International Journal of Asian Social Science
ISSN(e): 2224-4441
ISSN(p): 2226-5139
DOI: 10.18488/journal.1.2018.87.454.475
Vol. 8, No. 7, 454-475

URL: www.aessweb.com

PRIORITIZING THE RECOGNITION PATTERN OF AFFECTING FACTORS IN DEVIATION OF FORECASTS OF THE SENIOR MANAGERS IN ORGANIZATIONS

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Article History
Received: 1 May 2018
Revised: 17 May 2018
Accepted: 22 May 2018
Published: 31 May 2018

Keywords
Managers forecast disclosure
Forecast biases
Managers biased forecasts
Optimistic Bias
Pessimistic bias
Iran
Fuzzy Topsis.

ABSTRACT

The present study has been carried out aimed to prioritize factors affecting the deviation of forecasts of senior managers in conceptual model provided by Yavarzadeh *et al.* (2015) in which 38 cases of factors affecting the deviation in forecasting by senior managers in organizations have been introduced. The statistical population of this study includes middle and senior managers of one of the Iranian ministries and state-owned companies. The main questions of the questionnaire are related to all aspects of the conceptual model of the basic paper and fuzzy TOPSIS technique for the rating of each dimension of the model. According to analysis of fuzzy TOPSIS, the most important factors affecting deviation of forecasts in the dimension of deviation of management forecast by the senior manager are protection against the risk of litigation, management experiences, variable operational environment, the degree of management skills, unstructured reforms, wrong information, favorable results or favorable trends and external shocks. In the dimension of optimistic bias in the management forecast, the major factors affecting the forecast deviation respectively, appearing more productive and successful for others, more manager confidence and managers' behavioral biases and In the dimension of pessimistic bias in the management forecast, the most important factor effecting on the deviation of forecast include bad news, mandatory forecast disclosure and reducing market expectations. The result of this study can help to organizations in the field of forecasting and organizational policy, for example, attracting and promoting educated and competent human resource.

Contribution/ Originality: The paper's primary contribution is finding the main and most influencing factors affecting the deviation of management forecasts and prioritizing them, taking in mind that a small deviation in forecasts of top managers during decision making process will result in a huge bias in organizational outputs.

1. INTRODUCTION

The context of management is changing with a rapid pace nowadays. It seems that the economy and market conditions which companies have to face are changing quickly and unpredictably. Every day managers make decisions without knowing what is going to happen in the future (Waddell and Sohal, 1994). Organizational forecasting is the process of estimating future events for the aim of decision making and effective planning. This is

one the most important organizational tasks that makes managers able to anticipate the future and plan accordingly (Sanders, 1995). Forecasting is the estimation of some of future events and conditions which are uncontrollable by the organization and is fundamental for managerial planning (Smith *et al.*, 1996). Forecasting is important for organizations because it can assure that the resources are used effectively and also help in identifying accurate of the process of transaction of raw materials (Caruana, 2001). Managers are always attempting to estimate what is going to happen in the future and in the face of uncertainty (Waddell and Sohal, 1994). One of the most important factors of successful performance of an organization – if not the most important- is the forecasts of that organization (Klimberg *et al.*, 2011). Forecasting is an inseparable part of the planning of any organization (Waddell and Sohal, 1994). Forecasting ability of an organization can help them plan and shape their future (Smith *et al.*, 1996). Forecasting the future is an important input in the process of planning. Effective forecasting leads to better planning which means increased efficiency of the organization (Sanders, 1995).

The organization forecasting is a basis for all other business decisions. The quality of business decisions can only be as good as the forecasts on which they made. Forecasts are used for production scheduling, budget capital and attribution of resources to programs (Sanders, 1995). The forecast for influences on business decisions, such as budget, compensation, and financial reporting is important. Incorrect forecasting can reduce the effectiveness of the planning process and have a negative impact on production efficiency, cost management, and ultimately, the company's performance. Optimal decisions often involve forecasting the tastes and trends of the future, and future trends may differ from current trends with regard to factors such as the formation of habits, daily mood, swings, social impact, maturity, and environmental impact (Loewenstein *et al.*, 2003). Forecasts are main components of business decision making. If they are accurate, estimation of economic activities of future in specific working periods can set out strategies of big companies correctly in uncertain environment. However, if forecasts are incorrect, they may lead to bankruptcy (Smith *et al.*, 1996). Good forecasts are fundamental in efficient and effective management. Forecasts are an important modeling tool in strategic and tactical decision making (Waddell and Sohal, 1994). However, correct implementation and management of the process of forecast often face multiple problems and barriers (Sanders, 1995).

Yavarzadeh *et al.* (2015) in a research titled "Development of a Model for Identification of Reasons for Deviation in Forecasts" introduced 38 affecting factors on deviations in senior managers' forecasts in organization. The purpose of this study is to prioritize these factors from organizations managers' standpoint.

1.1. Main Question

Which of the affecting factors in management forecasting error, introduced in conceptual model, have a higher ranking in errors in decision making managers?

2. THEORETICAL LITERATURE REVIEW

2.1. The Importance of Managers' Forecasts in Investment and Economic Decision Making

Investors investing in companies and buying shares require information, such as forecasted earnings per share, and use this information for share pricing, especially in new companies with little history. Based on these forecasts, investors may sell their shares or keep them (Abzari *et al.*, 2012). Forecasts made by managers in IPOs are noticeable, especially since their power is effective on investors in IPO in companies which are generally in early stages of firm life cycle and situations that they do not attract many analysts as their publicly traded peers. Therefore, forecasts made in pre-IPOs are potentially stronger in affecting investor's decisions than forecasts made in other periods such as seasoned equity offerings. The reason for this is the higher information asymmetry between managers and investors in IPO firms between those of publicly traded firms (Waresul *et al.*, 2013). Since many analysts and investors make their decisions considering the existing information, and since the profit forecasted by managers is higher than the current profit and book value of capital, and forecasted income by managers is an

important criterion in companies' assessments and affects stock price of the company, so it is expected that managers of joint stock companies act with maximum accuracy in their forecasts (Samandar and Garkaz, 2014). In fact, forecasts are management's expectations of the company's future performance, so the accuracy of these forecasts is a key factor for investors, managers and creditors (Abzari *et al*., 2012).

2.2. Forecast Disclosure and Good and Bad News

Chan *et al*. (2007) found evidences which showed that bigger gap between market expectations and actual performance make the forecast more distinctive, but this works only for bad news forecasts. Skinner (1994) found out that increased disclosure only appears in case of irregular bad news forecasts. In case of regular forecasts, increased disclosure of bad news is not noticeable (Chan *et al*., 2007). Result of Baek *et al*. (2008) like the result of Diamond and Verrecchia (1991) shows that announcing the income when companies do not publish their forecasts or forecast bad news, decreases information asymmetry. In the announcing period there is no significant difference in information asymmetry between non-forecasters and bad news, while good news forecasts show increased information asymmetry compared to non-forecasters (Baek *et al*., 2008). When the likelihood judgment is dependent variable, in this case the factors can increase pessimism or decrease optimism that most notably tends to brace for bad news (Windschitl *et al*., 2010).

2.3. Managers Forecast Disclosure

One of the tools of interaction between managers and the market is the information presentation about companies' income forecast, and with this tool, companies could affect the market behavior (Samandar and Garkaz, 2014). Many researchers have studied the factors effecting managerial decisions to issue earning forecast. These factors include reducing information asymmetry and the risk of litigation while creating fame and a reputation for transparent reporting and driving down market expectations (Brown and Zhou, 2015). The Degree of deviation of the real earning to the forecast shows the ability of the management in future income forecasts (Hay *et al*., 2000).

