Chapter 2
Why Database Marketing?

Abstract A basic yet crucial question is: why should the firm engage in database marketing? We discuss three fundamental motivations: enhancing marketing productivity, creating and enhancing customer relationships, and creating sustainable competitive advantage. We review the theoretical and empirical evidence in support of each of these motivations. Marketing productivity has the best support; there is some evidence for both customer relationships and competitive advantage as well, but further work is needed.

Perhaps the most fundamental question we can ask about any marketing activity is what is its *raison d'etre* – what purpose does it serve in enhancing firm performance? In this chapter, we propose and evaluate three reasons for database marketing:

- Enhancing marketing productivity
- Enabling the development of a customer/firm relationship
- Creating a sustainable competitive advantage

2.1 Enhancing Marketing Productivity

2.1.1 The Basic Argument

The pioneering retail entrepreneur, John Wannamaker, is said to have lamented about the inefficiency of his marketing efforts, "I know that half of my marketing is wasted; my problem is that I just don't know which half." The promise of database marketing is to identify which marketing efforts are wasted and which are productive, thereby allowing the firm to focus on the efforts that are productive. Database marketing does this by identifying customers for whom the marketing effort will pay off, and then targeting those customers. In this view, database marketing is fundamentally a segmentation and targeting tool for enhancing marketing productivity.

Table 2.1 The economics of database marketing: A prospecting example

● Untargeted Mailing				
Number of offers mailed:		1,000,000		
Profit contribution per response:		$80		
Cost per mailing:		$0.70		
Response rate:		1%		

Profit = 1,000,000 × 0.01 × $80 − 1,000,000 × $0.70
     = $800,000 − $700,000
     = $100,000

● Targeted mailing				
Decile	Number of prospects	Response rate (%)	Profit ($)	Cumulative Profit ($)
1	100,000	3.00%	170,000	170,000
2	100,000	2.00	90,000	260,000
3	100,000	1.40	42,000	302,000
4	100,000	1.15	22,000	324,000
5	100,000	1.00	10,000	334,000
6	100,000	0.60	−22,000	312,000
7	100,000	0.40	−38,000	274,000
8	100,000	0.30	−46,000	228,000
9	100,000	0.10	−62,000	166,000
10	100,000	0.05	−66,000	100,000
Total	1,000,000	1.00%	$100,000	

=> Target first five deciles (Profit = $334,000)

The power of this argument can be seen in the example shown in Table 2.1. The example depicts the economics of a direct marketing campaign whose goal is to profitably sell a new product to a list of 1,000,000 potential "prospects." Each prospect who "responds" to the offer generates $80 in profit. The cost to extend the offer is $0.70, including costs of mailing and printing of the mail piece. Assuming a 1% response rate – fairly typically for a large-scale mailing – profit would be:

$$\text{Profit} = 1,000,000 \times 1\% \text{ response} \times \$80/\text{response}$$
$$-1,000,000 \times \$0.70/\text{contact} = \$100,000$$

The mailing is profitable. However, the above calculation illustrates Wannamaker's perspective taken to an extreme −99% of the marketing expenditures were wasted! Only 10,000 will respond to the offer, yet we are mailing to 1,000,000 customers to find those responders. This unfortunately is a typical outcome for many marketing expenditures. The cost is not only lost profits to the firm, but wasted "junk mail" and advertising clutter as well. If we could eliminate some of that waste, profits could be increased and perhaps society itself could be better served.

The lower portion of Table 2.1 shows how the results can be improved with database marketing. The prospect list is segmented into deciles, 100,000 in each decile, *prioritized by their likelihood of responding to the offer.*

The prioritization is determined by a process called predictive modeling (Chapter 10). Predictive modeling identifies a top decile of customers who have a response rate of 3%. The second decile has a response rate of 2%, etc., down to the 10th decile, which has a response rate of 0.05%. The profits from targeting the first decile would be $100,000 \times 3\%$ response $\times$ \$80/response $-$ $100,000 \times \$0.70$/contact $= \$170,000$. Targeting this decile alone would yield more profit than targeting the entire list. The key is that we are saving on the mailing costs – "only" 97%, not 99%, of the mail costs are wasted in this segment.

Going through the calculations for each decile, we see that it would be profitable to target the top 5 deciles, yielding a cumulative profit of \$334,000, much higher than the \$100,000 gained by targeting the full list.

Database marketing allows firms to segment their customers according to "lift tables" such as in Table 2.1, and then deliver the marketing effort to the customers whom the analysis predicts will be profitable. The key to the profit improvement is that the top deciles have substantially higher response rates than the lower deciles. The ratio of response rate in a decile to the average response rate is known as "lift." Note that a first-decile lift of 3 to 1 (3% response for that decile divided by 1% for the entire database) is enough to enhance profits significantly. The lift for the top 5 deciles is $1.71\%/1\% = 1.71$. Lift levels of this magnitude are quite feasible given current statistical technology. This provides a fundamental reason for firms to employ database marketing – it increases the profits generated by marketing campaigns by targeting customers more effectively.

2.1.2 The Marketing Productivity Argument in Depth

The marketing productivity argument for database marketing follows from the recognition of three major forces: (a) a major problem of mass marketing (e.g., traditional electronic media such as television) is lack of targeting and database marketing provides the ability to target, (b) marketing needs to be accountable and database marketing provides accountability, and (c) mass marketing efforts are difficult to assess and adjust, whereas database marketing provides a process for learning how to target more effectively.

2.1.2.1 Database Marketing as a Solution to Targeting Inefficiencies of Mass Marketing

Beginning with Wannamaker's observation that half his advertising was wasted, marketers have long lamented their inability to target efforts effectively. For example, mass media advertising can be targeted only to a limited degree. Market research services identify demographic characteristics

and product preferences associated with particular television shows, or geographic regions, but this produces nowhere near the desired level of individual targetability.

Blattberg and Deighton (1991) pioneered the notion that data technology can improve targeting in their concept of the "addressable consumer." Their main point was that database marketing could create a dialogue between the customer and the company, whereby the company would learn the responses of individual customers and respond to their needs. This was a radical departure from mass media. Deighton et al. (1994) elaborated on this theme: "At its most sophisticated, then, a transaction database is a record of the conversation between a firm and *each* [italics added] of its customers, in which the firm's offering evolves as the dialogue unfolds" (p. 60).

Coincident with the conceptual argument that data technology could improve targeting was the practical observation that the costs of maintaining and storing databases had decreased rapidly. Blattberg and Deighton (1991) maintained that "the cost of holding a consumer's name, address, and purchase history on line has fallen by a factor of a thousand since 1970 and is continuing to fall at this rate." Sheth and Sisodia (1995b) report that "Computing power that used to cost a million dollars can be had today for less than a dollar." Peppers and Rogers (1993, pp. 13–14) echo similar themes.

Second was the observation that the tools for extracting the necessary learning from the data (to construct the lift table in Table 2.1) were available and getting better. This led to an explosive growth in "data mining" (e.g., Peacock 1998). Peacock defines data mining as "the automated discovery of 'interesting,' nonobvious patterns hidden in a database that have a high potential for contributing to the bottom line . . . 'interesting' relationships are those that could have an impact on strategy or tactics and ultimately on an organization's objectives." He cites a few examples:

- Marriott's Vacation Club used data mining to cut the level of direct mail needed to accomplish a desired response level. This is a prime illustration of Table 2.1.
- Prudential Insurance tested the results of data mining for improved response rates among prospects, and found them to be doubled.
- American Express used data mining to "score" customers in terms of how likely they were to purchase various items. It then used these data to generate offers that match the products of its partners with the needs of its customers.

In summary, the recognition that targeting was the problem with mass marketing, that database marketing could theoretically improve targeting, that database costs were declining, and that data mining was effective in practice at developing the targeting plans, contributed mightily to the growth in database marketing as a tool for improving marketing productivity.

2.1.2.2 Marketing Accountability and the ROI Perspective

Emerging from the period of high inflation in the 1970s, senior management became very concerned with costs – production, labor, and materials. Webster (1981) (see also Lodish 1986) reported that by the early 1980s, CEO's had begun to focus on marketing. The fact that it was general managers – the CEO's – who were calling attention to marketing meant two things. First, the issue was broader than costs. It was productivity in the sense of Return on Investment (ROI), i.e., how much profit was being generated per marketing dollar. Second, marketing needed to be accountable, so that marketing productivity needed to be measured. Sheth and Sisodia (1995a) report that by the mid-1990s, "CEO's are demanding major cost savings and a higher level of accountability from marketing than ever before."

As illustrated in Table 2.1, database marketing fulfills the need to measure ROI. Rather than spending \$700,000 to produce a profit of \$100,000 (an "ROI" of 15%), database marketing would spend \$350,000 to produce a profit of \$334,000 (an ROI of 95%).[1] Expenditures have decreased and profits have increased. The key however is that the results are measurable. The entire database marketing mentality is based on measuring results. In Table 2.1, it is relatively simple since response can be measured and tabulated, and the costs can be calculated.

Costs, at least direct costs, are almost always easy to measure in a direct marketing context. Incremental revenues are sometimes difficult to measure, however, because it is not clear what response would have been without the marketing campaign. This is where the role of experimentation and learning comes in. For example, assume that in Table 2.1, it was possible that consumers could buy the product even without a direct mail campaign, e.g., through a different sales channel. The database marketer would then design an experiment by creating a control groups. Rather than mailing to all 100,000 prospects in Decile 1, he or she would mail to just 90,000, holding 10,000 aside as controls. The incremental gain from the campaign could then be calculated as the response rate for the 90,000 minus the "response" rate for the 10,000. The ease of conducting experiments plays a key role in measuring the results of database marketing, hence in making database marketing *accountable*.

