BUSINESS MODELS FOR COMPETITIVE SUCCESS IN THE

UNITED STATES TEXTILE INDUSTRY

by

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ABSTRACT

Intensifying global competition is threatening the survival of the U.S. textile industry. This research will provide insight and propose strategic responses to this competitive economic environment. The goal of this research effort is twofold: first, to gain a better understanding of the nature of competition in industrial settings, and second, to identify opportunities for successful performance in competitive environments. This research is comprised of three papers that address issues related to strategic response to competitive pressures.

The first paper in this dissertation, "Measuring Competition for Textiles: Does the U.S. Make the Grade?" provides a measure of the current competitive state of the U.S. textile industry. This paper evaluates the U.S. competitive position in the cotton yarn segment of the textile industry using established quantifiable measures and provides an overall competitive assessment. The measures employed show the United States to be at a relative competitive disadvantage when compared to major international producers of cotton yarn. However, the margin of this competitive disadvantage is shown to be relatively small. U.S. metrics of competition are trending towards price parity and are virtually equivalent with major competitors in terms of costs of production.

The second paper, "Business Models for Competitive Success in the U.S. Textile Industry", provides estimates of how certain strategic decisions impact levels of firm performance in a declining industry. This research provides empirical support for the role of agency of managerial choice in determining performance outcomes.

The third paper, "A Model for the High-Value Marketing Pool Concept",
develops a general research model for increased marketing returns via product
differentiation in the presence of heterogeneous consumer demand. This paper offers a
research design to investigate the essential elements of a successful and sustainable high-
value marketing pool, and the potential this marketing tool might have to increase returns
for agricultural commodity producers.

Insight gained into the above topics will help firms and producers of the U.S.
textile industry cope with increasing levels of competitive intensity. This research seeks
to contribute to the store of knowledge in the disciplines of agricultural economics and
strategic management through an empirical application of their theories and concepts.

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PREFACE

> *There is a tide in the affairs of men,*
> *Which, taken at the flood, leads on to fortune;*
> *Omitted, all the voyage of their life*
> *Is bound in shallows and in miseries.*
> *On such a full sea are we now afloat;*
> *And we must take the current when it serves,*
> *Or lose our ventures.*
> --William Shakespeare, *Julius Caesar*

Intensifying global competition in a free trade environment is threatening the survival of the U.S. textile industry. Whether such a free-trade flood leads to fortune or misery for this industry is important not only to U.S. textile manufacturers but to U.S. cotton farmers as well. As suppliers of raw materials for the industry, cotton producers share a stake in the success or failure of what has traditionally been their biggest and best customer. As competitive forces rise, survival for much of the textile industry in the United States may be at stake. This research will provide insight and propose strategic responses to this competitive economic environment.

This dissertation addresses three basic questions of competition in the cotton textile industry:

1. How competitive is the U.S. textile industry currently?

2. Are there strategies which U.S. textile firms might adopt to become more successful in the face of increasing competition and changing economic conditions? and

3. Given the current state of competition in the textile industry, are there marketing strategies cotton producers might employ that will better meet the needs of their textile customers and increase producer net returns?

The following pages contain research conducted on these three questions from the perspective of the field of strategic management. This field of inquiry draws on the theories of economics, sociology, and psychology, among others, to investigate why firms do what they do[1]. Michael Porter describes the central question of strategy research to be why some firms succeed while others fail[2]. Consistent with this disciplinary emphasis, an exploration into the variance of firm performance will be at the heart of this dissertation.

The first paper in this dissertation, "Measuring Competition for Textiles: Does the U.S. Make the Grade?" attempts to answer, from the competitive standpoint of the U.S. textile industry, *Where are we?* According to Professor Johan van Rooyen of the Agricultural Business Chamber and Chair of Agribusiness Management, University of Pretoria, South Africa, "We can only become more competitive if we know how competitive we actually are and what constrains or enhances our efforts"[3]. This competitive analysis provides insight into how far apart U.S. manufacturers may be from their global counterparts and reveal where competitive strengths and weaknesses may lie.

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[1] See Dobbin, Frank and Joel A.C. Baum. *Economics Meets Sociology in Strategic Management.* Stamford, CT: JAI Press, Inc., 2000.

[2] Porter, Michael. "Towards a Dynamic Theory of Strategy". *Strategic Management Journal* 12 (1991):95-117.

[3] van Rooyen, Johan. As quoted in "SA Wine Industry Launches First Survey to Determine Competitiveness". Wine.co.za., 16 February 2005. Available online at http://www.wine.co.za/News/NewsPrint.aspx?NEWSID=6595.

The second paper, "Business Models for Competitive Success in the U.S. Textile Industry", is an attempt to guide firms in their quest for financial success by addressing the question, *How do we get there?* In his textbook on strategic management, Lester Digman observes, "Stripped of its complexities, a strategy consists of the means an organization chooses to move it from point A (where it is now) to point B (where it must be at some time in the future)"[4]. The results of the present study may prove useful in assisting organizations in charting a course that is more likely to lead to sustained successful performance in fiercely competitive environments.

The third paper, "A Model for the High-Value Marketing Pool Concept", develops a general research model for increased marketing returns via product differentiation in the presence of heterogeneous consumer demand. According to Jeffrey Immelt, Chairman and CEO of General Electric, left unchecked, competitive forces will drive firms to "commodity damnation". The "central necessity" of the firm in the future lies "…in their ability to innovate and their ability to differentiate"[5]. This paper offers a research design to investigate this process for agricultural producers.

The goal of this research effort is twofold: first, to gain a better understanding of the nature of competition in industrial settings, and second, to identify opportunities for successful performance in competitive environments. It is hoped that insight gained into these topics will help firms navigate through what Prahalad and Hamel term this

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[4] Digman, Lester. *Strategic Management: Concepts, Decisions, Cases.* Homewood, IL: Richard D. Irwin, Inc., 1990, p. 6.

[5] Immelt, Jeffrey. Keynote address at the Emerging Technologies Symposium, MIT 25 September 2003. Available online at www.ge.com/files/usa/en/company/news/immelt_tech_review.pdf.

"competitive milieu" where "…the need for strategic thinking and behavior among managers has never been more urgent"[6]. It is hoped that the disciplines of agricultural economics and strategic management will benefit from an empirical application of their theories and concepts.

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[6] Prahalad, C.K. and Gary Hamel. "Strategy as a Field of Study: Why Search for a New Paradigm?" Strategic Management Journal 15 (1994):5-16.

CHAPTER I

MEASURING COMPETITION FOR TEXTILES:

DOES THE UNITED STATES MAKE THE GRADE?

Introduction

The textile industry is affected by a drastically changing economic environment as global free trade initiatives provide for unrestricted competition. U.S. textile manufacturers face an industry environment in which low cost imports and the elimination of trade barriers decrease domestic profitability. Almost all of the labor intensive cut-and-sew apparel segment, "the needle" in industry vernacular, have responded to these competitive forces by moving production facilities overseas. The impact on less labor intensive industry segments remains unclear.

The purpose of this study is to better understand the competitive position of the U.S. cotton textile industry in relation to international rivals. The primary focus of this analysis will be on that portion of the industry which initially transforms raw cotton into cotton yarn. The textile industry has experienced a recent migration, especially to Asian countries, which seems to be following a discernable pattern. First, developing countries are able to attract labor intensive cut and sew apparel industries using imported fabric from developed countries. Fabric production soon follows using imported yarn. Finally, a yarn industry emerges in the developing country based on the importation of raw fiber (MacDonald, 1998).

The consequences of the movement of virtually all textile production to developing countries will alter the structure of the global textile industry. The purpose of

this paper is to appraise the current competitiveness of U.S. yarn producers and evaluate

their potential in meeting the challenges of this evolving competitive landscape. This

paper accomplishes this analysis by comparing the competitive advantage or

disadvantage of the U.S. relative to other nations producing cotton yarns using several

measures. With the further elimination of quota protection for U.S. producers, trade

barriers are falling and competitive forces are intensifying. Analysis of U.S.

competitiveness will provide those with an interest in the viability of domestic yarn

manufacturing with a key indicator of whether this industry as a whole may follow 'the

needle' overseas or whether a future remains for core aspects of this industry in the

United States.

This study evaluated the competitiveness of U.S. manufacturers of cotton yarn

products compared to international rivals by analyzing the current competitive state of

this industry and by identifying competitive trends. This was accomplished by:

1. comparing objective measures of market share of textile products,

2. evaluating a price-based comparison of goods offered in the market place,

3. a comparison of costs of production between major market participants, and

4. an evaluation of the efficiencies/inefficiencies associated with the transport of initially processed textile products in contrast to the shipment of raw cotton.

Revealed Comparative Advantage

A key aspect of evaluating whether a producer of a given good is competitive in its market offering depends on both a definition and measure of the term competitiveness. Drescher and Maurer (1999) cite Bellendorf's definition of competitiveness as the ability of firms and industries "...to protect and/or improve their position in relation to competitors which are active in the same market" (p. 162). This definition is consistent with that of Sharples (1986) and Kennedy and Rosson (2002) who define competitiveness as the ability to achieve market share. The producer who attains a market share for its product is by definition competitive. A product for which market share is increasing can be said to be increasing in competitiveness and, conversely, a product is regarded as decreasing in competitiveness if the market share for that product is in decline. In the following discussion, market share will both define competitiveness and serve as its primary measure.

In studies such as this, the terms comparative advantage and competitive advantage are often used interchangeably. For the purposes of this analysis, comparative advantage will refer to that situation of unrestricted free markets of Adam Smith and David Ricardo, in which resources are allowed free flow to their most efficient and productive uses. Competitive advantage explains trade as it exists in the real world. This includes the influence of trade barriers, exchange rate variation, product differentiation, and other factors which Ricardian comparative advantage does not consider. "Competitive advantage therefore reflects real business opportunities within current policy and price distortions" (van Rooyen, Esterhuizen, and Doyer, 2000, p.4).

Market share as an empirical measure of competitiveness is founded on the performance of a given product in the marketplace. Since the focus of this paper is the global marketplace, export shares will be used as indicators of international competitiveness. These relative shares will be analyzed for the clues they may provide as to how and in which direction the competitiveness of a given industry may be changing (Drescher and Maurer, 1999). Balassa (1965) asserts that an analysis of the trade performance of individual countries would indicate the comparative advantage one nation holds over others in the marketing of manufactured goods. This analysis is based on a comparison of "…the relative shares of a country in the world exports of individual commodities and indicating changes in relative shares over time" (Balassa, p.105). Thus, comparative advantage as described by Balassa is consistent with the concept of competitiveness used here. Direct observation of trade performance may then reveal comparative advantage (competitiveness) in the production of that commodity. Balassa introduces an index called "Revealed Comparative Advantage" (RCA) as a means of measuring comparative advantage.

The export based RCA index used here is based on an application of Balassa's RCA by Leishman, Menkhaus and Whipple (2000) and is calculated in three steps. First, a country's market share in world exports of a specific good (x^t_{ij}) is calculated as a country's export of a certain good divided by the world exports of that good,

(1) $X^t_{ij}/X^t_{iw} = x^t_{ij}$,

where X^t_{ij} equals the exports of commodity i by country j in time t and X^t_{iw} equals the world w exports of commodity i in time t.

Second, a country's market share in the export of all manufactured goods (x^t_{kj}) is calculated by dividing its own exports of all manufactured goods by the combined world exports of all manufactured goods,

(2) $X^t_{kj}/X^t_{kw} = x^t_{kj}$,

where X^t_{kj} equals the exports from country j of all manufactured goods k in time t and X^t_{kw} equals the world w exports of all manufactured goods k in time t.

Third, dividing the market share of a country in the production of a certain good by its market share in the export of all manufactured goods yields the current RCA index in time t for country j in commodity i:

(3) $x^t_{ij}/x^t_{kj} \times 100 = RCA^t_{ij}$.

The higher the RCA, the greater importance of that good relative to all manufactured exports. An index value of 120 indicates that a country's exports of that good for a given year are 20% higher than its share in total world exports of all manufactured goods. An index value of 80 reveals that a country's exports for a given good are 20% lower than its share of world exports of all manufactured goods.

Export data for textile yarn, fabric, etc.(SITC Rev. 3 code 65) and all manufactured goods (SITC Rev. 3 code 6) were gathered for years 1989 through 2001 for the major textile producing nations of China, India, Pakistan, the United States, and Turkey. These nations are ranked as the top 5 in the world according to the production of yarn (Textile Statistics). Figures are available online from the Comtrade database of the United Nations Statistics Division. Data were not consistently available prior to 1989 and trade statistics were not reported for all nations for all years even in the time frame

reported here. 2001 statistics are the latest reported at the time of this writing. RCA
index values are calculated for each of these nations and are shown in Figure 1. Data
tables are located in the Appendix, Tables A.1-A.3.

RCA
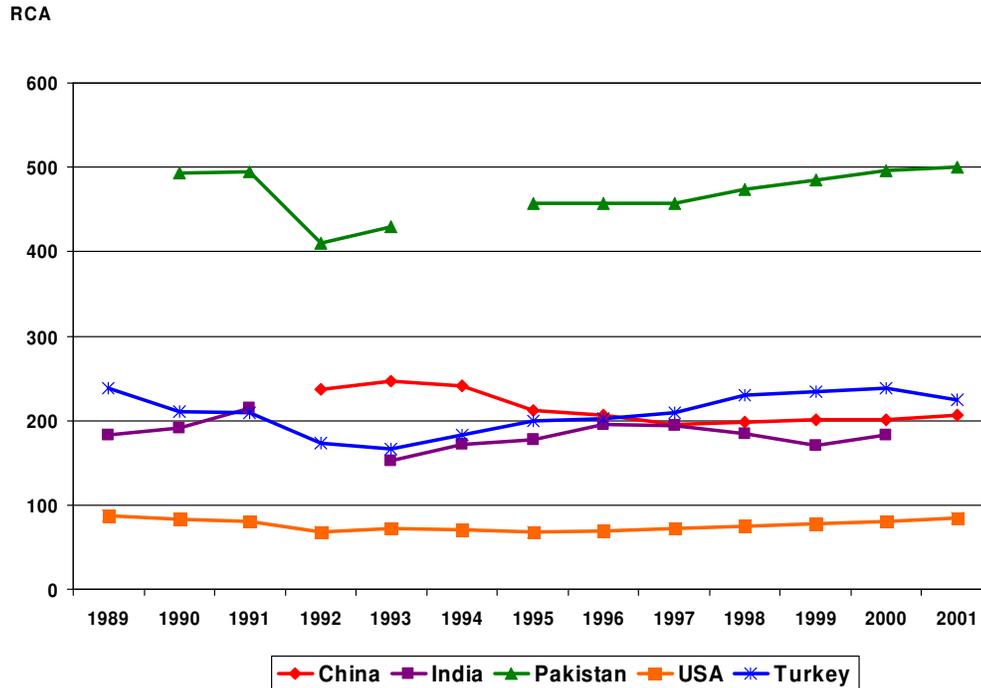
Figure 1. Revealed Comparative Advantage for Textile Trade

Not surprisingly, the data indicate that the United States holds the weakest
competitive position among the textile producers reported here. The export of U.S. yarn
and fabric was 13.13 % lower than that of all U.S. manufacturing exports in 1989 (its
highest level for the time frame reported here) and 15.64% lower in 2001. Pakistan is
shown to be the country in which the exportation of textile products is highest relative to
other manufacturing exports, with the export share for textiles exceeding all

manufacturing by 400%. The other nations (China, India, and Turkey) all hold relative competitive advantages in yarn and fabrics with calculated values all clustering around 200. For the time period of this study, these values appear relatively stable.

From this analysis, two points seem particularly pertinent. First, the export market share of textile products, as a percentage of all manufacturing exports, is much higher in China, India, Pakistan, and Turkey than in the United States. While this result is expected, by using Balassa's RCA, this identified competitive advantage may be quantified and trends analyzed. It would appear that these nations are committed to the development of the textile component of their respective economies and are capitalizing on competitive advantages they may possess.

The second point addresses the issue of reallocation of resources in an economic climate characterized by trade liberalization and open markets. The U.S. textile industry has historically been one of the most heavily protected sectors of the U.S. economy. Textiles have been excluded from many of the post-World War II GATT and WTO negotiations "…because the subject was considered too sensitive in the United States" (Grennes 1990, p. 3). While the last 50 years have seen trade barriers fall for the rest of the manufacturing sector, U.S. textile producers have continued to rely on a system of quotas and tariffs to insulate them from competitive forces. However, under the auspices of the Uruguay Round Agreement on Textiles and Clothing, all textile and apparel quotas were abolished on January 1, 2005 with the expiration of the Multi-Fiber Arrangement (MFA). "After decades of protectionist exceptions, textile trade finally will be subject to

the same rules that govern international trade in other manufactured products" (Ikenson, 2003, p. 1).

The degree to which trade restrictions artificially supported U.S. market share in the textile products trade will greatly determine the impact on these producers now that these policies have been eliminated. If the market share of U.S. producers is largely dependent on trade barriers, then U.S. competitiveness is overestimated in the current model. If this is the case, the elimination of trade restricting policies will likely reduce U.S. market share, decrease U.S. competitiveness, and shift the textile trade further to those nations who possess a competitive advantage. However, if the U.S. can maintain market share in the textile products industry in a post-quota environment, future RCA calculations may verify a competitive niche for U.S. producers. This measure of revealed competitive advantage may serve as an impetus for commitment to the industry, encourage additional investment, and shape strategic decisions.

<div align="center">Price Equivalents</div>

In the attempt to determine a country's ability to compete in global markets, bilateral price comparisons across nations represent another method of measuring competitiveness among international industry participants. A comparison of the price of goods plus transportation costs to major ports can reveal those nations which are more likely to import goods as opposed to those who will likely supply a particular market (Hayes et al., 1991).

At the time of this writing, the United States is the highest priced producer of cotton yarns compared to Pakistan, India, Turkey, and Indonesia (see Table 1). As

referenced in the previous section, these nations represent 4 of the 5 largest competitors

in the cotton yarn industry[7]. While a simple comparison of domestic prices may be

interesting, these prices become more relevant as indicators of competitiveness only

when transportation costs between countries are added to the domestic prices. Figure 2

shows how the price of 20-count cotton yarn compares in the U.S, Pakistan, India,

Turkey, and Indonesia from January 2001 to August 2003. This figure shows how the

U.S. price has declined from $3.40 per kilogram to $2.70, a 21% price decline in 30

months. The average international price as of August 1, 2003 is $1.96, $0.74 below the

U.S. price. A complete price comparison for 20-and 30-count cotton yarns for these

nations may be found in Appendix Table A.4 and A.5. The decline in the U.S. price has

created some price convergence, but the U.S. remains priced above the rest of the

international market[8].

To allow for the transportation adjustment of the prices in Table 1, a calculation is

made for a bilateral price equivalent. Hayes et al. refer to this as a "tariff equivalent" or

"price wedge" as it represents the amount of protection domestic producers of a good

enjoy based on the cost of transporting foreign produced goods into a domestic market.

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[7] Absent from this comparison is China. *Cotton Outlook*, the primary source of this yarn price information, reports prices on the basis of significant export volume *and* the reliability of price information in any particular country. At the time of this writing, this list did not include any price information from China.

[8] The authors recognize that this time frame is very short for a thorough analysis of a price trend. Data, time, and cost constraints limit further collection of price data at this time. Additionally, it is important to verify that the price convergence demonstrated is not due solely to a fluctuation in currency exchange rates. Exchange rate history is included in the Appendix, Table A.6 and Figure A. 1, for the currencies of Pakistan, India, Turkey, and Indonesia, relative to the U.S. dollar. The table shows that real currency exchange rates were stable or declining over this time period. This supports the contention here that the observed convergence of prices represents a real, as opposed to a nominal, trend and increasing price competitiveness of U.S. cotton yarn.

