Judgments in Forecasting Management in international pharmaceutical firms: impact of various stakeholders' relationships and networks

Abstract

Despite the improvements in mathematical forecasts, the increase in the accuracy of forecasts is not yet significant. Applying mathematical techniques alone is not sufficient in light of the existing lack of knowledge about forecasting, therefore judgmental integration becomes an inevitable part of forecasting management. This paper explores the impact of business relationships and networks in international pharmaceutical firms on the produced forecasts and how accuracy of the produced forecasts can stabilise relationship. Moreover, the paper contributes to the transformation in forecasting management and judgemental integration the users and constructors of forecasts based on stakeholders' relationships. A qualitative research methodology is used to explore these concealed forces in forecasting processes by interviewing different constructors and users of forecasts in one of the most profitable firms in international contexts. Three main propositions emerged from the data collected that can be quantified.

Key words: Business-to-Business, Forecasting, International Pharmaceutical Firms, Judgments, Managerial Forces.

Introduction

Decisions within organizations are usually based on forecasting events and the different outcomes of their predictions (Wilson and Gilbert, 2003; Loewenstein et al., 2003). Forecasting the future is very critical in decision making processes (Lawrence et al., 2000), it gives management the ability to plan, budget and control performance, in addition to sharing knowledge and justifying firms' decisions (Önkal et al., 2008). Therefore, forecasting must not be studied in isolation, but in the context of a policy making process in different departments.

The subjectivity of human expertise is mixed with human values and expectations, which might increase the possibilities of producing fragile forecasts and affect the stakeholders' relationship. Moreover, low human' capabilities to process large amounts of information (Hogarth and Makridakis, 1981) and human mind limitations (Lawrence et al., 2006) increase the bias in the produced forecasts. According to Halpern and Arnold (2008) "people make different projections about their future well-being when they are in positive versus negative emotional moods" (P.1710). Yet, human judgment could be an important source of improving the forecasting accuracy, notwithstanding the limitations of human judgments. Previous literature, such as: Collopy and Armstrong (1992), Armstrong (2002) and Fildes (2006) mention that judgment is an important part of the forecasting process, even when it is blended within the statistical approaches, as judgements will be used in the selection of the data and forecasting methods. According to Armstrong (2001), many organizations revise their forecasts, but not their plans, and if the forecast results are satisfactory, they will be handed and processed to implement the plans and monitor the results. However, if the forecast results are still not satisfactory, then forecasts will be revised, and the forecasting process will be repeated again until reaching satisfactory outcomes (Armstrong, 2001). Sanders and Manrodt (1994) explain the use of judgments in the forecasting process within organizational settings in different ways. These could involve adjustments of the produced forecasts, adjustments of the forecasting statistical procedure, or adjustments of the initial data used in producing the forecasts. For example, in practice, judgmental adjustments of the produced forecasts are very common processes (Fildes et al., 2006; Goodwin et al., 2006) in reflection to different organizational goals and objectives. The use of both statistical models and managers' judgments could provide the ability to add domains of knowledge and time series information, while recognizing various heuristics and biases that may become involved (Lee, 2007). The variations among researchers' views about judgmental integration might have an implication in practice (Harvey and Harries, 1999). Judgmental adjustments to forecasts may provide a clear improvement to the forecasts accuracy; however, Mathews and Diamantopoulos (1992) raise the conflicts in amending the non-adjusted forecasts due to the flexibility of the forecasting processes used in organizations. Fildes et al. (2006) and Lawrence et al. (2006) emphasize that the values and beliefs of constructors of forecasts are originally generated as a result of the inseparability of human judgment from the forecasting process. Using the Uppsala

Internationalisation Model in defining the process of internationalisation as an interaction between increase in market knowledge and increase in market commitment can explain actors' behaviour (Johanson and Vahlne, 1977).

This paper responds to Fildes et al. (2009) who stress the need to "use interpretive research methods to establish, at a deep level, the beliefs and values of managers engaged in forecasting … to explore both the psychological processes that individual managers employ and the effects of interactions between managers within organizational contexts" (P. 20). The international pharmaceutical firms are good example of business to business between the suppliers of raw materials and customers, which manage the relationship between businesses based on the future forecasts. This research will consider the internal factors that were highlighted by Smith and Mentzer (2010) as variations between different departments "may influence forecast utilization [leading to] a gap in our understanding of the forecasting-operating performance connection" (P. 159). This research identifies the forces of users and constructors on the business to business relationship, and the impact of internal conflicts on the stakeholders' relationship.