2.3.1. Forecast Disclosure and Litigation

Skinner (1994) admits that timely disclosure of bad news earnings forecasts does not necessarily prevent litigations. However, he presents evidences that this type of disclosure may reduce the expenses of such litigations. Skinner also mentions the inner potential of forecast disclosures and future litigations. This was also confirmed by Field *et al*. (2005) study which used simultaneous equations in order to investigate the relation between forecast disclosure and litigations. They did not find any evidence which showed that the forecast disclosure will result in litigation, but found out forecast disclosure may prevent specific kinds of litigation (Chan *et al*., 2007). Managers may forecast the bad news to investors and in this way protect themselves against risk of litigation and loss of reputation (Skinner, 1994).

2.3.2. Fear of Job Loss and Management Forecasts

Senior managers and financial managers who suddenly emit bad financial forecasts may lose their jobs. Naturally, they might delay bad news as long as possible and neglect the worsening situation in the hope for a miracle to maintain their job for a few more months. Who will forecast a budget deficit, if they are at risk of dismissal, or risk elimination and a bankrupt organization is forecasted surplus economic goods? (Bliss, 2007).

2.3.3. Mangers' Past Experiences and Management Forecasts

The neglect of past experience is the most impressive aspect of planning error. In other words, people have optimistic forecasts for the future are to maintain a pessimistic view about their overall abilities, and timely completion of tasks. Why do people ignore easily valuable feedback from experience? A convincing argument by

Bilvor et al. in a research published in 1994, showed that one of the factors may tend to avoid self-blame for past failures (Pezzo *et al.*, 2006). Also, Buehler *et al.* (1994) have pointed out they tend to ignore the failures of the past as "past neglect" and show that this is a key factor in planning error (Buehler *et al.*, 1994). To reduce the negative impact of Self-awareness with past failures, planners are compared the failure to certain temporary factors, and controlled from the outside. Although this strategy is supported by Self-awareness, but, caused to be considered the past experiences as irrelevant to future conditions (Pezzo *et al.*, 2006).

2.3.4. The Effect of Managers' Personal Characteristics on Management Forecasts

Researchers of personality traits have long been interested in how many personality traits are required to differentiate between individuals. Hierarchical model of personality traits offer a variety of levels of explanations. Examples of five of these factors include: extraversion, neuroticism, conscientiousness, agreement and freedom. Each consists of six aspects of personality and represents a more detailed level of character. Despite the popularity of these five features, there is remarkable discussion about the relative merits of factors and evaluation of the aspects of personality (Anglim and Grant, 2014).

Comparing the predictive value of a model with 30 individual predictors with the five main predictors mentioned shows the challenge for researchers (Siegler and Brummett, 2000). Researchers of character are often seeking to forecast results such as welfare, job performance, and personality disorders along with other factors. Subsequently, researchers will decide whether these cases need to include other aspects of personality, or only use the five basic factors as predictors (Anglim and Grant, 2014). Past research has not always shown a significant relationship between the character and forecasts with regards to timely affairs; probably because these studies examined variables more dependent on the beginning of the study rather than the timely completion of a work, or the degree of positive outlook rather than a desire to focus on the work. When a significant relationship was found between personality and forecasting tendencies, the result concepts are uncertain, perhaps because the assigned tasks are to be done immediately and therefore required advanced planning (Pezzo *et al.*, 2006).

Managers have individual differences. There are many measures of individual differences mentioned in the studies. As it has been shown, none of them are particularly useful to determine who shows an optimistic versus pessimistic trend (Windschitl *et al.*, 2010). Buehler and Griffin (2003) also examined whether forecasting bias are linked to the individual differences in the level of optimism and delay or dodge. In two separate studies, a significant relationship was not found between forecasting prejudices and personality traits, probably because optimism and delay are related more to a general positive outlook; the work begins by the accuracy of the forecasting or completeness of work (Buehler and Griffin, 2003).

2.4. Managers' Confidential Information and Opportunistic Forecasting

As an insider, an manager has access to an extraordinary collection of information about the company's past, present and probably future (Waresul *et al.*, 2013). Considering the asymmetry of information inherent in the manager-shareholders relationship, managers have confidential and exclusive knowledge about future prospects and economic strength of their companies. Managers present information due to their private information and specific knowledge of their companies. Some of these disclosures are about future plans and strategies and estimations of future results, which can only be assessed in the future (Beniluz, 2005). In the case of no moral risk, it is expected of the managers to take advantage of this knowledge and disclose the most probable scenario of future cash flows and incomes of the company. This constitutes what might be called efficient forecasting. On the other hand, managers can use this advantage in order to maximize their personal interests in an opportunistic way (moral hazard) and misguide investors by forecasts which are made due to their own preferences. Such acts constitute what could be termed opportunistic forecasting (Waresul *et al.*, 2013).

2.5. Accuracy and Errors in Forecasting and Related Issues

The accuracy of forecasts has a vital impact on the organization (Klimberg *et al*., 2011). The value of forecasting is dependent on its accuracy and credibility (Brown *et al*., 2000). Confronting the fast-changing conditions of the market and intensive competitions in today's struggling economy, companies have recognized that they need to increase the accuracy of forecasts (Klimberg *et al*., 2011). It is harder to fetch accurate forecasting in today's economy and unstable business conditions. On the other hand, the technologies such as computers and different forecasting software have enhanced the forecasting process (Sanders, 1995). The accuracy of management incomes forecast is an important factor in creating and keeping the trust of investors about the validity of such financial disclosures (Ahmad-Zaluki and Wan-Hussin, 2010).

Profitability of forecasting is related to its difference from reality. If forecast accuracy is higher, its deviation will be lower (Abzari *et al*., 2012).

Accurate forecast of product demand is important for the companies because it has application in decisions about inventory control, production planning, purchasing, logistics, planning of cash flow and other aspects of business (Petropoulos *et al*., 2016). In the extrapolation of the trend, a false assumption is faced to fail all the set of accurate data and very accurate extrapolation and forecast got away from the truth. By changing the basic conditions, the conclusion of the process becomes absurd (Gordon, 2013). In a forecast, for example, these three errors can be detected in a statistic test: Using an assumption that is not eventually provable; Ignoring a hypothesis or an event that is proved in fact; and not asking the right questions, for example, ignored prospective thinking about the assumptions or events that will have a prominent role in the future (Godet, 1994).

There could be an interpersonal trust problem, as in cases in which forecast preparer and decision maker are not able to communicate. Even in the cases in which forecast preparer and decision maker are the same person, there could be problems (Sanders, 1995). Good forecasting is needed to be honest on the part of all those interested (Bliss, 2007).

2.6. Effective Factors in Accuracy and Error of Organization Forecasts

Organizations with higher number of non-executive managers in their audit committee and ones with a larger audit committee exhibit greater forecast accuracy (Ahmad-Zaluki and Wan-Hussin, 2010). Forecast accuracy of stock dividend increases with the ratio of retaining ownership in public offerings of the company stock and forecast ability of its future earnings. In addition, it seems to create a company's law is started the period that management forecasts be more accurate (Brown *et al*., 2000). Researches show the relation between ownership structure and forecast accuracy and found out that higher insider ownership will result in less credible management forecasts (Ahmad-Zaluki and Wan-Hussin, 2010). Also, if the organizations only intend that the forecast shows the breakeven point (without profit and loss) this removes any incentive for an accurate forecast. A Breakeven Forecast by the end of the year is easier; however, it is not a good practice (Bliss, 2007). A sample of 82 initial public offerings of securities (IPO) on the Euronext Paris Market (2000-2002) has shown that only two variables are dependent on the disclosure of very accurate predictions: forecast horizon and company age (Cazavan-Jeny and Jeanjean, 2007). Forecast period and type of industry does not have a meaningful relation to errors and bias of forecasting (Hay *et al*., 2000).

