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THE VALUE OF BUSINESS FORECASTING IN NON-FINANCIAL COMPANIES: CONSISTENCY, ANTICIPATION AND MONITORING

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Abstract
The focus of this article is the forecasting function at a corporate level in multinational non-financial companies. In contrast with the forecasting function in public institutions, the private sector tends to be characterized by key ingredients such as business dilemmas, uncertainty, risks, the need to be in touch with the world economy and market events in “real-time”, and above all, competition. The corporate economist faces a real challenge in getting top management support, and should be prepared at all times to read the signs of the business environment and the economy to assess from a consistent conceptual framework, the best future macro- and microeconomic scenarios for the main value drivers of the firm with a clear understanding of the risks inherent in the extreme values and the contingency planning involved.
1. Introduction

Forecasting is an integral part of business management decision-making. An organization establishes goals, seeks to predict environmental factors, and then selects actions that will hopefully result in the achievement of such objectives. For multinational companies or large-scale enterprises, the need for forecasting is even more important given the high degree of uncertainty surrounding the current global economic environment. There are a set of uncontrollable external events related to the global and local economies, public policies, customers, and competitors in which forecasting plays a special value. Because of the cost of forecasting, sales forecasts and customer orientation are the basic roles of the forecasting function in small and medium-size companies. Large firms and multinational enterprises not only develop sales forecasts at a local business unit level but also concentrate a great effort on defining the global and local economic trends, analyzing the impact of public policies, and anticipating competitor’s reaction at a corporate level. In this article, the focus will be on the forecasting function at a corporate level in multinational non-financial companies.

A distinction should be made between uncontrollable external events and controllable internal events (such as manufacturing decisions within the firm, operational costs, or marketing). A company’s success depends on both types of events, but forecasting applies fundamentally to the former, while decision-making applies directly to the latter. Planning is the link that integrates them and budgeting processes is one of the most representative tasks, which imply to define a macroeconomic scenario with the purpose of encompassing sales projections, price levels, and the cost of productive factors used in the production process in order to project a credible and mutually consistent free cash-flow estimations for the company.

Anyway, there are other important reasons to explain the need for creating a forecasting system in a company, despite the costs and expenditures involved. The first of such reasons is the increasing complexity of the global economic environment. Second, as industrial companies have grown larger and larger, organizations have moved toward more systematic decision making that involves explicit justification of individual actions, and formal forecasting is one way to substantiate such actions as decision makers have found it increasingly harder to consistently weight all the factors involved. Third, and perhaps most important, is the development of forecasting methods and knowledge concerning their applications so that practitioners and not only expert technicians may apply them directly.

In contrast with the forecasting function in public institutions, the private sector tends to be characterized by key ingredients such as dilemmas, uncertainty, risks, the necessity to be in touch with the world economy or market events in “real-time”, and specially competition, which define in most part of the decision-making process. Additionally, a firm must consider not only the assumption of continuity, which is the basic hypothesis of most quantitative methods of forecasting, but also the emergence of breakthrough events in order to be prepare for the future. In that general sense, forecasting is a function that obviously adds a significant business value to the enterprise not only as a means to anticipate the future but also as a form of analysis consistent with the economic environment surrounding results. Despite the important role the forecasting function plays, many companies are still reluctant to emphasize the relevance of an Economic Research Department and forecasting responsibilities. Consequently, the real challenge of the business forecasting function is to get the top management support.

This article is divided into two main subjects. First, some stylized facts that enable addressing some of the most important challenges that business forecasting faces in the real world. The second part consists of an analysis of the relationship among forecasting and the three most important areas of a typical Corporate Planning Office: Business Management which is related to the short and medium-term forecasts; Business Development usually linked to the medium and long-term forecasts; and Strategy under a very long-term perspective. Finally, there is a brief summary of the global economic trends and their association with the future of business forecasting.
2. Describing a Reality

As one of the most critical aspects of planning for many manufacturing companies, sales forecasts provide inputs for production planning, inventory management, purchasing, capital budgeting, and resource allocation decisions. However, many companies, especially in Europe, still struggle to produce accurate sales forecasts. Although in recent years, the forecasting function has come a long way, top management support of this field is still moderate at best. The latest survey of the Institute of Business Forecasting (Jain, 2002) reveals that the top management of less than half of the US companies (46%) is highly supportive of this function, as Makridakis et al (1983) stressed two decades. Moreover, only 2.5% of the manufacturing managers in the US report that they make regular use of simulation and other advanced quantitative techniques for forecasting (Sanders, 1997).

