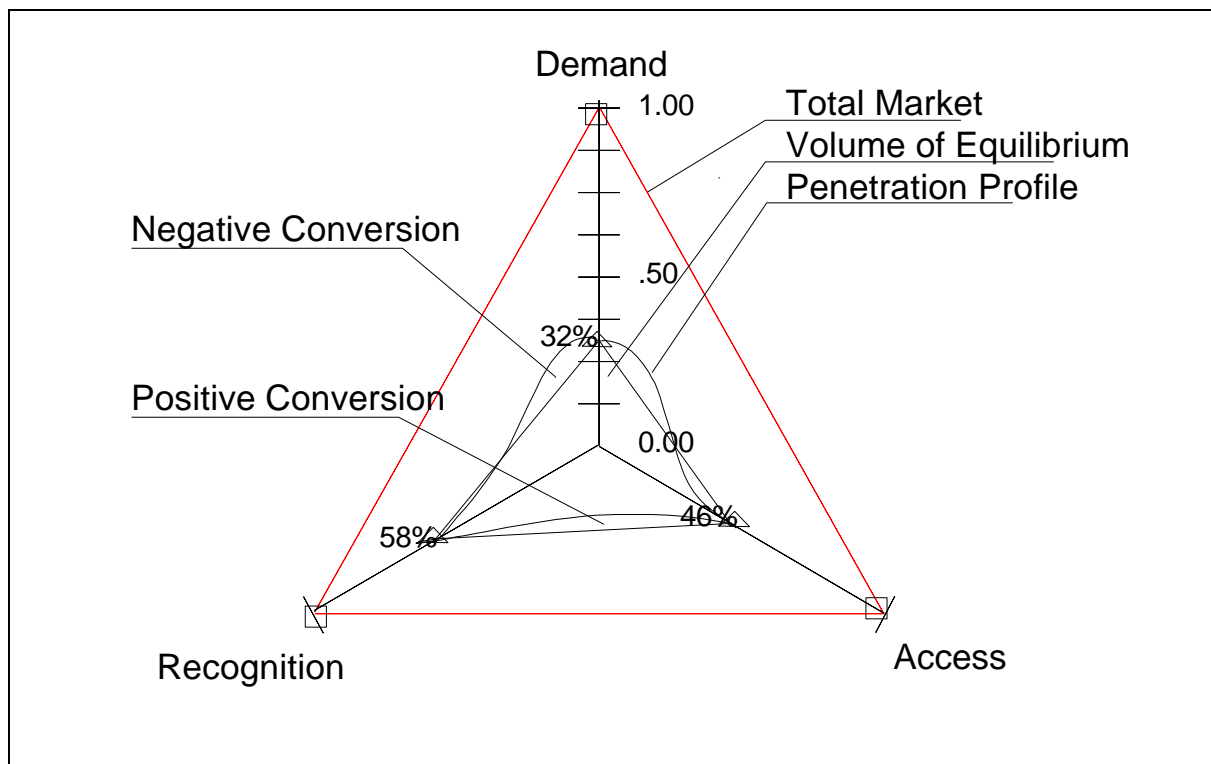


# An Introduction to the Dynamic Market Model and Case Histories



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**WHIPPLE, SARGENT & ASSOCIATES**  
STRATEGIC SERVICES

# Introduction

## **The Secret of Batting a Thousand**

One of the reasons why clients of Whipple, Sargent & Associates are so successful is that they not only receive reliable and accurate information about the composition and motivations of their markets, but they also receive equally accurate and reliable forecasts of what their markets will do in the future. Knowing in advance what will happen if one makes a particular decision or marketing choice helps you make better decisions and avoid costly mistakes.

While accurate statistical information about what a market did yesterday is available from many sources, accurate forecasts about what your market will do tomorrow are difficult to acquire and often difficult to pin down. This makes the accurate and clearly defined forecasting services of WS&A particularly valuable.

For more than a decade and 300 separate reports, Whipple forecasts have never been wrong once. Not only have they been right about the direction of growth or decline, but most have been within a few percentage points of the actual dollars or units projected.

The reason we have achieved such a phenomenal record is not that we are better researchers. Our research methodologies are nearly identical to all other survey researchers. In fact the majority of the research we analyze is conducted by other research organizations.