When the amount of details increases in the disclosure of the forecast, the forecast error is reduced. This strong finding is in terms of reverse causality tests and suggests that the amount of details in the disclosure of the forecast increases the reliability of the earnings forecast (Cazavan-Jeny and Jeanjean, 2007). Another study found some factors affecting revenue forecast as follows: the amount of disclosed information, company size, financial leverage, age, diversity of earning changes, the performance of the previous year, operating profit, earnings per share (EPS), audit quality, economic value added (EVA), integration, employee rewards for the purchase of shares, environmental factors, information asymmetry, accruals, information environment, etc (Abzari *et al*., 2012). Tests of error

determinant factors show that larger companies have more accuracy in their forecasts (Hay *et al.*, 2000). Yavarzadeh *et al.* (2015) have introduced 33 instances of effective factors on organizations forecasts (Table 1).

Table-1. Factors Affecting the Company's Forecasts (Yavarzadeh *et al.*, 2015)

Factors affecting the forecasts of organization income and profit		
Amount of Sales	Voluntary and mandatory policy of forecasts presentation	Organization Size
Environmental factors	Annual adjustments	Forecast horizon
Information asymmetry	Amount of disclosed information	Age of Organization
Accruals	A variety of changes in income	Economic conditions
Informational environment	The previous years performance	The amount of detail in the disclosure of forecast
A false assumption	The predictability of future earnings	Duration time of forecast
Change the basic conditions	The presence of analysts in the capital market	The nature of the industry
Volatility of efficiency	Operating profit	Forecast period
Exposure to legal liabilities	Earnings per share	Financial Leverage
The degree of skill and experiences	Audit Quality	Maintain ownership
Forecasting style	Economic Value Added (EVA)	Corporate governance

Source: Yavarzadeh *et al.* (2015)

2.7. Errors in Management Forecasts

Managers as decision-makers and suppliers of finance information likely have confidential information about their company business outlook and production processes of accruals. Therefore forecast of management revenues can lack reliable errors on the basis of historically reported accruals. However, in a changing operating environment, a manager's knowledge of his/her company business prospect is incomplete which can lead to unintentional errors in assessing the future of the company's performance. When managers have the flexibility to transfer their incomplete assessment of the business through both accrual and forecasts of their earnings, both the information disclosures are likely to include common errors (Gong *et al.*, 2009). Some researchers beleive that it is not proven that management forecasts are accurate. Specifically, produced time series models may be as well as management forecasts. These results are similar to results of Elton and Gruber studies (Jarrett and Khumuwala, 1987).

2.7.1. Forecast Biases (Orientations)

Forecasting accuracy can be defined as a degree to which actual results exceed or trail corresponding forecasts, while forecast biases is the degree to which actual results fall short compared to corresponding forecasts (Waresul *et al.*, 2013). Systematic bias of forecast can be a result of reasons such as model designation issues to unnecessary corrections of forecast that may reflect overconfidence, intuition and political considerations (Utley, 2011). Systematic bias may even weaken the accuracy of simplest demand forecasts (Utley, 2014).

There are many studies that mention inherent biases of forecasting in a judging way. These biases include lack of consistency, tendency to over forecast, anchoring effects and wishful thinking (Sanders, 1995). Experimental findings confirm the theory that claims negative relation between optimistic bias and accounting quality is more notable in cases with stronger motivations towards information bias. Generally, Managers tend to have optimistic bias about their own company's information. These motivations root in managers' fondness in higher stock prices, compensation contracts, functional assessment, credit concerns, promotion prospects and future job opportunities (Beniluz, 2005). Although, registered bias in forecasting may be unintentional, for example salesmen with an optimistic approach or a limited presentation of organization purposes. Forecasting literature shows that over forecasting and optimism are the most common types of bias in organization forecasting (Sanders, 1995).

Predictors are added to time series forecasts in most unstructured emotional reforms. This can be a source of bias and prejudice. For example, managers can change the sale forecast by pride style to motivate employees. Retailers may change the forecast so that it can be more easily surpassed. So it is not surprising that some early

studies have shown unstructured reforms often damage forecasts (Armstrong, 2006). A problem more important than the forecast accuracy is whether the bias in the forecast is a major factor of avoidance. This is a big concern during judgment. In a survey about the prejudices that developed in human judgment; the investigation revealed how these prejudices could lead to serious errors in forecasting and planning (Erickson, 1987).

How much does a desired result affect possible judgments or establish optimism? The number of published studies on this question is not convincing (Krizan and Windschitl, 2007). Desirable attitudes (prejudice) are generally too weak or do not exist in cases where there is uncertainty and forecasting is not a coincidence, unless a person is unsure that he only guesses about results, or allows only his views and understanding of evidence to guide his forecasts (Windschitl *et al.*, 2010). Tests that directly checked prejudices have had mixed results (Vosgerau, 2009). This can also be seen in a book chapter titled "Wishful Thinking in Forecasting of the World Cup Results: the Deceptive" (Bar-Hillel *et al.*, 2008). Windschitl *et al.* (2010) in the study "The Favorable Trend in the Forecasting: Optimism without Being Realistic", shows that the impact of favorable results must be comprehensible in the following two ways: First, people may express optimistic or pessimistic tendencies in no large scale, and how they assess the probability of a desired outcome and the estimation of these probabilities must be shown to have been done in a common practice. Second, people may have an optimistic image about the potential consequences, but this optimism becomes apparent only when using some certain measures (for example, a forecast of the outcome, the special possible measures are used to encourage and facilitate the expression of opinion) (Windschitl *et al.*, 2010). In fact, a widespread human tendency is to rely on being optimistic and maintaining positive thoughts and balanced and stable conditions (Lench and Ditto, 2008). Although Orientations (biases) of optimistic forecast are common, these errors are not created by anyone in particular. In some studies, participants offered forecasting that either is completely accurate (e.g. has no significant tendency) or is relatively pessimistic (e.g. is finished earlier than expected). Totally these findings suggest that there are differential trends for creating the prejudices in forecasts. However, exactly what features are connected to which people is not clear (Pezzo *et al.*, 2006).

2.7.2. Managers Biased Forecasts and Planning Error

Almost in all organizations Forecast is an important input in planning. In a recent study of 175 companies, 92 percent of participants stated that forecasting has been an important factor in their organizations' success (Smith *et al.*, 1996).

In the first theoretical analysis of planning error, Kahenman and Turesky adopted a predominantly cognitive approach of an individual's tendency to judgment error rather than informed statistical judgments. Kahenman and Toresky argued that people presented biased forecasts because they focused on specific information, (For example, the specific features of a given task) regardless of the distributed information (e.g. description of the individual work and the completion of a typical task for the general population (Pezzo *et al.*, 2006). Also, the manager's upward forecast of dividend is biased as a forecast of company earnings. However, the dividend forecasts are substantially more accurate and less biased than their colleagues incomes (Brown *et al.*, 2000). Studies have found that participants who have done forecasts as compared to other people (and people who may have no incentive to past failures) have shown less planning biases (Buehler *et al.*, 1994; Pezzo *et al.*, 2006). It has been shown that as the systems which are trying to forecast their behavior become more complex, planning is becoming irrelevant (Lindgren and Bandhold, 2003) Yavarzadeh *et al.* (2015) have introduced 19 instances of effective factors the deviation in management forecasting by senior manager (Table 2).

Table-2. The factors affecting the deviation in management forecasting - by senior manager (Yavarzadeh *et al.*, 2015)

row	The factors affecting the deviation in management forecasting - by senior manager	row	The factors affecting the deviation in management forecasting - by senior manager
1	Avoiding losses forecast (trying to keep the job and promotion, setting a desire target for performance; future efforts, pressure from corporate governance structure)	11	Biased forecasts
2	Bias and personal motivations	12	unstructured Reforms
3	Fear of loss of reputation	13	Bias (the main cause of avoidable)
4	Avoid of decreasing reputation	14	Favorable results or favorable trends
5	Fear of job loss	15	Chimera
6	Protection against the risk of litigation	16	The degree of management skills
7	Less flexibility in accounting	17	Management experiences
8	External shocks	18	Personal motivation of management (optional disclosure of forecasts)
9	variable Operational environment	19	Wrong information (optional disclosure of forecasts)
10	The separation of ownership		

Source: Yavarzadeh *et al.* (2015)

2.8. Optimistic and Pessimistic Biases in Management Forecasts

Forecasting inaccuracy is symmetric, whereas optimistic forecasting is asymmetric. Accurate forecasting is neutral and objective, whereas optimistic forecasting is not (Waresul *et al.*, 2013). Considering profit management, Brown and Zhou (2015) argue that an optimistic bias (actual income < forecast) often happens when managers are awaiting loss reports, because they might take efforts to exacerbate the loss (which may result in a large optimistic forecast error), hoping to have a more success in the next year. However, when managers are expecting profits, a slightly pessimistic bias (forecast < actual earnings) often happens, because they attempt to overcome analyzers forecasts by small amount. Some researchers investigated the difference of forecasting errors between companies which report losses and companies which report profits. Findings showed that the median forecast error is more optimistic for companies reporting losses (Mande *et al.*, 2003). When people who speculate about the possible outcomes have an optimistic forecast, this is an important conclusion, because many aspects of a company's daily life are tied to the forecast of results which are fully or partially random (Windschitl *et al.*, 2010).