Table 1. Domestic Yarn Prices, $U.S. per kg

	Country	Price ($/kg)	Ratio of U.S. Price
Yarn Count 20's	Pakistan	1.72	63.70
	India	1.82	67.41
	USA	2.70	100.00
	Turkey	2.40	88.89
	Indonesia	1.90	70.37
Yarn Count 30's	Pakistan	2.18	68.13
	India	2.04	63.75
	USA	3.20	100.00
	Turkey	2.45	76.56
	Indonesia	1.98	61.88

Source: *Cotton Outlook*

US$ per kilogram
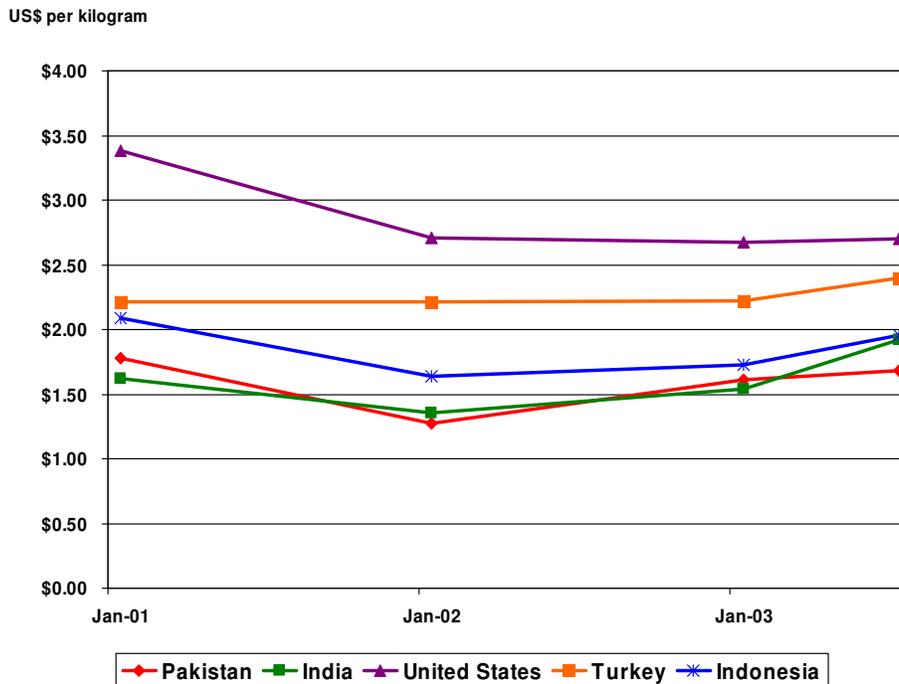
Figure 2. Cotton Yarn Prices, 20-count, 2001-2003
Source: *Cotton Outlook*

trade to refer to the concept of tarrification where "…quotas and other non-tariff barriers

However, the term "tariff equivalent" is commonly used in the context of international

to trade were to be converted in tariff equivalents and then bound" (Morath and

Sheldon, 1999, p. 2). To avoid confusion, the tariff equivalent of Hayes et al. will be

referred to as a "price equivalent" (PE). Competitiveness of nations will be measured by

estimating their respective price equivalents.

The calculation of a PE takes into account the impact of monetary policies that

contribute to fluctuations in currency exchange rates and expresses the price

competitiveness among producers that exists at a given point in time. Of course, shipping

rates play a large role in the calculation of a PE. The rates used for this study are based

on publicly available shipping quotations for dry ocean freight port to port. No

adjustments are made for inland freight costs (see Appendix Table A.7). However the

calculated PE here does not explicitly include tariff and quota restrictions. This is a pure

market-based comparison. PE does reveal the amount of tariff that an importing country

would need to impose if it wished to equate world prices to those of its domestic market.

A PE for cotton yarn for a given nation is calculated by combining the domestic

yarn price in country A with the transportation costs from country A to country B and

comparing this cost to the price of yarn in country B. The difference between the price of

yarn in country B and the price of a comparable product from country A being sold in B

(adjusted for transportation costs) is expressed as a percentage of the delivered price.

(4)   PE = Price in B – (Price in A + transportation to B) X 100
                    (Price in A + transportation to B)

A negative PE indicates that the domestic price is lower than adjusted import prices. A country with negative PE's with other trading nations would not be a major export market for other producers. Positive PE's indicate the likelihood of a country serving as an export market for other producers since its domestic price is greater than the price of delivered imported goods. As an example, PE's are calculated here for the U.S. market and are reported in Table 2. The positive PE's calculated indicate that the United States is a profitable export market for Pakistan, India, and Indonesia, and to a lesser extent, Turkey. Conversely, with its higher relative yarn prices, the United States will have a negative PE for each country in this analysis.

Table 2. U.S. Price Equivalent					
January 1, 2001	U.S.	Pakistan	India	Indonesia	Turkey
20's	-	62.50	76.04	44.44	41.17
30's	-	58.02	61.34	53.60	48.84
January 1, 2002					
20's	-	72.61	64.24	43.39	13.19
30's	-	56.22	62.69	53.92	24.11
January 1, 2003					
20's	-	39.79	45.11	34.85	11.05
30's	-	34.35	39.82	45.07	21.18
August 1, 2003					
20's	-	33.66	27.36	25.58	4.48
30's	-	29.03	36.75	43.50	21.67

For the most recent prices reported, the United States has an average PE for 20-count yarn of 22.69%. This represents the equivalent tariff that would need to be instituted to equate domestic U.S prices with those of the international competitors for which prices are available. Figure 3 reflects U.S. price equivalents since January 2001.
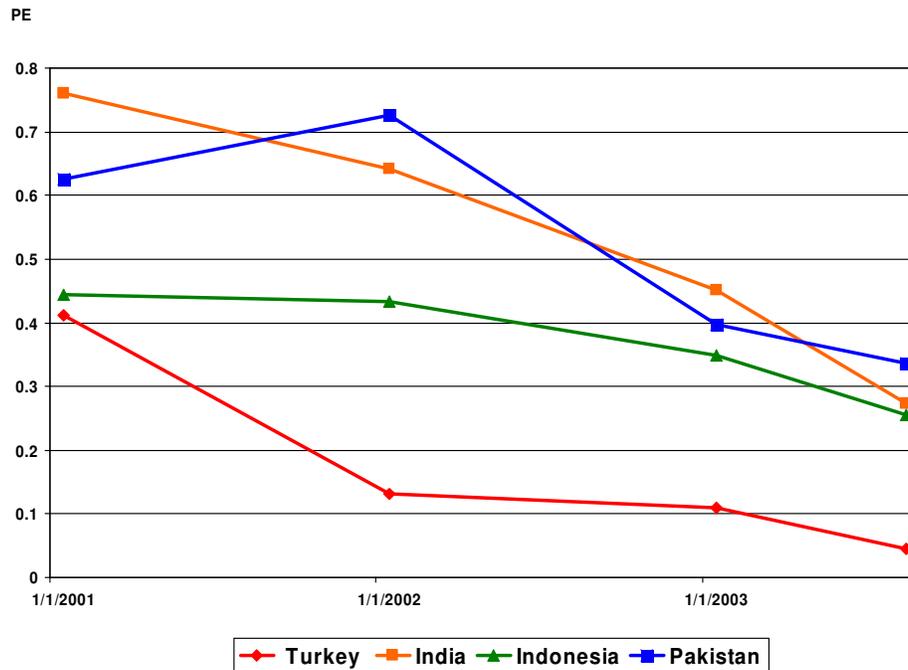
Figure 3. U.S. Price Equivalents, 20-count yarn

From the data presented, the U.S. is most likely to serve as an export market for international yarn producers. However, there has been a substantial decline in the PE's of each country in this study since January 2001. This would indicate that while the U.S. remains a lucrative export market, the price wedge between these competitors has declined dramatically, especially in the case of 20-count yarn. As trade limiting quotas and tariffs are reduced, PE's provide an indication of those nations that may be competitively positioned to capture significant portions of the U.S. cotton yarn market.

Given that China is the world's largest manufacturer of apparel (U.S. Trade Commission), this method may be used to measure the price competitiveness which exists between U.S. produced cotton yarn and cotton yarn in the domestic Chinese market. Using prices for 30-count carded cotton yarn reported for China of $2.35/kg at the end of September 2003 ("Cotton Yarn Prices in China"), the price of U.S. carded 30s in August 2003 of $3.20/kg (from Table 1), and a weighted average container shipping rate from the USDA Ocean Rate Bulletin, China's PE with U.S. producers can be calculated as:

$$(5) \qquad PE = \frac{2.35 - (3.20 + .12)}{(3.20 + .12)} \times 100 = -29.22.$$

This PE estimates a 29% price-based advantage for domestic producers of cotton yarn in China over competitors from the United States.

Cost of Production Comparison

To understand the global dynamics of the textile industry requires an examination of the relative costs of production of major competitors. Such a cost of production (COP) comparison is an important gauge of competitiveness and is useful for gaining insight into the relative competitiveness of U.S. manufacturers (Barkema, Drabenstott, and Tweeten, 1990). Of interest here is a comparison of the costs different countries have in the components of a specific yarn production process in order to ascertain the competitiveness of yarn produced in the United States. Whether the U.S. textile industry survives may center on the ability of domestic processors to offset the lower labor costs of overseas producers with comparative advantages the U.S. may still hold in other areas of yarn manufacture.

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This analysis compared the costs associated with the major components of ring spun yarn production by utilizing data from the *International Production Cost Comparison 2001* and *International Production Cost Comparison 2003* provided by the International Textile Manufacturers Federation (ITMF). The countries included in the 2001 survey include Brazil, India, Indonesia, Italy, Korea, Turkey, and the United States. The 2003 survey included China and excluded Indonesia, in recognition of the powerful player China has become in the world textile trade. These comparisons indicate the sources of differences in COPs for each country and identify the forces which shape competitiveness in this industry (Fang and Fabiosa, 2002).

The comparison of total costs associated with ring spun yarn for major international producers can be seen in Tables 3 and 4 and Figure 4. In this two-time period comparison, India has seen the most dramatic decrease in relative COP as it has moved from fourth to first among the nations reported here. The U.S. has slipped from having the third lowest COP to sixth, and relative to the country with the lowest COP, has seen this COP differential increase from approximately 10% to 14%.

Focusing on the most recent data, as expected, the cost of labor in the manufacturing process is highest in the developed nations of Italy and the United States, accounting for 24 and 19 percent of all manufacturing costs respectively, compared to 2 percent of costs in China, India, and Brazil. The waste component in U.S. production is, along with Italy, the lowest reported. Power costs are lower in the U.S. than any rival other than Korea and Brazil. The costs associated with auxiliary material (spare

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Table 3. Total Costs 2001: Ring Yarn, (% of total costs)

	Brazil	India	Indonesia	Italy	Korea	Turkey	USA
	($U.S. per kg of yarn)						
Waste	0.16	0.16	0.17	0.17	0.18	0.14	0.11
	(6%)	(6%)	(6%)	(5%)	(7%)	(5%)	(4%)
Labor	0.10	0.05	0.01	0.70	0.16	0.16	0.54
	(4%)	(2%)	(0%)	(22%)	(7%)	(6%)	(20%)
Power	0.14	0.31	0.10	0.31	0.15	0.28	0.16
	(6%)	(12%)	(3%)	(10%)	(6%)	(10%)	(6%)
Auxiliary material	0.10	0.09	0.09	0.10	0.10	0.09	0.10
	(4%)	(4%)	(5%)	(3%)	(4%)	(4%)	(4%)
Capital	0.84	0.90	1.27	0.65	0.59	1.09	0.72
	(32%)	(14%)	(23%)	(17%)	(21%)	(26%)	(21%)
Raw Material	1.17	1.18	1.22	1.21	1.23	1.12	1.04
	(47%)	(44%)	(43%)	(39%)	(51%)	(39%)	(39%)
Total Yarn Costs	2.51	2.69	2.86	3.14	2.41	2.88	2.67
% of US Price	94.01	100.75	107.12	117.60	90.26	107.87	100.00
Rank	2	4	5	7	1	6	3

Source: *International Production Cost Comparison 2001*

Table 4. Total Costs 2003: Ring Yarn, (% of total costs)

	Brazil	China	India	Italy	Korea	Turkey	USA
	($U.S. per kg of yarn)						
Waste	0.19	0.31	0.17	0.23	0.22	0.22	0.17
	(7%)	(11%)	(7%)	(6%)	(8%)	(8%)	(6%)
Labor	0.06	0.04	0.05	0.85	0.21	0.13	0.55
	(2%)	(2%)	(2%)	(24%)	(8%)	(4%)	(19%)
Power	0.11	0.23	0.30	0.37	0.17	0.25	0.16
	(4%)	(8%)	(12%)	(10%)	(6%)	(9%)	(6%)
Auxiliary material	0.11	0.11	0.11	0.12	0.11	0.11	0.12
	(4%)	(4%)	(5%)	(3%)	(4%)	(4%)	(4%)
Capital	0.84	0.39	0.57	0.60	0.57	0.73	0.60
	(32%)	(14%)	(23%)	(17%)	(21%)	(26%)	(21%)
Raw Material	1.30	1.68	1.25	1.42	1.41	1.41	1.26
	(50%)	(61%)	(51%)	(40%)	(53%)	(49%)	(44%)
Total Yarn Costs	2.61	2.76	2.45	3.59	2.68	2.85	2.86
% of US Price	91.26	96.50	85.66	125.52	93.71	99.65	100.00
Rank	2	4	1	7	3	5	6

Source: *International Production Cost Comparison 2003*
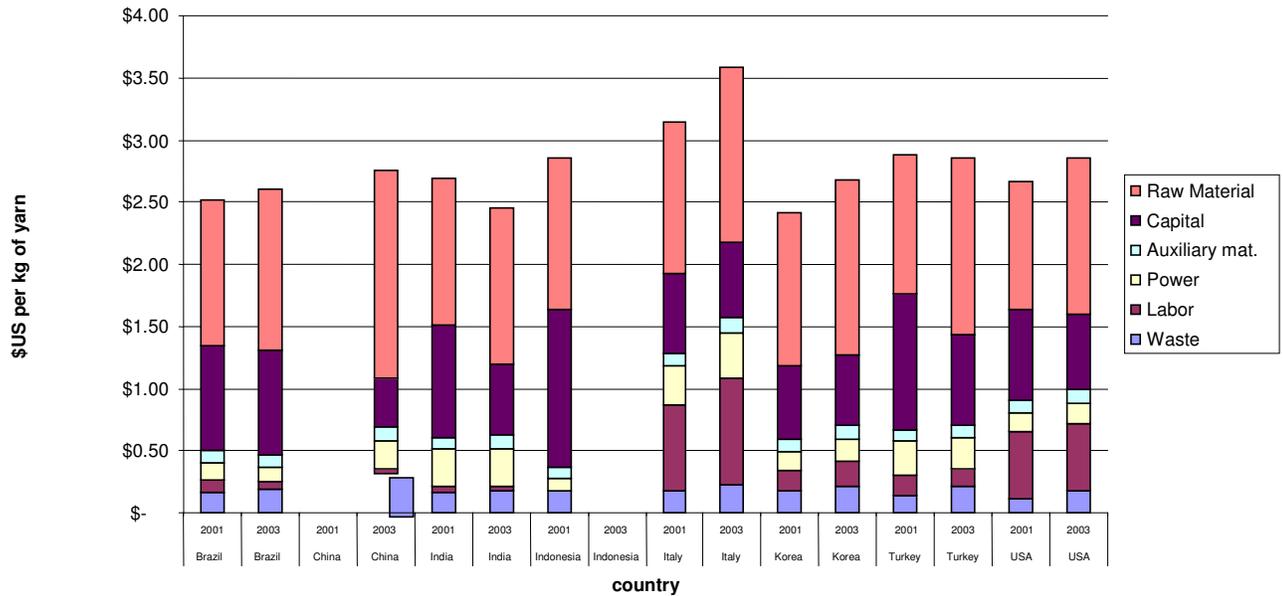
Figure 4. Total Costs 2001 and 2003: Ring Spun Yarn

Source: *International Production Cost Comparison 2001* and *International Production Cost Comparison 2003*.

parts, lubricants, cleaning materials, maintenance work, etc.) are virtually the same for

each country. Capital costs (depreciation and interest) are lowest in China and Italy

followed by Korea and the U.S. The U.S. enjoys a substantial advantage in the

procurement costs of cotton over each competitor except India. Given that an average 50

percent of the cost of producing ring spun yarn is associated with raw materials, this

results in the U.S. becoming much more competitive. Again, India is the producing

nation with the lowest overall costs (2.45), then Brazil (2.61), Korea (2.68), China (2.76),

Turkey (2.85), the U.S. (2.86), and Italy (3.59).

The result of this analysis shows that, according to the most recent information available, the cost of producing ring spun yarn in the United States is 15% higher than India, 9% higher than Brazil, 6% higher than Korea, 3% higher than China, virtually the same as Turkey, and 25% lower than Italy. It would appear that U.S. producers of ring spun cotton yarn have costs of production which are only marginally higher than those of its international rivals. In comparison with Chinese producers, the U.S. is shown to possess a competitive advantage in terms of costs associated with waste and raw material procurement that practically offset China's advantage of lower labor and capital costs. It should be noted that the costs surveyed for this comparison are for a single, specific yarn production process. Other processes may result in different results than those of this study. It would also be beneficial to have more years of information regarding COP for cotton yarn. This would allow a more complete evaluation of trends that may be present in the costs of producing yarns or whether elements of these manufacturing costs represent anomalies. However, in light of these limitations and based on these results, if the United States is losing trade to Chinese producers, it may be due to factors other than those that relate to the recovery of the costs of production. This may suggest that yarn products are being offered for sale at below the costs of production.

<div align="center">Shipping Efficiencies of Cotton and Yarn</div>

The United States has become the world's largest exporter of raw cotton, supplying the raw material for textile producers around the world. However, cotton, as the raw material for ring spun yarn, has an estimated waste component of 18% (Simonton, 2003). While some of this waste is recoverable, a cost must still be incurred

with its shipment as a component of raw cotton. Yarn, the product of the initial phase of cotton processing for textiles, is virtually 100% useable and thus incurs no expense as regards the cost of transporting a waste component.

The question arises as to the efficiency gained in the shipment of yarn as opposed to raw cotton. To gauge the relative efficiency of shipping each product, a comparison is made between the cost of shipping raw cotton and cotton yarn to the largest overseas importers of U.S. upland cotton. Mexico, the single largest importer of U.S. upland cotton, is not included in this comparison as it has an inherent advantage in transportation of products due to its geographic proximity to the United States. This analysis will include the next five largest importers of U.S. cotton for the 2003 marketing year: China, Turkey, Indonesia, Thailand, and Taiwan (U.S. Export Sales). The cost of transporting the waste component of cotton in the ring spinning process was calculated to demonstrate the amount this adds to the cost of production of ring spun yarn for the textile manufacturer who utilizes imported cotton. Conversely, this would represent a cost savings to the manufacturer who can rely on domestic supplies of raw materials.

The shipping costs used for this analysis are for average container rates for 19.5 kiloton dry, forty foot containers published by USDA (Ocean Rate Bulletin), with the exception of the rates to Turkey which were obtained by a private industry source. No differential for freight rates between raw cotton and cotton yarn are used here as the container requirements and capacities for compressed cotton are assumed to be the same as those required for the transportation of cotton yarn. An additional cost of yarn shipping would likely be in the area of cargo insurance since the value per container

would be higher for yarn as opposed to raw cotton, but this difference is not used for these calculations.

Table 5 reports the results of these calculations. Shipping costs add from between $14 and $29 per bale to the cost of imported cotton and the shipping cost of waste in terms of costs per bale ranges from $2.40 to $4.97. In additional costs per kilogram of yarn, the shipment of the waste component of raw cotton adds from $0.0134 to $0.0278 to the cost of ring spun yarn production for the overseas manufacturer who must rely on imports of raw materials.

Table 5. Shipping Costs of Cotton Waste for Ring Spun Yarn

	China	Turkey	Indonesia	Thailand	Taiwan
2003 cotton imports (1000 bales)	1758.5	1452.2	747.3	529.3	465.3
Ocean freight container rate ($US)	$2282.00	$1194.00	$1897.00	$2470.00	$1985.00
Shipping cost per bale ($US)	$26.85	$14.05	$22.32	$29.06	$23.35
Shipping cost of waste per bale($US)	$4.60	$2.40	$3.82	$4.97	$4.00
Shipping cost of waste to the importer ($US per kilogram of yarn)	$0.0257	$0.0134	$0.0214	$0.0278	$0.0223

As an example, for a yarn producer in Indonesia who receives a price of $1.90 per kilogram of 20-count yarn (Table 1), the shipment of the waste component associated with raw cotton adds $.0214 to the cost of yarn production (Table 4), an increase of approximately 1.13%. From this perspective alone, an apparel manufacturer operating in Indonesia would save 1.13% in its cost of production by utilizing imported yarn from the United States rather than imported U.S. cotton which must be transformed into yarn. These calculations are applicable only for the waste component of ring spinning and do

not consider the cost of waste which would continue to be incurred in latter stages of the textile production process.

<div align="center">Conclusions</div>

The purpose of comparing measures of competitiveness is to reveal, from an international perspective, the competitive advantage one nation may have over others in the production of textile products. The importance of this issue stems not only from the current financial stress of U.S. producers, but also from mounting international pressure to eliminate trade barriers of all types. In such a dynamic economic environment, measures of a nation's competitive position are of increasing importance. The measures of competitiveness identified above provide empirical and quantifiable insight as to the competitive status of U.S. yarn producers who must compete in a global marketplace. The tools of this analysis are not without limitations, but do allow for some conclusions to be drawn as to the challenges facing the U.S. textile industry as it continues on its journey into a new competitive landscape.

As is evident from the information presented here, the United States fails to make the grade in several categories but by margins which are narrow in most cases and narrowing in others. The measure which shows the poorest and non-improving competitive position of U.S. yarn manufacturers is the Revealed Comparative Advantage. This index indicates that the United States is lagging behind China, India, Turkey, and Pakistan in terms of market share in exports of yarn, fabric, etc. However, this situation may be indicative of a broader problem associated with the global market share of all U.S. manufactured exports. Additionally, the elimination of trade barriers may further

erode the competitive ability of U.S. textile producers to the degree that trade is

constrained by quotas and tariffs under the Multi Fibre Arrangement (MFA). Without the

insulation from competition by protectionist barriers (with the expiration of MFA in

January 2005), a truer picture of the relative competitive advantage of the U.S. textile

manufacturer should emerge.