While marketing ROI is naturally measured as profit generated per incremental expenditure divided by the investment, there are many other ways to measure it. Sheth and Sisodia (1995a, b) propose that marketing productivity be measured as a weighted average of customer acquisition productivity and customer retention productivity. Customer acquisition productivity would

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[1] Note it is not clear that firms should maximize ROI rather than the absolute level of profits. ROI may be maximized at a lower level of expenditure than would maximize profits (see Table 2.1, where targeting just the first decile would maximize ROI, while targeting the first 5 deciles will maximize profits). (The authors thank Preyas Desai for these insights.)

consist of revenues generated by new customers divided by expenditures on
acquiring new customers, "adjusted by a customer satisfaction index" (p. 11).
The adjustment serves to quantify the long-run benefits of this acquisition.
Customer retention productivity would consist of revenues from existing cus-
tomers divided by expenditures for serving existing customers, adjusted by a
"customer loyalty index," again to bring in the long-term value of the invest-
ment. There are several practical issues in constructing these measures, but
the emphasis on acquisition and retention plays to the very definition of data-
base marketing (the use of customer databases to increase the effectiveness of
marketing in acquiring and retaining customers). We add that cross-selling
or up-selling customers is also very important. Once a firm has a customer,
the ability to sell additional products through database marketing provides
the firm a significant advantage (Blattberg et al. 2001).

2.1.2.3 Database Marketing as a Learning System

Mass marketing efforts are difficult to assess and adjust. While marketing mix
modeling has become very popular and generates useful results, a key limita-
tion is the difficulty and cost in setting up controlled experiments. Database
marketing is a learning marketing system because firms use both experimen-
tation and data mining techniques to learn about the effectiveness of their
marketing mix decisions and about their customers' behavior, and then ad-
justs these decisions accordingly. Experimentation is fundamental to database
marketing. In its extreme database marketers test micro tactical decisions
such as the color of the paper used in a direct marketing campaign or the
greeting used in telemarketing. While very tactical, experimentation means
that database marketers can learn from their "mistakes" – unsuccessful copy,
pricing or offers – and can improve the effectiveness and efficiency of their
marketing activities.

Traditional mass marketers in theory can set up experiments but they
are prone to small sample sizes, difficulty creating controls and high costs.
Tools such as IRI's Behavior Scan can be used in the consumer packaged
goods industry to test advertising. However, for most products that can not
be tracked with consumer panels, this option does not exist. Hence, database
marketing has a significant advantage to firms because of the ability of the
firm to experiment, learn, and adjust.

Database marketers such as Amazon now use more sophisticated targeting
tools to learn about their customers' behavior and then use this to cross-sell
other products. One technique used to analyze customer behavior and make
product recommendations is called collaborative filtering (Chapter 14). This
and similar techniques use purchase histories and other information to deter-
mine the likelihood a customer will purchase a related product. For example,
Amazon uses a customer's book purchase history to make a recommendation
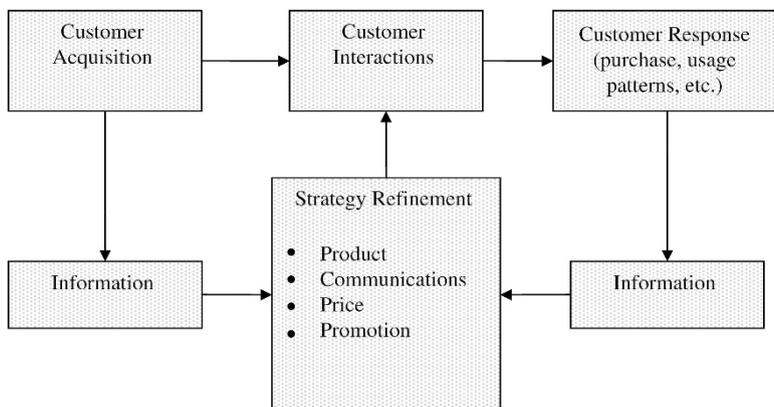of books the customer might be interested in purchasing.

| Customer Acquisition | → | Customer Interactions | → | Customer Response (purchase, usage patterns, etc.) |

Strategy Refinement

- Product
- Communications
- Price
- Promotion

| Information | → | | ← | Information |

Fig. 2.1 The learning marketing system fostered by database marketing.

We call the process of implementing database marketing campaigns, learning, and adjusting a "learning marketing system". This system is depicted in Fig. 2.1. The figure shows that the firm uses information it collects in the process of acquiring and retaining customers to update its strategy for interacting with customers. This entails the product offering, communications, price, and promotion. The firm is able to target these elements more effectively because it has learned about consumer preferences and responsiveness.

A learning marketing system can also provide a competitive advantage to a firm because, if carefully crafted, it can provide better product recommendations and more targeted communications to the customer than if the customer switches companies and makes his or her first purchase from a competitor. That competitor does not have the information available to customize product recommendations and communications. Amazon should therefore have a significant advantage relative to Barnes & Noble and Borders because it has been tracking customer purchase much longer and offering recommendations throughout the customer's purchase experience with Amazon.

2.1.3 Evidence for the Marketing Productivity Argument

Table 2.1 suggests two crucial components to the marketing productivity argument for database marketing. First is that predictive modeling generates lift tables that separate customers who will respond from those who will not. Second is that these tables actually predict what will happen once the marketing campaign is launched.

There are several examples to demonstrate the feasibility of lift tables ("charts" when shown graphically). Figure 2.2 is from Ansari and Mela (2003)
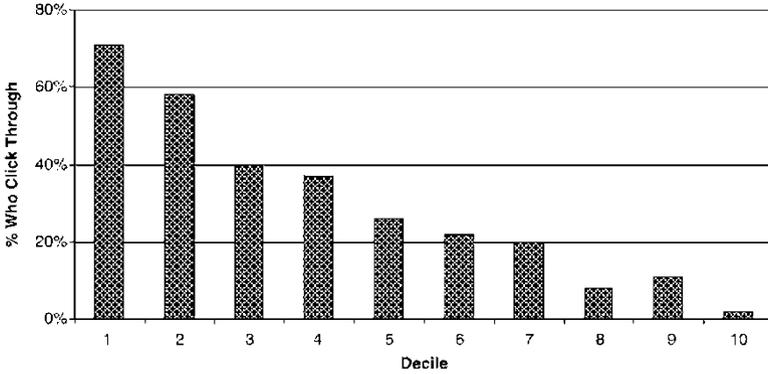
Fig. 2.2 Lift chart for an e-mail campaign (From Ansari and Mela 2003).

on targeted e-mail. The goal was to use e-mail to generate visits to an information-oriented website. As the figure shows, the average response rate was 20%. However, the authors were able to separate customers into deciles such that customers in the first 3 deciles had a response rate of 40%, a 2 to 1 lift. See Sheppard (1999) and Chapter 10 for a detailed discussion of lift tables.

Figure 2.3 shows a lift chart for predicting which credit card customers will close their accounts (i.e., "churn"). Predictions are based on customer behavior over the previous six months. As the chart shows, those in the top decile have a 7% chance of churning, compared to an average of less than 1% over the entire customer base. The top decile customers could be targeted with a customer retention program – perhaps a new offer, or simply a reminder of the favorable features of their credit card.

Figure 2.4 shows the predicted "next-product-to-buy" adoption of web banking for a retail bank (Knott et al. 2002). The most important variable for making these predictions was products currently owned by customers.
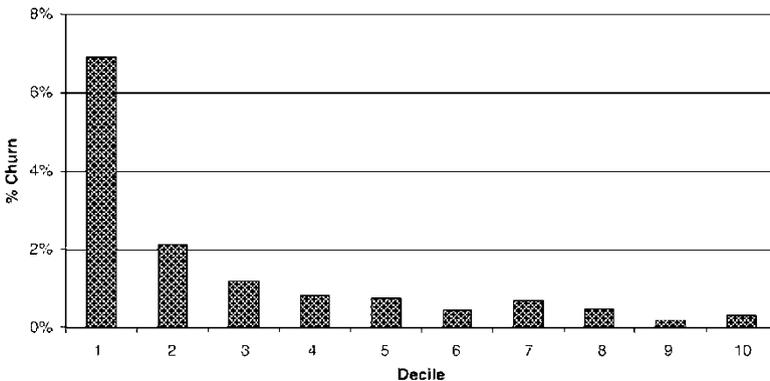

Fig. 2.3 Lift chart for predicting credit card customer attrition (Courtesy of ASA, Pittsburgh, PA, ModelMax Demonstration Data).
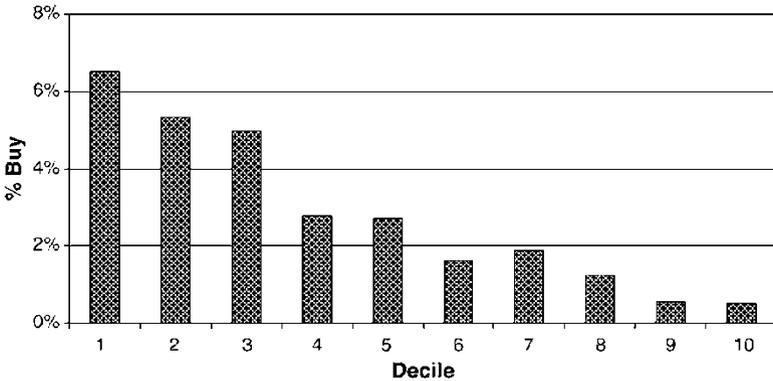
Fig. 2.4 Lift chart for predicting adoption of web banking using a next-product-to-buy (NPTB) model (From Knott et al. 2002).