Literature Review

Forecasting is "the driving force behind all forward planning activities" (Lambert and Stock, 1993, P. 559), which contribute to the decision making process and operation performance (Smith and Mentzer, 2010). Previous literature about the forecasting process and its impact on firms' performance discussed the inventory and cost effect on the manufacturing systems and logistic performance (Kalchschmidt and Zotteri, 2007; Danese and Kalchschmidt, 2011). Through evaluating the forecasting useful knowledge that is published in journals, Armstrong (2002) finds that "journal papers relevant to practice [in forecasting] are difficult to find... Once found, the papers are difficult to interpret" (P. 1). Flides (2006) also supports the availability of gaps practice and the literature as the forecasting experts pay most attention to what they publish between themselves and ignore the main important part of its real application. In practice, "many companies have no forecasting capability at all because they feel it is not necessary at their companies" (Dilgard, 2009, P. 4), and managerial judgments are enough.

Önkal and Bolger (2004) mention the forecasters or the forecast providers (or constructors) might be the users as well in different departments. Moreover, the shared forecasts (Mentzer and Bienstock, 1998) are translated in different departments into different processes and decisions; such as manufacturing plans, budget preparations, promotional activities, investments, profits, resources allocation and performance appraisal. The shared forecasts will provide the opportunity to combine data and share data from different sources and functional integration within organizational departments will reduce the uncertainty of the future events (Chen et al., 2000; Moon et al., 2003). Forecasting accuracy is one of the main interests to researchers in the field of forecasting. The relationship between the adoption of various forecasting techniques (quantitative or qualitative forecasting techniques) and accuracy is debatable (Mentzer and Bienstock, 1998).

Some managers do not believe in giving attention to improving forecasting processes, and in some cases, firms might even need the latest forecasting capabilities that might not be fully leveraged or properly understood (Dilgard, 2009). Sometimes, firms refuse to overhaul the necessary major changes in existing forecasting processes (Dilgard, 2009). The forecasting process was discussed by different authors and each author viewed the forecasting process in different direction, for example, Armstrong (2001) views forecasting process from data bank (environment), cost of losing opportunity or investment (Johnson, 2005), the forecasting techniques, competitors' actions, profits and market share. In this paper, the forecasting process that will be considered in the literature review is conducted by Fildes (2010). The framework of the organizational forecasting process starts from the forecasting support and information system, which provides the decision makers with the predictions, after considering the proposed set of plans or planning guidelines. Forecasters use the selected information about the environment that is available through formal Management Information System (MIS) or on an informal basis. Then forecasters choose certain forecasting procedures based on the cost, the deadlines and the expected accuracy of the forecasts, while considering the value of improving forecasting accuracy (Fildes, 2010). If the forecasting output is not as expected, the forecasters can modify the results by using alternative sources of information to produce new forecasts (working forecast). The working forecast may not meet the decision makers' expectations and objectives. At this point, decision makers and forecasters would revise the planning guidelines and the assumptions that lead to the initial forecasts (Fildes, 2010).

The forecasters and decision-makers are both affected by their own values, professional expertise and their personal career goals, which do not necessarily match or differ at all times, but they both affect each other in different directions. In fact, the forecasters' and corresponding decision-makers' views of the problem are often in substantial conflict (Wheelwright and Clarke, 1976). This conflict might be because the managers see forecasters as too technical people, who deal with data and forecasting formulas, without understanding, and sometimes ignoring, the managers' problems. Forecasters, on the other hand, view decision makers as people who have little understanding about the technical aspects of forecasting. Among the suggestions to evaluate the organization's forecasting performance is to examine how forecasts are used, not just how they are produced (Fildes and Hasting, 1994; Wheelwright and Clarke, 1976). This is important, especially that forecasting techniques alone do not necessarily improve the forecasting accuracy; managers should also consider other issues associated with the forecasting process management (Mentzer and Cox, 1984). In some organizations, the forecaster who is responsible for forecast creation is also the user of the forecasts, and in this case the forecast is likely to be applied without adjustment (McCarthy et al., 2006). In some cases where separate individuals may be involved in forecast creation and utilization, the relationship should be directed through the management policies and mandate application (Schultz, 1987). The forecasting process is affected by the management and organizational approaches (Mentzer and Kahn, 1997; Moon et al., 1998; Mentzer et al., 1999) because of its ability to define priorities relevant to organizational strategic objectives (Modell, 2012), and minimize conflicts in the construction of final or shared forecasts. This research will not consider the organizational approaches in the process of construction of forecasts.