So, despite the advance in technology, software and theoretical methods, why shouldn’t forecasting deserve more attention from the business perspective? Research studies have cited a number of factors impacting companies’ ability to produce accurate sales projections: forecasting models, processes, and management support are the most important reasons to understand the limited use of business forecasting. For this reason, the rest of this section is divided into three parts: first, a benchmarking approach across different US industries, then the most important challenges that usually emerge in considering business forecasting, and finally some recommendations to increase the incentives in order to improve forecasting accuracy in manufacturing companies.

2.1 The status of business forecasting in manufacturing companies: A benchmarking approach

Most of the following results based on a recent survey of 618 large US manufacturing companies, that was just published by International Business of Forecasting (Jani, 2002), support, to some extent, the findings drawn from the results of a survey of 350 executives primarily responsible for forecasting at US manufacturing firms (Sanders, 1997).

The success of the forecasting function is highly dependent on the level of management support and on where forecasting resides. Most companies at least acknowledge the need for forecasting, though the degree of top management support varies. Among different industries, the upper management is most supportive in the Oil/Petroleum industry (100%) and less supportive in Industry Products (29%). At the same time, the survey shows that, on average, the largest percent of the companies place the forecasting function within the Operation/Production area (20%), followed by Marketing and Finance (14%). By and large, companies avoid placing this function in Strategic Planning (6%). However, only 10% of the companies have a separate and independent forecasting department.

The forecasting horizon is also crucial to evaluate the success of forecasting. On the whole, 18% of the companies put more emphasis on monthly forecasts than on long-term predictions. However, Oil/Petroleum, Gas/Electricity and Industrial Products are some industries with a special focus on the short-term view, although they normally use other tools for long-term projections (Strategic Thinking and Scenario Planning). Conversely, yearly forecasts are used in 34% of the companies, mostly in cyclical industries such as Consumer Products, Food/Beverages, Retail and Transportation or in industries in which the flow of information is not enough to have clear picture under a short-term perspective such as in Technology industries.

But probably, the most interesting issue is to have a benchmark in forecasting methods because they are the heart of forecasting. In the survey conducted by Janic (2002) there are basically three kinds of methods: Time Series, Cause and Effect or Econometric Models and Judgmental methods. Among all the three types of models, Time Series is the one used most often (61%), followed by Econometric Models (23%). The Time Series models are also the most popular in all the industries except Gas/Electricity where 63% of the companies in this field use Cause and Effect methods. Only in Computer/Technology are Judgmental models used more than quantitative techniques.

Among the Time Series models, the simplest methods are Averages and Simple Trends, which are the ones used most often (30%). Conversely, the Box Jenkins methodology is not only the most
difficult but also the least used (7%). However, Oil/Petroleum and Transportation are industries that use the Box-Jenkins approach (or ARIMA models) far above the average.

Within the Cause and Effect category, the Regression models, as the simplest technique, is widely used in most of the industries. However, Transportation, Gas/Electricity and Oil/Petroleum are the three large users of more comprehensive and sophisticated Econometric models. Obviously, the percentage of forecasters with a background of Statistics/Math is the highest in these industries.

According to these surveys, utilities companies have the most sophisticated models and specialists, with greater emphasis on the short-term perspective, and very high support from the top management. However, these specialists do not rank very high in the organizational hierarchy: normally, there is no VP position for forecasters or chief economists in this kind of companies. On the contrary, in cyclical companies with a greater focus on the medium-term perspective and simpler quantitative methods of analysis and forecasting, the forecasting teams have access to very high organizational positions. One possible explanation for this apparent paradox is that large companies require more flexible specialists responsible not only for forecasting but also for other areas related with the global business environment, such as economic analysis, macroeconomics, industrial organization, political context, lobbying, and communication skills, among others requirements.

2.2 The Occasion for Inquiry

Certainly, the more complex a forecasting technique is, the less frequently it is used, which could be one of the reasons why the full potential of forecasting in most of the firms had not been realized. However, there are other problems that could influence forecasting accuracy. They can be separated into two groups: the first is related with the forecasting process itself, and the second focuses on the organizational structure.

The most important challenge in forecasting processes is the fact that forecasting often has little impact on decision making. This may be caused by at least two reasons:

- A lack of relevance of the forecasts: forecasters tend to concentrate on well-behaved situations that can be forecast with standard methods, and ignore the more dynamic change situations that usually tend to be the most interesting for decision-makers.
- An interpersonal challenge: those who prepare the forecasts and those who use them fail to communicate effectively.