The average adoption rate is 2.3%; the adoption rate in the top 3 deciles is 5%. These customers appear to be good prospects for a web banking direct mail piece.

In all three examples, the database marketer uses predictive models to separate customers in segments (deciles) in prioritized order of their partaking in some behavior – be it response to an e-mail, giving up a credit card, or adopting a new product. Different actions are called for depending on the decile in which a given customer falls.

These results are impressive and show customers can be segmented using predictive models. Note this is not the traditional form of segmentation used in marketing text books. It is segmentation based on the likelihood of buying determined from statistical models. A critical question is: does targeting implied by lift charts actually result in higher revenues and profits? Figure 2.5
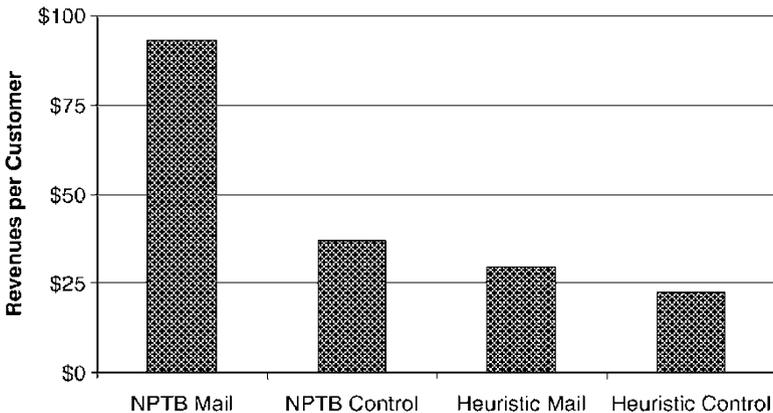

Fig. 2.5 Revenues from field-tested cross-selling campaign (From Knott et al. 2002).

shows one example from Knott et al. (2002). A predictive model was used to prioritize customers according to their likelihood of purchasing a home equity loan. The top prospects were then targeted with a direct mail campaign. Note that this tests the ability of the predictive model predictions to hold up when the targeting actually occurs, subsequently to the modeling.

Figure 2.5 shows the targeted mailing generated revenues of $93 per mailed-to customer. However, customers could have obtained a loan through other means, for example, simply by walking up to the bank and applying. Did the mailing generated incremental revenue above what would have been obtained through the usual marketing channel? To answer this, the authors in advance set up a control group consisting of customers who were predicted by the model to be top prospects, but were randomly selected not to receive the direct mail piece. It turned out that some of these people did obtain loans on their own, but revenues for this group were only $37 per customer. Finally, the question arises as to whether the model – based on a neural net – worked better than a simple heuristic. In this case, the heuristic was to target direct mail pieces for the loan to wealthier customers. As Fig. 2.5 shows, this heuristic barely produced any additional revenues compared to its control group.

Knott et al. (2002) suggest three key findings. First, targeted campaigns based on predictive models produce higher revenues. Second, the revenues are incremental over what would have been achieved through existing marketing efforts. Third, the model outperforms a reasonable but non-statistical heuristic. Overall, we see measurable improved performance from targeting.[2] That is one of the promises of database marketing.

The above examples suggest that statistical methods can create beneficial targeting efforts. One consideration is costs. As we saw earlier, the costs include: compilation of a database, the lift chart capabilities generated by a given investment, and average contact expenses with and without database marketing. Industries that naturally maintain customer databases, such as services and catalogs, obviously will find the database costs less expensive.

2.1.4 Assessment

The argument that database marketing's *raison d'etre* is to improve marketing productivity is compelling. It is based on (1) the recognition that effective targeting is crucial and that database marketing can deliver it, (2) that modern marketers are accountable and that database marketing can measure ROI, and (3) that learning and refinement is key to effective marketing and database marketing is indeed a learning process. These forces should

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[2] The illustration in Fig. 2.5 is in terms of revenues, but Knott et al. (2002) show that profits increase as well.

continue into the future. In addition, the targeting and ROI components of the argument have received direct empirical support.

While the marketing productivity argument is indeed powerful and undoubtedly has contributed to the growth of database marketing, the productivity argument is largely tactical. It focuses on the profitability of individual marketing campaigns. It leaves out two fundamental issues, developing customer relationships and establishing a competitive advantage. These two issues will be the focus of the next two sections of this chapter.

2.2 Creating and Enhancing Customer Relationships

2.2.1 The Basic Argument

The argument is that (1) strong customer relationships are good because they go hand-in-hand with brand loyalty, and (2) database marketing can be used to create and enhance customer relationships.

2.2.2 Customer Relationships and the Role of Database Marketing

2.2.2.1 The Emergence of Customer Relationships as an Area of Marketing Focus

Among the first researchers to articulate the CRM argument for database marketing was Berry (1983). Berry urged marketers to be "thinking of marketing in terms of having customers, not merely acquiring customers," (p. 25), and defined relationship marketing as "attracting, maintaining, and enhancing customer relationships in multi-service organizations." The importance of customer relationships was echoed by Webster (1992, p. 1): "Customer relationships will be seen as the key strategic resource of the business."

Berry outlined a number of relationship marketing strategies, including "customizing the relationship", which was an especially attractive strategy when "personal service capabilities are combined with electronic data processing capabilities." He describes examples at Xerox, American Express, and other companies where service capabilities were enhanced by customer data records. The key notion was that a customer service representative could cultivate a stronger relationship with the customer by having instant access to the customer's data file.

Berry's emphasis on relationships stemmed from the idea of enhancing customer service. Webster's emphasis on relationships stemmed from a desire to move the definition of marketing toward one based on social and economic

processes rather than functional *tasks* (the 4 P's). More recently, the motivation for emphasizing customer relationships stems from the simple economics of lifetime value. The lifetime profits or "customer equity" delivered by a set of N customers can be written as (see Chapter 5):

$$Profits = N \sum_{t=0}^{\infty} \frac{(R - c - m)r^t}{(1 + \delta)^t} - Na \tag{2.1}$$

where:

N = Number of customers acquired.
a = Acquisition cost per customer.
R = Revenues per period per customer.
c = COGS per period per customer.
m = Ongoing marketing costs per period per customer.
δ = Discount rate.
r = Retention rate, i.e., the percentage of customers who are retained year to year.

Equation 2.1 can be re-written as:

$$Profits = N(R - c) \left(\frac{(1 + \delta)}{(1 + \delta - r)} \right) - Nm \left(\frac{(1 + \delta)}{(1 + \delta - r)} \right) - Na \tag{2.2}$$

where the first term is long-term profit contribution, the second term is long-term retention costs of marketing, and the third term is total acquisition costs. The emphasis on customer relationships is consistent with the fact that Equation 2.2 is a convex function of retention rate as opposed to a linear function of the number of acquired customers.

The convexity of long-term profits with respect to retention rate can be seen in Fig. 2.6. The implication is that an increase in retention rate by 20% increases profits more than increasing the number of customers (N) by 20%.

The benefits of customer retention have been reinforced by several researchers. Winer (2001) reports a McKinsey study that investigated how acquisition versus retention affects the market value of Internet firms. The study concluded that retention was far more powerful than acquisition. Reichheld (1996) found that small increases in retention have dramatic impact on total profits. Gupta et al. (2004a) reached similar conclusions.

A relationship management strategy is partly predicated on the belief that: (a) retaining customers is less expensive than acquiring new customers and (b) increasing retention is more valuable than increasing acquisition. The above discussion suggests a solid foundation for the revenue side. Unfortunately there is not a solid foundation for the cost side. It may be far more costly, or impossible, to increase retention rates from 80% to 90% than it is to increase acquisition rates from 1% to 5%. Generalizations about the costs of increasing intention rates have not been well documented. This is an empirical question and may be firm specific. See Chapter 26 for more discussion of acquisition versus retention strategies.
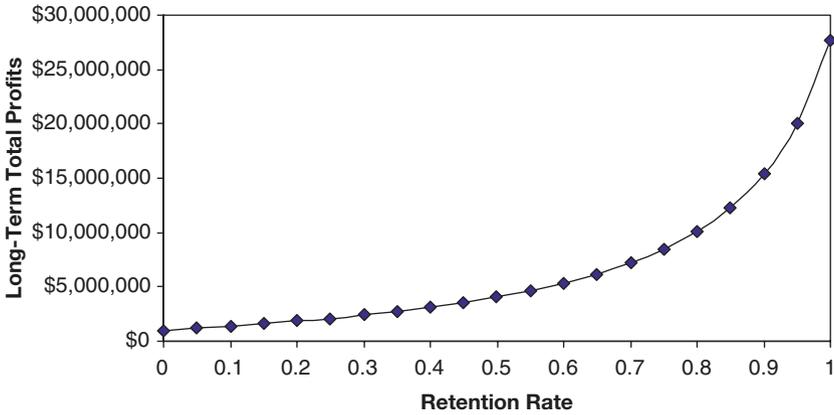
a=	$30	acquisition cost per customer
N=	100,000	number of customers
m=	10	ongoing marketing cost per customer
M=	100	revenues per customer
c=	50	COGS per customer
d=	0.15	discount rate

Fig. 2.6 Relationship between customer retention rate and total profits per customer (Equation 2.2).