Sanders and Manrodt (1994) explained the use of judgments in the forecasting process within organizational settings in different ways. These could involve adjustments of the produced forecasts, adjustments of the forecasting statistical procedure, or adjustments of the initial data used in producing the forecasts. The difference between integrating judgmental and statistical methods is an area of disagreement between authors, because it depends on the evaluation of the judgmental integration into the forecasts. In some cases, managers make preliminary forecasts based on their judgments and then send them to another source to make the final forecasts. The variations among people's views and the level to which judgments are integrated effect the pattern of results with some implications on practice (Harvey and Harries, 1999). The integration of judgments into statistical forecasts was criticized by Sanders (1992), Harvey (1995) and Goodwin and Fildes (1999), as it would decrease their accuracy due to confusion between statistics and managers' judgments that are based on the reality of the marketplace (Goodwin, 2002). Furthermore, Harvey and Fischer (1997) and Lim and O'Connor (1995, 1996) studied the received forecasts from another perspective, and they found that constructors of the forecasts fail to make adequate adjustments to the forecasts due to low understanding of the forecasting techniques and market knowledge. Goodwin and Wright (1994) and Webby and O'Connor (1996) studied the combination of judgments with statistical methods through mechanical averaging between both methods, and found that it would reduce the forecast errors, but it should be based on simple average forecasts. The organization has an impact on the integration process of judgments with statistical forecasts, and it also affects the forecasting process and outcome (Harvey and Fischer; 1997). The affective forecasting can also shape the decisions and choices in firms (Wilson and Gilbert, 2005). The feeling about affect experiences in emotions and moods (Dan and George, 2013) could be a threat for subjective well-being (Kermer et al. 2006). The bias could result from the "salient information" (Gilbert and Wilson, 2007) which could be part of the feelings' prediction output the future events (Levine et al., 2012). Dan and George (2013) connected the affective forecasting to ubiquitous in the current organizational projects. The affective forecasting will involve the people's engagement in various projects. Similarly, managers' experience might contribute to forecasting of the future as they "remember the past to envision the future" (Bucker and Carroll, 2007: 55). The emotions, feeling and uncertainties might influence managers to predict the future.

Methodology

The use of qualitative method can be defined as a symbolic interactionist theoretical perspective (Crotty, 1998), as it incorporates the researcher's perspectives that are explicitly and exclusively strong explanatory power of phenomena to develop theory through bridging the gap between empirical data and theory generation (Hammersley, 1989). Qualitative method is a comprehensive approach that produces explanations for uniformity of social behaviour, social organization and social change (Merton, 1968; Wells, 1995). In the current paper, the data were collected through the usual methods of interviews (Morse and Field, 1995), but theory development is based on comparative analyses between or among groups of persons

within a particular area of interest, in addition to constant comparison to the previous literature (Glaser and Strauss, 1967; Strauss and Corbin, 1994), which will permit the me to recognize patterns and relationships between these patterns (Glaser, 1978; 1992). The research method is also in response to Fildes et al. (2009) to "use interpretive research methods" (P. 20) in order to provide deeper understanding of managers' perception, value and beliefs with regards the judgmental adjustments of forecasting.