Table-3. The factors affecting the optimistic bias in the management forecast (Yavarzadeh *et al.*, 2015)

row	The factors affecting the optimistic bias in the management forecast	row	The factors affecting the optimistic bias in the management forecast
1	More manager confidence	9	Better understanding of optimism by others
2	Behavioral biases	10	Widespread human tendency to optimism, positive thinking and harmony and stability condition
3	Management opportunism	11	Avoiding blaming yourself for the experienced problems
4	Avoiding losses forecast	12	To obtain the desired value of the market (with motivation of job security, services compensation, obtaining reward based on performance, financing etc.)
5	The opinion is false	13	Appearing more productive and successful for others
6	litigation of error of managers forecast is not important	14	Accruals (High accrual- optimism)
7	Necessity of optimism for achieving the targets	15	Voluntary forecast disclosure
8	Compatibility of optimistic attitude with maintaining positive situation		

Source: Yavarzadeh *et al.* (2015)

One of the reasons for optimistic trends in forecasts is that in order to avoid self-blame managers may reduce problems experienced in similar cases (Pezzo *et al.*, 2006). Another reason is a false opinion (false thinking) they put above all other ideas, especially when this results in the desired forecast (Buehler *et al.*, 1997). People may present optimistic forecasts in order to appear more productive and more successful. A study by Pezzo *et al.* (2006) found that participants who presented unknown forecasts had not shown an optimistic trend (Pezzo *et al.*, 2006).

Yavarzadeh *et al.* (2015) have introduced 15 instances of effective factors the optimistic bias in the management forecast (table 3) and 4 instance of effective factors the pessimistic bias in the management forecast (table 4).

Gounopoulos *et al.* (2013) findings in a study on the "Voluntary Forecasts of Management Profit in IPOs, against Mandatory Forecasts ", indicates that a pessimistic revenue forecast at a time when companies are required to publicly offer next year profit changes to an optimistic forecast when shifted to a voluntary period. Comparing two time periods in the study showed that forecasting of compulsory income could force companies to anticipate what they had neither the motivation nor the ability to do (Gounopoulos *et al.*, 2013).

Table-4. The factors affecting the pessimistic bias in the management forecast (Yavarzadeh *et al.*, 2015)

row	The factors affecting the pessimistic bias in the management forecast
1	Mandatory forecast disclosure (have neither motivation nor the ability to do it)
2	Reducing market expectations
3	Bad news - increasing pessimism
4	accruals (Accrual low – pessimism)

Source: Yavarzadeh *et al.* (2015)

2.9. The Combination of Duties of Senior Managers and Affecting Factors the Duty of Forecasting of Senior Managers

Any manager in order to survive and develop his organization, must do situational assessments, consider the variables affecting the organization, and forecast the effect of these variables on organization. A manager must prepare his organization with prospective for situational changes and lead the organization to synchronize with the conditions (Yavarzadeh *et al.*, 2015). Figure 1 shows the most important factors affecting the combination of duties of senior managers.

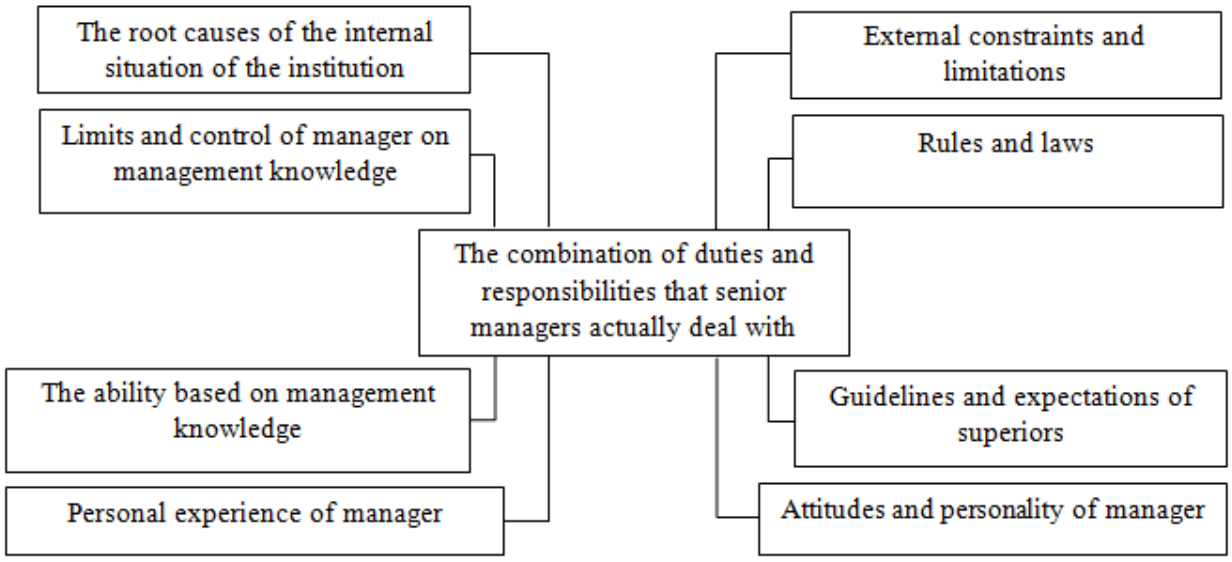

Figure-1. The most important effective factors on the combination of duties of senior managers (Sarrafizadeh, 1994)

Source: Sarrafizadeh (1994)

Factors presented in Figure 1, are the factors which can potentially affect managers duties and also management forecasts. Some of these factors have been tested in studies done both in and out of country, and others can be studied in future researches (Yavarzadeh *et al*., 2015).

Yavarzadeh *et al.* (2015) merged the factors affecting organization forecast and senior manager's forecasts and factors affecting the combination of senior managers' duties (Figure1) and determined the factors affecting the forecasting task of senior managers (Figure 2).