The most obvious solutions to these difficulties would be using improved methods, training, or hiring experts. However, when forecasting ability is slightly improved, other managerial problems of implementation surface to prevent the full realization of the forecasting promise. In many situations, there is an incentive for the forecast to represent personal, political or self-serving organizational goals. This incentive could be systematic, such as a reward system or some evident manipulation by those in control of forecasting. Whatever the cause, forecasting is often caught up in the middle of organizational conflicts of interest and emerges biased in its representation of future outcomes, considerably decreasing its accuracy. Other reasons could be associated with an emerging sense of frustration given the lack of a clear career within the company and consequently an increasing turnover among forecasters.

2.3 Meeting the Challenge: Correcting Business Forecasting Problems

Besides improving methods and increasing expertise, another way to get better forecasting accuracy is to develop check and balances within the organization. This redundancy in forecasting can contribute to eliminate bias and mistakes in forecasts. Using a composite forecasting method (including other quantitative outcomes and some qualitative assessments) or even reconciliatory top-down and bottom-up forecasting processes may serve as a basis for gaining commitment from decision makers: getting top management backing would be easier if the forecaster has the support of the various departments such as production, sales, marketing and finance.

At the same time, defining the forecaster's job and the forecasting function to improve forecasting are just as important as getting top management support. The company needs to create the right incentives to avoid the sense of frustration among forecasters to sustain the forecasting function with very high forecasting accuracy.
Above all, there are other qualitative suggestions that experience has shown to be crucial in order to be accurate as a forecaster (and also as an economist at a corporate level (Small, 1999)):

- **Networking.** It is the best way to qualify quantitative projections and to have the most insightful information. Periodically visiting the countries or markets included in the forecast, maintaining a close relationship with other areas in the company such as sales or production departments and attending international conferences to extend the internal and external networking are crucial forecasting elements.

- **Information.** Building a uniquely relevant resource of information in the Company in order to be the best informed about the economic situation with the best economic and statistical information.

- **Insight.** Developing the experience and familiarity with the business being focused. Understanding top management needs and concerns beyond the forecaster's area of responsibility.

- **Communication.** Translating the value of forecasting into meaningful conclusions for executives who are running the company. Providing graphical and statistical representations of forecasts that highlight key implications helps forecast developers and users to understand projections quickly and clearly.

3. The Role of Business Forecasting

The role of forecasting at a Corporate level in multinational manufacturing companies is usually managed in the Economic Research Department, basically because getting good business forecasts could turn out as an almost an impossible job without a reasonable assessment of the global economic context. In that sense, forecasting is just one level of responsibility (probably the most important) within the economic department. In particular, the corporate economist should be prepared to read the signs of the business environment and the economy to assess from a consistent conceptual framework, the best future macro- and microeconomic scenarios for the main value drivers of the firm with a clear understanding of the risks inherent in the extreme values and the contingency planning involved.

Turning into a more operational mode, an ideal corporate economic department, should be prepared to address a twofold function (see figure 1): on the one hand, it must be able to forecast, accurately and within the boundaries of a probability distribution, the most plausible trends and cycles for the key value drivers for budgeting and development purposes. On the other hand, and under a microeconomic perspective, those forecasts should be combined with a strong arm in applied research, strong enough to support the economic components of the Corporate Strategy with scientific proof. In the same vein, an Economic Department at a corporate level should support the Planning process by constructing strategic scenarios and what-if type analyses. But at the same time, it should be able to take the role of a lobbyist, taking part in the teams that make the necessary connections with all the stakeholders.

Consequently, forecasting is just one function of an Economic Studies department. Particularly, focusing only on the role of forecasting, two different dimensions of forecasting techniques used in can be found: the horizon range of forecasting and the degree of uncertainty and number of discontinuities considered to analyze how the forecasting techniques should be used in multinational companies (see figure 2). However, it is much more interesting to develop the role of forecasting according with those corporate areas needing business forecasting: Business Management (sales/budgeting), Business Development (M&A processes) and Strategy, which usually conform the typical structure of a Corporate Strategic Planning Office.

3.1 The relationship between Forecasting and Business Management

The most important task in Business Management is preparing the company’s consolidated annual budget. The Budget itself is a future-oriented concept, which becomes increasingly relevant in the private sector because the company may be either rewarded or penalized according to the projected cash flow in the financial markets throughout the year. The process is so important that every company defines a macroeconomic scenario, one way or another, which will later encompass sales projections, price levels and the cost of productive factors used in the production process. This
process usually focuses on the short and medium-term perspective as the company’s real need is to project a credible free cash-flow estimation on an annual basis.