Another impetus for the importance of relationships was research in the 1990s that showed a linkage from relationship strength to customer satisfaction to loyalty to firm performance. Several studies have investigated all or part of the satisfaction-loyalty-performance linkage. Anderson et al. (1994) used a three-equation model to describe the evolution of customer expectations, satisfaction, and return on assets. Their analysis was at the company level-77 Swedish firms across a wide variety of industries. The critical finding was a strong link between satisfaction and return-on-investment (ROA). They did not investigate brand loyalty per se but did hypothesize that one reason for a link between satisfaction and ROA is higher loyalty.

Rust and Zahorik (1993) model this more formally. They present a broad model that captures the relationship between satisfaction, retention, and market share. While they do not estimate the entire model, they provide an example where they predict retention likelihood for a retail bank as a function of satisfaction factors. The most important satisfaction factor influencing retention is "Warmth," which includes elements such as "friendliness," "how well the manager knows me," "listens to my needs," as well as "convenience to home." Most of these elements are basically indicators of the strength of the customer relationship.

Barnes (2000) studied 400 customers' relationships with companies from a variety of industries, including financial institutions, grocery stores, and

telecommunications. He measured the closeness, strength, and emotional tone of the relationship, and found that closeness correlated strongly with satisfaction.

Bolton (1998) studied the effect of satisfaction on the length of the relationship. She found that prior cumulative satisfaction directly affects the length of the duration of the relationship. She also shows that the effect of transaction or service failures on duration times depends upon prior satisfaction. Her results show a direct relationship between customer satisfaction and the lifetime value of a customer.

Together, the above papers trace a relationship from the customer relationship to customer satisfaction to loyalty/retention to higher firm performance. They cement the argument that relationships are important because they increase retention, and retention is an attractive way to build firm performance.

2.2.2.2 The Role of Database Marketing in Establishing Customer Relationships

The previous discussion established the importance of customer relationships. What is needed next is to establish that database marketing is a way to establish relationships.

Fournier (1998) presented the conceptual foundation for customer-brand relationships, and provided exploratory evidence that relationships are a valid behavioral construct. Her conceptual foundation, based on the work of Hinde (1995), was that a relationship involves four aspects: (1) reciprocal exchange between the partners in the relationship, (2) purpose in that relationships satisfy goals of both participants, (3) multiplex in that they take on many different forms, and (4) a process, in that they evolve over time.

All four dimensions map to the capabilities of database marketing. The reciprocal exchange is that customers give firms data and firms give customers better products and service. The goals to be satisfied are profits for the firm and overall utility for the customer. The multiplex nature of relationships suggests that there must be several "touch points" where customers and firms interact, and all must be managed. Database marketing has the capability to manage these touch points. But the strongest fit between database marketing and relationships involves the notion that relationships are processes that evolve over time. The nature of database marketing is to collect data, take action, evaluate the action, collect more data, take more actions, etc. The customer data file and the conclusions one can draw from it evolve over time, as relationships should by their very nature.

Fournier's work suggests that database marketing and relationships bond at a conceptual level. Peppers and Rogers (1993, 1997) articulated that bond from a managerial perspective. Peppers and Rogers (1993) emphasized the importance of building relationships with a one-to-one mentality. They discussed critical relationship concepts such as "share of customer", "customer
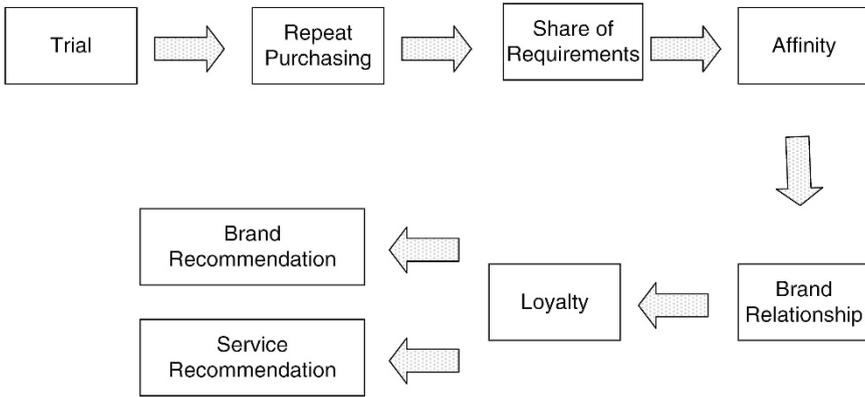
Fig. 2.7 Brand relationship management model.

driven," and "lifetime value." Peppers and Rogers (1997) emphasize that the way to manage these relationship concepts is through data. They state (p. 11), "the computer is now changing the actual character of the competitive model itself, supplanting it with a customer-driven model." The marketing mantra is now, "I know you. You tell me what you want. I make it. I remember next time."

Nebel and Blattberg (1999) developed the concept of Brand Relationship Management defined by them as, "An integrated effort to establish, maintain, and enhance relationships between a brand and its consumers, and to continuously strengthen these relationships through interactive, individualized and value-added contacts, and a mutual exchange and fulfillment of promises over a long period of time." Rather than concentrate on share of requirements (market share among the brand's customers) as the ultimate goal, they suggest that the end-state of brand relationship management is loyalty developed through affinity and the creation of a brand relationship. An example is Apple Computer who has created numerous customer interactions through their IPOD and Itunes and Apple Stores. These help build a brand relationship rather than simply a brand. The goal of a strong brand relationship is loyalty and recommendation of the product or service. Their framework is shown in Fig. 2.7.

Another example of brand relationship management is P&G's mother helpline. For a brand like Pampers (diaper) P&G provides an interactive helpline and website to answer mother's questions. Even if these questions are not directly related to diapers, this creates interactive, individualized, value-added contacts and hence a stronger brand relationship. The issues for academics are: (a) do these contacts strengthen brand loyalty and (b) does the enhanced loyalty create a brand relationship that leads to greater lifetime value.

Winer (2001) further strengthened the link between customer relationships and database marketing with his "framework for customer relationship

management." This is a framework for implementing customer relationship management. The framework inter-twines data, data analysis, and relationship building, and consists of the following steps:

1. Creating a customer database
2. Analyzing the data
3. Selecting customers to target
4. Targeting customers with the appropriate vehicle
5. Developing relationship programs – reward programs, customized product, customer service, community building
6. Privacy considerations
7. Developing metrics to evaluate the process

Steps 5–6 involve the harnessing of database marketing specifically to develop relationships.

2.2.3 Evidence for the Argument that Database Marketing Enhances Customer Relationships

The evidence that database marketing exists to build customer relationships is not very strong. The issue is clouded by the faddish nature of "CRM" as the latest answer to company problems. CRM has indeed received less than favorable reviews from the business press. Most of this comes from company surveys of manager satisfaction with CRM initiatives.

- Insight Technology reported that 31% of companies believed they obtained no return on CRM, 38% got minor gains (Anonymous 2001).
- Gartner Group reported that 45% of CRM projects fail to improve customer interactions and 51% generate no positive returns in 3 years (Anonymous 2001).
- Meta Group reports that 75% of CRM initiatives fail to meet objectives (Anonymous 2001).
- "It is estimated that 60–80% of CRM projects do not achieve their goals, and 30–50% fail outright" (Sheth and Sisodia 2001).
- Mercer Management Consulting found that only 38% of companies are realizing expected returns from CRM tools, 26% are realizing expected returns from customer profitability tools (Jusko 2001).

These surveys do not pinpoint the source of the disappointment with CRM initiatives. It is not clear whether CRM initiatives have failed, or whether they are serving as a scapegoat for poor technological investments. In addition, the examples are from a particular time period – the "dot-com boom" – when companies had been over-investing in information technology. In any case, there are several possibilities as to why these initial efforts to integrate database marketing and customer relationship management may not have been successful:

- *Organizational Barriers*: Database marketing-based CRM requires organizational coordination. Companies have not been able to achieve this. Marketing quarrels with sales over who owns the customer (Boehm 2001). Marketing and finance quarrel about how deeply to go down the prioritized customer file in investing in the relationship. Marketing and IT do not share insights from the data mining (Gillet 1999). Management reward structures are too short term to encourage cultivating the customer. Peppers and Rogers (1997) argue that organization structures and compensation schemes must adapt to the customer-centric revolution. Srinivasan and Moorman (2002) show that a customer-focused reward system and strong interactions between marketing and IT encourage appropriate investment decisions that in turn breed customer satisfaction and better corporate performance. Reinartz et al. (2004) show that rewarding employees for cultivating relationships enhances the effectiveness of CRM efforts.
- *Acquisition versus Retention Costs*: While part of the attraction of CRM is the view that it is cheaper to increase retention than to increase acquisition, it this assumption may be incorrect. For example, part of the CRM strategy is to develop a "single view of the customer". This enables the firm to manage the customer as an entity, rather than focus on individual products. However, this may be very expensive to achieve. Gormley (1999) reports that 92% of companies think the single view of the customer is important, but 88% either "not really" or "not at all" have it today. So it may be that the IT costs associated with compiling the data needed to manage the customer are formidable.
- *Cultivating the Customer Side of Customer Relationship Management*: Fournier et al. (1998) argue that companies simply have not delivered reciprocal benefits that are a cornerstone of customer relationships (Fournier 1998). Companies make unrealistic demands on customers. They charge loyal customers higher prices rather than lower prices. They appear pre-occupied with their very best customers and under-occupied with their average customer. One of the supposed benefits of CRM is being able to identify best customers and focus on them (Peppers and Rogers 1993; Zeithaml et al. 2001). While this may be appropriate, it does not mean that average customers should be abandoned or relegated to automatic call-handling systems. Malthouse and Blattberg (2005) show that many of the future best customers come from customers who are currently average.
- *Relying on Technology to Solve What Essentially is An Issue of Corporate Culture*: The view of CRM as a database marketing activity is that databases are a tool for economies of scale. They allow large firms to know customers in the way that the corner drugstore used to know its customers (Swift 2001). However, this is only half the equation. The other part is that the proprietor of the corner drugstore truly cared about his/her customers. CRM is more than having the memory and database knowledge of consumer needs and wants. It requires a corporate culture oriented toward caring for individuals than the task-oriented corporate cultures that are

amenable to information technology (see Deshpandé et al. 1993). These points have been raised by Sheth and Sisodia (2001) as well as Day (2000).