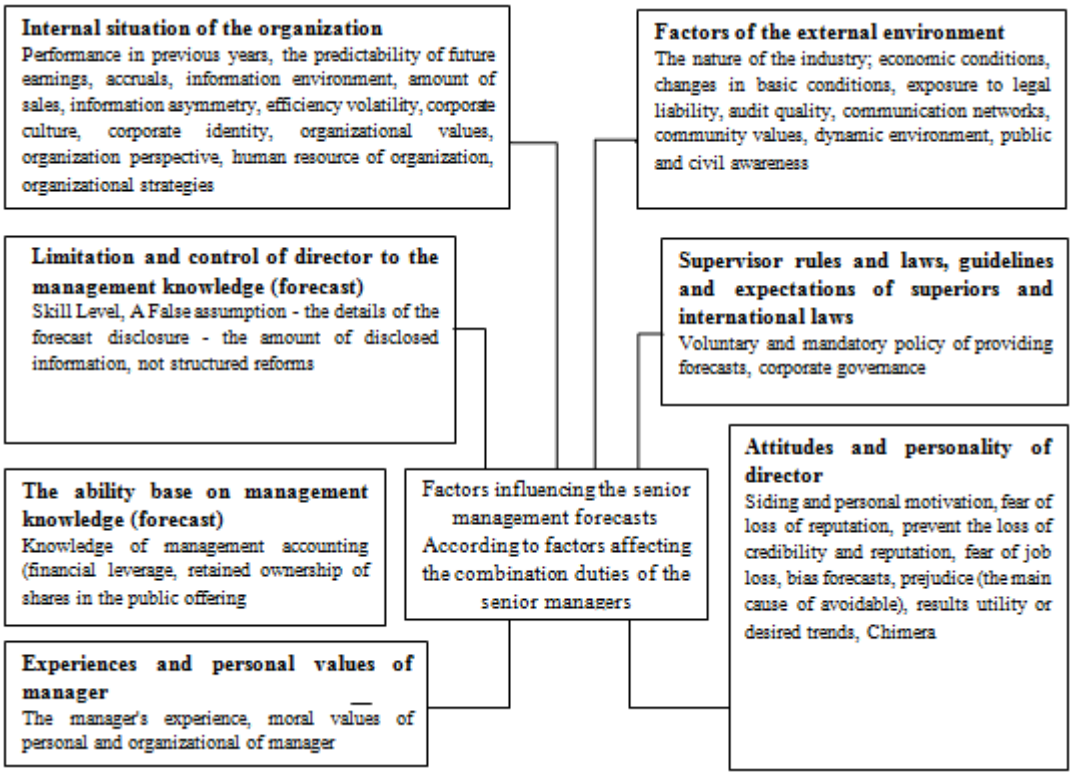

Figure-2. The factors affecting the forecasting duty by Senior Managers (Yavarzadeh *et al*., 2015).
Source: Yavarzadeh *et al.* (2015)

2.9.1. What the Manager Needs to Know about Forecasting

The manager needs to have broad view of forecasting. This vast expertise can be divided into three areas: 1- He must be aware of a wide range of available techniques, but not necessarily detailed information like mathematic. A manager must have a good general knowledge of the wide range of techniques and needs to know what differences they make. Then he will be able to have an initial judgment on what applies to his situation. Perhaps a more important issue is that such knowledge will make a manager more confident and more reliable while participating in a conversation with other experts. 2- He must be aware of former forecast errors. This means using any opportunity to find out information about forecasting that applied in other organizations. Many organizations and individuals have made wrongs in the past. 3- He must be able to make connection between forecasts and management systems. This is the essence of manager role (Barron and Targett, 1986).

3. LITERATURE REVIEW

Some researchers studied management forecasting as a criterion for disclosure quality in a sample of 275 out of 500 companies in the United States from 1995 to 2000. They found out that the percentage of outside managers is directly related to higher accuracy of forecast which is measured by the amount of absolute value of the forecast errors (Ahmad-Zaluki and Wan-Hussin, 2010).

Tanweer *et al.* (2016) in a study titled "The accuracy of management profit forecasts in IPO prospectuses" calculated the accuracy of management profit forecasts, or forecast errors, in IPO prospectuses by a multivariate model. They also investigated the factors affecting any type of forecasting errors observed in Indonesia. They studied IPO of 105 companies in a period of 10 years, 1999 to 2008 and by a multivariate analysis, and found out that the forecast horizon and management optimism are the most significant determinants of forecast error in Indonesia (Tanweer *et al.*, 2016).

Years ago a comparative study between management forecasts and standard and poor forecasts had been conducted. In this study, the relative accuracy of management forecasts was compared to analyst forecasts before and after the management forecasts release. He found out that management forecasts were more accurate than both group of analyst forecasts. Although, were not confirmed at statistically significant levels (Jarrett and Khumuwala, 1987).

Gong *et al.* (2009) examined the relationship between the management forecast error of revenues in the year after and accrual in the current year. They assumed that management earnings forecast showed more optimism (pessimism) when accruals were relatively high (low). Consistent with this hypothesis, they found that there was a positive relationship between forecast error of management earning and accrual. This positive relationship for companies operating in a business environment is more uncertain, and companies in industries that offer a larger synchronize changes between accruals and activities related to growth is stronger. In addition, when this positive relation is significant, that most likely reflected the true beliefs of management about perspectives of the company's business, but it disappears when accruals are manipulated to increase the profits of the managers business (Gong *et al.*, 2009).

Yavarzadeh *et al.* (2015) in a research titled "Development of a Model for Identification of Reasons for Deviation in Forecasts" investigated the researches done in the field of organization and management forecasts by the meta-analysis method, In a period of 30 years (1985 - 2015). Their research results showed that trends in optimistic and pessimistic forecasting and senior managers are the main reasons of deviations in management forecasts. Moreover, it did not confirm that voluntary forecasts are responsible for increased accuracy in forecasting by management, and there were contradictions in The fields. The results of meta-analysis also indicated that some studies considered voluntary disclosure of forecasting as a factor in the reliability of the forecasting. Some researchers consider it as a factor of an optimistic trend of forecasting and others consider it as a factor effecting deviation from forecasting by management directly due to the individual motivation of managers and inaccuracy of information on which the decisions were made. According to the findings, it was not confirmed that voluntary forecasting on its own is a factor in the accuracy of forecasting.

4. CONCEPTUAL MODEL

Yavarzadeh *et al.* (2015) introduced 38 affecting factors the deviations in senior managers' forecasts in organization in their model (Figure 3). Table 5 shows these factors divided into the affecting factors on deviation in forecast and index titles.

Table-5. The factors affecting the deviation in forecasting by senior managers in organizations

row	The factors affecting the deviation in forecasting	Index of Title
1	The deviation in management forecasting - by senior manager	Avoiding losses forecast (trying to keep the job and promotion, setting a desire target for performance; future efforts, pressure from corporate governance structure)
2		Bias and personal motivations
3		Fear of loss of reputation
4		Avoid of decreasing reputation
5		Fear of job loss
6		Protection against the risk of litigation
7		Less flexibility in accounting
8		External shocks
9		variable Operational environment
10		The separation of ownership
11		Biased forecasts
12		unstructured Reforms
13		Bias (the main cause of avoidable)
14		Favorable results or favorable trends
15		Chimera
16		The degree of management skills
17		Management experiences
18		Personal motivation of management (optional disclosure of forecasts)
19		Wrong information (optional disclosure of forecasts)
20	The optimistic bias in the management forecast	more manager confidence
21		Behavioral biases
22		Management opportunism
23		Avoiding losses forecast
24		The opinion is false
25		litigation of error of managers forecast is not important
26		Necessity of optimism for achieving the targets
27		Compatibility of optimistic attitude with maintaining positive situation
28		better understanding of optimism by others
29		Widespread human tendency to optimism, positive thinking and harmony and stability condition
30		Avoiding blaming yourself for the experienced problems
31		To obtain the desired value of the market (with motivation of job security, services compensation, obtaining reward based on performance, financing etc.)
32		Appearing more productive and successful for others
33		Accruals (High accrual- optimism)
34		Voluntary forecast disclosure
35	The pessimistic bias in the management forecast	Mandatory forecast disclosure have neither motivation nor the ability to do it
36		Reducing market expectations
37		Bad news - increasing pessimism
38		Accruals (Low Accrual– pessimism)

Source: Current Study (By Researchers)