Method of data collection and analysis

The interpretivists define qualitative research methods as "an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world" (Van Maanen, 1983, P. 9), which make it a very suitable method in this research as it concentrates on deeper understanding of behaviour (Snape and Spencer, 2003; Alvesson and Sköldberg, 2009). The interviews were recorded, transcribed and analysed using qualitative methods of analysis. The interviews continue until researching the stage of "saturation" (Strauss and Corbin, 1994), in which respondents provided the same answer to the question in the interviews. Open coding is the initial stage of the analysis (Glaser and Strauss, 1967; Strauss and Corbin, 1990). Open coding process is identifying, naming, categorizing and describing phenomena found in the text, to be used as the building blocks in the construction of Theory (Glaser, 1978). The similar data will be grouped together and labeled under the same conceptual label (called categorizing process). Core categories are the central ideas or phenomena and are the first story line in the generation of theory. The story has a descriptive nature about specific phenomena of the research; however, the story line is a process of abstracting and conceptualization of the story of the research. The categories are linked to the core category through the core categorical relationship by identifying the causal conditions that will lead to the development of phenomena. Here, the context is considered as a set of intervening conditions in which the phenomena are expressed or formulated. As a result of phenomena, actions/interactions occur leading to intended or/and unintended outcomes and responses that are called consequences (Pandit, 1996). Subsidiary categories can be included in the analysis; these categories may explain the linkages between categories and improve the level of complexity of the data analysis and validation.

Industry and Respondents

Despite that the global pharmaceutical market is very profitable; there are a lot of key resistors to growth in the pharmaceutical business. According to Smith (2011), the technological transformations that affect the pharmaceutical companies are the therapeutic revolution, communication technology, Research and Development (R&D) innovation, the efficiency imperative and the death of a traditional tactics in the marketplace. R&D innovation is considered as one of the key factors that contribute to the growth of pharmaceutical companies, and that is because of the "patent cliffs" (IMAP, 2011) accompanied with the regulatory pressure and reimbursement restrictions. From an investment standpoint, the pharmaceutical companies should be equipped to deal with the challenges through robust pipeline capabilities to offset the effect from patent expires. Despite all these factors and challenges that affect the performance of pharmaceutical companies and influence the capabilities for future survival, the industry remains extraordinarily profitable. Understanding these factors in addition to good internal knowledge and collaboration will contribute to future success. The shortage in knowledge and awareness about forecasting might lead to chaotic situations and high percentages of loss. Respondents are defined as the constructors and users in forecasting management process in pharmaceutical industry. They were contacted through the emails and recorded mails to participate in this research. The respondents were the users or the constructors of the forecasts. 18 respondents from international pharmaceutical companies were interviewed. The companies are located in UK, Denmark, Netherlands, Portugal, and Switzerland. The respondents were from different departments; marketing/sales, finance and supply chain. The respondents will be identified in the data analysis referring to the department and identity as follows: 4/M/U means interview number 4 from the marketing department who is a user of forecasts (not a constructor), and 18/S/C means interview number 18 from the supply chain department but a constructor of forecasts.

Data analysis and outcome

Before the analysis, it is important to talk about the demographics of respondents which were defined based on the level of contribution in forecasting management process (user or constructor of

forecast). The number of respondents is 18. Figure (1) indicates that majority of respondents were from Marketing Department (44% of the total respondents and 25% of Marketing respondents are constructors), Finance Department (22% of the total respondents and 50% of Finance respondents are constructors) and Supply Chain Department (33% of the total respondents and 66% of Supply respondents are constructors).