What distinguishes WS&A is that we have perfected a market modeling technique which eliminates the built-in inaccuracies of traditional forecasts and analysis techniques. We call this Dynamic Modeling because it uses survey research to precisely show the relationship of all forms of marketing, distribution and promotional activities in a single model for each product, appeal or offering.

# Dynamic Modeling

## Your Secret Weapon

Most “experts” and econometricians rely on historical records, statistics and industry data to develop comparable indices to predict the future activities of your market. This assumes that your past customers will be the same as your future customers or that your market is identical to a competitor’s. One could say they measure apples to estimate oranges.

Whipple uses survey research of the actual activities or forces within your market to generate a single model which includes both past and future activities. In other words, we apply apples to apples measurements.

We have found this technique of analyzing markets and forecasting the outcome of marketing strategies offers phenomenal accuracy and reliability. It is a proprietary technique, available only to the clients of Whipple, Sargent & Associates and associated firms.

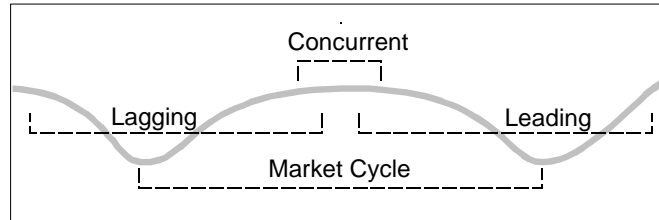
Most market analysis and econometric forecasting techniques strive for greater than 50% accuracy, 95% of the time. Since 1983, in over 300 long cycle, industrial market applications, the Whipple Dynamic Model has exceeded 90% accuracy, 100% of the time. Since 1989, in more than 50 short cycle, consumer market applications, this technique has exceeded 95% accuracy, 100% of the time.

Originally developed at SMS/A Communications, Inc. in 1981, by Sherman Whipple, then VP of Strategic Planning, the Whipple Dynamic Model represents a breakthrough in market analysis and forecasting. Unlike a standard multi-dimensional approach using linear X,Y plots, the Whipple model is a true volumetric (non-linear X,Y,Z) representation of market activities.

Most important, the Dynamic Model is not only logical, but it can be proven and independently verified, not only as it applies to marketing but also in all mathematical, biological and physical sciences.

# The Market Cycle or Interval

To understand market models, one must recognize that the activities of different markets occur over different intervals. These intervals are your market cycles. Each model represents a comparison of past and currently forming cycles in intervals as short as three months or as long as fourteen years.



The dynamic represents the relationships between the market activities for the portion of the cycle preceding the survey (penetration), and the current state of market equilibrium including the leading portion of the cycle following the survey (intent). Essentially we establish a series of relationships between what your customers said they did in the past and what they say they will do in the future.

Long cycle markets are those where the purchase process or consumption pattern occurs over an interval greater than one year. Capital machinery and durable goods markets, for example, have a 7 year interval, tied to the business cycle of recession, recovery and expansion.

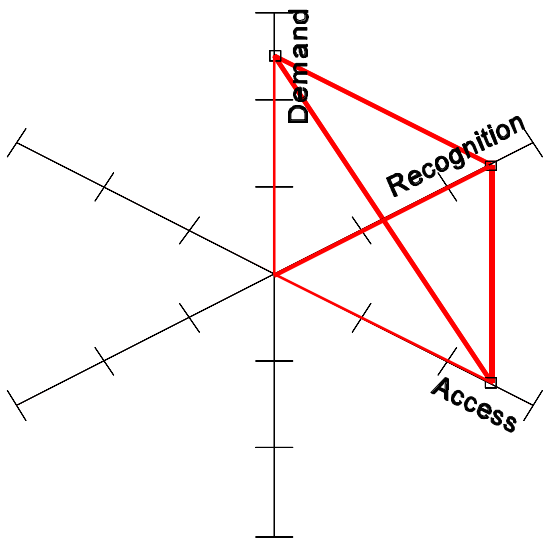
Short cycle markets are those which have an interval of one year or less. Fashion is a one year or seasonal cycle. The interval for package goods, food, snacks and non-alcoholic beverages is typically thirteen weeks.

Unlike a long cycle industrial market, where trends evolve over months and years, so timing and turnaround on research is less critical, short cycle market trends evolve over days and weeks. This presents an unique set of problems for dynamic modeling of short cycle consumer markets.