Price-based measurements of competition, PE, show that the price of U.S.

produced yarn is such that it is profitable for overseas producers to export here, absent

tariff and quota restrictions. However, yarn price declines over the past three years have

reduced the amount by which these producers have a competitive advantage over United

States producers. This disadvantageous price equivalency is based upon the fact that the

U.S. price for cotton yarn is approximately 30% higher than that of its major rivals even

though its costs of production are shown to be on a par with major competitors. As the

global trade of textile products has grown in an increasingly free trade environment, it

seems unlikely that these price discrepancies will persist absent some form of trade

restriction.

In terms of cost of production, the United States is only marginally higher than

producers who are generally regarded as possessive of advantages in manufacturing for

which we cannot compete, namely the cost of labor. While our conclusions are

constrained by limited time periods of analysis, the U.S. has advantages in other areas

which offset most of the advantage gained by cheap labor in competitor countries.

This study does show a competitive advantage for the U.S. textile producer in the

area of raw material procurement. This advantage will be of increasing consequence as

the gap between the U.S. and international rivals in the areas of cost of production and yarn price continues to narrow. The cost savings associated with the shipment of yarn over raw cotton are especially significant for competitors with costs of production that are virtually equivalent.

As such, the U.S. cotton textile industry is faced with an uncertain future. Some would suggest that the pragmatic thing to do in light of current events is to let the industry go (Stanford, 2000). However, others feel the competitive playing field is only temporarily skewed to favor foreign producers and that the domestic textile industry can respond if given adequate resources and support (May, 2003). The foregoing analysis of competition in the textile industry indicates that certain sectors of this industry in the United States are competitive with international rivals. If these competitive sectors can be sustained as trade barriers fall, they may be leveraged for competitive advantage and provide a future for U.S. manufacturers. In areas where U.S. producers are not competitive, trends indicated in this paper indicate that the relative competitive disadvantage of U.S. producers is declining. Longer term studies with updated data will be necessary to confirm the findings presented here. The intent of this paper has been to inform the discussion of the competitive state of the U.S. textile industry. Hopefully, it has provided some insight into a dynamic and evolving competitive situation.

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Appendix

Table A.1. Export data for all manufactured goods, trade value, $U.S. million
Selected Classification: SITC Rev.3
Selected Commodities: 6 (Manufactured Goods)
Selected Reporters: all
Selected Years: 1989-2001
Selected Partners: all
Selected Trade Flows: Export

	World	China	India	Pakistan	USA	Turkey
1989	$349,743		$6,440		$27,243	$3,385
1990	$382,667		$6,364	$3,018	$33,698	$3,833
1991	$352,829		$6,415	$3,516	$37,778	$3,705
1992	$428,683	$16,135		$3,886	$38,173	$4,139
1993	$548,793	$16,392	$8,873	$3,793	$39,161	$4,466
1994	$625,276	$23,218	$10,508		$43,995	$5,661
1995	$774,868	$32,240	$12,121	$4,577	$53,463	$6,217
1996	$771,608	$28,498	$12,266	$5,245	$55,763	$6,538
1997	$800,968	$34,433	$13,147	$4,902	$62,277	$7,796
1998	$787,059	$32,477	$12,418	$4,557	$61,804	$7,767
1999	$775,754	$33,262	$15,215	$4,491	$62,157	$7,588
2000	$842,201	$42,546	$17,262	$4,820	$71,990	$8,146
2001	$787,717	$43,813		$4,857	$66,658	$9,453

Source: United Nations Statistics Division-Comtrade Database

Table A.2. Export data for textile yarn, fabric, etc., trade value $U.S. million
Selected Classification: SITC Rev.3
Selected Commodities: 65 (Textile yarns, fabric, etc.)
Selected Reporters: all
Selected Years: 1989-2001
Selected Partners: all
Selected Trade Flows: Export

	World	China	India	Pakistan	USA	Turkey
1989	$57,599		$1,947		$3,897	$1,331
1990	$68,477		$2,180	$2,663	$5,039	$1,440
1991	$64,926		$2,530	$3,200	$5,610	$1,429
1992	$96,475	$8,583		$3,590	$5,889	$1,619
1993	$118,032	$8,699	$2,917	$3,507	$6,025	$1,592
1994	$132,268	$11,818	$3,829		$6,592	$2,194
1995	$157,374	$13,918	$4,358	$4,256	$7,372	$2,527
1996	$158,424	$12,112	$4,936	$4,919	$8,008	$2,722
1997	$164,565	$13,828	$5,242	$4,608	$9,187	$3,352
1998	$156,789	$12,817	$4,558	$4,302	$9,205	$3,549
1999	$151,817	$13,043	$5,087	$4,258	$9,504	$3,478
2000	$159,494	$16,135	$5,998	$4,532	$10,952	$3,672
2001	$146,707	$16,825		$4,525	$10,473	$3,943

Source: United Nations Statistics Division-Comtrade Database

Table A.3. Calculated RCA Indices.

	China	India	Pakistan	USA	Turkey
1989		184		87	239
1990		191	493	84	210
1991		214	495	81	210
1992	236		411	69	174
1993	247	153	430	72	166
1994	241	172		71	183
1995	213	177	458	68	200
1996	207	196	457	70	203
1997	195	194	458	72	209
1998	198	184	474	75	229
1999	200	171	484	78	234
2000	200	183	496	81	238
2001	206		500	84	224

Table A.4. Cotton Yarn Prices, 20-count, $US per kilogram.

	Pakistan	India	US	Turkey	Indonesia
2001					
Jan	$1.78	$1.62	$3.38	$2.21	$2.09
Feb	$1.72	$1.58	$3.38	$2.21	$1.97
Mar	$1.82	$1.58	$3.38	$2.17	$2.01
Apr	$1.78	$1.55	$3.38	$2.17	$2.05
May	$1.78	$1.51	$3.38	$2.17	$1.97
Jun	$1.78	$1.51	$3.03	$2.17	$1.97
Jul	$1.78	$1.49	$2.81	$2.17	$1.90
Aug	$1.78	$1.47	$2.71	$2.17	$1.92
Sep	$1.58	$1.47	$2.71	$2.17	$1.74
Oct	$1.39	$1.43	$2.68	$2.21	$1.74
Nov	$1.31	$1.39	$2.68	$2.21	$1.64
Dec	$1.39	$1.39	$2.64	$2.21	$1.64
2002					
Jan	$1.27	$1.35	$2.71	$2.21	$1.64
Feb	$1.19	$1.19	$2.64	$2.21	$1.70
Mar	$1.16	$1.16	$2.71	$2.21	$1.66
Apr	$1.55	$1.14	$2.75	$2.21	$1.70
May	$1.64	$1.18	$2.79	$2.21	$1.70
Jun	$1.68	$1.19	$2.82	$2.21	$1.71
Jul	$1.68	$1.23	$2.84	$2.21	$1.76
Aug	$1.68	$1.31	$2.84	$2.26	$1.76
Sep	$1.61	$1.47	$2.79	$2.26	$1.74
Oct	$1.52	$1.51	$2.78	$2.26	$1.74
Nov	$1.46	$1.53	$2.78	$2.18	$1.73
Dec	$1.52	$1.53	$2.69	$2.22	$1.73
2003					
Jan	$1.61	$1.54	$2.67	$2.22	$1.73
Feb	$1.63	$1.63	$2.69	$2.22	$2.01
Mar	$1.96	$1.78	$2.74	$2.35	$2.07
Apr	$1.90	$1.84	$2.74	$2.40	$2.07
May	$1.90	$1.84	$2.70	$2.38	$2.01
Jun	$1.72	$1.90	$2.79	$2.40	$1.96
Jul	$1.68	$1.92	$2.70	$2.40	$1.96
Aug	$1.72	$1.82	$2.70	$2.40	$1.90

Source: *Cotton Outlook*

Table A.5. Cotton Yarn Prices, 30-count, $US per kilogram.

	Pakistan	India	US	Turkey	Indonesia
2001					
Jan	$2.13	$2.08	$3.84	$2.40	$2.25
Feb	$2.08	$2.08	$3.84	$2.40	$2.13
Mar	$2.17	$2.08	$3.84	$2.38	$2.17
Apr	$2.13	$2.04	$3.84	$2.38	$2.21
May	$2.13	$2.00	$3.84	$2.38	$2.13
Jun	$2.13	$2.04	$3.39	$2.38	$2.13
Jul	$2.13	$2.00	$3.10	$2.38	$2.04
Aug	$2.04	$1.92	$3.02	$2.38	$2.08
Sep	$1.96	$1.92	$3.02	$2.38	$1.90
Oct	$1.90	$1.83	$2.98	$2.35	$1.90
Nov	$1.77	$1.71	$3.02	$2.35	$1.79
Dec	$1.71	$1.71	$3.02	$2.35	$1.79
2002					
Jan	$1.71	$1.63	$3.14	$2.35	$1.79
Feb	$1.63	$1.58	$3.02	$2.35	$1.85
Mar	$1.92	$1.52	$3.01	$2.35	$1.83
Apr	$2.17	$1.52	$3.14	$2.35	$1.87
May	$2.20	$1.53	$3.24	$2.35	$1.87
Jun	$2.18	$1.53	$3.24	$2.35	$1.87
Jul	$2.22	$1.58	$3.27	$2.35	$1.93
Aug	$2.22	$1.66	$3.27	$2.40	$1.93
Sep	$2.04	$1.82	$3.20	$2.40	$1.90
Oct	$2.02	$1.86	$3.19	$2.40	$1.90
Nov	$2.01	$1.88	$3.19	$2.31	$1.88
Dec	$1.96	$1.89	$3.09	$2.35	$1.88
2003					
Jan	$2.00	$1.91	$3.09	$2.37	$1.88
Feb	$2.03	$2.03	$3.10	$2.37	$2.12
Mar	$2.31	$2.14	$3.11	$2.40	$2.23
Apr	$2.46	$2.20	$3.11	$2.50	$2.20
May	$2.40	$2.22	$3.12	$2.47	$2.12
Jun	$2.23	$2.16	$3.15	$2.45	$2.12
Jul	$2.18	$2.18	$3.20	$2.45	$2.01
Aug	$2.18	$2.04	$3.20	$2.45	$1.98

Source: *Cotton Outlook*

Table A.6. Exchange Rate History, Real Values, National Currency per US Currency

Date	Pakistan Rupee per $US	India Rupee per $US	Turkey Lira per $US 100	Indonesia Rupiah per 1/100 $US
Jan-01	58.86	46.91	57.98	91.36
Feb-01	59.71	47.26	64.67	92.71
Mar-01	60.45	47.27	77.05	96.88
Apr-01	61.00	47.30	88.10	106.36
May-01	62.37	47.33	79.26	106.14
Jun-01	64.07	46.92	82.48	105.38
Jul-01	64.24	46.29	87.47	97.37
Aug-01	63.77	45.97	90.00	80.46
Sep-01	64.00	46.79	89.75	84.60
Oct-01	61.98	47.20	91.84	91.07
Nov-01	60.51	46.21	83.39	93.44
Dec-01	60.01	46.25	76.82	91.21
Jan-02	59.95	46.92	68.81	88.29
Feb-02	59.52	47.59	67.36	86.16
Mar-02	58.95	47.69	66.92	83.53
Apr-02	59.07	48.05	64.09	80.25
May-02	59.58	47.81	67.43	76.86
Jun-02	59.23	47.42	73.48	73.88
Jul-02	58.48	46.76	78.54	75.31
Aug-02	58.07	46.42	76.34	74.79
Sep-02	57.82	46.29	74.41	74.90
Oct-02	57.73	46.14	72.34	76.55
Nov-02	57.32	45.94	68.28	74.06
Dec-02	57.17	46.08	66.33	71.86
Jan-03	57.05	46.18	67.85	71.09
Feb-03	57.02	46.22	65.55	71.56
Mar-03	57.20	46.19	65.40	72.45
Apr-03	56.74	45.22	62.40	71.07
May-03	56.80	44.82	56.53	67.73
Jun-03	56.95	44.23	53.88	66.37
Jul-03	56.55	43.78	54.02	65.43
Aug-03	56.41	43.62	52.61	66.54
Sep-03	56.40	43.54	51.64	65.94
Oct-03	55.39	42.73	52.91	65.54
Nov-03	54.62	42.66	53.54	65.27
Dec-03	54.51	42.72	51.92	65.04

Source: ERS

Table A.7. Shipping rates, from foreign port to port of Los Angeles.

	Evergreen	Maersk-Sealand	K-Line	kilograms	shipping/kg
Turkey		$3,592.79		19500	$0.18
India	$5,759.00			19500	$0.30
Indonesia	$4,959.00		$3,950.00	19500	$0.25
Pakistan	$5,759.00			19500	$0.30

Source: Online response from various shipping companies.

Figure A.1. Exchange Rate History, Real Values

National Currency per US Currency
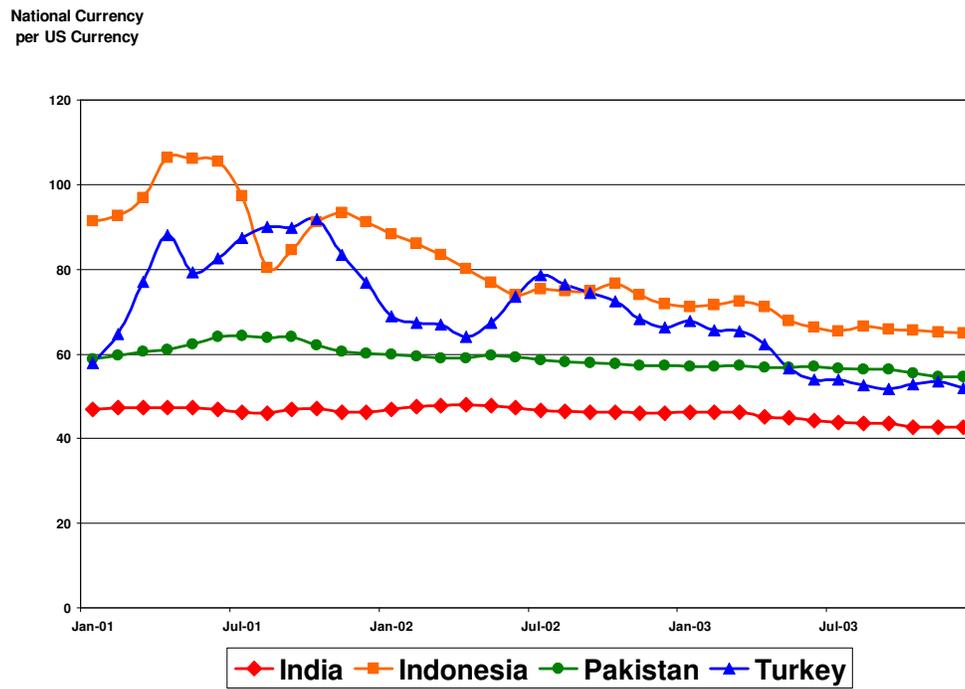
Source: ERS

CHAPTER II

BUSINESS MODELS FOR COMPETITIVE SUCCESS

IN THE UNITED STATES TEXTILE INDUSTRY

> *The essence of formulating competitive strategy is relating a company to its environment. ...the best strategy for a given firm is ultimately a unique construction reflecting its particular circumstances.*
> --Michael Porter (*Competitive Strategy*, p. 3)

Introduction

Competition in mature industries is characterized by its intensity, even to the

point of being considered cutthroat. If this type of competition can be defined by such

factors as subnormal earnings over a considerable period of time, excess capacity, a

lowered pricing structure, and significant import penetration (Reynolds, 1940), then the

current industrial environment for U.S. textile manufacturers certainly fits this

description. While firms competing in declining industries may face particular

challenges as to the nature of competition and the availability of strategic alternatives, the

literature of strategic management suggests that even in declining industries,

opportunities exist for high financial returns given the selection of appropriate strategies

(Hamermesh and Silk, 1979; Porter, 1980).

A fundamental purpose of strategic management is to develop a comprehensive

blue print of business activity as well as a format by which business success might be

measured. The primary objective of the firm is superior financial performance via a

competitive advantage in the marketplace through the development of distinctive or

unique capabilities (Hunt and Morgan, 1995). The business model of the firm is how the

firm is organized to develop this competitive capability (Best, 2001). In the context of

strategic management, the business model may be described as the combination of firm

level structures and strategies appropriate for a given industrial environment. As

misalignment between structure and strategy is recognized, the strategic plan may need to

be revised to account for unanticipated developments or dynamic economic conditions.

Strategic management then, might be described as the managerial equivalent of the

scientific method—one starts with a hypothesis, which is tested in action, and revised as

necessary (Magretta, 2002). By evaluating how the strategic decisions of firms affect

their financial performance, insight may be gained as to the "best management practices"

for firms in specific economic environments.

The problem of strategic choice in declining industries has not been a topic of

considerable research. Writing in 1979, Hamermesh and Silk note:

> Despite the increasing need for competent management in stagnant industries, little research has
> been conducted on what strategies make the most sense in such industries (p. 161).

Harrigan (2003) suggests that not much has changed. "Strategy research has not devoted

much attention to the problems of declining industries" (p. 2) even though "[t]here may

be several strategies appropriate for firms facing an environment of significantly

declining demand" (p.13). The purpose of the present paper is to evaluate firm business

models in a declining industry in order to relate these to their respective financial

outcomes. These business models will be distinguished by the firm level structures,

strategies employed, and the strategic intent of the firm. It will then be possible to

attribute the financial outcomes of individual firms in the industry to their respective

business models. It is hoped that this analysis will identify strategies that are more likely

to produce successful financial outcomes in declining industries.

The focus of this analysis was on the U.S. textile industry. This industry is facing

increasing competition from textile producers overseas, especially Asia, where lower

labor cost is thought to give these foreign producers a substantial competitive advantage

over developed nations where wage rates are much higher. Figure 1 depicts the basic

elements of the textile production process from the beginning phase of raw cotton

processing through the creation of textile products and ultimate end uses such as apparel,

floor coverings, and household furnishings.

Raw Cotton Fiber

Yarn

Textile Products

Fabric
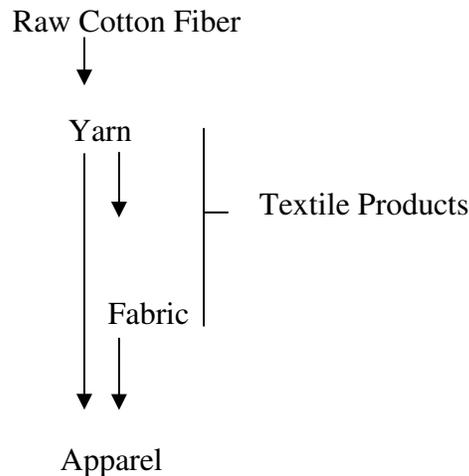
Apparel

Figure 1. Transforming Fiber into Finished Goods
Source: MacDonald (1988)

While relatively higher wage rates in the United States precludes significant long-

term competitive viability in the labor intensive apparel segment of the industry, the same

may not hold for earlier phases of the manufacturing process. The textile product

segment, where cotton bales are initially opened and processed into yarns and fabrics, is

largely capital, not labor, intensive. U.S. manufacturers may yet hold a competitive

advantage in this aspect of the industry given their experience, expertise, and innovation

in the productive process, their close proximity to abundant sources of raw material, and advantages related to a stable and low-cost capital market. There may yet remain opportunities for successful performance in the initial phases of the cotton textile industry.

In this paper, we provide a review of literature that discusses the relationship between firm performance and the structures and strategies by which firms organize themselves to achieve successful performance. This is followed by a section in which the basic elements or factors that are shown to influence performance are analyzed and integrated into a conceptual model. The next section provides a description of the statistical and data collection methods used in this analysis. Following a report of empirical results in the next section, the conclusion draws together implications of the findings for the strategic management discipline and suggests possibilities for future research.

<div align="center">Literature Review</div>

Strategic management deals with the determined goals and courses of action for a specific firm. The role that these goals, methods, and means play in the performance of a firm is the subject of much research in the strategic management discipline. An overview of this literature is provided here to inform our study of strategic choice in declining industries.

Andrews (1980) conceptualizes firm strategy as a "pattern" related to a firm's environment. This pattern represents the interdependence of purposes, policies, and organized action. Opportunities for competitive advantage exist when this pattern

"…crystallizes from the formless reality of a company's environment a set of problems an organization can seize upon and solve" (p. 20).

Firms competing in declining industries may face particular challenges as to the nature of competition and the availability of appropriate strategic alternatives. Hamermesh and Silk (1979) present three common characteristics of business strategies that have succeeded in low-growth or mature industries (see also Porter, 1980):

1. they identify, create, or exploit growth segments within their industries (niche market strategy);

2. they emphasize product quality and innovative product improvement (differentiation strategy); or

3. they systematically and consistently improve the efficiency of their production distribution systems (low cost strategy).

Porter maintains that firms will achieve and sustain competitive advantage only as they focus on one strategy or the other. These strategies require different capabilities and firms which attempt to be all things to all customers will become "stuck in the middle". Performance will suffer for those firms that do not recognize the exclusivity of these strategic options.

Harrigan (2003) bases studies of strategic choice in declining industries (what she calls the 'endgame') on three primary assumptions:

1. There are and have been several business strategies which might be appropriate for coping with declining demand within a particular industry environment.

2. The declining business's industry structural traits define the endgame environment, and hence they influence the selection of strategies which might be appropriate for coping with declining demand.