Forecasting has an important role in this cycle. Two factors are particularly critical: market size and market share, since they determine such things as capacity requirements, distribution and logistics methods. In multinational companies, exchange rate forecasts are also essential to consolidate those flows exposed to variations in foreign exchange rates.

The process usually starts by defining the global economic environment (near-term economic and geopolitical situation) in order to evaluate international trade growth, oil prices and the main trends in financial variables such as interest rates and exchange rates. Under these global assumptions plus other domestic considerations mainly related to the political context, it is feasible to build an econometric model and then find the relationship between this scenario and the variables of interest for the company: sales, market share and exchange rates. Once the forecaster has closed the initial stage of the forecasting process, the information gathered in the course of personal “missions” to the country or market, customer intelligence from the sales force and the opinion of external advisors should be used to qualify the set of quantitative projections (Alvarez et al, 1996). At other times a composite forecasting method that combines different quantitative projections plus the judgmental opinion is also convenient. Only under this framework will a forecasting and the environment around it be mutually consistent.

Anyway, this process it is not enough because two other different and supplementary approaches can be undertaken based on quantitative tools. Under a very short-term perspective, economic analysis provides the best approach to monitoring how fast external conditions change. That’s why it is very useful to analyze forecast errors, as proposed by Espasa (1992). When these forecasting errors, that normally come from single-variable ARIMA models (Box-Jenkins methodology) or from leading indicator models on a monthly basis, show a persistent sequence of negative or positive signs, it is the best indication of an eventual change of the trend or an inflexion point. To alert to the top-management and Corporate Planning Office about this situation could have an important value for the company, especially if it happens before competitors have noticed.

The other element of interest is macroeconomic risk management, in the sense of identifying and controlling variations and foreseeable uncertainty. It is highly convenient to develop a consensus outlook for the global economic context, keeping a close watch on a handful of key variables that affect portfolio and establishing signposts for critical events and potential worst-case scenarios. Each identified risk would be assigned a probability, and then methods such as scenario evaluations, simulations throughout quantitative models or decision trees would be used to estimate potential impact and prioritize risks. Building and monitoring an economic risk index or evaluating the probability of a violent exchange rate variation are some interesting examples of this approach.

3.2 The relationship between Forecasting and Business Development

The role of the economic analysis team becomes particularly relevant when it comes to strategic business development projects, which in turn, feed the mergers and acquisitions unit, of two main dimensions: attractiveness analysis and long term macroeconomic and industry forecasts.

In terms of the long term dimension, a coherent and comprehensive set of scenarios for the main variables of an economy (GDP, prices, volumes, and real exchange rates) becomes the backbone of a proposed business purchase, without which it would be impossible to justify a growth target and the present value of the supposed synergies. The relationship between political cycles and macroeconomics (Alesina et al, 1999) usually is a necessary reference to enclose the long-term uncertainty.

Attractiveness analysis, on the other hand, is a prior step of sorts, when viewed as a process in the economics team’s effort to support the M&A Unit’s strategy, in terms to assess the opportunity and risk of each geographic market and develop a priority country ranking for possible future expansion. This framework permit us to answer, at least partially, what would be the perceived outcome for the firm (both as a ongoing concern and as a portfolio of assets) in terms of risk, return, value and cash flows, in the event of the purchase or merger proceeding, in any combination of
possibilities and taking into account the hedging nature of the asynchronous cycle of those potential assets. Qualitative analysis, prediction tools and simulation exercises are some key ingredients need to evaluate the attractiveness of an investment project.

3.3 The relationship between Forecasting and Long-Term Strategy: Shaping the Future

When the degree of uncertainty is great enough to be addressed by quantitative models, business economists must be prepared for shaping the future using other kinds of tools. Forecasting extrapolates from the past, imposing the historical patterns onto the future and tends to neglect discontinuities. To some extent, non-linear models are able to capture some degree of discontinuities but forecasting does not usually attempt to address this issue. Scenarios, in contrast, identify unforeseen events as a central way to look beyond our limited mindset and tools (Davis, 2002). The challenge of creating scenarios is to understand not only what can be forecasted, but also the future critical uncertainties that must be taken into account. Scenarios tend to address matters of corporate vulnerability and strategic positioning rather than operating concerns. The final purpose is to help users prepare for the future by making strategic choices. It does not require being absolutely right, but being less surprised than those who are doing nothing. Especially in business, it means to have policies that are better adapted to the emerging business environment than are those of our competitors (Ringlan et al, 1998).