Using both survey design and data gathering methodologies developed specifically for short cycle markets, the Whipple model has been used successfully in consumer research since 1989. The most significant advancement of this technique is that validation occurs within a very short interval, typically 13 weeks. In all assignments, to date, the results have provided a high degree of precision.

# The Whipple Methodology

A distinction of the Whipple Methodology is that it is non-regressive. From a single sampling (survey or market test), three categories of market formative criteria (demand, access and recognition ) are cross tabulated and plotted to define a penetration volume and a volume of equilibrium on the same X-Y-Z axis with 3, 9, 27, 81 or 243 data points and a common zero. All computations and extrapolations use variables taken directly from the survey, standard conventions based upon empirical data and/or assumptions (educated guesses or estimates) where precise statistical or empirical data is unavailable.

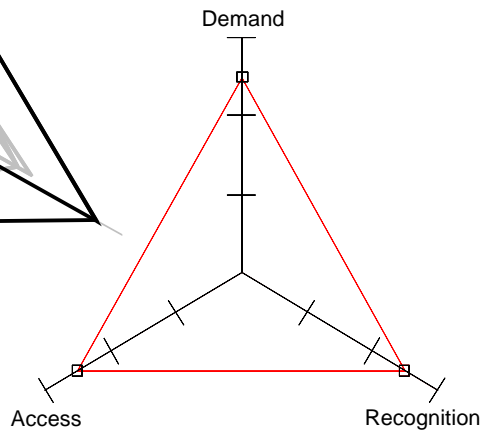
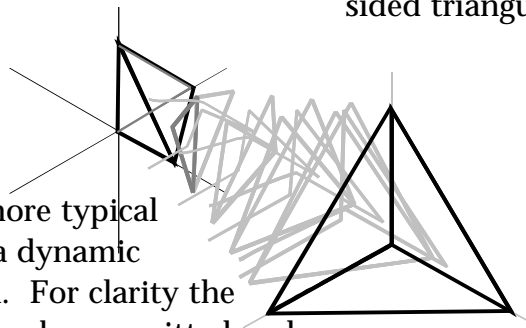


While it may sound a little complicated, it is actually much less math than a typical econometric formula.

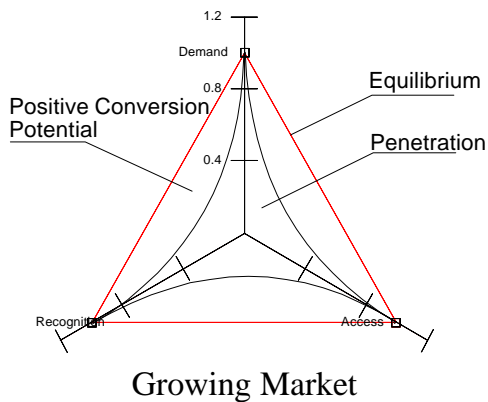
The first diagram shows how a volume of market equilibrium would be plotted on a single X,Y,Z axis, using indices of Demand, Access and Recognition as the defining point on each axis.

The three data points and common zero form a volume. You will note that it is not a cubic volume but, in fact, a right sided triangular pyramid.

To the right is a more typical representation of a dynamic equilibrium model. For clarity the negative values have been omitted and the axis has been turned 90° to the viewer.



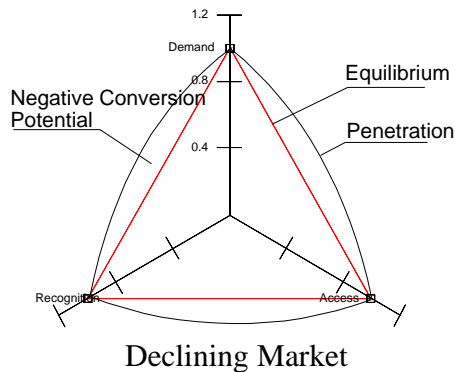
In the Whipple Dynamic Model, market equilibrium (the leading indicator) is always shown with three points and straight plots between each point to define the volume.



The importance of determining an accurate volume of equilibrium cannot be overstressed. This tells you where the market is going and is the key feature of the Dynamic Model.

In the nine data point penetration overlay illustration at left, we see a representation of a growing market profile. The volume of penetration (sales) is less than the volume of equilibrium. This is called positive conversion.