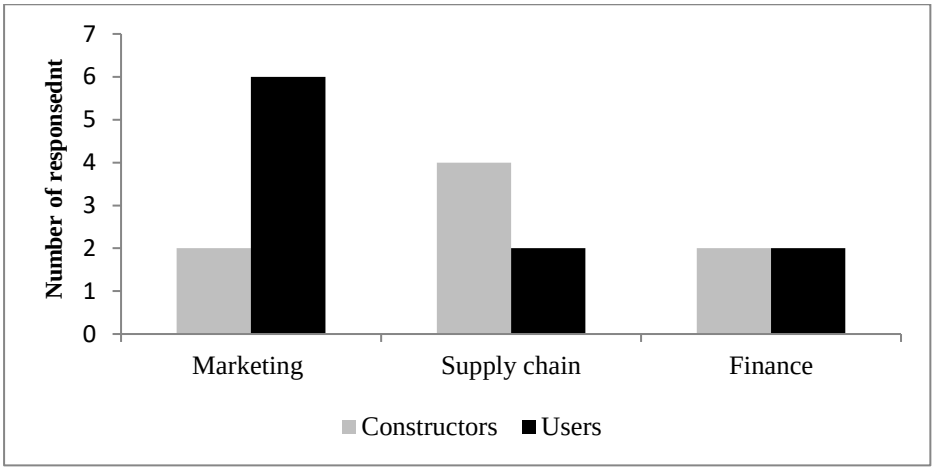

Figure (1): demographics of respondents in the current research

The answer the research question is defined in three main themes: *"Views of Forecasts depend on the Level of Involvement in the process", "Individual and Situational factors Influence People's Judgements toward Forecasting Process"* and *"fragile forecasts will affect stakeholders' relationship"*. The focus of the first two themes is on the internal factors, and the third theme is the reflection of internal factors on the suppliers and customers. The following part is to explain these two main themes with the supportive quotations and analysis.

Theme One: Views of Forecast depend on the Level of Involvement in the process

It has been found variations between the views of forecasting process depending on the level of contribution "or involvement" for both constructors and users. The views reflect the values which influence managers' perception and consequently their judgements and personal interaction. The managerial forces that were mentioned by Fildes et al (2009) emerged from the interviews in form of explaining and identifying the forces and drivers that lead to these inconsistencies between various respondents. The sub-categories are divided into two parts: (1) relationship between users and constructors which is investigated based on the interactive involvement and (2) the departmental effect on the views of forecasts.

Subtheme 1.1: The interactive involvement varies based on knowledge level

In international pharmaceutical industry, respondents argued that the forecasting in pharmaceutical industry is very challenging as the market is very dynamic and in some cases, we can predict the changes that affect the whole industry every year. 3/F/C said "I tried to make an economic formula and forecasting process through my career in 18 years, but I failed because of the type of industry we are working in, especially for international businesses". This quotation indicates that the type of industry is very challenging and due to uncertain changes in the market. From the users' point of view, 18/S/U said "forecast is not everything... You need to consider the change". This was also supported by 4/M/U who mentioned that "forecasters are blind to the fact that changes affect all of us, but they do not really know, what they do know is the history". In these quotations, it can be noticed the agreement on the level of knowledge about the market is quite important in such industry. It can also be noticed that the updated knowledge about the market could be one of areas that might contribute into the psychological forces.

From another point of view, the variations in level of forecasting knowledge can isolate people in the industry to become more reactive and not proactive. This will influence the level of involvement in the forecasting process. This was mentioned by 5/M/U, who said "we are not equipped enough with forecasting

knowledge to argue back with the forecasters… We will look bad in the corporate meetings". This result of "silence" in discussing the forecasts, and users might feel detached from being involved. 1/M/U explained that marketing contribution could be the minimal as arguing the future forecast. The gap in the knowledge could be filled with more personal views and create psychological forces. 16/F/C who said "marketing people are not experts in forecasting management, and they either overshoot or underestimate, overshooting forecasts to get more complements from the upper management, but in some cases marketing people might underestimate the forecasts to make it easier to achieve targets". 1/M/U agreed with 2/F/C as he said "under-forecasting the future will allow less future efforts, and marketing people will look good".

Subtheme 1.2: Collaborative views between different departments affect perceptions towards the produced forecast

One of the main outcomes of the current research is the differences between different departments in their views of forecasts. The differences are based on departmental priorities and lists of issues that concern each user and it consequently interfere with their views of forecasting process. Majority of finance respondents in the current research confessed that the biggest obstacles facing the forecasting management and processes is the shortage in knowledge about forecasting, in addition to the gap between the reality of the market and the personal values of the forecasting constructors who are the marketing department. For example, the finance department's views are related to shareholders satisfaction, debit/credit ratios, financial commitments and purchasing of raw materials and manufacturing.

The supply chain department's views of forecasts, however, are based on packaging, raw materials, storage conditions and space, drug registration, distribution, purchasing, shipping, manufacturing and forecasting errors. There are a lot variations in forecasting views; however, the convergence points between the three departments are sales, targets, profits, expenses and CIF price which includes the cost, insurance, and freight. In interviews, 16/F/C raised an important point, which is the "value based targets", in which marketing and sales are responsible for value rather than sales units, and this would confuse the other departments like the supply chain department, which considers the Stock Keeping Unit (SKU), as well as the finance department, which considers the profitability of each SKU, but will give the marketing/sales department the flexibility in the dynamic market to achieve the value targets. The forecasting errors will have tremendous implications on this department because the supply chain department usually plans the raw materials and goods based on the forecasts submitted and agreed on. 10/S/U mentioned that the purchase of raw materials depends basically on the forecasts and goods needed as free medical samples and extra goods. 11/S/U said that *"from our experience in the previous forecasts, we usually add 20% on the forecasts as a margin for all goods, whether these products are existing or new, needed to be manufactured or produced, regardless of the type of product or the quantity in the forecasts".* This situation leads to increased losses in storage and costs of sales, in addition to increasing the overall costs of manufacturing.