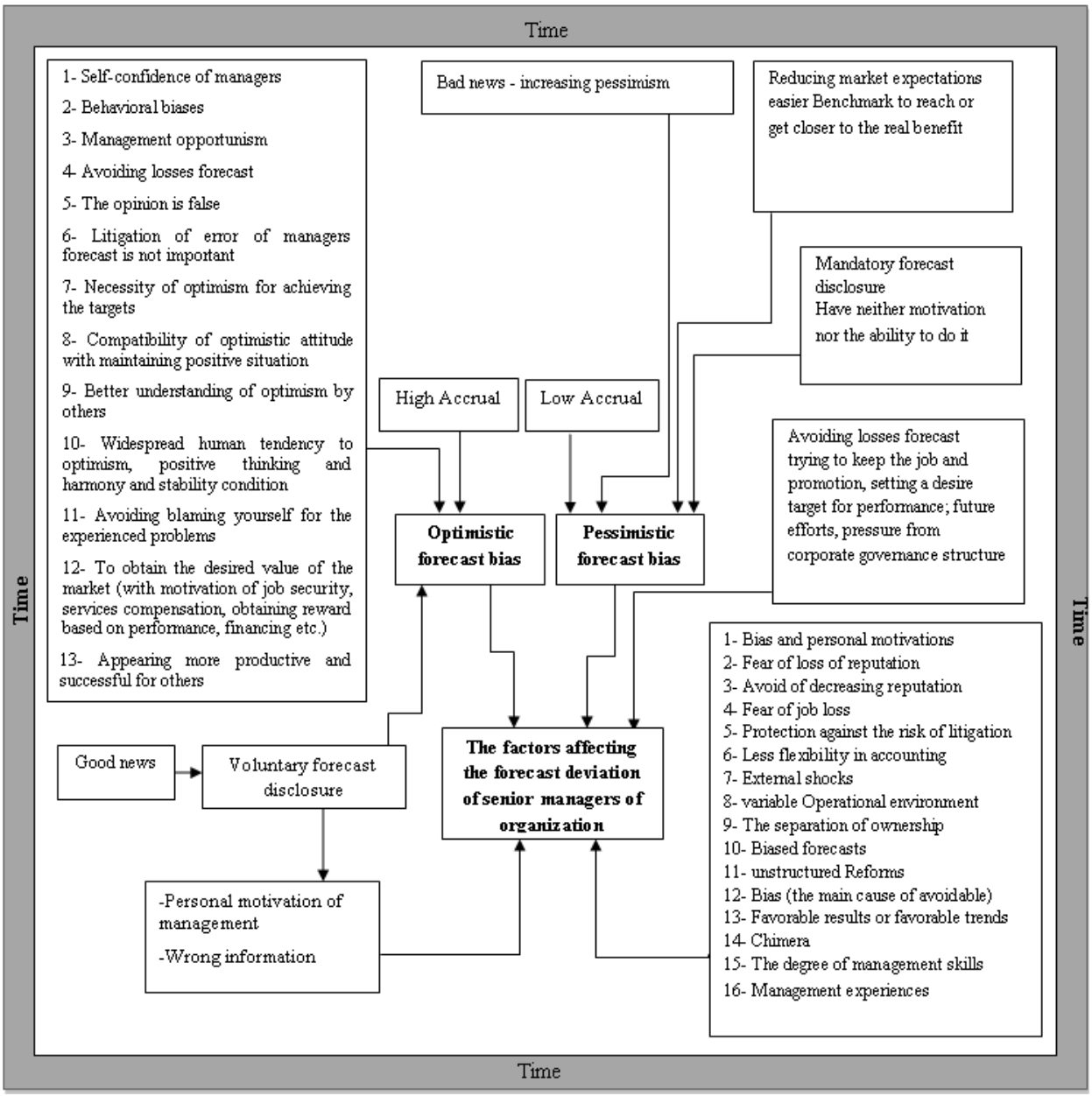

Figure-3. The conceptual model of the factors affecting the deviation in Forecasting by Senior Managers (Yavarzadeh *et al.*, 2015)
Source: Yavarzadeh *et al.* (2015)

5. RESEARCH METHODOLOGY

Research method is quantitative, and in terms of aim, it is considered as a case study. It study was conducted as a case study and data was collected by questionnaire. Also, this study in terms of the results of research is considered as a developmental and applied study. Statistical population includes middle and senior managers of one of ministries and state-owned companies of Iran, to do research according to the number of middle and senior managers of ministry and state-owned enterprises affiliated to it and according to Morgan table, 60 questionnaires were prepared and distributed between senior and middle managers, of these, 43 questionnaires were completed and returned. The questionnaire consisted of two parts: demographic and the main questions, the original questions were raised from all aspects of the conceptual model "The conceptual model of the factors affecting the deviation in Forecasting by Senior Managers (Yavarzadeh *et al.*, 2015) to rank these factors from the perspective of managers.

Different models are exist for ranking priorities of different factors in various studies, the most famous of which is family of Multiple Criteria Decision Making (MCDM) involving different techniques like Technique for Order Preference by Similarity to Ideal Solution (TOPSIS). According to the consistency that exists between TOPSIS

model and research needs, this model has been used for ranking. TOPSIS technique is based on the concept that the selected options have the smallest distance with the negative ideal solution (worst possible) (Salamzadeh and Rezai, 2017).

According to the capability outlined in fuzzy TOPSIS, in this study, fuzzy TOPSIS technique was used to rank within each dimension of model.

6. THE FUZZY TOPSIS ANALYSIS RESULTS

6.1. Demographic Characteristics of the Sample

Table-6. Demographic characteristics of the Sample

Variable		Frequency	Percentage
Gender	Male	41	95.5
	Female	2	4.5
	Total	43	100
Age	Less than 45 years	20	46.5
	Between 45-55	21	49
	More than 55 years	2	4.5
	Total	43	100
Education	Diploma	0	0
	Associate Degree	0	0
	Undergraduate	23	53.5
	Masters	18	42
	PhD and higher	2	4.5
	Total	43	100
Work Experience of Management	Less than 5 years	7	16.3
	5 to 10 years	12	28
	11 to 15 years	16	37.2
	16 to 20 years	1	2.3
	More than 20 years	7	16.2
	Total	43	100

Source: Current Study (By Researchers)

6.2. Analysis Results

To prioritize factors affecting the diversion of management forecasts, the factors at 3 dimensions of the conceptual model, (1) deviation of management forecast by the senior manager, (2) The optimistic bias in the management forecast, and (3) The pessimistic bias in the management forecast, were analyzed using fuzzy TOPSIS method. The following tables show the analysis.

6.2.1. The Deviation in Management Forecasting - By Senior Manager

Table-7. Primary matrix

	Index	LFi	MFi	UFi
S1	Avoiding losses forecast (trying to keep the job and promotion, setting a desire target for performance; future efforts, pressure from corporate governance structure)	3.372093	3.534884	3.488372
S2	Bias and personal motivations	7.302326	7.418605	7.348837
S3	Fear of loss of reputation	7.395349	7.55814	7.511628
S4	Avoid of decreasing reputation	7.604651	7.72093	7.651163
S5	Fear of job loss	7.255814	7.418605	7.372093
S6	Protection against the risk of litigation	8.488372	8.651163	8.604651
S7	Less flexibility in accounting	7.395349	7.511628	7.44186
S8	External shocks	7.697674	7.813953	7.744186
S9	variable Operational environment	8.27907	8.395349	8.325581

S10	The separation of ownership	6.372093	6.488372	6.418605
S11	Biased forecasts	6.069767	6.186047	6.116279
S12	unstructured Reforms	8.209302	8.27907	8.209302
S13	Bias (the main cause of avoidable)	7.604651	7.674419	7.604651
S14	Favorable results or favorable trends	7.837209	7.906977	7.837209
S15	Chimera	5.395349	5.395349	5.395349
S16	The degree of management skills	8.209302	8.372093	8.325581
S17	Management experiences	8.395349	8.55814	8.511628
S18	Personal motivation of management (optional disclosure of forecasts)	6.55814	6.72093	6.674419
S19	Wrong information (optional disclosure of forecasts)	7.860465	7.976744	7.906977

Source: Current Study (By Researchers)