- *Companies Have Not Been Able to Balance Customer-Centricity and Product-Centricity*: CRM exhorts firms to become customer centric, that is, view their business as customer management rather than product management. Companies have perhaps come up against the financial problems in creating a single view of the customer, the organizational conflicts between CRM and product management and other groups, and the realization that their culture does not focus on the customer, and declared CRM to be a failure. Perhaps the answer is to view the solution along a continuum, from fully customer-centric to fully product-centric, and management's task is to find the right balance.

While the above paints a dim picture of database marketing as the basis for CRM, the Conference Board (Bodenberg 2001) sampled 96 marketing and sales executives, representing a cross-section of companies in terms of manufacturing versus service, revenues, B2B versus B2C, and size of customer base. Eighty percent of respondents reported their CRM efforts either somewhat or very successful. Companies who report very successful efforts are more likely to warehouse their own data. This suggests a strong commitment to CRM. The report finds that the factors that often lead to CRM success are: corporate culture and leadership, process and technology improvement, direct communications with the customer, and budgetary and cost savings. There are also anecdotal testimonies to the success of CRM programs. These include companies such as Harrah's Entertainment (Maselli 2002; Swift 2001) and several others.

Two important empirical studies connect database marketing, customer relationships, and firm performance. Zahay and Griffin (2004) surveyed 209 software and insurance managers. They measured: (1) personalization and customization, i.e., using data to create individual-level products and communications, (2) customer information system (CIS) development, i.e., the degree to which the firm can generate, remember, disseminate, and interpret customer data, (3) customer performance, i.e., retention, LTV, and share-of-wallet, and (4) business performance, i.e., self-reported growth and income. The authors found that personalization and customization (i.e., the practice of database marketing), related positively to the development of the CIS, which in turn related positively to customer performance, which in turn related positively to firm performance (p. 186, fig. 2.5). In summary, database marketing (developing a CIS and using it for personalization and customization), relationship development (customer performance), and business performance go together.

Reinartz et al. (2004) surveyed 211 executives to study the relationship between CRM activities and firm performance. CRM activities consisted of efforts to initiate, maintain, and terminate customer relationships. They used several self-report scale items to measure these constructs. Items included "We use data from external sources for identifying potential high value

customers" (initiation), "We continuously track customer information in order to assess customer value" (maintenance), "We have formalized procedures for cross-selling" (maintenance), and "We have a formal system for identifying nonprofitable or lower-value customers" (termination). Performance was measured using both self-report, and for a subset of their sample, an objective measure (return on assets). The authors found that CRM efforts were positively associated with self-report and objective measures of performance. They also found organizational factors could enhance this association. Specifically, the degree of "organizational alignment," which entailed reward systems for employees who enhance customer relationships, and organizational capabilities to treat customers differently according to their profitability, interacted positively with the impact of CRM efforts on performance.

Interestingly, the authors found that investment in CRM technology, which included enhancements to the firm's ability to target 1-to-1 and to manage "real-time" customer information, was *negatively* related to the perceptual measures of performance. One interpretation of these results is that while having a good customer database enhances performance, it is all too easy to over-invest in sophisticated technology that does not pay out.

These two studies provide an initial set of evidence relating the compilation and utilization of customer data to customer relationships and to firm performance. The evidence is not definitive, and there are several avenues that need investigation. For example, Reinartz et al. (2004) do not isolate the role of customer data, treating it as a part of CRM efforts. In addition, the negative results for investment in CRM technology, which is often data-oriented, give pause to the "collect-all-possible-data" dictum, and need further research. The Zahay and Griffin (2004) study views CRM as the antecedent of customer data, whereas the causality may be the reverse, i.e., CIS enables CRM, which in turn enhances performance. In summary, future work should analyze different models with different measures in different industries before we can fully understand whether and under what conditions the collection and utilization of customer data enhances customer relationships and firm performance.

2.2.4 Assessment

Overall, the logic for database marketing as a tool for developing customer relationships is compelling. That retention has a bigger impact than acquisition is a mathematical truism. There is empirical work that says that strong relationships lead to better customer satisfaction, better retention, and hence better firm performance. One major question is: "Do retention investments have a higher payout than acquisition investments?" The literature on this question is almost non-existent. An exception is Reinartz et al. (2005) who find: (a) under-spending is more detrimental than over-spending; and (b) suboptimal allocation on retention has a greater effect than under-spending

on acquisition. However, more research is needed to understand the allocation of resources between acquisition versus retention efficiencies and costs. Another question is whether database marketing can be used to create or improve customer relationships. There is evidence on both sides, including two empirical studies supporting a positive association among database marketing, CRM initiatives, and firm performance. But there is a critical need for more systematic research.

2.3 Creating Sustainable Competitive Advantage

2.3.1 The Basic Argument

Database marketing utilizes a customer information file, which by definition is owned by one company and not the other. The company can use its information to serve its customer better by identifying the correct services to offer, make product recommendations, or tailor promotions more effectively than its competition can do with this set of customers. This asymmetric information gives a company a potential sustainable competitive advantage. It is sustainable because it would cost the competition too much to obtain the same information – they would have to buy the company. In fact, increasingly the value of a company is determined by the value of its customer file (Gupta et al. 2004a).

This vision is compelling. Customer databases are proprietary and their advantage grows as the company learns from them and improves its customer offerings even more. However, this does not consider competition. In particular, will each competitor assemble its own database and allow a "live and let live" customer information environment, or will they compete more intensely to acquire the competitor's customers and retain their own customers? We investigate these issues as we trace the evolution of the sustainable competitive advantage argument.

2.3.2 Evolution of the Sustainable Competitive Advantage Argument

The argument that database marketing provides a sustainable competitive advantage has evolved in three steps. First was the emergence of "marketing orientation" as a source of competitive advantage. Marketing orientation involved the collection and utilization of customer information. However, customer information was defined broadly and not specifically as the customer information *file* used by database marketers. In the second step, Glazer (1991, 1999) and others sharpened the role of customer information files, and how

they could provide companies with a competitive edge. In the third step, economists have developed formal models explaining how the customer information file could provide a sustainable increase in profits.

2.3.2.1 Marketing Orientation

Kohli and Jaworski (1990) defined marketing orientation as the "generation" of customer data, its "dissemination," within the organization, and the "responsiveness" of the organization to the information. A series of studies measured marketing orientation and related it to performance.

Jaworski and Kohli (1993) conducted executive surveys using two samples, of 145 and 136 strategic business units (SBU's) units respectively. (Also see Kohli et al. 1993). They defined market orientation similar to their 1990 paper, and measured it on a 32-item scale. The scale included items related to actions such as meeting with customers on a frequent basis, doing in-house market research, collecting industry information, etc. There was no explicit measurement of the use of customer information file.

The authors found that market orientation had a significant positive relationship with a judgmental business performance measure. However, market orientation had no relationship with an objective business performance measure-dollar market share. The antecedents of marketing orientation included top management emphasis, high interdepartmental connectedness and low conflict, decentralized organization, and a reward system orientation to executive compensation. This paper established that organizational factors create an environment for developing a marketing orientation. It did not however show that marketing orientation improves firm performance in terms of an objective business performance measure.

Moorman (1995) surveyed 92 marketing vice presidents and found that the mere collection and transmission of information had no effect on the firm's new product performance, but that "conceptual" and "instrumental" utilization were positively related. Conceptual utilization is the indirect use of information such as summarizing results, giving them meaning, etc. Instrumental utilization is the direct application of the information to evaluating projects and giving clear direction for implementation. Moorman's findings imply it takes more than the simple collection and dissemination of the information to create an advantage and the key is in making sense of the information and actually using it to guide policy.

Moorman and Rust (1999) surveyed two samples of managers, of sizes $n = 330$ and $n = 128$. They found that market orientation related to profitability and market performance but interestingly, not to customer relationship performance. Moorman and Rust's results imply that customer information can improve performance but not necessarily create loyal customers. It is as if the high market orientation firms use data to improve marketing productivity, but not necessarily to nurture customer relationships.