During the market cycle, sales (levels of penetration) will always approach the volume of equilibrium. In a growing market, this means that sales (penetrated share) will increase.

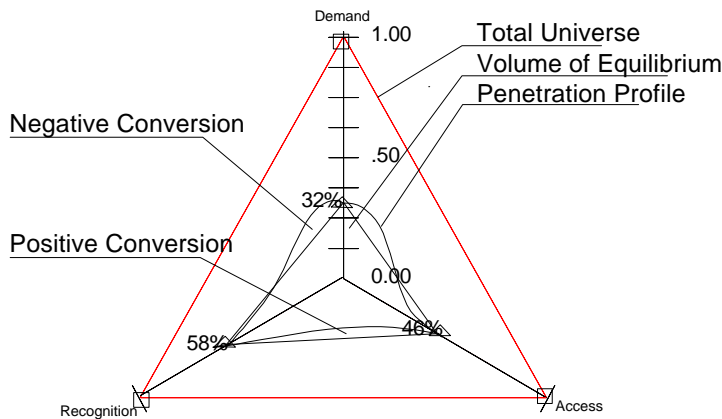


In the declining market illustration, we see a level of penetration greater than the volume of equilibrium. Market share will decline as penetration approaches equilibrium. This is called negative conversion.

Negative conversion means that the product, service or offering is losing market share. Positive means that market share is growing. Since the data points on the model are indexed (typically to a percentage of a total universe or total market) they are not influenced by economic factors or factors of total market growth.

Even when sales are booming, as in economic expansion, one may exhibit a declining market profile and negative conversion. Conversely, during a sales slump, the market profile may exhibit positive conversion. Using the dynamic model, you know how you are really doing, not just how you appear to be doing.

These illustrations, however, only show a general direction. The most valuable attribute of the Whipple model is as a means of diagnosing the exact cause of declining share and/or capitalizing on high conversion potential to maximize profits. This requires a model using multiple overlays to produce a 27+ data point model.



The figure at left represents a recent market profile of a short cycle consumer product. You will note that the profiles are overlaid on a total universe and each data point has been plotted as a percentage of that total. Based upon the survey, the volume of equilibrium would produce an 8.5% share of the total universe.

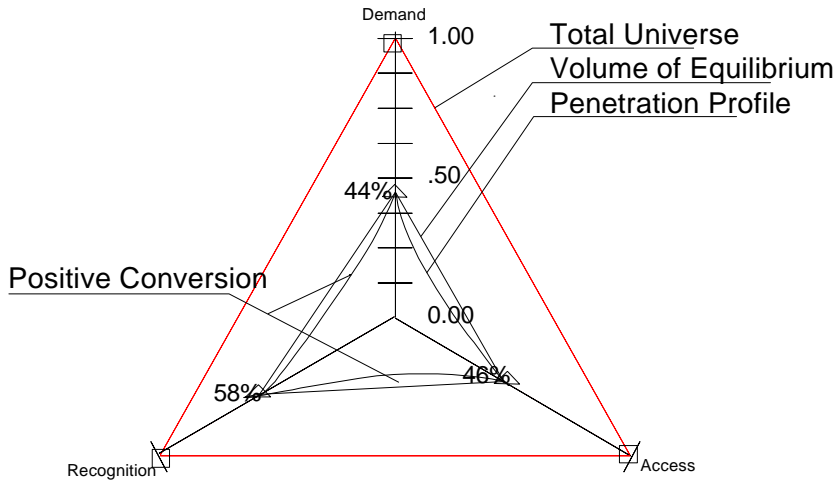
Industry figures and the client's own data estimated the penetrated market share to be between 9 and 10%. In the model the estimated volume of the penetration profile is consistent with the empirical data.

Since the current level of penetration is greater than the equilibrium, this particular product was losing market share at the rate of approximately 10% over the current cycle. The cause of this share loss is clearly presented in the model.

As a diagnostic tool, the model shows that the offering suffers from a decline in demand. We can determine this because the penetration profile is outside the volume of equilibrium on the demand axis. This means that either the price is too high or the markets' perception of the offering is valued less or is perceived as less attractive than a competitor's offering.