3. The presence of differences among each industry competitor's perceptions, its strategic needs, and its internal corporate strengths suggest that, within the range of strategy options which might be appropriate for a particular industry endgame, different firms will choose different endgame strategies. (p. 53)

Apt strategies are based on the interaction of industry traits and relative firm competitive strength. Table 1 illustrates the hypothesized relationship between an industry in decline, firm competitive advantage, and strategic choice.

Table 1. Recommended Strategies for a Declining Industry

	Firm possesses relative competitive strength	Firm has relative competitive weakness
Favorable industry traits	"Increase the investment" or "Hold investment level"	"Shrink selectively" or "Milk the investment"
Unfavorable industry traits	"Shrink selectively" or "Milk the investment"	"Get out now"

Source: Harrigan, 2003 (p. 44)

A favorable declining industry is characterized by such factors as the ability to effectively differentiate products to protect them from substitutes, high switching costs, the ability to easily convert assets to other uses, and competition that is considered to lack volatility.

Unfavorable industry traits are those where demand for the product is declining rapidly, substitute products are absolutely lower in costs and switching costs are low, assets are highly industry specific, and competition is volatile as firms compete aggressively for remaining market share.

Following is a brief explanation of each of these strategic alternatives:

1. Increased investment—reinvesting in the declining industry to attain market dominance or to achieve market leadership. This industry commitment may take the form of acquiring competitors or other expansionary tactics.

2. Hold investment level—some reinvestment may be made in the declining industry that allows the firm to compete by employing the same basic competitive tactics while waiting for competition to wane or industry uncertainty to resolve.

3. Shrink selectively—a repositioning strategy which seeks to maintain and even reinvest in niches of industry demand that have continuing profitable prospects while divesting assets in areas that lack such prospects.

4. Milk the investment—a harvest strategy that seeks to retrieve the value of earlier investments and a commitment to depart from the industry as soon as financial or corporate criteria are satisfied.

5. Divest now—stop losses and get out now by selling assets to competitors or ceasing operations before conditions deteriorate further.

Harrigan concludes that a successful firm in a declining industry will craft firm strategy based on its capabilities and strengths relative to rivals and the degree to which competition in the declining industry is favorable or unfavorable as defined above.

Consistent with Harrigan, Ring (2000) points out two important, underlying dimensions of strategic management that are important for the strategic alternatives presented above: (1) strategies are directed at and formed in response to the external environment and (2) strategies are directed inwardly in an effort to "…coalign organizational resources with environmental opportunities and constraints" (p. 91). And it is through appropriate strategic response to the external environment that financial outcomes will be improved. Turning again to Andrews:

> It is the unity, coherence, and internal consistency of a company's strategic decisions that position the company in its environment and give the firm its identity, its power to mobilize its strengths, and its likelihood of success in the marketplace. (p.20)

The dynamic relationship between industrial environment, the business model of a particular firm, and financial performance has been the focus of many researchers in business and economics for a number of years. But a central issue in this research is whether firm performance is more influenced by the industrial environment (as in Industrial Organization theory) or firm level effects (per the theories of Strategic Management). The question raised is whether organizational factors (strategic choices) are the primary determinants of firm performance or do industry effects dominate? Warren Buffet, CEO of Berkshire Hathaway observes:

> When an industry with a reputation for difficult economics meets a manager with a reputation for excellence, it is usually the industry that keeps its reputation intact. (as quoted by Collis and Ghemawat, 2001, p.171)

Buffet's view is consistent with industrial organizational theorists who contend that industry effects, those attributes common to an industry, dominate and explain firm performance over time. The resource-based view holds that firm effects primarily influence performance outcomes. These firm effects are those characteristics that are unique to a firm within an industry.

Different researchers have produced disparate results in their studies of which effect dominates in explaining firm performance: markets or management. Roquebert, Phillips, and Westfall (1995) explain that much of the variation in findings may result from the time period in which data were gathered, differences in estimation methods, and assumptions regarding relevant variables. They, along with the studies cited below, find support in the present economic and competitive environment for the proposition that "…variance within industries is greater than variance across industries" (p. 662). This is

evidence for these authors that strategic management theory has an important role to play in explanations of firm performance.

Rumelt (1991) studies empirical evidence of industry importance and reports that corporate effects account for 0.8 percent of the variation in performance on return on capital, industry effects 8.3 percent, and business unit effects 46.4 percent. Rumelt concludes:

> …by far the most important sources of rents in U.S. manufacturing businesses are due to resources or market positions that are specific to particular business units rather than to corporate resources or to membership in an industry. (p. 182)

McGahan and Porter (1997) find that, while explained variation in firm profitability varies across industries, for U.S. manufacturing, year effects explain 2 percent, industry 11 percent, and business specific effects 35 percent. The conclusions of this analysis support the contention "…that industry effects contribute importantly to variation in business-specific profitability" while "In manufacturing…segment-specific effects account for a relatively high portion of variance" (p. 29).

Mauri and Michaels (1998) examine the influence of industry effects compared to firm effects on firm financial performance and find that while industrial environment influences the development of certain homogenous competitive strategies (especially in research and development and advertising), it is the unique resource endowment of a firm that explains the majority of financial performance. Using return on assets (ROA) as the dependent variable, firm effects account for 30 percent of the variation in a five year study compared to 5 percent industry effects. In the 15 year period of analysis, firm effects explain approximately 19 percent compared to 4 percent industry. Consistent

with the research referenced here, this study focused on the variables which explain the preponderance of organizational performance: firm level strategic choice.

Miller (1988) investigates the structures and environments of undiversified firms to business strategy. The contention of this research is that "…good performers will exhibit significant complementarities of strategy with structure and environment (p. 281) and that a poor match will hurt performance. Porter's generic strategies of *differentiation*, *cost leadership*, and *focus* are tested for appropriateness against various industry environments and organizational structures to reveal positive or negative correlations with successful financial performance. The results of this analysis support the hypothesis that these strategies relate to industry environment. Innovation and differentiation are found to positively correlate to uncertain environments and cost leadership positively correlates to stable, predictable settings. Support is also shown for the relationship between strategy and structure. A strategy of product differentiation is shown to be both predicted and more successful when the structure of the firm is such that scientists and engineers are in a position to exert power and authority in the development of firm policy. Conversely, in such a structure, cost leadership is less likely to be the selected strategy and is less likely to be successful. The selection and success of a cost leadership strategy is supported by an organizational structure based more strongly on the high use of formal controls.

Miller tests three other hypotheses with interesting conclusions. First, that strategy or structure alone, not matched to one another, will not contribute to successful financial performance. In other words, a strategy in the wrong environment or associated

with an inappropriate structure will prevent good performance. Second, that matching

environment and structure, without appropriate strategy, will be insufficient to ensure

successful performance. The third hypothesis tests whether different strategies might be

appropriate in the same environment but in the presence of different structures. This

hypothesis tests for a nonsignificant relationship between environment and structure,

allowing for latitude in strategic choice. All three hypotheses are supported in the models

of this study.

Table 2 presents a summary of Miller's findings as regards the relationship

between firm level strategy, structure, competitive environment, and financial outcome.

Miller concludes that good financial performance depends on a match between

environment and strategy, but that this match is not enough. An appropriate structure

must be present for proper implementation.

Table 2. Relating Porter's Business Strategies to Environment and Structure

Hypothesized relationship	Financial Outcome
Strategy consistent with structure and	Good
Strategy and structure consistent with environment	Good
Strategy inconsistent with structure	Poor
Structure consistent with environment but	Poor
Structure not consistent with strategy	Poor
Strategy consistent with environment but	Poor
Strategy not consistent with structure	Poor

Source: Miller (1988)

This supports the general view in strategic management "…that strategies must be

matched with complementary environments and structures to promote success" (Miller,

p. 280). Relatedly, other researchers have used the environment-organization-

effectiveness paradigm described by Downey and Ireland (1979). The conceptual

framework of this research perspective is presented in Figure 2.

```
┌─────────────────────────┐        ┌──────────────┐   ┌──────────────┐
│                         │   ┌───→│ Competitive  │──→│ Effective    │
│ Perceived Environment   │   │    │ Strategies   │   │ Economic     │
│                         │   │    │              │   │ Performance  │
└─────────────────────────┘   │    └──────────────┘   └──────────────┘
          ┌──────────────┐────┘
          │ Environmental│
          │ Uncertainty  │
          └──────────────┘
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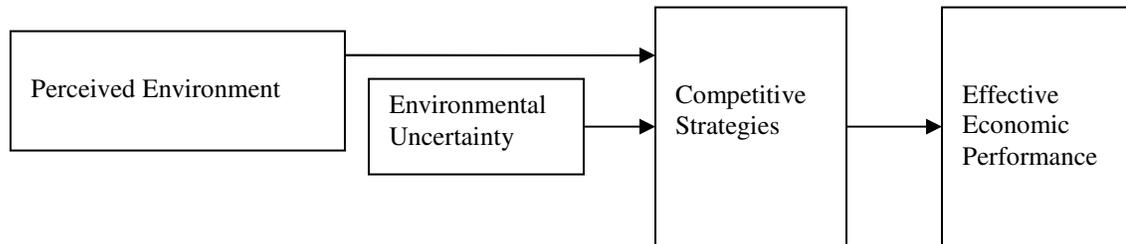
Figure 2. Conceptual Framework of Environment-organization-strategy-effectiveness
            Research
Source: Ring (2000)

How firm strategy and structure influence survival rates in a declining industry is

the focus of research conducted by Filatotchev and Toms (2003). Cotton textile firms in

the United Kingdom from 1950 to 1965 are examined according to the make-up and

diversity of governing boards, organizational diversity, and industry decline. The decline

of the British textile industry became a metaphor for Britain's loss of competitiveness as

an industrial nation. Like the U.S. textile industry today, post-war Britain faced

increasing import penetration, the loss of position in export markets, and issues related to

over capacity.

Data collected for this study included firm specific raw material inputs, product

range, productive equipment, and employment. Firm structure is measured by

Filatotchev and Toms according to corporate governance factors. These include the total

number of shareholders, ownership structure, and such board characteristics as number of

directors on the board and the number of outside directorships held by board members

(referred to as board interlocks). These interlocks represent a measure of managerial competency and professionalism that are important to firm survival.

Surviving firms in this study group tended to be large and produce a wider variety of products from a relatively large number of plants. Firm structure influences survivability in that the survivors have relatively large boards which are significantly more diverse (more interlocks). Filatotchev and Toms conclude that firm survival in declining industries is improved by organizational flexibility and sufficient board diversity to manage varied product operations. Lessons learned from the British experience may serve well their U.S. counterparts as they face similar competitive pressures.

Hatten and Schendel (1977) explore the conduct of firms in an industry undergoing significant structural change and reallocation of market share. In an analysis of thirteen firms in the U.S. brewing industry, they discover how differences in firm outcomes are explained by the strategic decisions of the individual firm within the structure of an evolving industry. This paper utilizes an eight variable model relating profitability to three manufacturing variables (number of plants, newness of plants, and capital intensity), three marketing variables (number of brands, price, and receivables/sales), and two structural variables (firm concentration ratios and firm size). Regression analysis following a clustering procedure (to account for firm heterogeneity within the brewing industry) was used to estimate effects. Significant ($p \leq 0.05$) positive correlation to firm profitability is shown by newness of plants by large firms in a relatively highly concentrated industry. Significant negative correlation is shown at the

industry level for the factors number of plants, capital intensity, number of brands, and receivables/sales. But these industry level results are not consistent for every firm in the study. By grouping the heterogeneous firms in this study into more homogeneous categories, a different conclusion emerges. Larger and richer national firms building new plants tend to be more successful. Smaller and weaker firms which attempt to match the increased spending of their rivals will likely fail. The effects of the above mentioned variables on smaller, regional breweries are mixed. Few variables are significant for these firms and those that are vary in sign from one company to another. This paper reinforces the importance of strategic decisions to firm performance but cautions that industry results may not be applicable to every firm in the study.

From this review, it is possible to construct a blueprint of a firm in a declining industry that is more likely to be successful (see Table 3). Such a firm would be composed of the following characteristics:

Table 3. Competitive Strengths of Firms in Declining Industries

Firm Characteristics	Source
Defined strategic intent	Hamermesh and Silk (1979) and Porter (1980)
Fit between the external environment and organizational structure and competitive strategy,	Miller (1988), Ring (2000), and Harrigan (2003)
Economies of scale	Hatten and Schendel (1977)
Product flexibility	Filatotchev and Toms (2003)
New plant investment	Hatten and Schendel (1977)
Professional, competent management	Filatotchev and Toms (2003)

These identified competitive strengths may now be tested for validity in the context of a framework that relates a firm's competitive environment to its strategic choices with the goal of achieving superior financial performance.

Conceptual Framework

Building upon the research cited and following the organization-environment-effectiveness paradigm suggested by Downey and Ireland, the conceptual framework of this study may be represented as a flow of factors that impact organizational performance (see Figure 3). This model adopts the concepts described in figure 2 and will apply them to the context of a specific industrial environment facing critical strategic challenges. In this model, the relationship between a specific firm's business model and its external environment will impact the financial performance of the firm. Following is a discussion of how each of the three main components of this framework will be integrated and analyzed to better understand the role and impact of each.

```
┌──────────────┐      ┌──────────────┐      ┌──────────────┐
│ External     │─────▶│ Firm specific│─────▶│ Firm         │
│ Environment  │      │ business model│     │ Performance  │
└──────────────┘      └──────────────┘      └──────────────┘
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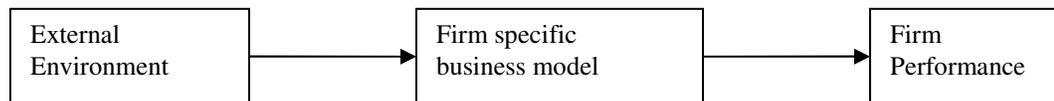
Figure 3. Relationship between Environment, Strategy, and Performance in a Declining Industry

External Environment

A consideration of the external environment pertinent to organizations typically considers two areas of influence (Hitt, Ireland, and Hoskisson, 1999). First is the general environment, composed of those elements in the broader society that influence an

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industry and its composite firms. These elements may include demographics, political and legal structures, technological capabilities, economic forces, and other sociocultural factors. Second, the industry environment is that environment external to the firm that consists of factors that determine the opportunities, threats, and constraints faced by the firm (Pearce and Robinson, 1982). Porter (1980) addresses the influence and impact of this environment in his five forces model which depicts these drivers of industry competition.

Of particular importance to the discussion of relevant environmental factors that impact the firm is a consideration of the life cycle stage of the industry. Life cycle theory is especially useful in analyzing trends in industry environments (Harrigan, 2003). Understanding the evolutionary process in an industry has a significant impact on the formulation of competitive strategy. The life cycle model is based on the hypothesis that an industry passes through the stages illustrated in the model, with industry sales defining the inflection points between the stages.

The basic tenet of this theory, to quote Porter, is that, "As the industry goes through its life cycle, the nature of competition will shift" (p. 158). Thompson and Strickland (1995) discuss appropriate strategies for emerging and rapidly growing industries as well as maturing industries. Competition in the introductory, emergent, high growth stage is based on building demand and acquiring technical know-how. Strategies are focused on acquiring or constructing facilities, gearing up production, broadening distribution, and gaining customer acceptance. As growth slows and the industry matures, strategies become focused on meeting more competition from rivals seeking to

take away customers, buyers becoming more sophisticated and price conscious, greater

emphasis on cost and service, less product innovation, and increasing foreign

competition.

Competition in the maturing phase of industry evolution is typified by stagnant or

declining demand (Hamermesh and Silk, 1979 and Harrigan and Porter, 1983), increasing

competition as market share can only be gained at the expense of others (Hamermesh and

Silk, 1979), and fierce price warfare due to exit barriers, falling sales and over-capacity

(Harrigan and Porter, 1983). Figure 4 provides empirical evidence of life cycle theory in

the U.S. textile industry. By measuring dollar value of sales over time for cotton yarn,

this industry shows many of the characteristic described above: building, rapidly rising

demand, slower growth, leveling off, and decline (see Appendix Table A.1. for complete

statistics).
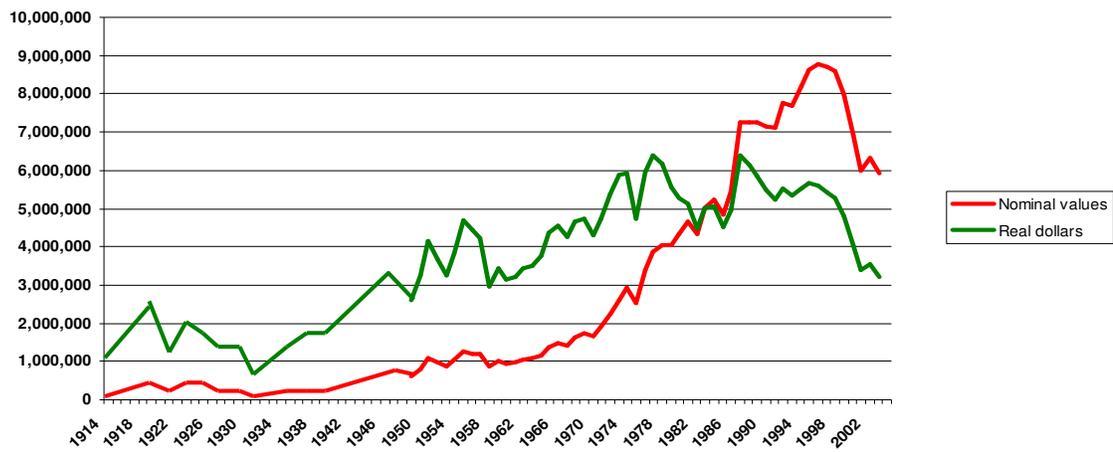
Figure 4. Value of Product Shipments of Cotton Yarn, U.S. Textile Manufacturers,
    (US$1,000)

The reference to life cycle theory presented here is not meant to indicate that industry or organizational change is predestined. Stubbart and Smalley (1999) caution that stage models often portray change as unidirectional and deterministic and "…moving along fixed paths through an invariant sequence of conditions" (p. 275). They contend that such characterizations present several limitations of stage models, as they tend toward:

- diverting research attention away from the environmental context;
- downplaying the role of human agency, initiative, originality, and innovation in strategic choice;
- highlighting universal experiences at the expense of different experiences between subjects;
- ignoring inconvenient historical facts, contingencies, and random events (p. 281).

The research intent here is to highlight, not downplay, the role of strategic choice. As such, the portrayal of the organizational life cycle by Baliga and Hunt (1988) may be more appropriate (see Figure 5). This conceptualization of life cycle theory captures the essence of organizational development over time as a response to external and internal forces. This model adds the dimension and possibility of organizational revitalization to the fourth stage, previously described only according to firm or industry decline.

This model indicates that stages are not "…rigidly programmed and infallibly predictable" (Stubbart and Smalley, p. 282). Rather, consistent with much of the literature of strategic management, this model emphasizes the role of context and managerial initiative. The value of this model, according to Hunt, is the importance for organizational leaders to recognize where there organization is and where it is expected to be in terms of the phases of the life cycle. This applies especially to the revitalization/death stage. This stage calls for

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> … dramatic change in the content of the critical tasks as compared to the earlier maturity stage. Carried out one way, the tasks can lead to revitalization; carried out another, they can lead to the demise of the organization. (Hunt, pp. 90-91)

In the context of this work, life cycle theory is intended to highlight the interaction between organization and environment, between human volition and environmental forces. The path of the organization is not predetermined and organizational leadership can create conditions that facilitate transformation, survival, and growth.
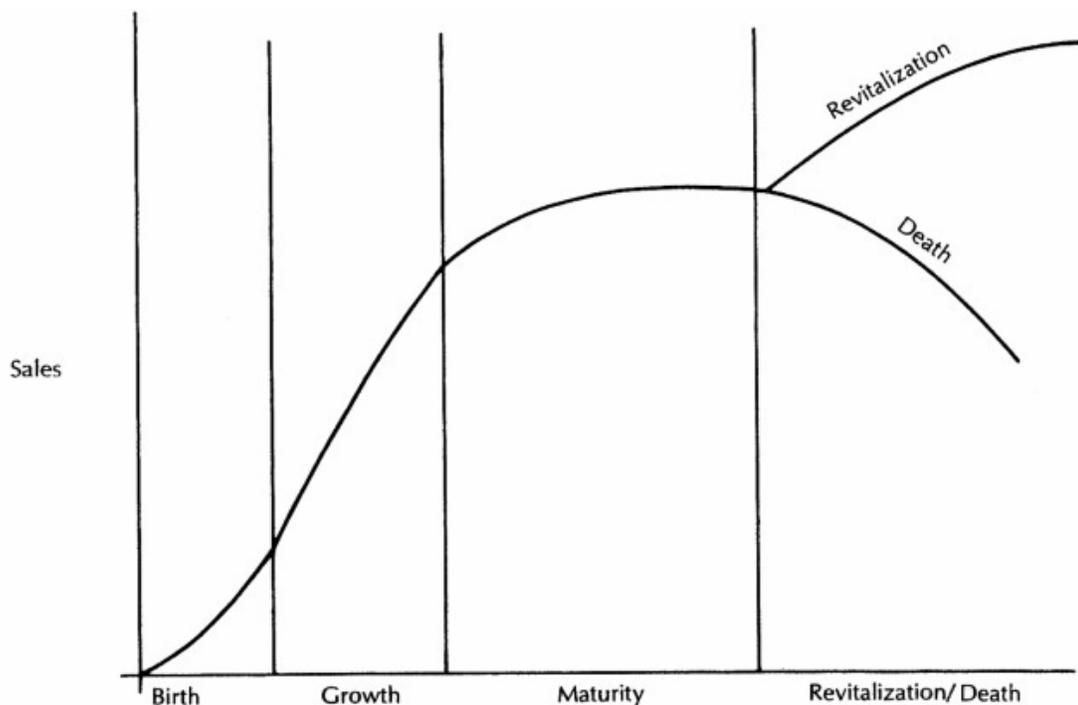
Figure 5. The organizational life cycle.
Source: Baliga and Hunt (1988), p. 131

In the context of this work, life cycle theory is intended to highlight the interaction between organization and environment, between human volition and environmental forces. The path of the organization is not predetermined and

organizational leadership can create conditions that facilitate transformation, survival, and growth.