As described in Sect. 2.2.3, more recent work (Zahay and Griffin 2004; Reinartz et al. 2004) has specifically linked database marketing activities to firm performance. The information utilization constructs in these studies relate more directly to database marketing activities, and therefore extend the work relating marketing orientation to performance to the more specific realm of database marketing and firm performance.

Overall, the line of work linking database marketing to firm performance is growing although not yet definitive. Early work on marketing orientation finds some linkages, especially Moorman's (1995) study that it is the utilization, not the mere collection of data, which builds competitive advantage. This is reinforced by Zahay and Griffin (2004) as well as Reinartz et al. (2004). More work is needed, especially relating database marketing to *objective* performance measures.

2.3.2.2 The Customer Information File as a Firm Asset

Glazer (1991, 1999) presented the conceptual link between the general notion of customer information and the value of the *customer information file.* Glazer (1991) speaks of three types of information-based value creation: the information from upstream transactions with suppliers (V^s), the information from internal operations (V^f), and the information from downstream transactions with customers (V^c). Customer information is of interest to database marketers, and contributes in three ways: increased revenues from future transactions (e.g., through better targeting of the right products at the right price), reduced costs (e.g., through not having to mail every offer to every customer), and the sale of information itself (through say renting the customer list). These facets combine to determine the extent to which value generated by a product or service is due to customer information (V^f).

Glazer (1991) discusses that where the firm stands in terms of supplier, firm and customer information has important implications for the overall strategy of the firm. For example, it can determine whether the firm pursues a market share or market niche/targeting strategy. Market share strategies are based on economies of scale, high volume, and low cost, and require high supplier (V^s) and firm (V^f) information. High customer information tilts the firm toward targeting strategies, where the key is product differentiation and focus on a particular niche or target group. Glazer argues that if a firm can achieve high values on all three components, it can pursue a flexible manufacturing, mass customization strategy.

Rust et al. (2002) take a related but somewhat different perspective. They conceptualize the choice as between revenue expansion (focus on the customer), and cost reduction (focus on decreasing operations and organizational costs). Customer information supports the revenue expansion approach, whereas supplier and firm information supports the cost reduction

	Customer Characteristics	Responses to Firm Marketing	Purchase History	Profit Potential
Customer 1	Demographics	Offers and responses	Purchases	Lifetime value
Customer 2	Demographics	Offers and responses	Purchases	Lifetime value
Customer 3	Demographics	Offers and responses	Purchases	Lifetime value
Customer 4	Demographics	Offers and responses	Purchases	Lifetime value
Customer 5	Demographics	Offers and responses	Purchases	Lifetime value
Etc.				
⋮	⋮	⋮	⋮	⋮

Fig. 2.8 The customer information file (CIF) and marketing strategy (From Glazer 1999).

approach. They find that firms perform[3] better when they focus on revenue expansion, illustrating the importance of customer information, than when they focus on both revenue expansion and cost reduction. So it appears that companies in practice may have trouble achieving all three types of information-based value creation.

Glazer's 1991 paper set the stage for his 1999 paper, where he explicitly discusses the role of the customer information file (CIF), which is the source of V^c. He defines "smart markets" as markets where the stock of customer information changes frequently, and maintains that these markets are on the increase. He uses the customer information file as a framework to generate strategies for succeeding in smart markets.

The CIF is organized as in Fig. 2.8 and suggests three "generic" strategies: row management, column management, and row and column management ("whole file"). We will just cover "row" and "column" strategies. A column management strategy focuses on maximizing responses to a particular marketing program or product. This may involve tailoring the product to the customer (mass customization) or targeting appropriate prices to various buyers (yield management). Note that column management strategies are "product-centric". They start with a product, e.g., a credit card, and figure out how to tailor features, interest rates, and prices or fees to individual customers so as to maximize firm profits.

In contrast, row management strategies focus on each customer and ask what can the firm do to maximize profits from each or a particular set of customers. The focus is on interactive marketing communications designed to maximize the lifetime value of the customer. An example Glazer provides (p. 64) is American Express using a relationship-billing program with its commercial customers in which it first provides a given establishment demographic analysis of its customers and then uses this information to sell establishment advertising space in publications.

Glazer echoes Moorman's (1995) point that in smart markets (markets that are driven by customer information files), the ability to *process* information, not the information itself, is the scarce resource. Thus, the

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[3] Performance is in terms of return on assets (ROA) and stock market returns.

source of competitive advantage to a firm is a combination of creating customer information files, processing of the information and then utilizing the information to drive superior marketing strategies.

2.3.2.3 Economic Theories of Customer Information as a Strategic Asset

The marketing orientation literature provided a conceptual and empirical basis for marketing information as a firm asset, and Glazer and others moved that literature toward a focus on the customer information file as the source of marketing advantage, and recent work suggests a link between customer data and firm performance. The economic modeling literature then analyzed the strategic implications of company's pursuit of competitive advantage through management of the customer information file.

There are several important phenomena we will discuss that have emerged from these efforts, but the central theme is that they focus on the goal of price discrimination, whereby the firms use customer information to identify and offer higher prices to their loyal customers and lower prices to switchers. The central question is: does an environment in which firms use customer data to target prices increase profits? Economists have investigated how this is influenced by competition, by the accuracy of the targeting, and by the strategic behavior of firms as well as customers.

Can Customer Information Be the Source of a Prisoner's Dilemma?

Shaffer and Zhang (1995) investigated whether company profits increase when customer preferences can be identified. Their customer behavior model arrayed customers along a continuum of preference for either Firm 1 or Firm 2 (the well-known Hotelling framework). Customers trade off their preference for the firm's product versus the price of that product to decide which firm to choose. The authors assumed that both firms have perfect information on customer preferences and on the relative weights customers place on preferences versus price.

Shaffer and Zhang's set-up is somewhat based on Catalina Marketing, a firm that targets coupons to customers based on their previous buying habits. The buying habits can be determined based on a full customer history, or simply on the product most recently purchased at the cash register. For example, if the customer buys Coke in a particular week, this suggests they prefer Coke. At that exact purchase occasion, Pepsi could target a coupon to the customer to induce a brand switch on the customer's next purchase occasion.

The initially surprising, and from the perspective of database marketing, dispiriting result was that in this scenario, firms engage in a "targeting war" in which profits are lower with customer information than without. The problem

is that firms cannot practice price discrimination. They want to charge high prices to their loyal customers but cannot do so because the competing firm can attract these "loyals" with a steeply discounted coupon. As a result, prices for loyal customers are not high enough to effect price discrimination, and prices for switchers (customers in the middle of the Hotelling line) are very low as these customers are relatively indifferent between firms.

Shaffer and Zhang (1995) present a rather dismal view of database marketing simply as a vehicle for competing more intensively. Obviously, this does not match the real-world since more and more firms are using database marketing. This goes to the issue of model assumptions. One of the key assumptions in their model is that firms have perfect information on customer preferences. This is rarely the case. Firms typically know only a given set of customers (their own).

Imperfect Targetability

Chen et al. (2001), and Chen and Iyer (2002) both make a case that in a more realistic world of imperfect targetability, firm profits actually increase when they utilize customer databases. The reason is that firms are aware that their targeting is not perfect, and this cushions price competition compared to the targeting wars in the Shaffer and Zhang scenario. We will review these papers in detail because they are crucial for providing the case that database marketing can be a source of sustainable competitive advantage.

Chen et al. (2001) use Narasimhan's (1988) consumer model, assuming there are three types of consumers: loyal to Firm 1, loyal to Firm 2, and switchers, which occur with probabilities γ_1, γ_2, and χ respectively. Loyal customers will always buy from their preferred firm as long as its price is lower than their reservation price, anchored at \$1 in the model. Switchers will buy the brand that is available at the lower cost to them, or will buy each brand with probability 0.50 if prices are equal. Note that this model is different than the Hotelling model used by Shaffer and Zhang, where customers were positioned along a continuum in terms of preference, and all were potentially vulnerable to low price discounts. The Chen et al. model is still realistic – there are customers loyal to Coke, McDonalds, Fleet Bank or Fidelity, who will continue to purchase these brands as long as their price does not become too high. We will examine how profits change in this scenario as targetability increases.

Chen et al. conceptualize "targetability" as the firm's ability to identify loyals and switchers. Chen et al. assume that a firm has information on its own loyal customers and switchers, but not on its competitors' loyals. It can target its own loyals, but not its competitors' loyals. Consider Fidelity Investments. The assumption Chen et al. make is that Fidelity has information on a given set of customers that they can classify as loyal to them (i.e., only buy financial services from them), or switchers (buy sometimes from Fidelity,

but sometimes from Merrill Lynch), but they do not have information on customers who are loyal to Merrill Lynch. Chen et al. create a targetability index equal to 0 if the firm's ability to classify is no better than random and 1 if targeting is perfect.

In their first set of analyses, the targetability index for each firm is considered exogenous. The question is how profits change depending on this index. To answer this question, they identify three forces that depend on targetability. First is the *segmentation effect* which results when firms can correctly identify their loyals, leading to gains in profits because they can charge them appropriately high prices. Second is the *mistargeting effect*, whereby firms mis-identify switchers as loyals and hence charge them inappropriately high prices. Third is the *price competiton/share* effect, where firms correctly identify switchers and charge them low prices to gain share.

