrounding the recommendation, *OPT*, *NEU* and *PES* are dummy variables taking value of 1 if

recommendation falls into the category of "Strong buy", "Hold" or "Strong sell", respectively. And past firm and market performance (*PASTFIRMPERF*, *PASTMKTPERF*) are controlled for any momentum effect. *STRENGTH* accounts for the dramatic changes in recommendation categories. Prior researches confirm that market is more responsive to dramatic changes, e.g. recommendation change from "Strong sell" to "Strong buy". *EXPER* refers to analyst experience.

We use the difference-in-difference approach to gauge whether women analysts are less affected by conflicts of interest. As suggested by the following table, analysts are categorized according to their level of affiliation ("affiliated" and "unaffiliated"), and the gender comparison is conducted for both categories. The difference-in-differences model would be applied to compare the difference between "affiliated man" analyst and "affiliated woman" analyst with the difference between "unaffiliated man" analyst and "unaffiliated women" analyst.

	Affiliated			**Unaffiliated**			**Difference-in-differences**
	Man	Woman	p-value	Man	Woman	p-value	p-value
	(1)	(2)	(1)=(2)	(1)	(2)	(1)=(2)	
OPT							
NEU							
PES							
PASTFIRMPERF							
PASTMKTPERF							
MKTSTD							
STRENGTH							
EXPER							

Eventually, the market reactions (abnormal return or price drift) to the products of women analysts should be observed in order to determine whether investors well recognize the competence of women financial analysts. Previous research indicates that the stock market participants have a stronger response to the forecast revisions issued by female analysts even though those forecasts are generally less covered by the public media. But the immediate

short-term market reaction is still incomplete, followed by a strong post-revision drift (Kumar; 2010).

5. Conclusion

Women have been persistently and globally underrepresented in many high profile positions. Nowadays, the gender disparity in the workplace has garnered considerable attention in both academia and media field. While an adequate literature has been documented regarding the gender issue in corporate arena, banking industry etc., this dissertation is interested in whether gender matters in the world of financial analysts, a subject which still awaits more comprehensive future researches. Prior literature in behavioral psychology and sociology confirms gender difference in many aspects including risk aversion, overconfidence, and ethnic value, to name just a little. On the other hand, studies of gender discrimination also reveal that women suffer from unequal treatment in labor market as well as career development.

In the context of financial analysts, even though a large body of researches has already studies from different aspects the nature of financial analysts and their contribution to the financial market, yet little has been achieved with regard to the gender concerns in this particular field. The existing studies about gender issues in financial analysts are mainly descriptive, i.e. proportion of representation, stock coverage, analyst experience, and narrowly limited to the U.S. sample. Thereby, further analysis could be brought to the behavioral pattern of women financial analysts, using the sample from countries other than U.S. For instance, the countries in European Union appear to be valuable object of studies, given that they share the same institutional system in a macro way but differ in practices as well as social and cultural background. Hence, this country-level comparison within EU countries would add new dimension to the gender concerns.

In this dissertation, subsequent to literature review about gender issues and financial analysts, respectively, future research direction has also been discussed, two research designs being proposed in detail. The first research proposal is dedicated to investigate whether female financial analysts are more likely to be “leader” analysts or “follower” analysts, while the second one tends to determine whether women analysts are less vulnerable to conflicts of interests compared with their male counterparts, in the hope of providing more insights regarding the behavior of women financial analysts.

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