To reference again Porter's work on competitive forces, the industry environment significantly impacts strategic management. The forces he describes drive competition in a given industry and a company must understand how these affect its situation in order to survive.

> Knowledge of these underlying sources of competitive pressure highlights the critical strengths and weaknesses of the company, animates its positioning in its industry, clarifies the areas where strategic changes may yield the greatest payoff, and highlights the areas where industry trends promise to hold the greatest significance as either opportunities or threats. (Porter, 1980, p. 4)

This study is predicated on the linkage between the remote industrial environment, which defines the competitive landscape, and the operating environment of the firm, where strategic plans are made and implemented in response to these conditions.

Business Models

As defined earlier, a firm's business model may be described as the combination of firm level structures and strategies appropriate for a given industrial environment which impact financial returns. In the context of the framework of Figure 2, a firm's strategic choice of business model construction is designed to position it in response to a changing environment (Toft, 2000) or in the words of Schendel and Hofer (1979), provide "…the essential linkage between the firm and its environment" (p. 9). However, contextual factors such as the external environment do not serve as the sole determinants of firm structure and strategy. Following Child (1972), this model accentuates the role of "…the agency of choice by whoever [may] have the power to direct the organization" (p. 2). Organizational decision makers design business models in the expectation that

strategic choices have consequences for performance. Chandler's (1962) definition of

strategy provides the groundwork for this element of the conceptual framework:

> *Strategy* can be defined as the determination of the basic long-term goals and objectives of an
> enterprise, and the adoption of courses of action and the allocation of resources necessary for carrying
> out these goals. (p. 13, italics in original)

Our definition of business models as a product of individual choice in response to

changing environmental constraints implies the dynamism of the construct. Andrews

suggests that strategy, and by extension, a firm's business model, are "…not as a concept

complete and static but as an organizational process forever in motion, never ending" (p.

162). Strategy formulation is a "process of organization" comprised of recognizing and

reconciling uncertain environmental opportunities, clarifying corporate capabilities,

allocating scarce resources, accounting for personal values, and allowing emerging

aspirations to social responsibility (p. 163).

In his study of competitive strategy, Porter (1985) contends that a firm is

successful as it is able to deliver value for a customer in one of two ways: "…offering

lower prices than competitors for equivalent benefits or providing unique benefits that

more than offset a higher price" (p. 3). Concentration on one of these two generic

strategies (low cost or differentiation) is crucial to a firm's ability to achieve a

competitive advantage. But strategic selection is not enough. Successful performance

depends on successful implementation and this depends on a firm's capabilities to carry

out its strategic intent while matched to its environmental context.

For Prahalad and Hamel (1990), strategic choice should enable a firm to

consolidate "…technologies and production skills into *competencies* that empower

individual businesses to adapt quickly to changing opportunities" (p. 81). They go on to

define a firm's core competence as doing something well in comparison to competitors

that is especially difficult to copy and that makes an important competitive difference.

The development of core competencies is a key source of competitive advantage. The

alignment of strategy and competence is about "…harmonizing streams of technology, it

is also about the organization of work and the delivery of value" (p. 82). We expect to

find that those firms that are able to align or fit their strategies with their firm's

competencies will be more likely to achieve sustainable competitive advantage and hence

superior financial performance.

Prahalad and Hamel assert that to succeed in global competition, firms must

identify, cultivate, and exploit the core competencies that make success possible. In the

words of Child (1972), we are "…concerned with the role of strategic choice as a

necessary element in any adequate theory of organizational structure" (pp. 18-19). In

such a theory "…contextual variables only represent limited exigencies" (p. 16).

"…[S]trategic choice is the critical variable in a theory of organizations" (p. 15). How a

firm chooses to operationalize this strategic choice is its business model.

Firm Performance

As Venkatraman and Ramanujam observe, "…performance improvement is at the

heart of strategic management" (p. 801). Explaining variation in firm performance or

effectiveness is often the focus of

> …research that seeks to understand competitive survival and to construct interpretations of
> organizational histories that emphasize the adaptation of organizations to feedback from their
> environments. (March and Sutton, p. 698)

While business firms are often compared in terms of economic performance (profits, sales, market share, productivity, debt ratios, stock prices, etc.), these figures represent only one component of organizational performance. Following Cameron, to be successful in empirically estimating relationships between business models and the environment, it is important to conceptually "…delineate the differences between high quality (effective) performance and poor quality (ineffective) performance" (p. 540).

A classificatory scheme for measuring firm performance is offered by Venkatraman and Ramanujam (see Figure 6). This model suggests that the domain of the performance construct exists on three levels: 1) financial performance, 2) financial and operational performance, and 3) organizational effectiveness.

Domain of financial performance

Domain of financial and operational performance

Domain of organizational effectiveness
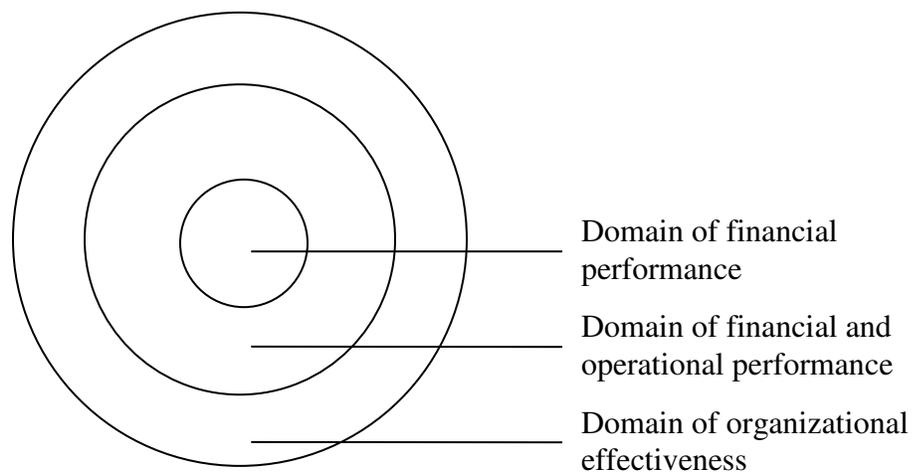
Figure 6. Conceptual Domain of Business Performance.
Source: Venkatraman and Ramanujam (1986), p. 803

Financial Performance

Financial performance represents the most narrow conception of business
performance. Such financial indicators as sales growth, profitability ratios, earnings per
share, etc. reflect an achievement of or provide a comparison between the economic goals
of firms. These would include both accounting measures and, what are generally
considered more relevant, value-based measures. This approach is oriented to financial
statistics and focuses only on the financial goals of the firm. Hawawini, Subramaniam,
and Verdin (2003) point out some of the conceptual shortcomings of the strict financial
approach in the measurement of firm performance. Their primary concern is that an
examination of the drivers of financial ratios may not be equivalent to an examination of
the drivers of value creation. Well cited measures such as return on total assets (ROA),
even if quoted at replacement value rather than accounting cost, do not measure cash
flows, relate returns to risk, and do not provide any information on past economic
profitability or the prospects of the firm's future profitability. Additionally, different
firms may employ alternative, but equally acceptable, methods of calculating and
tracking accounting measures. Dess and Robinson add to this discussion the difficulty of
access to any reliable financial data in the case of privately held firms.

Financial and Operational Performance

A broader concept of performance includes nonfinancial indicators in addition to
financial indicators. This allows an introduction of such additional measures as market
share, new product introduction, product quality, manufacturing value-added and
technological efficiency. These indicators may provide additional insight into "…key

operational success factors that might *lead* to financial performance" (Venkatraman and Ramanujam, p. 804, italics in original).

Organizational Effectiveness

A broader conceptualization of firm performance yet is organizational effectiveness. This construct encompasses the previous two and adds to the discourse perspectives of goal attainment, strategic systems, strategic constituencies, and competing values (Hunt). This domain is not only more complex (in terms of measurement and analysis) but considers intra-organizational perspectives that are often competing and/or contradictory. This level of analysis does not assume that there is one best criterion for organizational effectiveness and recognizes that it is often difficult to get agreement on goal priority. The construct of organizational effectiveness allows that goals are chosen as a function of individual values, preferences, and interests, and that conflicts may arise within organizations when ends and means are incongruent (for a more complete description of this topic, see Hunt, 1991 pp. 91-96).

Organizational Effectiveness Operationalized

Cameron concludes that, in spite of the ambiguity and confusion surrounding conceptions of organizational effectiveness, effectiveness as a construct cannot be ignored in theory or in research. While it may not be possible to reach a widely held consensus of the best, or even sufficient, indicators of organizational effectiveness, identification of the purposes and constraints of a specific research endeavor will assist in the operationalization of the concept. Cameron, consistent with Hunt's perspectives of organizational effectiveness, lists eight models that have guided research in the area of

organizational effectiveness and presents the circumstances in which each is most useful.

These may be found in Table 4.

Table 4. Models of Organizational Effectiveness

Model	Definition *An organization is effective to the extent…*	Usefulness *This model is most preferred when…*
Goal Model	It accomplishes its stated goals.	Goals are clear, consensual, time-bound, measurable.
System Resource Model	It acquires needed resources.	A clear connection exists between inputs and performance.
Internal Processes Model	It has an absence of internal strain with smooth internal functioning.	A clear connection exists between organizational processes and performance.
Strategic Constituencies Model	All strategic constituencies are at least minimally satisfied.	Constituencies have powerful influence on the organization, and it has to respond to demands.
Competing Values Model	The emphasis on criteria in the four different quadrants meets constituency preferences.	The organization is unclear about its own criteria, or change in criteria over time are of interest.
Legitimacy Model	It survives as a result of engaging in legitimate activity.	The survival or decline and demise among organizations is of interest.
Fault-driven Model	It has an absence of faults or traits of ineffectiveness.	Criteria of effectiveness are unclear, or strategies for improvement are needed.
High Performing Systems Model	It is judged excellent relative to other similar organizations.	Comparisons among similar organizations are desired.

Source*:* Cameron (1986) p. 542

The present research effort is concerned with organizational effectiveness as it relates to achieving a standard of performance that will provide a sustainable competitive position in the industry. This construct definition relates directly to Cameron's High Performing Systems Model which relates organizational effectiveness to how well a firm compares with rivals in the industry, a concept at the foundation of competitive advantage. This construction of organizational effectiveness is also consistent with Venkatraman and Ramanujam's second domain of business performance which integrates financial performance measures to broader indicators of competitive performance.

This approach follows the methods of Harrigan (2003) in her measurement of firm performance in declining industries. Harrigan defines firms that perform well

> ...in an endgame environment and which remained invested in the declining business would have done so while (1) earning above average long-term profits in this business, and (2) while facing few doubts about their abilities to continue to prosper or to execute satisfactory, nondisruptive exit in the future. (p. 19)

Therefore, firm performance encompasses financial indicators but goes beyond them as well to include non-financial factors that indicate sustainability and competitive viability.

It is expected that research in declining industries will include firms whose performance thresholds were not met and have discontinued operations (see Gimeno, Folta, Cooper, and Woo, 1997), firms that continue to operate despite poor financial performance (see Caves and Porter, 1976), firms that have restructured under bankruptcy protection, firms that are selling off assets and are continuing operations either as scaled downed versions of their former selves or with a narrowed product line, as well as those firms who may be operating under conditions of competitive viability. The only objectively verifiable performance outcomes in such a context appear to be exit and survival. However, as outlined above, survival may take several forms, many of which do not indicate successful performance in terms of the construct definition given here.

Of interest here are those firms that are not just surviving, but are achieving a level of organizational performance that sets them apart from their rivals in the industry. It seems likely, that if such firms exist, they might be distinguishable by industry observers and experts. It may not be necessary (or possible) to categorize and rank the expected myriad of firms that are operating in a survival mode. It is expected that in this declining industry, we will be able to identify a number of firms that have recently left

the industry, a number of firms that are relatively successful, and a number of firms that continue to hang on in the middle. A broad-based, three-tiered classification of firm performance should be sufficient to allow for the identification of strategies that are more likely to result in each outcome.

Summary

The conceptual framework presented here is designed to reflect many of the theories and constructs of the strategic management discipline. First, strategies must be matched with complementary environments and structures to promote success (Miller, 1988). Second, firms must integrate their dynamic capabilities and choices in light of the general business environment in a way that recognizes that the environment influences strategy but does not mechanistically determine it (Aragon-Correa and Sharma, 2003). Third, different organizational strategies and structures may cope effectively with different task and environmental conditions (Lawrence and Lorsch, 1969). Fourth, broadly observed industry decline does not preclude successful firm performance. Through managerial initiative, creativity, and deliberate choice, the opportunity exists for organizational revitalization in a declining industry.

From the preceding discussion, several general hypotheses may be developed:

Hypothesis 1. Successful firms in declining industries will have a well defined strategic focus.

Hypothesis 2. Successful firms in declining industries will have demonstrated competencies in their chosen strategic direction.

Hypothesis 3. Any of the three generic strategies may be shown to result in successful performance, given appropriate firm level structures and competencies.

To restate the premise of the framework presented here: for a firm to gain a marketplace position of competitive advantage and consequent successful performance outcomes, it is necessary to achieve and sustain a complementary relationship between the resources and competencies of the firm and those exogenous forces which comprise the competitive landscape.

<p style="text-align:center">Methods and Procedures</p>

This study builds on the relatively limited empirical research addressing strategic choice in declining industries and to ascertain effective firm strategies in competitive environments. Theoretically, this paper is based on the premise that a causal relationship exists between a firm's business model in a declining industry and sustainable performance (see Figure 2). Empirically, this research estimates the probability of a given level of firm performance in the presence of (as determined by) specific firm strategies, capabilities, and structures. The importance of this relationship is to verify the propositions of Hamermesh and Silk and Porter cited earlier, that, even in declining industries, it is possible for a firm to achieve superior financial performance given appropriate strategies. This study is designed to attribute superior performance by firms in a declining industry to a particular strategic choice. Harrigan (2003) notes that the significance of such a finding is to

> …suggest[s] that it was possible for firms to perform well in a declining industry and that analysis of this strategic problem might have enabled some firms to assess their relative strengths and to deduce their positions in the industry more realistically, earlier. (p.368)

The verification of a statistical correlation between strategic choice and organizational performance will identify managerial practices that are more likely to produce successful financial outcomes in declining industries.

Empirical Model

To quantify the impact of firm level structures and competitive strategy on firm performance, this study attributes specific firm characteristics to a probability estimate of firm performance. Since the dependent variable in this case is a discrete outcome (the firm is classified according to a definition or rating of performance), conventional regression methods are inappropriate. Greene (2000) recommends that in cases such as this, qualitative response models be used that are based on maximum likelihood estimators rather than linear regression methods.

Ordered logit and probit models are widely used as a framework for analyzing responses such as those described here (Greene). This method is similar to that of other researchers in strategic management who have analyzed how firm specific factors influence strategic management decisions and performance (Putsis and Bayus, 1999; Day and Van den Bulte, 2002; Simoes and Crespo, 2002; Cranfield and Magnusson, 2003; de Cerio, 2003; Richter and Schmidt, 2005). In many studies using multinomial dependent variables with an intrinsic order, estimation using logit or probit procedures have been utilized (Cranfield and Magnussen, 2003; de Cerio, 2003). The decision to choose one model over the other relates to whether the cumulative density function is considered logistic (fatter, flatter tails) or a standard normal density function. Additionally, probit coefficients are generally regarded as more difficult to interpret (Garson, 2006). In order to gain the broadest, most meaningful interpretation of the results possible, a logit model is used in this analysis.

Ordered logit models are cast in the form of a latent variable specification

$$Y_i{}^* = \boldsymbol{\beta}'\mathbf{x} + \varepsilon$$

where vector $\mathbf{x}$ is a set of factors that explain the decision or choice, the set of parameters $\boldsymbol{\beta}$ reflects the impact of changes in $\mathbf{x}$ on the probability, and the error term (ε) is normally distributed across observations. By definition, $Y_i{}^*$ is unobserved, but we do observe ordered choices (assuming in this case three possible discrete values)

$$
\begin{aligned}
y &= 0 \text{ if } y_i{}^* \leq \alpha_0 \\
&= 1 \text{ if } \alpha_0 < y_i{}^* \leq \alpha_1 \\
&= 2 \text{ if } \alpha_1 < y_i{}^*
\end{aligned}
$$

where α_j are thresholds or cut points that serve as dividing boundaries between the categories of the dependent variable. With a standard normal distribution (Φ), the probabilities of observing y, given $\mathbf{x}$ can be expressed as:

$$
\begin{aligned}
\text{Prob}(y = 0 \mid \mathbf{x}) &= \Phi(-\boldsymbol{\beta}'\mathbf{x}). \\
\text{Prob}(y = 1 \mid \mathbf{x}) &= \Phi(\alpha_1 - \boldsymbol{\beta}'\mathbf{x}) - \Phi(-\boldsymbol{\beta}'\mathbf{x}) \\
\text{Prob}(y = 2 \mid \mathbf{x}) &= 1 - \Phi(\alpha_1 - \boldsymbol{\beta}'\mathbf{x}).
\end{aligned}
$$

Variables

The dependent variable in this model is firm performance. Measures of performance are often difficult to determine in cases where financial information is limited. Other studies such as this have used only two possible firm outcomes: survival and exit. This approach seems unsatisfactory since many current U.S. textile firms may be continuing to operate even with poor financial returns. They may be continuing to operate but not under conditions that will result in long-term financial success. Therefore, for this study, a textile firm's financial performance, *PERF$_i$*, is classified according to three possible discrete and ordered values. A value of 0 indicates that a firm has ceased processing cotton and exited the industry. A value of 1 indicates that the firm

is continuing operations, but that its financial returns are not such as to set it apart as successful compared to the rest of the industry. A rating of 1 will apply in those cases where firms are rated as just "surviving" such as those whose high exit costs prohibit exit even though financial returns are poor, those operating in bankruptcy protection, firms just emerging from bankruptcy, or those continuing to survive by selling off assets. A performance rating of 2 indicates that the firm is continuing operations and is earning financial returns that are seen by industry observers as superior compared to rivals in the industry.

Explanatory variables in the model will include those discussed in the literature review as contributing to competitive advantage and may be categorized into four groups. In the first group, each firm is classified according to an identifiable generic competitive strategy (as defined by Porter) of low cost (*LC)*, product differentiation (*D)*, or focus on a market niche (*NC).* Since the literature suggests that each of these generic strategies may be appropriate in a declining industry, no *a priori* hypothesis is suggested here as to which strategy may prove most effective (see Hypothesis 3).

In the second group, each firm is rated according to achieved levels of competency in such competitively relevant areas as cost of production (*COP)*, ability to serve a niche market (*NCH)*, ability to earn product price premiums (*PP),* product reputation (*PR)*, operational flexibility (*OF)*, overall firm management (*MGT),* and product innovation (*INN*). A high rating in any of these categories is expected to contribute positively to financial performance.

The third group consists of structural or firm characteristic variables that may be shown to influence firm performance. Since economies of scale may contribute positively to production efficiency (Hatten and Schendel), a measure of firm size will be included in the model. Market share (*SHARE)*, represented by the proportion of total U.S. cotton mill use a given firm processes, serves as this measure. It is anticipated that a positive relationship will exist between market share and financial performance. Another variable of interest is whether public or private ownership contributes to financial success (*PUB*). Again, no *a priori* assumption is made regarding the directional effect of this variable.

Finally, in the fourth group, each firm in this study is rated as to how well its current strategic position (identified above) is matched with its competitive capability. This interaction term identifies those firms that have achieved a fit between their strategic posture and their recognized capabilities. Firms that exhibit this match are expected to have achieved some level of competitive advantage and will likely outperform their industry rivals. Table 5 provides a description of these variables, an explanation of how they will be operationalized, and the hypothesized correlation between the independent and dependent variables.