Chen et al.'s first result is that a firm that has targeting ability always attains higher profits if it competes with a firm that cannot target, and the profit advantage increases as targetability increases. The segmentation and price competition effects allow it to practice price discrimination without the concern of being undercut by the mass marketer, who cannot do so effectively because it does not know to whom to target. The mistargeting effect holds down the database marketers profits, but as this effect decreases due to better targetability, the database marketer's profits increase all the more. Interestingly, while the database marketer's profits are always higher than the mass marketer's profits, the mass marketer actually gains over its base profits when mistargeting is high. The reason is that when mistargeting is high, the database marketer charges overly high prices to mistargeted switchers, and the mass marketer gains some of these switchers without having to charge an excessively low price. In this way, the mass marketer can actually be better off than they would be if they were competing with a database marketer whose mistargeting costs are high.

This result says that database marketing provides a sustainable profit advantage if one firm practices it and another does not. However, a more likely scenario is that both firms have the ability to target. Chen et al. show that in this case, profits for both firms are always at least as high with imperfect targeting than without it, but the relationship between targetability and profits is an inverse U-shape, as in Fig. 2.9. Firm profits are maximized at intermediate values of targetability. At low levels of targetability, firms cannot practice price discrimination and hence profits are low. At intermediate levels of targetability, the segmentation effect enables firms to price discriminate and the mistargeting effect softens price undercutting. At high targetability, the price competition effect becomes important because both firms are identifying switchers, and the mistargeting benefit no longer cushions prices. The situation is similar to Shaffer and Zhang (1995). This yields lower profits.

Chen et al. develop a number of additional results. First, they find that Firm 1 has a profit advantage over Firm 2 if it has a larger number of
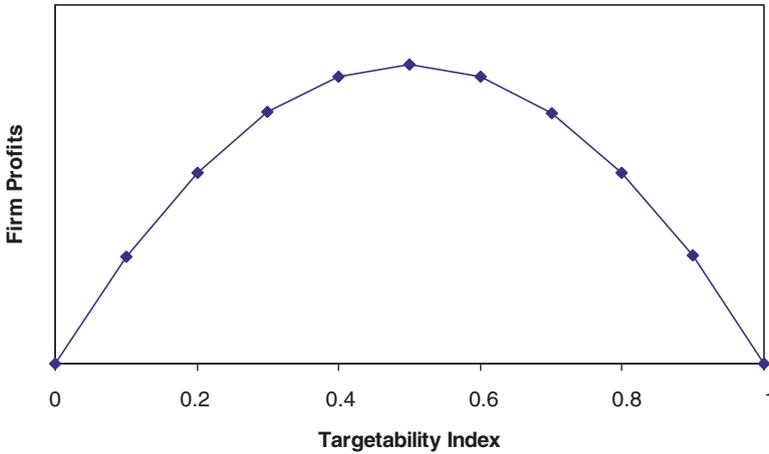
Fig. 2.9 Relationship between targetability and firm profits (From Chen et al. 2001).

accurately identified loyal users. Database marketing can become a sustainable competitive advantage especially for the firm with a strong customer base. The Chen et al. model is static in the sense that it does not consider the impact of targeting on future loyalty, if firms can use their targeting ability to nurture their loyal customers, which in turn can increase their ability to target (through more and better information revealed by these increasingly loyal customers), one can see how the firm can develop a *sustainable* advantage.

Chen et al. also consider the optimal levels that firms should invest in database marketing. They find that firms will decrease investment in database marketing if costs are high, although the firm with the larger loyal segment will invest more. When database marketing costs are low, both will invest in database marketing to the fullest extent possible. Keeping in mind Fig. 2.9, this implies that firms can "over invest" and end up on the right side of Fig. 2.9, where price competition becomes more intense, and the mistargeting effect is not strong enough to soften price competition. Chen et al. also find that even taking into account investment costs, if the firms have roughly the same number of loyal customers, profits for both firms are higher with targeting than without. So database marketing is a "win-win" for the industry. If the loyal segments are unbalanced, presumably it is the stronger firm that wins.

Chen and Iyer (2002) provide a different perspective on the role of imperfect targeting by changing the analysis in two ways. First, customers are located on a Hotelling line, similar to Shaffer and Zhang, and no firm commands absolute loyalty. Secondly, they provide a different definition of targetability. Their definition of targetability is the percentage of customers at each point on the line (preference level) who can be addressed by Firm I (a_i), where the assumption is that if the customer can be addressed, its preferences are known. Chen et al. assume all the firm's customers can be addressed, but that the firm is not sure whether the customers are loyals or

switchers. Chen and Iyer assume that firms can perfectly identify the prefer-
ences of all customers it can reach, but that it cannot target all customers.

In Chen and Iyer's model, there are three main groups of consumers: Group
1 consists of customers that can be reached by Firm 1 but not by Firm 2
($a_1(1-a_2)$). Group 2 consists of customers that can be reached by Firm 2 but
not by Firm 1 ($a_2(1-a_1)$). Group 3 consists of customers that can be reached
by both firms (a_1a_2). Firm 1 has monopoly power over Group 1, Firm 2 has
monopoly power over Group 2, and both firms will compete for Group 3. Chen
and Iyer call Group 1 and Group 2 the surplus extraction effect, because each
firm can charge a high price and still acquire its customers. This is analogous
to the segmentation effect in Chen et al. The Group 3 situation is called the
"competitive" effect, since firms will compete strongly for this segment. This
is analogous to the price competition effect in Chen et al.

Chen and Iyer capture the mistargeting effect in Chen et al. by assuming
that Firm 1 knows what customers it can address but does not know what
customers its competition can address. This assumption appears to make
sense. Capital One knows what customers are in its database, but does not
know which are also in its competitors' databases. More broadly, the assump-
tion means that a firm knows its own marketing efforts for the customers on
its list, but does not know the marketing efforts of other firms with these cus-
tomers. As a result of this information asymmetry, each firm faces a trade-off
in determining its prices. The firms want to price high for Groups 1 and 2,
but need to price low in order to attract Group 3. Thus there is a trade-off
between surplus extraction and price competition effects.

Chen and Iyer calculate equilibrium profits assuming given levels of a_1 and
a_2. The profit for Firm 1 if these levels are roughly equal is:

$$Profit_1 = a_1(1 - a_2)(r - t/2) + \frac{a_1(a_1 + a_2)t}{2}\left[\frac{(a_2 - a_1)r + a_1t}{(a_1 + a_2)t}\right]^2 \qquad (2.3)$$

where t is the per-unit distance disutility incurred by customers on the
Hotelling line, and r is the reservation price for one unit of the good.

The first term represents the profits from Group 1 (of size $a_1(1 - a_2)$) and
represents the surplus extraction effect. The second term represents the prof-
its from competing in the switching segment and represents the competitive
effect. In the case where addressability is roughly equal, both these terms are
important because Firm 1 realizes both Group 1 and Group 3 are sizable.
So it tries to compete in both. If a_1 is much greater than a_2, Firm 1 realizes
that Group 1 is the largest group, and does not bother to compete for Group
3 and profits just equal $a_1(1 - a_2)(r - t/2)$. Firm 2 faces a similar situation
if its addressability is much higher than Firm 1's.

One of Chen and Iyer's key results is that the equilibrium ratio of profits
between Firms 1 and 2 will be proportional to their investments in database
marketing. Therefore, the firm that invests more in database marketing has a
competitive advantage. The advantage of having an addressability advantage
is the ability to price high without having to worry about losing customers

to the competitive firm (Group 3 is small). The database marketing leader is able to practice price discrimination along the Hotelling line, unfettered by worries about what its competitor might be doing.

Chen and Iyer also show that if addressability is high for both firms, the result is ruinous price competition for the switching segment. Both firms realize they have no monopoly power and must compete for switchers. This is analogous to the Chen et al. result that profits are lowest at very low or very high levels of targetability. Chen and Iyer show that if the costs of obtaining addressability are low, both firms will not invest in full addressability. One will choose $a_i = 1$ and the other will choose $a_j = 0.5$. The reason is that if Firm i has full addressability, Firm j realizes that to also achieve full addressability will precipitate targeting wars for the switching segment. Firm j is better off not investing fully in addressability. This creates a monopoly segment for Firm i, which in turn cushions Firm i's prices, since it now must trade off the surplus extraction and competition effects. Firm j makes less money than Firm i, but is better off than if invested fully in addressability. An important implication of this is that in the real world, where firms can invest sequentially, there is a first-mover advantage, and the smart company that is behind on database marketing should hold back investment to avoid the targeting war scenario of Shaffer and Zhang (1995).

Chen and Iyer explore two important assumptions regarding their analysis. First, concerns the segment $(1 - a_1)(1 - a_2)$ that is not addressable by either firm. Their model assumes these consumers are lost to the market, but they argue that if these customers can pay "posted prices" for the product, there still is the asymmetric equilibrium when addressability is low cost. Second, concerns the assumption that addressability is the same for all consumers, regardless of preferences. The authors find that if firms can choose addressability as a function of preference, they first will invest in being able to address customers who have high preference for their product. This makes sense, because then they can charge higher prices.