The marketing respondents focused on the accuracy in planning and achieve the commitment from all departments. For example, 12/M/U said "low forecasting error or high forecasting accuracy does not mean that forecasts can be achieved, success of forecasts depends on accuracy and commitment from all departments". Marketing and sales views of forecasting are basically focused on the customers, appraisals, targets, market size, competition, sales turnover, market trend, price, patients, promotions and value targets, market trends, profits, promotions, numbers of outlets and distribution. This was mentioned by 18/S who said that *"sales and marketing people have the same values and priorities when looking into forecasts, the lower the future targets the better for them".*

Based on the above analysis in the current theme, views of forecast depend on the level of involvement of the whole departments in international firms in the process, which is defined by the knowledge about the forecasting techniques and the market. The lowest the level of involvement will consequently affect the priorities of people involved in the forecasting process and originate conflicts between departments.

Theme Two: Individual and situational factors influence people's judgements (the influencers)

The factors that influence individuals (users and constructors) in different situations in international pharmaceutical firms can have an influence on the judgments about the produced forecasting. The integration

of the judgements will add to conflicts at managerial levels. Respondents mentioned the impact of influencers that include stakeholders and management team who consider the forecast as the future planning for organisation success. It has been found that the forecasting process can be related to the job pressures and factors that would, consequently, affect the behaviour and attitude of the users and constructors of forecasts. This can be an important influential factor as lack in marketing and forecasting knowledge would magnify the influencers' power on the users and constructors to force changes in judgement about the produced forecasts. For example, 7/M/U focused on the role of forecasts in relation to targets and appraisal system, he said *"each company has its own way in putting people in pressure to work, but there are related to the appraisal system and related to the country manager and patients",* in this quotation the respondent talked about the appraisal systems and the market dynamics that would affect the view of marketing and sales to forecasting management. With reference to the situational factors, job title can be part of the factors that affect judgements. Such as 17/S/C said that *"sales and marketing people have the same values and priorities when looking into forecasts, the lower the future targets the better for them".* Forecasting should be a team work because even accurate forecasts might not be achieved unless the management gains commitments from and acceptance of users. Interdepartmental discussions in formal and informal meetings will help in supporting the forecasting process; however, the organizational structure and management approach might interfere with the level of communication.

Theme Three: fragile forecasts will affect stakeholders' relationship in business to business

With reference to the data collected, it was found that different departments focused on various stakeholders, for example supply chain focused on the capacity of suppliers to address the expected demand (cost of raw materials in relation to order) and marketing department focused on customers satisfaction. For example: 17/S/C considered the suppliers as the main driver in addressing the future demands in the marketplace, which needs to be identified and addressed. He said *"the international firms are in the middle of big chain of business to business, and any disturbance will affect relationships with different suppliers".* Moreover, 11/S/U considered interaction between departments has reflection externally in such industry. She said *"inaccurate forecast means more troubles with other externally and more measures should be included"*. 10/S/U mentioned that inaccurate forecast is *"stemmed from the inability of people who are producing these figures to get the full picture… it is biased and definitely understating why* [it is biased] *would solve the problem"*.

From another point of view, marketing people are more focused on customers and how to satisfy their future demands. Marketers such as 12/M/U said *"I focus on what hospitals and pharmacies* [stakeholders] *are ordering that supports my understanding of what market will need"*. Moreover, 9/M/C mentioned that *"customers are our main target and forecasts should address their needs and not to ignore them regardless what other departments would think…in many cases we make some judgements to make it easier for us to maintain good relationship"*. In this quotation, it is seems that marketing focus in this sector is very influenced by external factors that affect their judgements in forecasting.