Table 5. Variable Names and Definitions

| | | Expected |
Variables	Variable definition	sign
Dependent Variable		
$PERF_i$	Represents financial performance ratings of the firm: 0 = the firm has ceased business operations, 1 = the firm is continuing operations with poor to average industry performance (survival), and 2 = superior industry performance.	NA
Independent Variables		
Strategic posture	Dummy variable of the current strategic posture of the firm.	
LC	LC = 1 if a low cost strategy is dominant, LC = 0 otherwise.	+/-
N	N=1 if niche strategy is dominant, N=0 otherwise	+/-
D	D=1 if differentiation strategy is dominant, D=0 otherwise.	+/-
Strategy/competency interaction	Dummy variable for interaction of strategic posture and strategic competency. A rating of 4 or 5 (on a scale of 1 to 5) is required for competency.	
LCC	LCC=1 if low cost competency, LCC=0 otherwise.	+
DC	DC=1 if differentiation competency, DC=0 otherwise.	+
NC	NC=1 if niche competency, NC=0 otherwise.	+
Firm ratings	Likert scale rating of firm strategic competency by industry experts	
COP	Cost of production relative to rivals	+
NCH	Ability to serve market niche	+
PP	Ability to receive price premiums	+
PR	Product reputation relative to rivals	+
OF	Operational flexibility relative to rivals	+
MGT	Well managed and professional relative to rivals	+
INN	Reputation for innovation and research and development relative to rivals	+
$SHARE$	Market share based on number of bales of cotton processed	+
PUB	Dummy variable representing the ownership of the firm. PUB=1 if public, PUB =0 otherwise	+/-

The relationship between performance and strategy presented here may be summarized by the functional relationship

$$Y_i^* = f(A_{ip}, B_{ir}, C_{is}, D_{it})$$

where Y_i^*, the performance ordering of the ith firm, is determined by:

- A—the current generic strategic posture variable ($p = 0$ or 1);

- B—strategic rating variables of how well the ith firm is faring compared to industry rivals ($r = 1, 2, 3, 4,$ or 5);

- C—structural characteristic variables that measure or indicate specific firm attributes ($s = 0, 1, 2, \ldots, n$);

- D—achieved competency variables that indicate a fit between firm strategic posture and competitive advantage ($t = 0$ or 1).

The ordered logit model that explains textile firm performance used here is given by the following equation:

$$PERF_i^* = \beta_0 + \beta_1 LC_i + \beta_2 N_i + \beta_3 D_i + \beta_4 COP_i + \beta_5 NCH_i + \beta_6 PP_i + \beta_7 PR_i + \beta_8 OF_i + \beta_9 MGT_i + \beta_{10} INN_i + \beta_{11} COT_i + \beta_{12} BD_i + \beta_{13} UN_i + \beta_{14} LCC_i + \beta_{15} DC_i + \beta_{16} NC_i + \varepsilon$$

and

$$PERF_i = \begin{cases} 0 \text{ if } PERF_i^* \leq \alpha_0 \\ 1 \text{ if } \alpha_0 < PERF_i^* \leq \alpha_1 \\ 2 \text{ if } \alpha_1 < PERF_i^* \end{cases}$$

where $PERF_i^*$ is unobserved firm performance and $PERF_i$ is rated firm performance. The estimated coefficients of the ordered logit model provide inferences about the effects of the explanatory variables on the probability of each performance outcome (Worthington, Higgs, and Edwards, 1999).

Given the nature of the variables just described, it may be possible that firm performance is explained by a smaller number of variables than specified, that is some of the variables may capture the same effects. This is based on the expectation that there exist strong intercorrelations among the variables. Exploratory factor analysis is used to discover patterns of relationships that may be present among the variables of the model and whether the "…observed variables can be explained largely or entirely in terms of a much smaller number of variables called factors (Darlington, p1). As Kim and Mueller explain:

> Factor analysis assumes that the observed (measured) variables are linear combinations of some underlying source variables (or factors)…which are smaller in number than the number of observed variables and are responsible for the covariation among the observed variables. (pp. 7, 8, and 12)

Through an examination of the interrelationships among the independent variables, we identify those factors that explain the preponderance of variation and "…determine whether the information can be condensed or summarized in a smaller set of factors or components" (Hair, Anderson, Tatham, and Black, p. 88).

Hardyck and Petrinovich state that one of the advantages of multivariate analysis methods such as those just described is to

> ...evaluate the effects of naturally occurring parametric variations in the context in which they normally occur. In this way, the natural correlations among the manifold influences on behavior can be preserved and separate effects of these influences can be studied statistically without causing a typical isolation of either individuals or variables. (p. 7)

The above described multivariate techniques are incorporated into this study in order to "… obtain a more complete, realistic understanding for decision making" (Hair, Anderson, Tatham, and Black, p. 4).

Data Collection—the Sample

This study focuses on U.S. firms that compete in the initial phase of the textile production process: the transformation of raw cotton into cotton yarns. The firms considered in this study are the top 29 U.S. companies in terms of raw cotton usage from 1999 to 2003. Also considered are two regional firms not in the top 30 but of particular interest to the researchers due to geographical proximity. These firms cumulatively account for 92% of U.S. raw cotton consumption. Of these 31 firms, 5 are publicly held, 1 is a cotton producer-owned cooperative, and 25 are privately held companies.

Each firm was surveyed according to the competitive variables described above which are hypothesized to impact firm financial performance. The survey ascertained levels of firm performance, strategic direction, and structural variables as well as ratings of firm competency relative to rivals in the industry. This questionnaire utilized Likert scale ratings of each firm's capabilities and strategic intent. A usual 5-point scale with a mid-point was used to measure each category. Matell and Jacoby (1971) discuss whether an optimum number of rating categories exists for any given survey. They assert that too few categories may result in a scale that is too coarse with a subsequent loss in the discriminatory power of the raters. Conversely, a scale that is graded too finely will go beyond the rater's ability of discrimination. They conclude that the greatest value of the Likert instrument lies more in the determination of an attitudinal directional component and less in the intensity component. While no definitive or optimal number of Likert scale points has been identified, Ray (1980) finds that the extra response options of a 5-point scale (compared to a 3-point) contribute to the discriminating power of the survey

instrument and generally improves reliability. Tang, Shaw, and Vevea (1999) show little benefit associated with scales that have more than 6 points. Both advocate the use of a neutral mid-point. Therefore, no justification for departing from the conventional 5-point survey format has been discovered. A copy of the survey in included in the Appendix.

Studies in the field of strategic management often face difficulties associated with data gathering and variable measurement. One issue researchers often face is the attempt to gather data in the absence of publicly available information. Dess and Robinson discuss two primary difficulties researchers face in obtaining accurate and reliable performance data in such instances. First, since such information is not publicly available and is often considered very sensitive, access to performance data is severely restricted. This may be especially true in a declining industry facing increasingly intense competitive pressure. Firms are not likely to reveal any information which might benefit rivals. Secondly, even when access is granted, variation in reporting and accounting procedures may increase the likelihood of errors in interpretation or comparison. Private corporations may construct financial data to meet a variety of purposes (i.e. creditors or investors) and the reliability of such information may be suspect.

Chen, Farh, and MacMillan suggest that expert industry informants are an appropriate source of information in cases when data confidentiality and/or unavailability are an issue. They review this method of assessment in prior organizational research (141 studies) and test this method for reliability and accuracy. In a comparison of analysts, academics, consultants, and stakeholders as expert outside informants in the airline industry, they find that all four types provide consistent and accurate measures for

strategy variables when compared to senior level industry executives (inside informants). In light of previous research and the empirical findings of their study, the authors recommend four general principles for conducting research when no suitable objective measures are available or are not visible to outside observers:

1. when possible, it is better to pursue insider judgments for internal variables given their high degree of accuracy and reliability;

2. when it is difficult to get insider judgments, reliable and relatively accurate information can be obtained through properly identified outsiders;

3. when using outside experts, attempt to use more than one type of informant;

4. whether the source is inside or outside the firm, multiple respondents should be used and a measure of agreement of their responses provided; and

5. any study may face the prospect of trading accuracy and reliability for accessibility and a favorable inclination to share information.

While several obstacles exist which may limit access to firm level data, especially in private companies, these obstacles do not prevent the conduct of research capable of generating reliable and valid explanations.

The relatively large number of privately-held firms presents specific challenges to this research effort. It was anticipated that problems would arise gaining insider access to sensitive financial and performance data as well as competitive strategies. Even if such information was available, this situation increased the risk of measurement error that may be attributed to varying accounting and information sharing procedures (Dess and Robinson, 1984). Therefore the decision was made to rely on expert industry informants

or raters for data gathering. Following the principles of Chen, Farh, and MacMillan (1993), this study employed outside experts to assess strategic and performance characteristics of textile firms.

In following the guidelines presented above, data for this research were obtained by administering the survey to multiple experts associated with the cotton textile industry. These experts were from backgrounds of academia and research in textiles as well as a former executive officer of a textile firm and a representative of a company that supplies processing equipment to all the major U.S. cotton spinners. All exhibited extensive knowledge and experience in the industry and provided "…judgments on a broad array of characteristics…" (Chen, Farh, and MacMillan, p. 1623). In addition to the opinions of expert raters, multiple data sources such as industry communications, websites, business periodicals, and independent business financial rating services were used to validate information received by the experts and to fill in gaps of information when the experts either doubted their level of knowledge in a specific area or lacked information about a specific company. The intent was to improve data reliability about each firm by employing at least two different raters and using multiple data sources.

<u>Data Analysis and Findings</u>

The following steps have been selected to empirically verify the relationship between a firm's business model and its level of performance.

Step 1. Collect data using multiple sources. Collection of survey data from multiple sources establishes both a ranking of a given firms level of performance but also a measure of strategic intent and competency, competitive viability relative to rivals in the industry, and other structural characteristics of individual firms.

Step 2.   Use factor analysis to reduce the number of variables. Preliminary exploratory analysis on the variables constructed and measured in Step 1 confirms construct validity and discovers intercorrelations that exist between the variables. This step is designed to reduce the number of variables in the original data set to a smaller number of factors that may explain the preponderance of firm performance.

Step 3.   Estimation of an ordered logit model. Estimation of an ordered logit model tests the effects of the factors identified in Step 2 (as well as any independent effects that may be added back in) on successful performance in a declining industry.

Step 4.   Estimate probabilities of various levels of firm performance. From the ordered logit procedure, it is possible to estimate the probability that a firm, given its specific characteristics and strategic competencies, will achieve a specific level of firm performance. This step will report these probabilities as well as an evaluation of the model's goodness of fit.

Collection of Survey Data

As described earlier, data were collected from 31 U.S. textile firms that process raw cotton fiber into various yarns and/or fabrics. The collection of data was from several sources that included industry experts, executives, and academics. In addition to the survey instrument designed to evaluate individual firms (completed by 3 expert raters), data were collected from company websites, news releases, and independent business information companies and news sources.

Each firm in the study was identified according to a basic level of firm performance: failed, surviving, or successful. Firm performance ratings were collected from third party sources according to the following procedure. After first determining

whether a given firm was still in business or not (performance level 0 or 1), successful

firms in the surviving category were classed. This was done according to a combination

of independent measures of financial performance, moves to expand and modernize plant

capacity, and ratings of superior performance by respected business publications. Five

firms meeting these standards were classed as having performance level 2. Table 6

illustrates the procedure by which firm performance was determined. The ratings or

opinions of raters were not used to classify firm performance but were used to confirm

information gathered about each firm.

Table 6. Method of Establishing Firm Performance Ratings

Performance Category	Definition	Determined by
0	Ceased operations; Filed for bankruptcy	Publicly available information
1	Surviving; Poor to average performance	Publicly available information
2	Successful; Competitively viable	Publicly available information; Direct financial information; Business information services; Investment advisory services

While much of the information regarding the independent variables associated

with each firm was gathered with a survey of industry experts, the score of a given firm

for a specific variable is not necessarily an average survey number. In several cases, our

experts proffered opinions with the caveat that they did not personally know a great deal

about a specific company. In such a case, this particular rater's survey was not weighted

the same as others. In other cases, one expert may have been privy to a great deal of

specific information. In these cases, this expert's opinions were weighted much more heavily. In all cases, outside information from other business information sources was used to verify the information gained from our panel of experts. Since the survey measures used for analysis were not simple averages of survey responses, statistics that report response unity of opinion are not pertinent here.

Exploratory Factor Analysis

In the construct of the variables of this study and in the design of the survey, it seemed likely that several of the variables and measures were attempts to assess the same characteristics but from slightly different perspectives. Factor analysis was used to analyze our survey data to explore patterns of intercorrelations among the variables in an attempt to obtain a reduced set of variables to explain performance. This is possible in those cases where the variables

> … are highly correlated with one another, presumably because they are all influenced by the same underlying dimension (factor). One may also then operationalize (invent a way to measure) the underlying dimension by a linear combination of the variables that contributed most heavily to the factor. (Wuensch, 2004, p. 1)

Principal component analysis (PCA) with a varimax rotation was carried out in an effort to summarize multiple variables of the model into principal components.

Our original model contained 15 variables and 31 observations. After removing those variables that were direct linear combinations of other variables and those that showed poor correlations, our revised data set contained 6 variables. Specific generic strategies and competencies did not show to be statistically significant indicators of performance separately, but when combined into a variable that assesses whether a firm has *any* strategic core competency, the variable became important. The remaining

independent variables that tested positively for correlation significance were

Management, Innovation, Product Reputation, Market Share, and Cost of Production

advantage.

PCA showed that approximately 67 percent of variation contained in the variables

of the model can be explained by two factors (minimum eigenvalue for significance = 1).

The decision of which variables to include into each factor is based on factor loadings.

Factor loadings indicate the degree of correlation that exits between the independent

variable and the factor (Hair,et al., 1998). Higher loadings mean that the variable is more

strongly representative of the factor. As a rule of thumb, loadings of ± 0.40 are

considered important while loadings of ± 0.50 are considered practically significant (Hair

et al., 1998). The results of this analysis are shown in Table 7. In Factor 1, the variables

that loaded most heavily (>0.5) were Innovation, Management, Any Core Competency,

and Product Reputation. The second factor loaded heavily on the variables that measured

a competitive advantage in cost of production and market share.

Table 7. Results of Factor Analysis

	Variables	**Factor 1**	**Factor 2**
1	Innovation	0.83239	-0.12047
2	Management	0.76521	0.38861
3	Any Core Strategic Competency	0.71422	0.39878
4	Product Reputation	0.55553	0.05951
5	Cost of Production	0.07814	0.89989
6	Market Share	0.14322	0.87842
Eigenvalues		2.73586	1.29744

Evident in Table 7 is the close correlation that exists between some of the

variables that loaded significantly in Factor 1 and 2. Most notable are the relationships

between management and strategic core competency in Factor 1 and the closeness of

market share and cost of production advantage in Factor 2. This indicates the high degree

of correlation that exists between these pairs of variables.

Given the results of the principal component analysis above, it is possible to

operationalize these factors by creating new variables that serve as measures of these

critical components. A linear combination of the variables that loaded heavily on each

factor was used to create these two new variables (Wuensch, 2004). We labeled the first

factor 'Capability' in that these characteristics relate strongly to the efforts of the firm to

create a competitive advantage in areas related to superior product value and effective

managerial capabilities. We named the second factor 'Efficiency' since it related to the

efforts of firms to create value by offering products at a lower cost through economies of

size and cost of production advantages. Summary statistics and the correlation of these

two new variables can be found in Table 8.

Table 8. Descriptive Statistics and Correlation Matrix of Variables Identified in the
          Factor Procedure

Variable		Mean	Std. Dev	Min	Max	Corr
Factor 1	Capability	1.2258	1.3592	0.0000	4.0000	
Factor 2	Efficiency	3.0997	3.7855	0.0700	16.13000	0.36515

The factor procedure was successful in reducing the number of variables to be

considered in our next step of analysis, the ordered logit procedure. Through the creation

of a linear combination of the variables associated with the factors Capability and

Efficiency, an estimate of firm performance according to these two categories is possible.

The Ordered Logit Procedure

Ordered logit regression enables us to identify the marginal effects of each explanatory factor on the ordered levels of firm performance. In this case, Performance categories (0, 1, or 2) are a function of two independent variables, Capability and Efficiency. Several diagnostic tests confirm the appropriateness of this approach with the data gathered here. The Likelihood Ratio test (see Table 9), that at least one of the predictor's coefficients does not equal zero, confirms the statistical significance of the variables in our model. The null hypothesis (H_O: all regression coefficients = 0) is rejected. Another method of measuring the goodness of fit of logit models is to report how well the model correctly predicts outcomes. Overall, the logit model correctly predicted 68 percent of the firms in our study (21 of 31). Model performance was strongest for the successful firms where 80 percent (4 of 5) were correctly classified. The second group in terms of goodness of fit was the failed performance category where 73 percent (11 of 15) were correctly identified. The surviving group had the lowest number of correctly predicted firms by our model with an accuracy measure of 55 percent (6 of 11).

The intercepts estimated in the ordered logit model may be interpreted as the log odds of an adjacent level of firm performance when the independent variables are evaluated at 0 (see results in Table 9). Both intercepts (thresholds) are shown to be statistically significant. Intercept 2 (-4.8707) reports that the log odds of successful performance versus surviving and failing performance levels when both Capability and

Table 9. Results of Ordered Logit Regression

Parameter	Df	Estimate	Standard Error	Wald Chi-Square	Pr > ChiSq
Intercept 2	1	-4.8707	1.2292	15.7013	<0.0001
Intercept 1	1	-1.7207	0.6762	6.4762	0.0109
Capability	1	1.2680	0.3914	10.4967	0.0012
Efficiency	1	0.2021	0.1314	2.3632	0.1242

Likelihood Ratio Test of regression coefficients =0				19.8680	<0.0001

Effect	Odds Ratio Estimate
Capability	3.554
Efficiency	1.224

Efficiency are set to 0 are strongly negative. Thus, low levels of the independent

variables impede the likelihood of successful performance. Intercept 1 (-1.7207) is the

estimated log odds of successful and surviving performance when the predictor variables

are set to 0. In this case the magnitude of the effect is not as high, as expected since the

threshold of performance is not as high but the directional impact is the same, i.e., low

levels of the independent variables lessen the likelihood of successful or surviving

performance.

The parameter estimates for Capability and Efficiency show both to be positively

correlated to operational performance in declining industries (see Table 9). By

exponentiating the parameter estimates, we can find the proportional odds ratios, or point

estimates, of each independent variable on firm performance[9]. The point estimate of the

Capability factor is 3.554 which means that the odds of moving up from one performance

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[9] An odds ratio =1 indicates that the independent variable has no effect on the dependent variable. An odds
ratio > 1 means an increase in the independent variable improves firm performance while an odds ratio < 1
means the variable is a detriment to performance. The larger the odds ratio is above 1, the more effect the
independent variable has.

category to the next (0 to 1 or 1 to 2) increases 3.554 times with a one unit increase in the firm's capability rating, other variables held constant. The point estimate of Efficiency is 1.224, which shows that the odds of improved firm performance increase 1.224 times with a one unit increase in the measure of Efficiency, *ceteris paribus*. The Capability factor was found to have both a stronger impact on performance than Efficiency and stronger statistical significance as well. The marginal statistical significance of the Efficiency parameter indicates that its usage in the calculation of probability estimates of performance should be used with caution, even though the sign of the coefficient is as expected.

In addition to the results reported here, the model was run including the variables that were excluded from our analysis in the factor procedure. None of the excluded variables were shown to be independently or collectively significant predictors of firm performance.

<div align="center">Estimated Probabilities of Firm Performance</div>

In addition to the effects of Capability and Efficiency on firm performance discussed above, further meaning of the coefficients can be gained by estimating the probability of a firm's performance given ratings of that firm's Capability and Efficiency measures. By multiplying the parameter estimates by each firm's rating for Capability and Efficiency, a predicted performance value of each firm, a Z score, may be calculated (Z is a measure of the underlying latent variable, Y_i^*, central to performance probability estimation). Then, using the multiple intercept terms of the regression output (which

provide the cutpoints or threshold levels for each level of performance) it is possible to evaluate a given Z score relative to performance threshold criteria.

By incorporating the intercepts estimated by our model with the three possible levels of performance (0, 1, 2), the performance of a particular firm (Y_i) may be expressed as

$Y_i = 0$ if $Y_i^* \leq 1.7207$

$Y_i = 1$ if $1.7207 \leq Y_i^* \leq 4.8707$

$Y_i = 2$ if $Y_i^* \geq 4.8707$

where Y_i^* represents a continuous, unobserved latent variable.

For each individual firm, its predicted performance is the Y_i^* score Z, and is calculated as

$Z_i = (3.554 * \text{Capability}_i) + (1.224 * \text{Efficiency}_i)$

The probability of each level of performance is represented by

$$P(Y=0) = \frac{1}{1 + \exp(Z_i - \delta_1)}$$

$$P(Y=1) = \frac{1}{1 + \exp(Z_i - \delta_2)} - \frac{1}{1 + \exp(Z_i - \delta_1)}$$

$$P(Y=2) = \frac{1}{1 + \exp(Z_i - \delta2)}$$

where $\delta_1 =$ intercept 1 and $\delta_2 =$ intercept 2. The calculation of each firm's Z score and probability estimates of superior performance, survival, and firm failure based on this model are shown in Table 10.