Table-8. Normalized Matrix

	Index	NLFi	NMFi	NUFi
S1	Avoiding losses forecast (trying to keep the job and promotion, setting a desire target for performance; future efforts, pressure from corporate governance structure)	0.391892	0.410811	0.405405
S2	Bias and personal motivations	0.848649	0.862162	0.854054
S3	Fear of loss of reputation	0.859459	0.878378	0.872973
S4	Avoid of decreasing reputation	0.883784	0.897297	0.889189
S5	Fear of job loss	0.843243	0.862162	0.856757
S6	Protection against the risk of litigation	0.986486	1.005405	1
S7	Less flexibility in accounting	0.859459	0.872973	0.864865
S8	External shocks	0.894595	0.908108	0.9
S9	variable Operational environment	0.962162	0.975676	0.967568
S10	The separation of ownership	0.740541	0.754054	0.745946
S11	Biased forecasts	0.705405	0.718919	0.710811
S12	unstructured Reforms	0.954054	0.962162	0.954054
S13	Bias (the main cause of avoidable)	0.883784	0.891892	0.883784
S14	Favorable results or favorable trends	0.910811	0.918919	0.910811
S15	Chimera	0.627027	0.627027	0.627027
S16	The degree of management skills	0.954054	0.972973	0.967568
S17	Management experiences	0.975676	0.994595	0.989189
S18	Personal motivation of management (optional disclosure of forecasts)	0.762162	0.781081	0.775676
S19	Wrong information (optional disclosure of forecasts)	0.913514	0.927027	0.918919

Source: Current Study (By Researchers)

Table-9. Final ranking related to the proximity to the positive ideal

Row	Rank	Index	d+	d-	CCi
1	S6	Protection against the risk of litigation	0.008403	0.997329	0.991645
2	S17	Management experiences	0.015682	0.986519	0.984353
3	S9	variable Operational environment	0.032017	0.968484	0.967999
4	S16	The degree of management skills	0.036025	0.964898	0.964008
5	S12	unstructured Reforms	0.043412	0.956764	0.956596
6	S19	Wrong information (optional disclosure of forecasts)	0.080372	0.919837	0.919645
7	S14	Favorable results or favorable trends	0.086571	0.913522	0.913437
8	S8	External shocks	0.099255	0.900918	0.900763
9	S4	Avoid of decreasing reputation	0.11005	0.890107	0.889967
10	S13	Bias (the main cause of avoidable)	0.113578	0.886495	0.88643
11	S3	Fear of loss of reputation	0.129973	0.870307	0.870063
12	S7	Less flexibility in accounting	0.134349	0.865784	0.865669
13	S2	Bias and personal motivations	0.145151	0.854973	0.854867
14	S5	Fear of job loss	0.146163	0.854091	0.853874

15	S18	Personal motivation of management (optional disclosure of forecasts)	0.227166	0.773014	0.772875
16	S10	The separation of ownership	0.253214	0.746867	0.746807
17	S11	Biased forecasts	0.288342	0.711733	0.71168
18	S15	Chimera	0.372973	0.627027	0.627027
19	S1	Avoiding losses forecast (trying to keep the job and promotion, setting a desire target for performance; future efforts, pressure from corporate governance structure)	0.59735	0.402781	0.402728

Source: Current Study (By Researchers)

According to the results of fuzzy TOPSIS analysis in the dimension of deviation of management forecast by the senior manager, it became clear that according to the views of senior managers of organization, the following factors are the closest to positive ideal factors, and in fact has the highest priority in order and the other factors in table 7, have got the 9 to 19th rank, (1) Protection against the risk of litigation, has the highest priority in the diversion of management forecast by senior manager, then, (2) Management experiences, (3) variable Operational environment, (4) The degree of management skills, (5) unstructured reforms, (6) Wrong information (optional disclosure of forecasts), (7) Favorable results or favorable trends, (8) External shocks.

6.2.2. The Optimistic Bias in the Management Forecast

Table-10. Primary matrix

	Index	LFi	MFi	UFi
S1	More manager confidence	8.697674	8.860465	8.813953
S2	Behavioral biases	8.348837	8.418605	8.348837
S3	Management opportunism	7.55814	7.674419	7.604651
S4	Avoiding losses forecast	7.674419	7.837209	7.790698
S5	The opinion is false	6.44186	6.604651	6.55814
S6	litigation of error of managers forecast is not important	7.069767	7.139535	7.069767
S7	Necessity of optimism for achieving the targets	7.418605	7.534884	7.465116
S8	Compatibility of optimistic attitude with maintaining positive situation	7.395349	7.511628	7.44186
S9	better understanding of optimism by others	6.674419	6.790698	6.72093
S10	Widespread human tendency to optimism, positive thinking and harmony and stability condition	7.302326	7.418605	7.348837
S11	Avoiding blaming yourself for the experienced problems	7.651163	7.72093	7.651163
S12	To obtain the desired value of the market (with motivation of job security, services compensation, obtaining reward based on performance, financing etc.)	7.651163	7.813953	7.767442
S13	Appearing more productive and successful for others	8.72093	8.883721	8.837209
S14	Accruals (High accrual- optimism)	7.790698	7.906977	7.837209
S15	Voluntary forecast disclosure	7.093023	7.209302	7.139535

Source: Current Study (By Researchers)

Table-11. Normalized Matrix

	Index	NLFi	NMFi	NUFi
S1	More manager confidence	0.984211	1.002632	0.997368
S2	Behavioral biases	0.944737	0.952632	0.944737
S3	Management opportunism	0.855263	0.868421	0.860526
S4	Avoiding losses forecast	0.868421	0.886842	0.881579
S5	The opinion is false	0.728947	0.747368	0.742105
S6	litigation of error of managers forecast is not important	0.8	0.807895	0.8
S7	Necessity of optimism for achieving the targets	0.839474	0.852632	0.844737
S8	Compatibility of optimistic attitude with maintaining positive situation	0.836842	0.85	0.842105
S9	better understanding of optimism by others	0.755263	0.768421	0.760526

S10	Widespread human tendency to optimism, positive thinking and harmony and stability condition	0.826316	0.839474	0.831579
S11	Avoiding blaming yourself for the experienced problems	0.865789	0.873684	0.865789
S12	To obtain the desired value of the market (with motivation of job security, services compensation, obtaining reward based on performance, financing etc.)	0.865789	0.884211	0.878947
S13	Appearing more productive and successful for others	0.986842	1.005263	1
S14	Accruals (High accrual- optimism)	0.881579	0.894737	0.886842
S15	Voluntary forecast disclosure	0.802632	0.815789	0.807895

Source: Current Study (By Researchers)

Table-12. Final ranking related to the proximity to the positive ideal

Row	Rank	Index	d+	d-	CCi
1	S13	Appearing more productive and successful for others	0.008182	0.997399	0.991863
2	S1	More manager confidence	0.009366	0.994767	0.990673
3	S2	Behavioral biases	0.052763	0.947376	0.947244
4	S14	Accruals (High accrual- optimism)	0.112411	0.887736	0.887606
5	S4	Avoiding losses forecast	0.1213	0.878982	0.878734
6	S12	To obtain the desired value of the market (with motivation of job security, services compensation, obtaining reward based on performance, financing etc.)	0.123927	0.87635	0.876108
7	S11	Avoiding blaming yourself for the experienced problems	0.131632	0.868429	0.868376
8	S3	Management opportunism	0.138702	0.86142	0.861315
9	S7	Necessity of optimism for achieving the targets	0.154481	0.845631	0.845537
10	S8	Compatibility of optimistic attitude with maintaining positive situation	0.157111	0.843	0.842907
11	S10	Widespread human tendency to optimism, positive thinking and harmony and stability condition	0.167631	0.832474	0.832386
12	S15	Voluntary forecast disclosure	0.191305	0.80879	0.808714
13	S6	litigation of error of managers forecast is not important	0.197404	0.80264	0.802605
14	S9	Better understanding of optimism by others	0.238658	0.761423	0.761361
15	S5	The opinion is false	0.260641	0.739514	0.739399

Source: Current Study (By Researchers)

According to the results of fuzzy TOPSIS in the dimension of the optimistic bias in the management forecast, it became clear that according to the views of senior managers of organization, (1) Appearing more productive and successful for others, (2) More manager confidence, and (3) Behavioral biases, respectively are closest factors to the positive ideal factor and have the highest priority, the rest of factors in table 10, have got the 4 to 15th rank.