Both access and recognition are below equilibrium. This is a clear indication that their promotional or advertising program is working and that they have sufficient distribution. Therefore, the most effective marketing strategy, at the present time, would be based upon the elements of supply/demand.

In this particular instance, it was found that the price was actually quite competitive. Had they simply reduced the price, they would not have increased share, but, rather, reduced their profit margin with only a negligible increase in volume. The decline was actually caused by how the market perceived the offering and a failure to understand the unique benefits.



Therefore, the most appropriate strategy was to change the way they described their offering in their advertising and promote those features which were in demand.

An overlay test of the new advertising message generated a market profile with an increased share potential, market growth, and increased profits. Best of all, it did not cost them one dime more than they had currently been spending.

A follow-up test, conducted 13 weeks after the new advertising flight produced a new market equilibrium (share potential) of 11.8%. This allowed the company to plan for 15% growth while maintaining current levels of marketing expenditures.

# Data Gathering

Dynamic modeling, including the Whipple technique, may be used with virtually any data gathering methodology as long as the test contains leading and lagging indicators for demand, access and recognition. The data can be either parametric or non-parametric, depending on whether you need an accurate model for long range planning or a relative model to track the effectiveness of a particular marketing tactic or impact on a single audience.

For greatest accuracy, a total universe or census proportional benchmark study will usually produce the most reliable findings, often approaching a 1:1 relationship to empirical data. For short cycle markets, this requires that the sampling occur within a very narrow time frame. A period of less than a week is recommended.

Most of the forecasting models created at Whipple, Sargent & Associates use survey data collected by other research organizations or the research departments of publications and major corporations. To make certain that your survey contains all the necessary categories to be used in the dynamic model, it is recommended that we consult with your data gathering organization before the actual survey is conducted.

One may also use polling and intercept techniques to gather the data used for short cycle dynamic modeling. Both methods are relatively expensive, not always statistically representative and often difficult to coordinate. As an alternative, the check response methodology, a technique perfected by Sherman Whipple for Foote, Cone & Belding in 1975 to test canned soup consumption patterns, can be applied in many instances for both a cost savings and an increase in accuracy.

While we do, on occasion, directly provide data gathering, the primary role of WS&A is in market analysis, forecasting and strategic planning. The quality of this work is dependant on accurate numbers from your survey. For this reason, we will work with you or your research organization in the design and development of the research curriculum to not only increase the accuracy of the research, but to help you integrate the findings into your on-going decision making process.

# Case Study:

Client: Advertising Agency  
Product: Margarine/Butter Blend Table Spread  
Market: National Consumer, Short Cycle  
Marketplace: ACV Dairy Case  
Time frame: June-August 1993

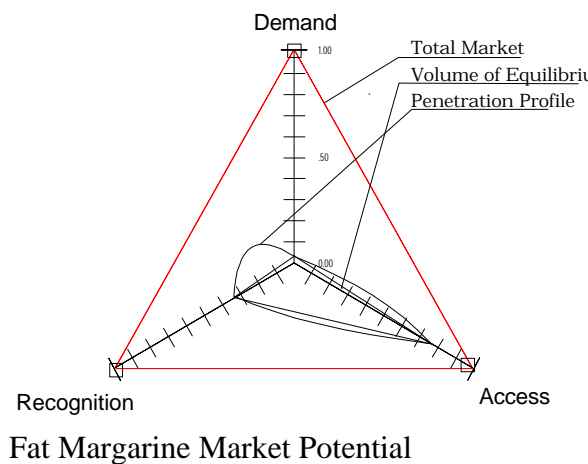
## Introduction:

The following illustrates application of the Whipple dynamic model with an existing database and pre-test overlays to disclose the causes of sales decline and pre-test an appropriate solution for short cycle markets.

## The Problem:

A nationally branded table spread experienced three consecutive quarters of sales decline and loss of market share. With the exception of melting properties, all other features of the product were highly competitive in the marketplace.