Perhaps even more interesting in Table 10 than correctly identified firms are those with predicted performance in another category. Especially for those firms still in

operation, this analysis may serve as an indicator of future performance given present strategic strengths, weaknesses, and competitive capabilities. Company number 3 in the successful performance category has a very high rating for Efficiency but low Capability scores. This seems to indicate that the success of this firm is related more to its relatively large size and cost of production efficiencies than managerial capability, innovation, or product reputation (all of the successful firms exhibited the presence of a strategic competency). The predicted performance of this firm in our model would move it down from successful to surviving, possibly indicating it to be the weakest performer of the successful group. Similar observations of firms in the surviving group may reveal those firms that are most likely to go out of business given the current intensity of competitive conditions. Of the five surviving firms with higher predicted probabilities of being in another performance category, all had probabilities of failed performance (companies 8, 9, 12, 13, and 16). Each of these five showed no competitive advantage in the measures associated with the Capability factor and only one (Company 9) had a score for Efficiency that was above the mean (>3.0997).

<div align="center">Conclusion</div>

This research was designed to shed more light on the relationship between firm level structures/strategies and operational performance. A model was developed by which firm characteristics were shown to predict firm performance. By analyzing this relationship in the context of a declining industry, it produced insight into business models that should more likely be successful in those environments. Using a

Table 10. Estimated Probabilities of Firm Performance

Company	Performance	Efficiency	Capability	Z_i	P(Y=0)	P(Y=1)	P(Y=2)
1	2	8.34	3	5.49	0.02	0.33	0.65
2	2	2.06	4	5.49	0.02	0.33	0.65
3	2	10	2	4.56	0.06	**0.52**	0.42
4	2	0.89	4	5.25	0.03	0.38	0.59
5	2	16.13	4	8.33	0.00	0.03	0.97
6	1	0.65	3	3.94	0.10	0.62	0.28
7	1	0.86	3	3.98	0.10	0.61	0.29
8	1	0.61	0	0.12	**0.83**	0.16	0.01
9	1	5.96	0	1.20	**0.63**	0.35	0.02
10	1	11.22	1	3.54	0.14	0.65	0.21
11	1	2.54	2	3.05	0.21	0.65	0.14
12	1	0.6	0	0.12	**0.83**	0.16	0.01
13	1	1.28	0	0.26	**0.81**	0.18	0.0
14	1	0.87	2	2.71	0.27	0.63	0.10
15	1	2.3	3	4.27	0.07	0.57	0.35
16	1	0.63	0	0.13	**0.83**	0.16	0.01
17	0	1.54	1	1.58	0.54	0.43	0.04
18	0	0.63	0	0.13	0.83	0.16	0.01
19	0	2.37	0	0.48	0.78	0.22	0.01
20	0	1.17	2	2.77	**0.26**	0.63	0.11
21	0	2.49	1	1.77	0.49	0.47	0.04
22	0	0.62	0	0.13	0.83	0.16	0.01
23	0	0.57	0	0.12	0.83	0.16	0.01
24	0	3.68	1	2.01	**0.43**	0.52	0.05
25	0	0.52	1	1.37	0.59	0.38	0.03
26	0	0.07	0	0.01	0.85	0.15	0.01
27	0	0.23	0	0.05	0.84	0.15	0.01
28	0	3.53	0	0.71	0.73	0.25	0.02
29	0	2.09	0	0.42	0.79	0.20	0.01
30	0	5.69	2	3.69	**0.12**	0.64	0.23
31	0	5.95	1	2.47	**0.32**	0.60	0.08

combination of factor analysis and a logit procedure, it revealed the degree to which

certain strategic elements impact the performance level of firms. Several key findings

emerged from this study.

First, we found that strategic intent or strategic focus by the firm was not in itself sufficient to significantly impact the level of firm performance. However, firm strategic competency (demonstrated by superiority to rivals in the industry) did prove to significantly influence performance outcomes. Additionally, this study found no statistical significance correlating one particular generic strategy (low cost, differentiation, or focus) for superior firm performance in a declining industry, i.e., one strategy is not shown to result in better performance than another. Therefore, our findings suggest that the external economic environment is not deterministic regarding appropriate strategic action. Rather, achieving any strategic core competence is shown to have a strong effect on successful performance. Of the 5 successful firms in our analysis, all had achieved a strategic core competence (2 related to low cost, 2 differentiation strategies, and one focus or niche strategic competency).

Further, an interesting finding of this study is that two factors, identified by Principal Component Analysis, were shown to contribute to successful firm performance in a declining industry. The first and most statistically significant factor is comprised of firm attributes that relate to competence in the chosen strategic direction of the firm and a competitive advantage in the areas of managerial excellence, innovation, and product reputation. In this factor, close correlation was shown between the achievement of strategic core competence and managerial excellence. This seems to indicate that managerial skills and abilities to craft strategy explain a large portion of firm strategic core competency. All of the successful firms in our survey (performance=2) reported a competitive advantage in the area of management while none of the failed firms

(performance=0) did so. It seems therefore, that excellence in firm management is closely tied to the achievement of strategic core competency, both of which contribute strongly to successful performance.

The second factor that served as an indicator of successful performance is made up of two measures related to economies of size and production efficiency: a competitive advantage related to cost of production and earned market share. While the effect of this factor on performance was less significant, both in terms of marginal effects as well as statistical significance, it does lend support to the hypothesis that larger firms are more likely to be successful (or at least survive longer) in declining industries.

These findings may be applicable to firms facing similar competitive pressures in other industries. We have identified areas of competence which might serve as predictors of firm performance and sustainability. Those firms that possess these characteristics would be expected to outperform rivals in their respective industries. The survival or failure of firms lacking these competitive capabilities may also be estimated.

Future research in this area is needed to further define several of the constructs identified as contributing positively to successful firm performance. For example, the management component might be further analyzed in terms of the wide array of characteristics that might compose effective management. This would include such concepts as leadership styles, the role of managerial teams, the influence of governing boards, and management compensation to name a few. Additionally, given that the implications of the results in this study are limited by small sample size, a survey of a

greater number of firms would potentially improve the statistical significance of this analysis and enhance the generalizability of the findings.

By studying firm performance in a declining industry, we achieved the goals of this research in identifying business models that may lead to higher levels of performance in a declining industry. While size and production efficiency were shown to be positively correlated to high performance outcomes, more important were firm capabilities in the areas of strategic competence, managerial excellence, product reputation, and innovation. In conclusion, this research provides empirical support for the role of the agency of managerial choice in determining performance outcomes. Unsurprisingly, successful performance, even in declining industries, is possible for a firm with strong management and core competencies. It is possible and even likely that firms possessing these assets will be competitively successful even in the face of a difficult and declining industry.

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Textile Firm Survey Questionnaire

Company of interest: _____

Interrater: _____

Please answer the following questions with regard to the company of interest.

1. Do you have any knowledge of the current strategic efforts and interests of this firm? If so, could you describe what these may be?

2. How do you think the company markets the majority of its textile products?
   a. _____ Spot markets.
   b. _____ Produce to order.
   c. _____ Long-term output contracts.
   d. _____ Sales to other units within the company.

3. What would you estimate to be the percentage of this company's products that are manufactured in the United States?
   a. _____ 100%.
   b. _____ Between 75% and 100%.
   c. _____ Between 50% and 75%.
   d. _____ About 50%
   e. _____ Between 25% and 50%.
   f. _____ Between 0% and 25%.
   g. _____ 0%

4. What do you think the company's ROA has been for the most recent fiscal year?
   a. _____ Less than 0%.
   b. _____ 0 to 5%.
   c. _____ Greater than 5%.

5. Do you see this company competing primarily on the basis of:
   a. _____ Price.
   b. _____ Better quality.
   c. _____ Serving the needs of specific market niches.

6. Rate this firm's cost of production as lower or higher relative to average firms in the industry.
(economies of scale, costs of inputs, cost of overheads, usage of risk management tools such as hedging and forward contracting, labor, access to raw cotton, access to capital, location, distribution)

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

7. Rate this company's ability to serve a particular market niche as lower or higher relative to average firms in the industry.
(outstanding customer service, innovative marketing, product design, responsiveness to customer needs, customer loyalty, company reputation, quick response, product flexibility, manufacturing flexibility)

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

8. Rate this company's ability to receive a price premium for its products based on quality as lower or higher relative to average firms in the industry.
(implementation of processes which encourage high quality outcomes, innovative products, research and development, marketing, company reputation, unique products)

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

9. Rate the product reputation of this company as lower or higher relative to average firms in the industry.

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

10. Rate this company's operational flexibility (i.e. the ability to produce different products on short notice and the speed of their customer service) as being lower or higher relative to average firms in the industry.

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

11. Rate this company in terms of it being well-managed and professional compared to other firms in the industry.

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	

12. Rate this company on its reputation for product innovation along with research and development.

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

13. Rate this company on its costs of raw material procurement and logistic efficiencies (i.e. relationships with suppliers, proximity to resources, etc.).

Much lower	Somewhat lower	Same	Somewhat higher	Much higher
1	2	3	4	5

14. Do you know if the board of directors of this company has substantial outside membership?
   a. _____ Do not know.
   b. _____ Yes.
   c. _____ No.

Other comments:

Table A.1. Value of Product Shipments, Yarn Spinning Mills (NAICS 31311, SIC 2281 and 2224, and Cotton Yarns Produced for Sale)

Commodity Code		Value of Product Shipments ($1,000)	CPI (1982-84=100)	Adjusted Value (real $1,000)
Cotton yarns produced for sale	1914	127,364	10.0	1,273,640
	1915		10.1	
	1916		10.9	
	1917		12.8	
	1918		15.1	
	1919	453,624	17.3	2,622,107
	1920		20.0	
	1921	218,555	17.9	1,220,978
	1922		16.8	
	1923	348,685	17.1	2,039,091
	1924		17.1	
	1925	313,060	17.5	1,788,916
	1926		17.7	
	1927	253,664	17.4	1,457,838
	1928		17.1	
	1929	253,349	17.1	1,481,574
	1930		16.7	
	1931	111,873	15.2	736,007
	1932		13.7	
	1933		13.0	
	1934		13.4	
	1935	214,835	13.7	1,568,139
	1936		13.9	
	1937	260,604	14.4	1,809,747
	1938		14.1	
	1939	250,316	13.9	1,800,835
	1940		14.0	
	1941		14.7	
	1942		16.3	
	1943		17.3	
	1944		17.6	
	1945		18.0	
	1946		19.5	
SIC 2224	1947	769,403	22.3	3,450,238
	1948		24.1	
	1949	614,899	23.8	2,583,609
	1950	781,028	24.1	3,240,780
	1951	1,081,575	26.0	4,159,904
	1952	978,113	26.5	3,690,992
	1953	870,520	26.7	3,260,375
	1954	1,030,183	26.9	3,829,677
	1955	1,257,859	26.8	4,693,504
	1956	1,208,898	27.2	4,444,478
	1957	1,182,057	28.1	4,206,609

SIC 2281	1958	855,400	28.9	2,959,862
	1959	997,300	29.1	3,427,148
	1960	927,300	29.6	3,132,770
	1961	956,700	29.9	3,199,666
	1962	1,036,100	30.2	3,430,795
	1963	1,067,000	30.6	3,486,928
	1964	1,158,600	31.0	3,737,419
	1965	1,378,700	31.5	4,376,825
	1966	1,478,500	32.4	4,563,272
	1967	1,422,500	33.4	4,258,982
	1968	1,619,400	34.8	4,653,448
	1969	1,741,800	36.7	4,746,049
	1970	1,664,400	38.8	4,289,691
	1971	1,910,200	40.5	4,716,543
	1972	2,248,300	41.8	5,378,708
	1973	2,615,900	44.4	5,891,667
	1974	2,918,200	49.3	5,919,270
	1975	2,541,400	53.8	4,723,792
	1976	3,398,500	56.9	5,972,759
	1977	3,864,900	60.6	6,377,723
	1978	4,028,400	65.2	6,178,528
	1979	4,045,700	72.6	5,572,590
	1980	4,336,000	82.4	5,262,136
	1981	4,652,700	90.9	5,118,482
	1982	4,327,600	96.5	4,484,560
	1983	5,012,900	99.6	5,033,032
	1984	5,247,400	103.9	5,050,433
	1985	4,853,300	107.6	4,510,502
	1986	5,436,800	109.6	4,960,584
	1987	7,239,500	113.3	6,389,673
	1988	7,241,400	118.3	6,121,217
	1989	7,263,600	124.0	5,857,742
	1990	7,149,500	130.7	5,470,161
	1991	7,123,300	136.2	5,230,029
	1992	7,755,600	140.3	5,527,869
	1993	7,695,500	144.5	5,325,606
	1994	8,195,800	148.2	5,530,229
	1995	8,619,300	152.4	5,655,709
	1996	8,771,000	156.9	5,590,185
NAICS 31311	1997	8,714,457	160.5	5,429,568
	1998	8,587,639	163.0	5,268,490
	1999	7,994,763	166.6	4,798,777
	2000	6,942,513	172.2	4,031,657
	2001	5,982,229	177.1	3,377,882
	2002	6,333,548	179.9	3,520,594
	2003	5,911,042	184.0	3,212,523

Source: U.S. Census Bureau, Annual Survey of Manufactures

CHAPTER III

A MODEL FOR THE HIGH-VALUE

MARKETING POOL CONCEPT

…the new competitive landscape suggests that firms exist in highly turbulent and often chaotic environments… In such an environment, managers must develop new tools, new concepts, new organizations, and new mindsets.
Bettis and Hitt, (1995), "The New Competitive Landscape", pp. 16, 17

Introduction

The competitive landscape facing agricultural producers today requires flexible, pro-active marketing in a global context. As barriers to trade continue to fall and free trade initiatives and agreements become more prevalent, market forces become increasingly important as drivers of economic activity, replacing protectionist policies of the past. As Siepel and Heffernan (1997) observe, both capital and technology are highly mobile in this newly emerging global economic system and can be transferred quickly to any country in the world. Manufacturers of textile products engage in global sourcing in which they may be seen as roaming the world seeking production and processing sites that offer the most favorable combinations of productive inputs.

In this competitive environment, the long term viability and profitability of U.S. cotton growers will be less dependent on farm supports and subsidies and rely more on their ability to be seen as the supplier of choice for the cotton textile industry. To attain and sustain this position, U.S. cotton must provide the greatest value to textile manufacturers. Value may be seen as a function of both price and product attributes with

superior value and competitive advantage stemming "…from offering lower prices than competitors for equivalent benefits or providing unique benefits that more than offset a higher price" (Porter, 1985, p. 3). In this dynamic economic climate, producers seeking competitive success should shift from a production orientation, where they sell commodities, to a market orientation where they offer products in deference to customer wants and needs (Fearne and Bates, 2000).

One important mechanism that U.S. agricultural producers have used to increase net returns is cooperative marketing utilizing marketing pools. Pooling is an arrangement where the production from many producers is commingled and sold by a specialized marketing staff. Producers receive payment based on the average price the cooperative obtains from joint marketing less operating costs (Jermolowicz, 1999).

This is a relatively straightforward procedure for homogeneous commodities, but becomes more complex when product heterogeneity is considered and demand for quality characteristics is changing. Value may be lost in single product pools as producers are unable to exploit or develop demand for specific product attributes. If higher returns are possible from the production of a product with specific identifiable traits, broad-based, homogenous product pools may not be the appropriate marketing tool. It may be advantageous to organize marketing pools around the product traits that more closely meet differentiated customer demands for quality. For commodities previously marketed homogeneously, one approach to meet this demand is the establishment of a high-value marketing pool (HVMP). Other researchers in cooperative marketing refer to this process as pool narrowing or by calling for the establishment of multiple pools. In this

paper, the concepts of high-value marketing pool, pool narrowing, or multiple pools will be used synonymously.

A HVMP marketing strategy based on product differentiation may allow producers to earn additional returns. Pool narrowing will allow for the accumulation of a substantial quantity of a quality differentiated product that is designed to meet the demands of specific customers. This pool can be marketed to provide the consistent quality, marketing skills, customer knowledge, and high volume that are required to meet market demand in today's competitive environment. The establishment of a HVMP will signal to the industry the intent of producers to do all they can to provide excellent customer service and elevate the stature of a producer's products in the eyes of their customers. A successful HVMP will further serve to strengthen producer reputations as reliable suppliers of quality products.

In spite of the advantages of a HVMP cited above, this marketing approach may not be applicable to all crops in all areas. Producers of below average crop quality may be better off with current broad based pools that do not discriminate against products of lesser quality. In many cases, they may earn greater returns by blending their production with higher quality products. These producers do not receive price discounts they otherwise might incur. Additionally, product quality may vary widely from crop year to crop year with many of the quality determining factors (i.e. weather, insects, etc.) beyond the control of producers. In these situations, producers may not want to participate in such a pool because it will not improve their financial returns.

The purpose of this research is to design a model for use in evaluating the possibility of transitioning from a single product marketing pool to a high-value marketing pool. The achievement of this outcome will require the accomplishment of the following four objectives:

1. A conceptual review of cooperative theory that supports the use of high-value marketing pools in order to understand two fundamental aspects of HVMPs:

    a. how they are consistent with the goals of the cooperative form of business organization and

    b. how they are supportive of the marketing paradigm necessary to compete successfully in highly competitive environments;

2. Study existing value-added marketing programs according to their structure and outcomes in order to identify core elements or factors that are vital to successful and sustainable high-value marketing pool performance;

3. Develop a model for evaluating the transition process from a single product pool common in cooperative organizations to a high-value marketing pool. This will outline some of the constraints, resources, processes, and analysis that will likely lead to a successful and sustainable high-value marketing pool; and

4. Provide suggestions for the implementation of this model in the specific case of West Texas cotton producers.

This research will provide assistance to those traversing "the new competitive landscape" from homogenous commodity to differentiated product.

<u>Objective 1. A Review of Cooperative Theory</u>
<u>and Marketing Pools</u>

The conceptual framework for research into high-value marketing pools is founded in the theory of agricultural cooperatives. Farmers have for decades organized marketing cooperatives to counter balance the negative impacts of market power and improve financial returns (Cook and Chaddad, 2004).

> Historically, U.S. agricultural cooperatives emerged in response to market conditions that called for coordinated efforts by growers to defend market interests, provide member services, and reduce transaction costs. Agricultural cooperatives have represented a special form of agricultural organization, one that holds the promise of both providing small farmers access to market opportunities yet at the same time providing income stability (Stanford and Hogeland, 2004).

Cook and Chaddad assert that, in this context, the motivation to establish a marketing pool can be described as defensive. High-value marketing, on the other hand, is an offensive strategy to add value to assets and extend the organization's influence.

This discussion of cooperative theory is composed of three main components: 1) the justification or motivation for the adoption of the cooperative model of business organization, 2) the contribution pool marketing makes to the goals of the cooperative, and 3) a discussion of issues related to sustainable pool participation, specifically the operation of multiple pools. This section is not intended to represent a complete discussion of relevant cooperative and marketing theory for this paper. It is anticipated that additional concepts will surface in the course of research that will require further investigation. Presented here, are concepts identified a priori. Additional theoretical foundations will be explicated as they become relevant. The second part of this section deals with how a successful HVMP supports a new paradigm in the marketing of

agricultural commodities, the offering of differentiable products in the marketplace in deference to heterogeneous customer demand.

Justification of the Cooperative Model of Business Organization

Two of the most frequent economic justifications for the organization of cooperatives center on issues related to market power and market failure (Cook, 1993). Producers sought an institutional mechanism to counter balance the market power of their trading partners in the hope of achieving more equitable and efficient market outcomes (Staatz, 1987b). Market failures were thought to exist when many of the input and output markets were less than optimally competitive (Cook). In response to these conditions, agricultural producers organized marketing cooperatives. Cook's classification of cooperatives according to function labels these marketing cooperatives as Sapiro II.

Sapiro II cooperatives are a form of producer vertical integration that circumvent and compete with private buyers and traders. Whether marketing single or multiple commodities, the objectives are similar: "…to by-pass the investor-owned firm, enhance prices, and in general pursue the Sapiro goals of increasing margin and avoiding market power" (Cook, 1995, p. 1156). According to Cook, the Sapiro school of cooperative thought advocates that market power can be gained by producers through organization and cooperation and the terms of trade improved for their members.

Contribution of Marketing Pools to the Goals of the Cooperative

If the primary motives for establishing the cooperative form of business organization are to offset market power and correct market failure, pooling offers several

advantages over private, individual marketing to accomplish these purposes (see

Jermolowicz):

1. Risk sharing—since producers receive an average price for the marketing

   period for their production, cyclical fluctuations in prices or changes in

   consumer demand are spread (minimized) among all participants in the pool;

2. Improved marketing—the pool employs a staff of marketing professionals

   whose primary objective is to maximize returns to the producer. Among the

   advantages of having a professional sales staff is their ability to devote the

   time and resources to constantly monitor the market with more resources than

   available to an individual producer. Critical to the duties of these marketing

   specialists is the development of relationships with buyers and an

   understanding of their needs;

3. Increased market power—by pooling production, cotton growers enhance

   their bargaining position in the hope of improving prices. Collective action to

   counterbalance the market power of trading partners is designed to lead to

   more equitable and efficient market outcomes (Staatz, 1987b);

4. Quality control—being able to consistently provide the product demanded by

   buyers will greatly enhance the ability of sellers to market their crop. A

   marketing pool that can establish a reputation for quality and consistency will

   enhance its ability to compete successfully in the marketplace;

5. Economies of scale—marketing through a cooperative pool can lower the per

   unit cost of marketing as these costs are distributed over a greater volume of

product. Large scale operations are more likely to receive more favorable

rates for storage and transportation in addition to the ability to negotiate for

more favorable product prices.