This tool is frequently used in Energy and Resources industries because it is quite normal to be dealing with projects that have very long lead times. However, in other industries, like Technology companies, the time horizon is shorter but with a greater risk environment. In fact, Scenario Planning is connected to another important area: risk assessment (Schwartz, 2002). However, in developing strategy, identifying single-risk factors is of less interest than defining the specific multiple elements of the business environment that can be used in order to gain a stronger foothold. Whether time horizons are long or short, scenarios attempt to go beyond immediate perceptions in identifying the large-scale risks. In short, Scenarios allow a better understanding of corporate vulnerability and the possibilities for new strategic positioning.

Building Scenarios: a set of basic rules

1. Construct scenarios for an organization based on a clear overall focus or theme.
2. Identify and analyze driving forces that will shape the environment. Some matters may be subject to forecasting, such as demography, whereas other forces are essentially unknown.
3. Establish a set of plausible structured storylines, identifying the relevant interconnections and defining the scenario framework, including discontinuities.
4. Develop the relevant plots and stories, including their dynamics.
5. Quantify the scenarios, as needed. The scenarios are then usable as new frames of references.
6. Finally, communicate the scenarios. At the end, the strength of this approach is the power of tale or narrative for organizational success in the resolution of dilemmas (Allan et al, 2002).

4. Conclusions: The Future of Forecasting

This article has addressed the role of economic and business forecasting at a corporate level in a company large enough to absorb this function’s cost. The first emerging idea is that forecasting should be made by an Economic Research Department, simply because it is very difficult to determine the future, even a microeconomic level, without defining the trends and economic context the company may be forced to face. However, the support of other areas of the company is a crucial element of the forecasting process.

Cyclical industries with a degree of uncertainty that is relatively lower than that of other industries give more credence to the forecasting function itself than other activities (competitor’s analysis, lobbying, ...), although if a proper balance among them is achieved, it would be easier to have access to executive positions. Utilities companies, on the other hand, prefer to specialize in highly advanced forecasting techniques and on Institutional Relations in order to anticipate and solve problems in the short term, while developing Scenario Planning techniques to reduce the uncertainty of the long term. Nevertheless, the fact remains that, as a whole, business forecasting still
lacks top management support in spite of its value not only as a means to foresee the future but also as a form of analysis consistent with the economic environment.

However, more recently is emerging an interesting paradox around the forecasting topic: while there is an increasingly complex economic and social environment, forecasting tends to be a “commodity” due to the increased of technology. Internet access to the most important economic reports diminishes the standard deviation of different sets of macroeconomic forecasts. For that reason, the future of forecasting should shift from punctual figures to the services surrounding the figure itself, such as risk management, effective monitoring, consistency of the complete set of outcomes; in that reality, Scenario Planning should play in the near future a central role in business forecasting.

Turning into the current economic reality, at this precise moment there is an apparent “worldwide” consensus about the US GDP growth around 3% for 2003 and something similar could be established for other regions and countries: the European Union will grow about 2.2% and Spain, for instance, will grow around 2.5%. In that context, emerging inflationary pressures won’t be a cause of concern next year. However, this apparent consensus hides other important considerations, which likely are not part of this “worldwide” consensus but they are much more interesting to consider.

Beyond the forecasting consensus about the GDP growth or inflation variables, the global economy scenario that started to take shape in the second half of 2002 is laden with a set of conditioning factors, most of which imply a considerable downside risk in terms of economic growth. This atmosphere of uncertainty, lack of confidence and a strong risk aversion has taken its toll on international capital flow and consequently on the globalization process. The current situation of global paralysis in the industrialized world has severe implications in terms of economic policies and political and social trends: from a stronger emphasis on control and regulation, and an increase in public spending, to an evident halt in the globalizing process. The rules that were valid as a recent past guidance are not appropriate any more to define the new international context, specially in terms of its economic and financial aspects as well as, and above all, political and security issues. In that sense, the following factors should be taking into account in any macroeconomic scenario: the economic paralysis worldwide, the national security measures, the greater emphasis on sustainable economic development (not only because of a greater concern for the environment but also in order to reduce the social inequality as a fundamental means to reduce security risks), the rise of protectionism of nationalist values and the greater concern for the social responsibility of companies and Governments. These factors make up a scenario in which, unlike that of the late 1990s, a strong public sector presence starts to emerge in most of the economic initiatives being posed worldwide.

The question is whether this new period of greater interventionism, in the form of regulation, tariffs, exchange rate management or increased public spending, could lead to socially efficient results. Today, forecasts a particular set of figures is not enough. The real value of the forecasting function at a corporate level is to define all these emerging trends in order to formulate a particular set of forecasts for the key value drivers for budgeting, development or strategic purposes.

References


Forecasting Techniques at Corporate Level in Large Companies

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