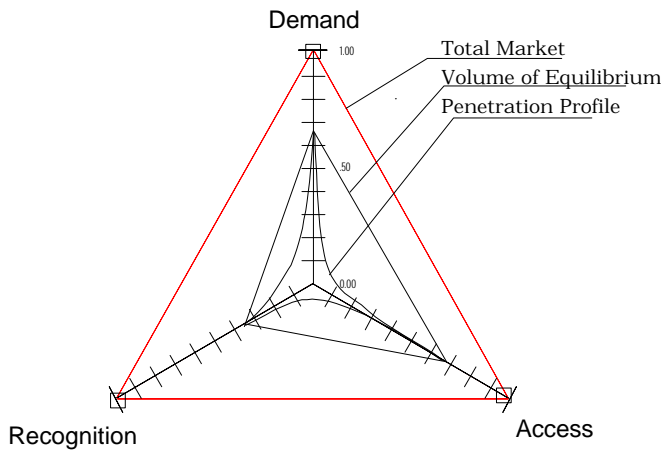
The product was reformulated with better melting properties and the manufacturer increased national advertising. The key selling proposition targeted the benefits of margarine with the taste appeal of butter (butter indulgence). Not only did share loss continue, but it appeared to accelerate in the face of the new advertising and promotional effort.



## The Answer:

The manufacturer requested an independent market analysis through their advertising agency. The agency contracted with Whipple, Sargent & Associates. With the availability of the manufacturer's extensive database of marketing data as a comparable, Whipple performed additional market overlays to create a dynamic model of the total butter, margarine and table spread market.

The dynamic model demonstrated that the cause of the share loss was not product related or the result of competition, but, rather, the result of inappropriate positioning of the product. It was found that the market perceived the product as a "fat margarine" which represented less than a 2% share equilibrium in the total category. Further, this position indicated negative conversion, which would result in continued share loss at a rate of greater than 10% per quarter.



Light Butter Market Positioning

An inverse overlay for a "light butter" offering, however, represented an 11% share equilibrium with a positive conversion potential of greater than 500%. Further analysis showed that, with the exception of only one significant competitor, this positioning represented "uncontested ground".

**The Result:**

The manufacturer repositioned their product as "light butter" and both sales and share increased.

# Case History

Client:	Myles Standish Federal Credit Union.
Recipients:	Consumer Bankers Association, Federal Reserve Board of Governors, United States Senate Banking Committee
Product:	Financial Services Offerings
Market:	Consumer (New England and Mid-Atlantic States Homeowners), Long Cycle
Marketplace:	Banks and Financial Service Institutions
Time frame:	December 1988-March 1993

## **Introduction:**

Initially a pre-test overlay for the introduction of a counter recessionary financial service package, this body of research ultimately achieved national attention and resulted in significant changes in both the banking and non-bank financial services industries. It demonstrates the unique capability of the Whipple Dynamic Model to accurately disclose leading market indicators.

## **The Problem:**

Even before the nation recognized that it had slipped into a recession, bank profitability had already started to erode. Previously strong institutions were unable to compete profitably in the marketplace. Initially focusing on commercial lending activities as the primary cause of these losses, this did not explain why a similar pattern of losses was occurring in suburban and community institutions who did little or no commercial business. Internal analysis of bank customers showed a substantial reduction in banking activities and a disfranchisement with the banking industry by primary segments of the market. It appeared that market activity was shifting to non-bank financial services.

## **The Answer:**

On the belief that a more competitive offering would entice customers back into banking, Whipple was contracted to develop and pre-test a competitive services package. Using an existing financial services model for baseline data, Whipple conducted pre-test overlays of multiple selling propositions and key buying motivations to determine the key components of the services package.

The resulting dynamic model, however, showed negative conversion for all appeals, both for banking as well as for the non-bank competitors. The model showed that the decline in bank profitability and increased risk were not caused by a shift from one competitor to another, but, rather, a massive decline in the total market. This decline affected both secured and unsecured lenders. Further analysis showed an overall incidence of greater than 12% negative net worth in the regional financial services market with a 75% concentration in the 35-54, professional managerial segments.

Unfortunately, in 1989 no corroborating data existed for this finding from any industry, academic or government researcher. This meant that the Whipple model was either in error or had detected a yet to be revealed market trend. With permission of the client, the findings were published in 1990 for peer review and raised an immediate storm of controversy. Additional surveys in other regions of the country were commissioned in an effort to refute the data.

By March of 1992, it became evident that the original findings had merit. In the Northeast, Mid-Atlantic, Pacific, and in many isolated regions across the country, independent research confirmed high levels of negative equity within the same demographics. Then a national empirical study conducted by Fannie Mae confirmed that the Whipple research was 100% accurate.