Storyline and Discussion

As mentioned earlier, there are three main users of forecasts, marketing/sales department, supply chain department and finance department (Mentzer et al. 1999). These departments hold different views of forecasts, and the points of convergence between the three departments might lead to more political and internal conflicts. Based on the conceptual framework, this research identified the forces that affect the users of forecasts, and their influence on the perceptions of users and the understanding of departments about the produced forecasts. This matches with the previous literature supporting that individual behaviour and management styles can have an impact on the application of forecasting (Fildes, 2006; Armstrong, 2001; Lawrence, 2000), and different theoretical grounding has emerged to explain the management role in the development of forecasts like Davis and Mentzer (2007), Winklehofer and Diamantopoulos (2003) and Mentzer et al. (1999). However, Smith and Mentzer (2010) highlighted the lack of research explaining the impact of the actions and perceptions of users on the utilization of forecasts, which has led to conflicts in identifying the relationship between the forecasting and operating performance.

At the same time, Filders et al. (2009) highlighted the importance of conducting future research that investigates the impact of psychological forces on the forecasting process in his study titled "effective

forecasting and judgmental adjustments: an empirical evaluation and strategies for improvement in supply-chain planning". Furthermore, Bunn and Wright (1991) said that "experts are used to their real world context and the judgmental process is made explicit through a form of decomposition or audit trail" (P: 512), and there is a need for re-evaluation of the basic psychological research on judgmental biases, bootstrapping, and calibration in this context in order to improve the best practice quality of the judgments in forecasting. Despite that Goodwin and Wright (1993) and Webby and O'Connor (1996) argued that combining judgments with simple average forecasts through mechanical averaging between both methods would reduce the forecasting errors, the lack of sufficient market and forecasting knowledge by the users will affect the forecasting process and outcomes (Harvey and Fischer, 1997), and, consequently, the accuracy of the final forecasts.

Biasness of the produced forecasts commonly starts with the human information processing as explained earlier. Such biasness would clarify and rationalize the human belief revision (Edwards, 1982). Judgments depend on the experience or previous trainings that develop the skills and ability to judge; this experience and training will also add to the self-confidence of forecasters even when associated with minimal changes in performance (Marteau et al., 1989, 1990). People's confidence in overestimation or underestimation of certain facts is relative and subject to several factors as personal experiences and beliefs (Koehler and Harvey, 1997). The contradictions in judgments will have an impact on the compliance with the produced forecasts. Accordingly, the departmental meetings, formal and informal discussions play an important role in forecasting management. These conflicts emerged during the interviews and were raised by many respondents. The finance department looks at forecasting as an instrument for calculating the future profits, preparing the budgets and paying the future payables, whereas, the supply chain department looks at forecasting as the starting point to plan the supply and accommodate the goods. Neither the supply chain nor the finance departments were concerned about the appraisal of performance measurements of forecasts and their achievement because they had other appraisal of performance. However, the marketing/sales people were more concerned about the performance measurements, taking into consideration that those marketing/sales people were shown in this research as the constructors of the forecasts in order to show commitment to achieve those forecasts in front of the management. Having inconsistent departmental strategies and variations among the departments' appraisal systems is expected to cause more interdepartmental conflicts and individualism.

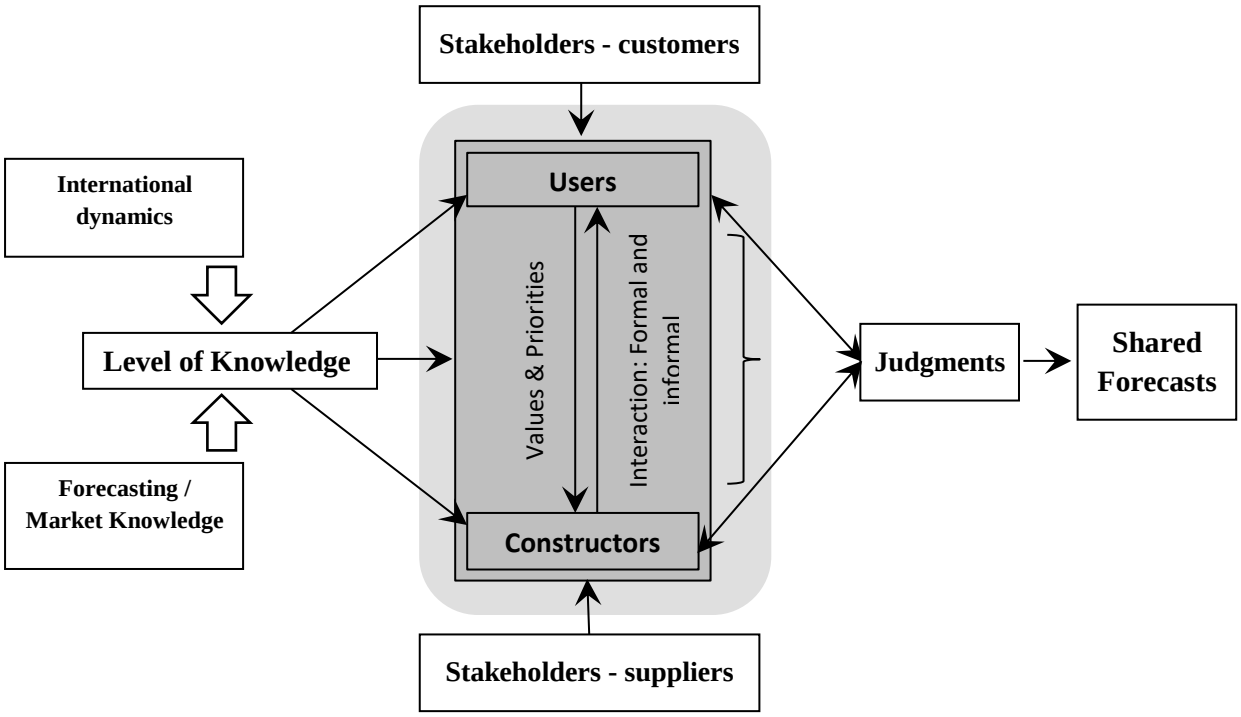

Figure (1): the outcome of the research and propositions

The origin of conflicts between different users and constructors is a consequence of the differences between the departmental goals and objectives in business to business, in addition to shortage in the formal and informal data that is needed to build a bridge of trust between departments in forecasting management. Moreover, some respondents mentioned the effect of the ownership on the firms' strategy in the forecasting, as the ownership has an impact on the organizational objectives and culture which can be a call for future research.

Conclusion

Based on the findings of this research, it has been concluded that the behaviour of the users of forecasts toward the produced forecasts will lead to different conflicts between these users. The collected data in this research from the three departments of the users and constructors of forecast investigate differences between these departments, factors that affect their behaviour and forces that affect their judgments in international pharmaceutical firms as an example of business to business. The conflicts emerged during the process of data collection, and were confirmed through feedback from marketing personnel who stressed that the finance and supply chain departments should be involved in this research. In the current research, it has been found that the consequences of constructing the forecasts by marketing personnel would increase the biasness of forecasts because the achievement of these forecasts is pegged to performance. This case will lead to interdepartmental conflicts in forecasting management. It was very clear in the interviews that marketers and sales people never mentioned any troubles in forecasting management, whereas, finance and supply chain departments agreed that there are many problems in forecasting management that need to be addressed by management, and through team work, to decrease the percentage of failure.

The complexity of this research arises because the forecasts change the behaviour and attitudes of the users, thus, leading to an increase in the areas of conflict between the marketing/sales, finance and supply chain departments. Moreover, conflicts in forecasting techniques, unaided judgments and shortage of knowledge about the forecasting techniques will also contribute to widening the gaps and increasing the conflicts between these departments. Variations in departmental goals change peoples' perceptions and attitudes toward forecasts in each department and, consequently, affect the forecasting management and its accuracy. Findings of this research showed that there is a major communication breakdown due to differences in each department's definition of forecasting. Moreover, lack of collaboration and coordination between departments lead to gaps in forecasting management and organizational achievements. Another reason for the conflict between participants in the forecasting process is due to different managerial views of random variables and evaluations between departments within the same organization, where these variables are affected by hidden assumptions that are affected by different types of pressures and experiences. This means that the same data used by different departments may produce contrasting forecasts with different forecast errors. The international firms are recommended to revise their forecasting management and provide an appraisal for the produced forecasts, and this could be an area for future research.

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