6.2.3. The Pessimistic Bias in the Management

Table-13. Primary matrix

	Index	LFi	MFi	UFi
S1	Mandatory forecast disclosure have neither motivation nor the ability to do it	7.604651	7.72093	7.651163
S2	Reducing market expectations	7.325581	7.44186	7.372093
S3	Bad news - increasing pessimism	8.069767	8.186047	8.116279
S4	Accruals (Low Accrual– pessimism)	7	7.116279	7.046512

Source: Current Study (By Researchers)

Table-14. Normalized Matrix

	Index	NLFi	NMFi	NUFi
S1	Mandatory forecast disclosure have neither motivation nor the ability to do it	0.936963	0.951289	0.942693
S2	Reducing market expectations	0.902579	0.916905	0.908309
S3	Bad news - increasing pessimism	0.994269	1.008596	1
S4	Accruals (Low Accrual– pessimism)	0.862464	0.876791	0.868195

Source: Current Study (By Researchers)

Table-15. Final ranking related to the proximity to the positive ideal

Row	Rank	Index	d+	d-	CCi
1	S3	Bad news - increasing pessimism	0.005965	1.000972	0.994076
2	S1	Mandatory forecast disclosure have neither motivation nor the ability to do it	0.056658	0.943667	0.94336
3	S2	Reducing market expectations	0.090926	0.909284	0.909093
4	S4	Accruals (Low Accrual– pessimism)	0.130982	0.86917	0.869038

Source: Current Study (By Researchers)

According to the results of fuzzy TOPSIS in the dimension of pessimistic bias in the management forecast, it became clear that according to the views of senior managers of organization, (1) Bad news - increasing pessimism, (2) Mandatory forecast disclosure have neither motivation nor the ability to do it, and (3) Reducing market expectations, are the closest factors to the positive ideal factor. Accruals (Low Accrual– pessimism) in accordance with Table 13 have had the lowest rank, but they are close to the positive ideal factor.

7. DISCUSSION

The present study has been carried out aimed to prioritize factors affecting the deviation of forecasts of senior managers in conceptual model provided by Yavarzadeh *et al.* (2015) (Figure 3), in which 38 cases of factors affecting the deviation in Forecasting by senior managers in organizations have been introduced.

The results were analyzed and ranked at 3 dimensions and according to the opinions of senior managers. According to the analysis, the closest to the ideal option in the dimension of deviation of management forecast by the senior manager included 8 factors of 19 of which are as follows: (1) Protection against the risk of litigation, has the highest priority in the diversion of management forecast by senior manager, then, (2) Management experiences, (3) variable Operational environment, (4) The degree of management skills, (5) unstructured reforms, (6) Wrong information (optional disclosure of forecasts), (7) Favorable results or favorable trends, (8) External shocks. In the dimension of the optimistic bias in the management forecast, of 15 effective factors on forecast deviation, the closest factors to ideal option include: (1) Appearing more productive and successful for others, (2) More manager confidence, and (3) Behavioral biases. In the dimension of pessimistic bias in the management forecast, of four effective factors on the forecast diversion, it became clear that the closest factors to ideal option include: (1) Bad news - increasing pessimism, (2) Mandatory forecast disclosure have neither motivation nor the ability to do it, and (3) Reducing market expectations.

In the dimension of deviation of management forecast by senior manager, "Protection against the risk of litigation" is consistent with the results of Skinner (1997). The factor of "Management experiences" as the second most important factor in the diversion of management forecasts are consistent with the results of the investigations conducted by Pezzo *et al.* (2006) and Buehler *et al.* (1994). The factor of "variable Operational environment" is consistent with the results of Gong *et al.* (2009). Armstrong (2006) proposed "unstructured reforms", which was ranked as fifth factor. Windschitl *et al.* (2010) raised the factor of "Favorable results" in their study and the results of the fuzzy analysis of this study introduced this factor as the seventh factor influencing the diversion of management forecasts. In the dimension of the optimistic bias in the management forecast, "Appearing more productive and successful for others" is consistent with t he results of Pezzo *et al.* (2006) and the factor of "more manager confidence" is in line with studies (Utley, 2011). The factor of "behavioral biases" which refers to

personality traits of a manger and was introduced as the third effective factor on optimistic bias was not consistent with the results of Buehler and Griffin (2003). In the dimension of pessimistic bias in the management forecast, the factors of "bad news" that has increased pessimism or reduced optimism are consistent with the results of Windschitl *et al.* (2010). Also, the factor of "Mandatory forecast disclosure have neither motivation nor the ability to do it" was introduced by Gounopoulos *et al.* (2013) this factor have got the second rank in the fuzzy analysis in this study.

8. CONCLUSION

However, the direct and significant impact of forecast with low error and on time has been studied in various researches and in the process of organizations management, but this study has focused specifically on studying and prioritizing the factors affecting the deviation of management forecasts. The results of this study show that the main effective factors on the dimension of deviation of management forecast by the senior managers generally include environmental factors, the managerial abilities of senior managers and emotional reforms by predictor, information, the impact of biases and mental trends of predictor. In the dimension of optimistic bias, personal motivations of senior manager, more manager confidence and his behavioral biases are considered as the most effective factors on forecast deviations, and that is the main factor to create deviation in the optimistic forecast is the manager. In the pessimistic bias, the environmental factors including, bad news, forcing the disclosure and predictor intention (to reduce market expectations) are the most important factors in forecast deviation.

In the dimension of management forecast deviation by the senior manager, variable Operational environment and external shocks that are considered as environmental factors can be controlled by strategic planning and environmental deliberates. Errors of management experiences and the degree of management skills can be prevented by meritocracy and the correct choice of senior managers. Wrong information and unstructured Reforms which are considered as the effective factors on the forecast deviation can be eliminated by creating the correct process to predict and control processes. In the dimension of the optimistic bias in the management forecast, appearing more productive and successful for others can be considered as personality factors of the organization manager or because of organizational pressures from the board of directors or higher official and unofficial sources of organizational power.

These factors can largely be resolved by organizational structure in accordance with the principles and characteristics of organization and control processes and systematic inspections and selecting a competent manager. More manager confidence and behavioral biases are other factors by the manager which can be largely controlled by selecting a competent manager and appropriate control processes. In the dimension of pessimistic bias in the management forecast, the bad news, as environmental factors can be controlled to some extent by environmental studies and deliberations. Mandatory disclosure, another environmental factor, can be determined by the legislator, but in the interest of shareholders and managers these factors, they may push terms to the interests of the organization through scientific influence on legislators. Reducing market expectations, in fact, is considered as a control factor by the managers, who control the market expectations by pessimistic forecast, the factor can be controlled by environmental investigation and getting the right information from the market.

According to the results, and with awareness of the bad consequences of wrong predictions for an organization which may even lead to bankruptcy of a company, for investors, shareholders, employees and the manager and in total all stakeholders is necessary to be very strict to disclosure the forecasts. Although the organization is able to strengthen internal organizational factors using strategic management knowledge, that these factors can increase forecasting accuracy and avoid the error, and can control the factors affecting deviation of forecasts deviation within the organization largely, but the control of some environmental factors is difficult and sometimes is possible by governments. In addition to knowledge of strategic management, these factors can also be controlled using ongoing environmental studies and science of forecasting and futures studies.

The result of this study can help to organizations in the field of organizational policy, for example, attracting and promoting educated and competent human resource, observing the principle of elite-oriented and training the qualified and the balance between job and employee, promoting the use level of new technologies of information, organizational information security policy and also mental health policy can have some organizational politics, which cause managers to disclose more accurate forecasts, and less deviation organizational forecasts will be found.

Funding: This study received no specific financial support.
Competing Interests: The authors declare that they have no competing interests.
Contributors/Acknowledgement: All authors contributed equally to the conception and design of the study.

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