After release of the Whipple findings (coined the NEBBie Phenomenon for Negative Equity Baby Boomers), the Federal Reserve issued warnings to banks and enacted specific regulations to enable institutions to address these issues.



## **The Results:**

The problems faced by NEBBies have not gone away just because the industry and regulators received advance warnings. In fact, by July 1995, the national level of negative equity grew to 13.5%, but the measures enacted by regulators have had substantial effect in reducing the impact of this trend. The short-term crisis, which would have materialized had the issue not been raised, was mitigated.

The availability of sensitive and reliable leading indicators of market conditions is crucial to decision making regardless whether it be by the government or private industry. Today the banks who participated in the Fed's Discretionary Loan Basket Program are the most profitable in the industry.

The advance notice resulting from using the Whipple Dynamic Model may have saved US taxpayers many billions of dollars, in terms of preventing financial institutions from failing. It allowed the regulators to become proactive, by identifying the phenomenon nearly 18 months before sufficient empirical data became available for standard research methodologies to identify it.

## **References:**

Governor John LaWare, Federal Reserve Board of Governors (retired)  
Joe Belew, Director, Consumer Banker's Association 703-276-1750  
Pat Lawler, Economist, US Senate Banking Committee 202-224-3121

# Case Study:

Client: Cosmopolos Crowley & Daly/CKG for Boston Popcorn  
Product: Boston "LITE" Popcorn  
Market: Regional Consumer ACV (New England), Short Cycle  
Marketplace: All regionally marketed brands of pre-packaged savory snacks  
Time frame: July 1993

## **Introduction:**

The following illustrates the application of both the Whipple Dynamic Model as a diagnostic tool and the analytical skills of Whipple, Sargent & Associates to increase sales effectiveness and increase market penetration.

## **The Issue:**

After seven years of steady growth in the Boston ADI, Boston "LITE" Popcorn achieved market dominance. Sales of their main butter, salted and plain flavors appeared to have reached a point of diminishing return. To expand their base, the manufacturer introduced additional flavors including cheese and caramel.

Reasonably expecting to achieve comparable shares to their main products, Boston Popcorn was disappointed with sluggish sales. Further, attempts to expand geographically with their product line, again, produced less than anticipated results. Having never invested in advertising or market research, Boston Popcorn requested proposals from several Boston agencies including Mullen and CCD/CKG.

## **The Answer:**

CCD/CKG contracted with Whipple to identify advertising opportunities for Boston Popcorn. Without benefit of baseline research, Whipple conducted a total geographic market sampling and focused in-depth overlays of respondents in the savory snack market. Additionally, the data was compared and contrasted with standard national consumption patterns provided by the Snack Food Marketing Association.

At first it appeared that the dynamic model of Boston Popcorn's market was quite typical of a product needing advertising because the recognition dynamic was significantly lower than either the demand or access dynamic. It became quite

unusual, however, when the volume of projected equilibrium was compared with actual sales or penetration.

Levels of penetration were substantially higher than levels of recognition. The only explanations for this phenomenon were a) an error in our research methodology or, b) that a significant portion of those who purchased Boston Popcorn didn't remember buying it.

Further analysis produced a finding that a substantial number of respondents who indicated "other", as the last brand purchased, had actually consumed Boston Popcorn. Through a follow-up overlay it was determined by Lloyd Sargent, that this was a direct result of a weak brand identity. Boston Popcorn was losing \$1,700,000.00 in quarterly sales from the Boston ADI through attrition caused by low brand equity.

It was therefore recommended that, while Boston Popcorn could eventually benefit from a media advertising program, the most immediate benefit would be to revise their packaging to make the "Boston" identity prominent. It was presented to the client that, over the two quarters following the packaging change, that their Boston ADI sales would increase by \$1,700,000 as a direct result of the packaging change. It was further presented, that creating a "transferrable identity" would stimulate sales of their new products.

### **The Results:**

Cosmopulos Crowley Daly/CKG was not awarded the account. Boston Popcorn did, however, adopt their recommendation which became the basis of their assignment to Mullen Advertising of Beverly Farms, MA. Mullen's execution of the packaging revision resulted in a sales increase which, by the second quarter following its introduction, was within 3% of that projected in the model.

### **References:**

Rick Tocquigny, VP Sales & Marketing, Boston Popcorn, 617-828-4100