In summary, both Chen et al. (2001) and Chen and Iyer (2002) find that companies can obtain sustainable competitive advantages through investment in database marketing. Firms make more money when they have database marketing capabilities compared to when they do not. The key to this result is that there must be some mechanism that keeps firms from targeting wars as in Shaffer and Zhang. For Chen et al. that mechanism is that firms are not sure if a customer in their database is loyal to their firm or a switcher. Certainly this fits most situations. For Chen and Iyer, the mechanism is that firms do not know if their competitors can target their customers. This keeps firms from charging low prices because they realize that they may be "leaving money on the table" by charging low prices to customers who are not addressable by the competition. So the interesting conclusion is that an intermediate level of database marketing capability is best because it creates enough information to obtain the gains from targeting, but not too much as to spark targeting wars.

The Strategic Consumer

The Chen et al. and Chen and Iyer papers assume that firms are prescient. They do not have perfect targeting information, but they are aware of what they know and do not know, and consider the short and long-term implications of their information set. The consumer, on the other hand, is considered to be passive. However, what happens if the consumer realizes that the underlying goal of the firms is to practice price discrimination, and that by revealing their preferences, they may be the subject of price discrimination? In two important papers, Villas-Boas (1999, 2004) shows that if consumers behave strategically, firms can be worse off if they can identify their customers. Villas-Boas (2004) is particularly important because this is the monopolist case, and demonstrates that the disadvantage is not due to a competitive targeting war as in Shaffer and Zhang. The problem is that consumers hold out for lower prices because they realize that if they do not reveal their preferences, firms will not be able to distinguish them from brand switchers or customers new to the market and they will get low prices.

Chen and Zhang (2002) acknowledge this possibility but argue that the effect will be more than counter-balanced by the "price-for-information" effect. The effect arises as follows. Firms want to price discriminate but need to identify customer preferences in order to do so. In a two-period model, they are tempted to price low in the first period because they realize some customers are holding out for cheaper two-period prices. However, they also realize that by pricing high, they do not attract as many customers but the customers they attract are clearly loyal to them, and they can use this information to charge appropriately high prices in the second period. In other words, firms charge higher prices for the information they gain about customers that can be utilized in the long-term. This is the price-for-information effect. Chen and Zhang show that even taking into account strategic customers, firms can be better off with database marketing than without. They do have to lower their first-period prices to discourage their loyals from waiting, but they do not need to lower them completely because they realize they will gain in the long run from learning about the customers they do attract.

The area of strategic consumers is a crucial one for the success of database marketing. A very different venue where the effect shows up is a static rather than a dynamic one. Feinberg et al. (2002) argue that customers can become jealous of other customers who get better deals than them. They then may refrain from purchasing from the firm according to their preferences. Essentially, the customer is taking into account prices available to other consumers to assess its likelihood of buying from the firm. This may not be seen as strictly rational (why should what someone else gets affect your utility for a product), but Feinberg et al. show in experiments that the jealousy effect is real. To the extent that this jealousy effect is large, it decreases the ability

of firms to price discriminate, which is the driving force behind the economic arguments to date for database marketing.

The economic models described above make a set of key assumptions which drive their results: (1) the only strategic variable is price, (2) the purpose of database marketing is to allow the firm to price discriminate, (3) firms can target their loyal customers, and 4) only two firms compete. Each of these assumptions is suspect in the real-world. These models assume the purpose of database marketing is price discrimination. There is no empirical evidence that this is the goal of database marketing. Database marketing goals are far broader than simply price discrimination, as Glazer (1999) discusses.

Glazer (1999) shows that firms can compete using different (row and column) strategies, some of which are different than price. Under column strategies, he provides examples, one of which is yield management (similar to price in the economic models), but discusses mass customization as another example. He also discusses row strategies in which firms use addressability to develop customer interaction strategies to increase their loyalty. Economic models (to date) do not consider customer interaction strategies to increase loyalty as a goal of database marketing.

Many firms do not have any information about their customer's loyalty. All they can observe is purchase behavior (and maybe demographic information). The assumption of all of these models is that the firm somehow knows the loyalty level of its customers and then targets based on it. For example, Fidelity Investments does not know if its customers have accounts with Merrill Lynch, T. Rowe Price or Vanguard. One of the few industries which might know its customer loyalty is credit card issuers in the USA because they have information about the number and usage of cards through credit bureaus. However, it is difficult to identify many other industries that know the loyalty level of their customers.

Some firms use customer behavioral data to price their *best* customers lower than the competition. Vanguard offers lower fees to its Admiral customers, determined by the size of balances they have within a given mutual fund. The higher balance customers receive lower fees as a percentage of money invested. This may be a form of competitive pricing but is not price discrimination as in the models reviewed above.

Firms may try to price discriminate (airlines) but can succeed because they use another strategic variable (level of service) as the basis for customers' willingness to stay loyal even though they may be paying a higher price. The database allows the firm to identify those customers to offer a better service.

The assumption that only two firms compete may also pose problems. If a new entrant cannot enter the industry because of the use of customer databases by incumbent firms, then there is a return to database marketing. Clearly in some industries, new entrants face an uphill battle because they cannot target. An important research area is to identify industries in which database marketing is an entry deterrent.

2.3.3 Assessment

The evidence to date regarding database marketing as a route to sustainable competitive advantage is built on the following arguments:

- Empirical studies find some, although not overwhelming, evidence that marketing orientation – the ability of firms to collect, process, and implement customer information – as well as undertaking database marketing activities, is positively related to firm performance.
- The customer information file – the firm's database of its customers – is the modern source of customer information. The file suggests two principle strategies – customer centric (row strategies), and product centric (column strategies). Strategic advantage is based on maintaining customer information and developing these strategies.
- Economic models develop theories under which firms using pricing-oriented column strategies can practice effective price discrimination. The main requirement is that targeting abilities need to be "moderately effective". Too little and there are not enough benefits of targeting; too much and firms engage in targeting wars.

The arguments are interesting but more is needed to make establish that database marketing is a long-term source of competitive advantage. The marketing orientation studies provide some empirical evidence, but they refer to customer information in general and not to database marketing *per se*. Zahay and Griffin (2004) and Reinartz et al. (2004) provide important evidence that database marketing itself – using the customer information file – can be associated with better performance. However, the performance measures in several of these studies are self-report. More studies with objective performance measures are needed. The conceptual arguments regarding the customer information file and row (customer-centric) versus column (product-centric) strategies are well-taken, but have not undergone empirical testing. Do row strategies really increase loyalty? Can they be implemented inexpensively enough to increase profits?

The economic models provide logic and some insights, but they have not been tested empirically. Empirical research along the lines of the marketing orientation literature is needed, with the focus on *targetability* through customer information, not customer information in general. In terms of column strategies, more work is needed to understand whether prices for loyal customers should be higher (price discrimination) or lower (pay the customer for their loyalty) (see Shaffer and Zhang 2000), or to keep the loyal customer from getting jealous as in Feinberg et al. (2002).

The theory also needs to be extended to non-price column strategies, e.g., cross-selling, and to row strategies, i.e., long-term management of customer value. The extension to non-price column strategies would be particularly interesting. Managers would certainly like to think that customer databases enable them to serve customers better by targeting appropriate services from

their product line, or by tailoring their product line to the customer. It might be that this type of targeting is more sustainable because it is more difficult for a competitor to understand the details of a customer's preferences for various product attributes than it is to understand price response. Row strategies might also be a source of more sustainable advantage, because long-term relationships may create switching costs that bind the customer to the firm. This leads to the existence of database marketing as a tool for enhancing customer relationships.

2.4 Summary

In this chapter, we have proposed and reviewed three fundamental reasons for companies to practice database marketing: enhancing marketing productivity, enabling the enhancement of customer relationships, and establishing a sustainable competitive advantage.

The marketing productivity argument is based on the use of data and data mining tools to prioritize and target customers with appropriate products, services, and prices. There is good evidence that this can work. Data mining indeed can produce "lift charts" for predicting customer behavior that are much better than random, and therefore can identify the customers for whom marketing efforts would be wasted.

The enhancing relationship argument is based on the notion that enhanced customer relationships improve firm performance, and database marketing can enhance relationships. The first part of the equation is well-supported by the importance of customer retention in lifetime customer value, and empirical studies that link customer relationships, customer satisfaction, customer retention/loyalty, and firm performance. Regarding the second part of the equation, there is a host of articles in the managerial literature that raise questions about whether CRM *investments* lead to improved financial performance. However, systematic empirical studies are beginning to find that indeed these investments can pay off.

The competitive advantage argument is based on the notion that the customer data file is a company resource that is impossible for companies to duplicate, that the data enable firms to service customers better than competitors, and that the better-than-random yet imperfect nature of predictions that come from the model cushions price competition. This area has received the least empirical study although the concept is compelling.

There is significant academic research pertaining to the fundamental reasons firms should use database marketing but there is much more to do. Regarding the productivity argument, we need more field tests that show predictive models work, that they generate incremental profits beyond channel cannibalization and beyond what could be generated by simple management heuristics. Regarding the sustainable competitive advantage argument,

we need survey-based research similar to the marketing orientation literature that links database marketing, as opposed to customer information in general, to firm profits. We need more economic theory on non-price targeting, high versus low prices for loyals, and the strategic consumer. We need empirical tests of the economic models, particularly the role of imperfect targeting.

Regarding the enhancing CRM argument, we need to establish the link from database marketing to enhanced relationships to satisfaction to retention to performance. The last four links have been investigated; the crucial link is that database marketing enhances relationships. We also need to investigate the cost side of database marketing, and in particular, whether acquisition costs are truly higher than marginal retention costs. More generally, we need to investigate if and under what conditions retention management is more cost-effective than customer acquisition strategies.