<center>Issues of Marketing Pool Sustainability: Member Loyalty
and Pool Narrowing</center>

In a marketing pool, the cooperative adds the net revenue from the sale of all pool

commitments and, after deducting shared marketing costs, distributes this revenue back

to the members in proportion to each one's contribution. As mentioned above, marketing

pools may be offered for single or multiple commodities. If the pool combines products

of widely different qualities, the potential exists for what Sosnick (1963) calls "aggregate

inequity", which he defines as the "…disparity among members in the relation between

the valuation assigned to them by the association and the potential net resale value of

deliveries" (ibid., p. 61). Such disparity may be seen as the sum of a year's

underpayments for members whose product valuations are smaller with a single pool.

> If the pools combine deliveries with markedly different values, they may violate member's
> standards of fair treatment, impair the ability of the association to compete for high valued lots,
> and weaken members' incentives to improve quality. (ibid., p. 49)

While it is expected that the opportunity to earn higher net returns under a high-

value marketing pool will provide incentives for producers to improve quality, the

viability of the pool will depend in large measure on producer commitment to such an

effort. "Cooperative loyalty" refers to the willingness of producers to stick with the pool

"…even though there exist short-run incentives to defect" (Staatz, 1987a, p. 40).

According to Staatz, such loyalty reflects the participant's belief that 1) short-run

performance of the marketing pool may be improved if members stay with the

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organization and help remedy problems and 2) even though their may be short-run benefits of marketing elsewhere, the long-run benefits of pool participation are greater than those available from alternative marketing methods.

Buccola and Subaei (1985) provide a mathematical comparison of pool structures which may serve to inform this discussion. Let *I* represent grower-members of a cooperative which markets *J* farm products that are distinguished by quality characteristics such as species, variety, or grade. Each member produces at least one and possibly some or all of these products. Q_{ij} refers to the ith grower's output of the jth product which he delivers to the cooperative. C_{ij} represents the grower's per unit cost of production, P_j is the per unit valuation of the product by the cooperative, and R_j is the per unit revenue from the sale of *j* less per unit marketing and or processing costs. Net revenue to the cooperative from all deliveries and sales of product *j* is represented by:

$$\text{Cooperative Net Revenue} = R_j\sum_i Q_{ij}.$$

Single Product Pool

If the cooperative operates a single pool for all *J* products, the payment to the ith farmer (F) for his/her share of the jth product will be

(1) $F_{ij}^{\ s} = [Q_{ij}\ P_j/\ \sum_j P_j(\sum_i Q_{ij})]\ [R_j(\sum_i Q_{ij})].$

With a single product marketing pool, each member receives a proportional share of cooperative net revenues based on the valuation of the member's production ($Q_{ij}\ P_j$) relative to total cooperative receipts of all products at all initial valuations ($\sum_j P_j(\sum_i Q_{ij})$).

Profit of the individual member may be expressed as the sum of all payments for product *j* less farm production costs:

(2) $\pi_i^s = \sum_j(F_{ij}^s - Q_{ij}C_{ij})$

$\quad = \sum_j Q_{ij} [P_j\sum_j R_j(\sum_i Q_{ij})/\sum_j P_j(\sum_i Q_{ij}) - C_{ij}]$.

Multiple Pools

If the cooperative operates separate pools for different classifications of *J* raw products, payment to the producer is based on his contribution as a percentage of the total quantity of cooperative receipts. In this case it is not necessary for the cooperative to base this initial payment on the percentage of value (P_j) since all products in this pool are assumed to be of equivalent quality and thus would receive the same per unit valuation:

(3) $F_{ij}^m = Q_{ij}/\sum_i Q_{ij} [R_j(\sum_i Q_{ij})]$

$\quad = Q_{ij}R_j$.

With multiple pools, each member receives a fractional share of cooperative net revenues based on the physical volume of production contributed to the pool. If the producer participates in more than one pool, farm profit is the sum of all *J*:

(4) $\pi_i^m = \sum_j(F_{ij}^m - Q_{ij}C_{ij})$

$\quad = \sum_j Q_{ij}(R_j - C_{ij})$.

Comparison of Single and Multiple Pools: the Issue of Equity

The above formulations highlight two important characteristics of pool marketing and the equity inherent in single versus multiple product pools. First, with a single pool arrangement, the potential exists for a disparity to exist between the net resale value of a member's product and what he/she receives for it. Unless the percentage of deliveries for any one category is the same for all members, the averaging process of cooperative net

returns will create gains for those whose averages are less than the association average and losses for those whose averages are greater. This is Sosnick's "aggregate inequity".

A second consideration of equity may be manifest in the expected returns ($E[R_j]$) from each pooling arrangement. Inequity in this case may be defined as the average difference between what the member would receive under multiple pools compared to what he/she would receive with a single pool (Buccola and Subaei, 1985). If a producer expects higher returns from pool narrowing ($E[R_j^m] > E[R_j^s]$), then participation in a single pool will likely result in some inequity for some members.

The equity issues of pool structure may have important economic consequences. According to Sosnick, inequity threatens the sustainability of the marketing pool and the viability of the cooperative itself, "…both by fostering discontent and by impairing ability to compete for all kinds of growers" (p. 61). By directly tying financial incentives to production so that the benefits accrue to those who produce a higher quality product, multiple pools will be more effective in attracting and retaining producers of high-valued specialty products (Sykuta and Cook, 2001). Conversely, commingling products of diverse quality in a single pool may discourage the better farmers from participating and attract those who are relatively less efficient and/or produce products of relatively less quality (Karantininis and Zago, 2001). Therefore, if single product marketing pools are less effective in offering compensation and incentives for product attributes that are demanded in the marketplace, alternative marketing pool structures may need to be considered. Multiple product pools may be a source of higher returns and competitive advantage for producers and cooperatives. This will require "…greater specialization and

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segregation of agricultural products…" in a more highly coordinated system that delivers "…high-valued quality products" (Sykuta and Cook, p.1277). Cooperatives, with their widely held reputation of being reliable, high-quality suppliers and ethical and reputable business partners, may be uniquely positioned to respond to current trends of competition and globalization in the agricultural sector (Seipel and Heffernan).

New Generation Cooperatives

The above discussion of value added by commodity pooling describes a form of horizontal integration to achieve increased farm returns or more power by producers over the selling process. In the above scenario additional returns are gained through market coordination. Another form of adding value within the framework of the cooperative organizational structure is vertical integration where a farm or firm combines activities unlike those it presently performs but which are related to them in the sequence of marketing activities (Kohls and Downey, 1972).

One method of vertical coordination is the formation of closed-membership cooperatives whose focus is value-added processing. These New Generation Cooperatives (NGVs) are formed under the same incentives as marketing pools: to enhance farm income (Boland, Katz, and Barton, 1999). By examining the principles and structures used by NGCs to increase returns from the production of basic agricultural commodities, additional insight in to market opportunities through product differentiation and added value to raw commodities may be gained.

NGCs generally retain several principles of traditional cooperatives (EEFP, 2006):

1. democratic control is maintained by a one member, one vote policy;

2. excess earnings are returned to the membership as patronage refunds; and

3. the Board of Directors is elected from the membership by the membership.

Two structural characteristics serve to distinguish NGCs from traditional cooperative organizational forms. First, NGCs tie membership shares to delivery rights. Members must purchase shares that give them both the right and the obligation to deliver a certain quantity of product to the cooperative. If the member fails to deliver on his or her contract, the cooperative may procure the product elsewhere and charge a fee to the member for the additional cost incurred. Second, NGCs have limited or closed membership. Through the sale of delivery rights, the cooperative can limit both the number of members and the quantity of product received (Zeuli and Cropp, 2004).

Through the value-added integration strategies presented here, producers become more than suppliers of raw commodities. They are producing products for customers. As Coltrain, Barton, and Boland (2000) observe:

> The produce-and-then-sell mentality of the commodity business is being replaced by the strategy of first determining what attributes consumers want in their food products and then creating or manufacturing products with those attributes. (p. 4)

A successful transition to this type of marketing strategy may require more than structural marketing or organizational changes. To be successful and sustainable, a marketing program will likely require a change in how producers view both their productive operations and the market for their products.

A New Marketing Paradigm

The development of a high-value marketing pool is consistent with a new marketing paradigm advocated in this paper—a shift from a commodity orientation to a product orientation. Bowertox (2005) describes this process as shifting from a push or Anticipatory Business Model to a pull or Response Business Model.

Push--Anticipatory Business Model

This marketing paradigm is the traditional model for selling agricultural commodities. In this approach, demand forecasts form the basis of production decisions and products are sold or pushed onto the market at the end of the production process.

Pull--Response Business Model

This marketing model represents a new paradigm in many agricultural markets. As government programs that have offered price support for agricultural commodities are scaled back or eliminated altogether, this pull model of demand is more responsive to competitive markets. Rather than offering products in the marketplace based on demand forecasts or government price guarantees, this model is end-cast driven: products are produced and sold in deference to the product traits and characteristics consumers or buyers require. Hence the product is pulled into the market by the customer rather than pushed into the market by the producer. These two marketing perspectives are illustrated in Figure 1.

The goal of such a paradigm shift is to allow agricultural producers to capture a larger share of the consumer dollar and move from selling commodities to selling

ingredients or branded products (Kotov, 2000). We now turn to examples of how such a

marketing strategy has been employed.

Push model = Anticipatory Business Model

| Forecast | → | Buy components and materials | → | Manufacture | → | Warehouse | → | Sell | → | Deliver |
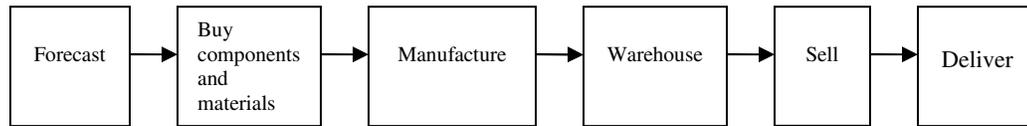
Pull model = Response Business Model

| Sell | → | Buy components and materials | → | Manufacture | → | Deliver |
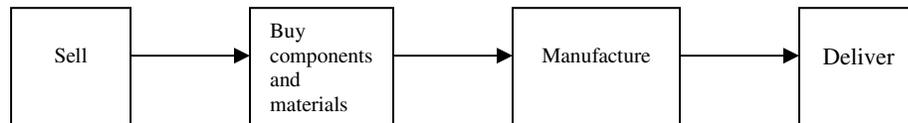
Source: Bowertox, 2005.

Figure 1. A comparison of Push and Pull Models of Consumer Demand

<u>Objective 2. Examples of Value-added Marketing:</u>
<u>From Theory to Practical Experience</u>

The conceptual framework developed to this point, may be empirically verified in

the practice of marketing agricultural products. We now turn to an investigation of

examples where producers have organized to add value to their agricultural production.

This will include instances where both HVMPs and NGCs have been implemented. The

experiences presented here will be examined to ascertain those that appear to be most

successful and/or instructive for the purposes of replication. This effort will focus on the

identification of issues that are critical to the success of this particular marketing strategy

and the development of high-value marketing pools.

Sapiro's California Plan

Aaron Sapiro brought about the organization and successful operation of many cooperatives under what has been called the "California Plan". His efforts brought cooperative marketing to such products as oranges, lemons, grapefruit, strawberries, peaches, grapes, cherries, dried fruits, currants, raisins, pears, apples, prunes, apricots, olives, canned fruit, small vegetables, beans, lima beans, celery, walnuts, alfalfa, barley, poultry, eggs, cheese, butter, milk, honey, and figs. Though not referred to as high-value marketing pools, the cooperative marketing pools Sapiro helped organize are based on the principle of product differentiation derived from quality attributes advocated in this paper.

Sapiro (1922) lists three fundamental principles for cooperative marketing that are consistent with high-value marketing pools. First, is to properly inspect and grade one's product.

> Grade it upwards, and make sure the thing you are selling can have a brand name put on it, and it is always the highest quality of that product that is brought on any market. We spend hundreds of thousands of dollars in inspecting everything that is delivered to co-operative associations. We go behind that, we go to the farmer and try to get him to begin to produce high class things. (p. 28)

Products that are amenable to inspection, grading, and branding may be marketed not as commodities, but as engendering quality and valued characteristics.

Sapiro's second principle is "…that your package has to be perfect" (p. 28). The package has to be convenient to the person who is going to use the product. This principle implies knowledge of shipping and handling requirements to preserve quality as well as the needs and desires of the customer. High-value marketing pools must be

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responsive to the units customers like to buy and assure that the product reaches them in the right condition.

The third principle is market extension. This principle refers to both the time and place of marketing. Market extension by time means providing the product at the most convenient time of consumption as opposed to dumping the product on the market all at once. This entails some centralized control over supply. Extending the market place refers to searching out new markets and new buyers in order to create demand for the product.

> If we find someone else selling a better product at a cheaper price we throw our hands up, but if we find they did not take them because they didn't know about them, or if we find someone else is putting a poorer thing in there or something we can match we go in and compete. We search out as far as our product can go. We find the markets and if we can't find the markets we create them. (p. 28)

Whether the product is perishable, semi-perishable, or non-perishable, Sapiro contends that successful merchandizing of agricultural products depends on the actions of the producer to "…boast of the quality" of his product: "You would then start to take a pride in it, and will keep up the quality of everything you produce when you put your brand on it and send it into the markets of the world" (p. 10).

American Crystal Sugar Company (ACSC)

American Crystal Sugar is unique as a cooperative organization in that it existed as a corporation until 1973 when it was purchased by sugar beet producers and converted into a cooperative. Now the largest sugar beet processor in the United States, it has been described as a model for the formation and development of many other NCGs. ACSC currently producers sugar for industrial customers as well as marketing its own sugar as a

branded product (see Coltrain, Barton, and Boland, 2000 and Boland and Barton, 2002 for a more complete history and strategic analysis).

Producer profit at ACSC stems from two primary strategic initiatives. First, a quality payment system was implemented to insure that growers adopt production practices that result in more sugar and fewer impurities in the sugar beets delivered. These best management practices have led to increased plant efficiencies and increased grower incomes. A second source of competitive advantage for ACSC is in the area of strategic relationships. ACSC has strengthened its market position through a series of strategic alliances ranging from marketing alliances to joint ownership to full acquisition of other participants in the U.S. sugar industry (EFFP, 2006a). These alliances highlight the importance of relationship building skills, from customers to competitors, on the part of ACSC.

<div align="center">Dakota Growers Pasta (DGP)</div>

In 1992, a group of durum wheat producers in the Upper Midwest established a grower-owned, closed wheat processing cooperative known as Dakota Growers Pasta (DGP). With a focus on the customer and customer service, DGP has become the third largest producer of dry pasta in the United States and is considered to be one of the most successful NGCs (Kotov, 2000).

The competitive strengths of DGP can be seen in three areas (EFFP, 2006b):

1. Customer satisfaction founded in superior service. The company has constructed its facilities to be flexible and adaptable to changing market needs.

2. Quality reputation. An emphasis on quality control extends from the farm (through wheat identity preservation and full product traceability) to the store (guaranteed quality and food safety).

3. Manufacturing and supply chain efficiencies. Processing facilities are located in proximity to wheat producing areas.

The majority of DGP's sales are under retailers own labels but it does market its own brand as well.

San Joaquin Valley Quality Cotton Growers Association (SJV)

Cotton is marketed as a branded product by the San Joaquin Valley Quality Cotton Growers Association under the registered trademark "SJV® Quality Cotton". Founded on the principle that textile manufacturers need a recognizable and consistent supply of the world's finest cotton, the Association represents a collection of growers committed to a quality product (San Joaquin Quality Cotton, 2005). Grower-members are selected for membership based on demonstrated histories of delivering the best cotton and an agreement to abide by the following quality assurance program:

- Planting only approved cotton varieties;

- Following strict management and cultural practices; and

- Submission of production records to the Association for documentation.

All production from the Association is marketed through the Beltwide Cotton Cooperative and its authorized marketing representative, Weil Brothers-Cotton, Inc.

HVMP Survey

Two surveys were administered to representatives of separate cotton merchandising firms with experience in operating high-value marketing pools (see the Appendix for a copy of the survey). Both firms are well established cotton trading

companies with strong reputations as reliable buyers. These two firms annually handle over 6 million bales of cotton. The survey instrument provided insight into what these persons responsible for the gathering and marketing of cotton saw as critical components of a high-value marketing program as well as some of the constraints and limitations that must be overcome in order to establish a HVMP.

Both respondents emphasized the importance of high quality standards for cotton that were the basis for the price premium they received for their product. One firm attempted to offer a branded product while one did not. Both firms required producer contracts (but no equity investment). Neither firm had a formal process for screening potential growers nor provided a list of required production practices, but one did require that only approved cotton varieties be planted and made attempts to recruit what they called "top tier" growers.

In terms of marketing, both listed customer relationships and responsiveness to customer concerns as primary to their marketing efforts. This included product delivery, knowledge of customer's manufacturing process, and an active desire to discover new marketing programs and new products.

As to factors that hindered the effectiveness of the HVMPs these merchants administered, both mentioned the difficulty of grower buy-in to the marketing efforts of the pool. There was consensus that growers must be motivated with the same level of commitment to excellent customer service that the merchants had. Without complete producer support for quality and timely delivery, the efforts of the marketing team were severely hampered.

Summary

A summary of the efforts of these organizations and marketing agents to gain

added value from agricultural production can be seen in Table 1. The two elements of

this synopsis on which there appears the greatest consensus are in the area of customer

service and quality control. The necessity of excellent customer service is consistent with

the focus necessary to achieve success in the new marketing paradigm proposed here:

know what your customer wants and when he or she wants it. The other most dominant

element of Table 1 is quality control. While there was some variation in whether this

required specified production practices or closed membership (or other forms of supply

control), the necessity of delivering products with the highest quality standards is

imperative to the value added endeavor.

From these results, it is possible to develop a model to be used in evaluating the

possibility of value-added marketing for agricultural products. The emphasis here is on

market coordination by transitioning from a single product commodity marketing pool to

a high-value marketing pool. The information gained from both horizontal and vertical

marketing integration will be used in the development of this model.

<u>Objective 3. Developing a General Model for
High-value Marketing Pools</u>

The above theoretical concepts and empirical analyses serve as a guide in forming

a model for HVMPs. The initial design presented here is based on the critical constructs

which have been identified to this point, both from theory and from practice. This model

provides a systematic evaluation of marketing alternatives: the movement from a single

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Table 1. Summary of Core Elements in Adding Value to Agricultural Products

Core Element	Sapiro	ACSC	DGP	SJV	Survey Firm 1	Survey Firm 2
Value added by horizontal or vertical integration strategy	Horizontal	Vertical	Vertical	Horizontal	Horizontal	Horizontal
Producers required to abide by best management practices	No	Yes	No	Yes	No	Yes
Branded product offering	Yes	Yes	Yes	Yes	No	Yes
Relationship building/Customer Service is vital	Yes	Yes	Yes	Yes	Yes	Yes
Require delivery contracts with producers	No	Yes	Yes	Yes	Yes	Yes
System in place for product inspection/grading/strict quality control	Yes	Yes	Yes	Yes	Yes	Yes
Packaging designed according to customer's wants	Yes	Yes	Yes	No	No	No
Closed membership structure, upfront producer investment required or producer selection process (some form of supply control)	Yes	Yes	Yes	Yes	No	No
Was the venture successful?	Yes	Yes	Yes	Yes	No	Yes

product marketing pool to a high-value pool that is a quality-based, attribute specific

marketing initiative based on knowledge and satisfaction of customer needs.

Figure 2 illustrates the basic framework of the model. The beginning point of the model

is from the standpoint of a single product marketing pool operating in the context of the

overall economic environment. The end point of the model is establishment of a HVMP.

In between these two points are the mediating factors that will determine whether it is

possible or feasible to transition from a single product marketing pool to a HVMP. The

preliminary model presented here contains the basic elements of demand and supply as

well as other factors which will be added as research is conducted.

<div align="center">Situational Analysis</div>

<u>Demand</u>

In neoclassical economic models, product demand is characterized by

homogeneous preferences within generic product classes (Hunt and Morgan, 1995).

Demand in this model relaxes this assumption and views demand as "…significantly

heterogeneous and dynamic" (ibid, p. 5). Demand in this real world construct follows the

Response Business Model of Bowertox founded on satisfying idiosyncratic customer

requirements for specific product characteristics. Production decisions are based first on

ascertaining what the customer desires followed by designing the production process to

satisfy this demand. Markets are complex, moving targets, continually shifting in

response to changes in the environment, customer requirements, and competitive

behavior (Day, 1990). 'Know your customer' is the mantra of the pull approach to

marketing and the foundation of the demand portion of this model.

Figure 2. Transitional Model from Commodity Selling to Product Marketing

Situational Analysis

Demand
- Heterogeneous
- Dynamic

Supply
- Differentiable
- Consistent and reliable

Organizational Capacity
- Member motivation
- Leadership/ culture

Single Product Pool

Choice

Transition

Or

Not

Implementation

Customer Orientation
- Customer relations
- Customer service

Management
- Professional
- Membership commitment and loyalty

Structure
- Membership restrictions
- Equity shares
- Delivery contracts

Product
- Quality
- Branding
- