**Concept of assessing sales force composite bias in sales forecasts**

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**Abstract**
The article aims to present the concept of assessing bias of sales data provided by salespersons and used in sales forecasting. Research on sales forecasting show that information from salespersons is often one of key inputs in formulating sales plans and budgets. Compared to other sources (historical data, marketing research data), salespersons are perceived less reliable in their estimates. According to some authors, this may be due to the fact of setting sales targets (the effect of exceeding expectations). Up to now it has been recognized that there is an inherent bias in forecasts provided by sales force. This paper builds on previous research on the bias and provides a ground for developing a theoretical model of the phenomenon.

**Keywords:**
sales forecasting, sales force opinion-based forecasting, forecast accuracy

## Complex art of sales forecasting

Sales forecasting is a relevant issue both in economic practice and scientific research. The literature raises some aspects of this issue. Many authors focus on presenting descriptive analyses of how companies forecast sales (e.g. Watson 1996; Kahn and Mentzer, 1995, Hughes, 2001).

What is also analysed is how companies vary their approach to forecasting depending on specific independent variables. Some authors indicate the size of the company as a major driver. Larger firms produce forecast for different aggregation levels (Winklhofer and Diamantopoulos, 1997; Peterson, 1993; Peterson and Jun, 1999), tend to use a bottom-up forecasting process (Peterson, 1993), use quantitative techniques (Sanders and Mandrodt, 1994). There are also relationships between the approach to forecasting and the type of industry. According to Sanders (1992) forecasters in manufacturing firms use usually more complex techniques than practitioners preparing forecasts in service companies.

Authors also analysed which forecasting techniques are more accurate. Research conducted by Mahmoud (1984) and Makridakis (1979) show, on the other hand, that one cannot indicate one method which would be optimal in every forecasting situation. Conflicting evidence is found when the relationship between the type of technique used and accuracy is studied (Peterson, 1990; Kahn and Mentzer, 1995). Therefore, forecasting based on a simultaneous use of a few methods is called for. Research results confirm that forecasts being a combination of the application of qualitative and quantitative methods contain fewer ex post inaccuracies than each of these forecasts separately (Lawrence, Edmundson and O'Connor 1986; Schnaats 1986).

## Pros and cons of sales force composite

Surveys of sales forecasting practice (including the ones conducted by the Department of Marketing Strategy of Poznań University of Economics) show that qualitative methods of forecasting (based on judgments and opinions of the management, customer buying-intentions) are used on a much broader scale than quantitative methods, though the latter are usually considered superior (McCarty, Davis, Golicic and Mentzer, 2006; Mentzer and Cox, 1984; Mentzer and Kahn, 1994). Basing plans on salespersons' opinions is particularly common, even if their accuracy is often questioned – which is also confirmed in research carried out by the Department of Marketing Strategy and interviews conducted with sales managers.

At the same time, information provided from company's sales force is relatively cheap to obtain. Another advantage is the fact that it mostly comes from people working directly with customers, that is knowing the market on the micro level. Thus it has the potential to reflect the real market rather than the whims of company's board or investors. By conducting opinion surveys, one can gain knowledge (based on experience) from people who have direct contact with buyers, know their preferences and habits, and thus can sense market trends better than anyone else in the enterprise. In the context of making plans and budgets for particular products or markets, what is also important is that this method allows for an easy disaggregation of sales forecasts for the whole enterprise into forecasts for particular products, sales territories or even customers (Dittmann, 1998).

Consequently, we argue that developing a method of assessing sales force composite bias (SFCB) should be regarded as important. Assessing the causes, strength and direction of SFCB would make it possible to create a tool useful to make the data (forecasting) received from salespersons "more real" and acceptable by managers.

The article aims to develop a conceptual outline of conditions of sales force composite bias and, building on that, provide the basis for developing a concept to assess its value. A

review of literature in the field of sales forecasting and interviews with managers involved in sales forecasting have been used to this purpose.

**Opinion survey among persons directly involved in sales as a method of forecasting**

It is well acknowledge that, in comparison with other sources (historical data, marketing research data), salespersons are not considered very reliable in their estimates. Merely half of the surveyed forecasters were satisfied with accuracy of forecasts by salespersons (Mentzer and Cox, 1984). According to Cohen's research (1991) forecasts by salespersons are only in the sixth position (after the method of leading variables, econometric models, management opinions, exponential smoothing and moving averages). Moreover, forecasts based on opinions of salespersons often contain systematic inaccuracies (Levin, Rubin, Stinson, and Gardner 1989). These notions form a basis for the question: why forecasts made by sales force are inaccurate? Undoubtedly there are various reason for that.

**Causes of errors in salespersons' forecasting**

According to Moon and Mentzer (1999), one of the reasons for inaccurate forecasting by salespersons is their perceived relationship between the data they provide and sales targets they are set to achieve (and consequently - the basis for a bonus). Other authors claim that awareness that sales targets are dependent on the forecasts provided by salespersons may boost their commitment to work. On the other hand, attention is drawn to the fact that remuneration for accuracy of forecasts may have an effect on shaping the forecasting-implementation relations by salespersons (Cox 1989). Also Wotruba and Thurlow (1976) paid attention to this issue, claiming that giving bonuses for forecast plans decreases the scope of these plans. However, the strength and direction of this influence were not explicitly specified.

Summarising, we can assert that if there is a perceived or factual link between providing sales estimates given and sales targets received than the bias should occur. However the extent of the bias is likely to be moderated by company policy, e.g. by providing salespeople with more information and enough time to prepare forecasts, rewarding accuracy of forecasts and discussing the reason for the bias with salespersons (Cox 1989).

In their recent article Zotteri and Kalchschmidt (2007) have questioned the influence of external variables on forecasting practice[1]. They argue that companies adjust the forecasting process to goals they want to achieve rather than market context they face. However they also point to demand structure and stability as important factors which influence forecasting.

**Factors affecting SFCB in the light of the exploratory study results**

According to the presented literature review one can conclude that occurrence of SFCB is a common phenomenon especially in enterprises where the same persons who are responsible for providing information in order to make forecasts receive sales targets to achieve. Another cause for SFCB may be a way of giving bonuses to sales force. However, in view of the combination of variables affecting the use of different methods of forecasting presented in the first part of the article and because of adopting different approaches by enterprises in the area of preparing sales plans, the fact of narrowing down the causes of SFCB to financially rewarding the sales force seems too limited.

In order to better understand sales force composite bias, an exploratory research was conducted among persons responsible for sales forecasting in enterprises. Since no research

[1] Note that in this case ‘external’ means variables that are not under a forecaster’s control.

on sales forecasting methods was previously conducted on the Polish market, no specific assumptions were made. The authors aim was rather to start investigation into the nature of SFCB and identify the relevant external and internal factors that should be modelled at a latter stage in more quantitative approach.

The source of information were professionals involved in a sales forecasting process, attending a one year course in Sales Management. The research concept was based on self-administered open-ended questionnaire. Participants of the study were asked to express their opinion in writing about sales planning in their current and previous workplaces. Specifically the respondents were asked to provide information on:

1. Where does data they use for sales forecasting come from? If it's not provided by them personally, what other information does their company use?
2. What problems do they encounter in creating sales plans?

Because of qualitative nature of the research, the response analysis was conducted in two stages. In the first stage, as part of open coding, the studied phenomena were categorised (Babbie 2002) by three judges, two authors of the article and one independent judge. In the second stage, the responses given were assigned to the set of categories. In order to reduce the impact of researchers' subjectivism, the whole data analysis process was conducted independently by both authors and independent judge who then accepted coincident analysis results and in case of discrepancies – discussed, agreed on or redefined them. The procedure lasted till total agreement between all three judges was reached.

Answers were received from 42 persons working at different levels of management in sales: sales representatives and sales specialists (15), sales managers and regional sales managers (12), sales directors (3), key account managers (7), and customer advisers (7). They represented various industries - the service sector (24), distribution (24) and production (6).

The obtained results indicate that SFCB may occur with varying levels of intensity depending on a few factors. In the hierarchy of forecasting in a company, superiors' perception of forecasts prepared by salespersons as lowered may lead to their insufficient use in the planning process:

*„[…] Because of their great knowledge of the industry and the market, salespersons constitute a reliable source of information and can realistically assess the sales potential. It's worth noting that in my company this issue is not taken into account in a significant way. I think this is because a salesman can set the plan in such a way to reap maximum financial benefits from it (e.g. related to sales surplus, clearly indicated in the bonus system). That's why formally one asks the salespeople about the market possibilities, but their opinions are not considered significant."* (sales representative, company producing foam for upholstered furniture).

Salespersons, being aware that their forecasts are modified by managers (executives), conclude that accuracy of their forecasts is unimportant. Such awareness can, on the one hand, lead to a drop in motivation, and on the other hand, to salespersons' lowering their plans knowing that they will eventually be raised by superiors (compare Cox 1989). It is dangerous in the sense that it can lead to the spiral effect and mutual expectations overlap. If a salesperson expect plans to be raised than he or she will propose a relatively low sales forecast. If the supervising manager in fact raises forecasts for this salesperson than we actually have two effects. First, salesperson gets a confirmation to his/her assumptions (e.g. *it has been wise to give lower forecast because it's up anyway)* and, second managers perceived quality of sales composite gets lower (*e.g. they always provide lower plans, so I should correct them [upwards]*, In the next forecast cycle it is than likely that the discrepancy between these two parties will increase.

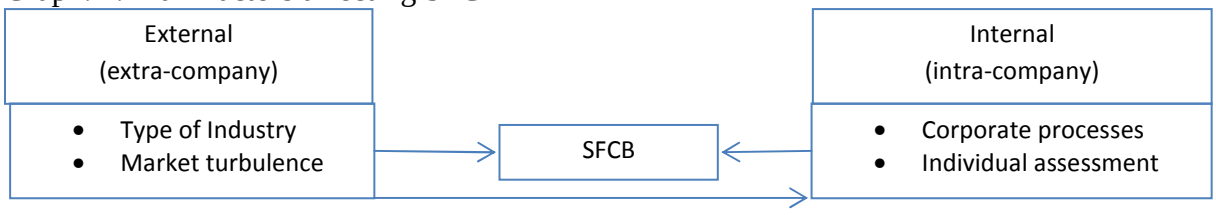
The insights from information provided by research participants confirmed the significance of industry diversification in the approach to forecasting and the role of

salespersons in this process. In particular, we found a different approach depending on whether the company adopts consultative or transactional sales model.
Companies which employ consultative approach and trade directly to customers seem to regard sales composite as very important input to forecasting sales. If so, they also respect information provided by salespeople and, in return, receive more accurate forecasts.
*[…]I can say that the higher the rotation of employees in the sales team, the less likely the sales targets based on measurable factors are and the lower chance of achieving them at the expected level. Thus, the smaller employee rotation, the more accurate sales plans will be. Such direct relationship results not only from more experience and skills of particular salesmen, but first of all, from interpersonal relations already built and being built. The relations not only between employees of the buyer and supplier, but also employees of co-operating companies, consultative companies and employees of competitor companies".* (sales manager, ERP system software producer).
*„I obtain the information I need for planning from statistical source which can be used to make an estimate of the annual demand for fertilizers for the whole country. The source of information are salespersons from our company who have an overview of the local market and previous sales results"* (sales manager, producer of fertilizers).
*„The basis for drawing up a sales plan in my company is sales forecasting based on a few factors. The most important of them is defining the sales trend in previous sales periods (in our case this period accounts to one year). This is the key to examining the sales dynamics in previous years and we extrapolate the results to the planned sales period. The market dynamics and trends are examined on the basis of data and statistics obtained from various sources, both industry and Central Statistical Office of Poland reports".* (Sales director, company producing valves).
On contrary, companies which are more transactional in sales rely more heavily on hard data.
*„When making sales plans I take advantage of data from: industry reports by Gfk Polonia, the company's sales reports from previous years, (qualitative and quantitative) resale reports from customers which in forecasting and short-term planning help to assess the potential of the customer in the given period, and own experience at work."*(Key Account Manager, producer of electronic equipment)

**Summary**

To summarise, we claim that the existence and strength of SFCB is affected by factors inside the company as well as in its surroundings (graph 1).

Graph. 1. Main factors affecting SFCB




In the area of extra-company variables that should be used in the SFCB model are: type of business and market instability. As for type of business, we argue that it is relevant. For example, in consultative sales salespersons are the main source of information for forecasting. What is characteristic in this model is a gradual progress in the sales process, in which it is often only the salesperson who has a good relevant knowledge of it. Therefore, we assume that the level of SFCB should be decisively lower there. Market stability will also be conducive to lowering SFCB scale (directly as well as indirectly, through influencing the factors within the company - which is not shown in the graph to preserve its transparency).

A significant intra-company variable is the planning process in the enterprise. The multitude of data sources used affects the increase of SFCB, as the relative importance of each source decreases. We suppose that in such a situation the decrease in reliability assessment of data obtained from salespersons is stronger than a decrease in assessment of other data sources, since managers will pay greater attention to own historical data and industry reports, treating them as more objective. Moreover, we assume that the more historical data to make forecasts (e.g. on the basis of time series) is available in the company, the lower SFCB. Therefore assessing SFCB should rely on a sample of enterprises varying in terms of the data used in planning.

Analysing the role of individual assessment component in intra-company factors, one can assume that:

- the more ranks of management involved in forecasting, the higher SFCB due to higher expectations of the plan being corrected by subsequent ranks.
- the more lowest-rank employees are involved in the sales plan development, the higher SFCB, since the plans are prepared for relatively small markets, which every employee is responsible for.

Based on the literature review and conducted interviews, we also assume that SFCB can occur with highest intensity in FMCG market, and taking into consideration business-to-business setting – in the distribution channel (e.g. in wholesaling). As far as the planning process is concerned, on the other hand, we believe that the use of common bottom-up|top-down planning process may result in higher SFCB, due to an overlap of expectations of particular links in the hierarchy of planning.

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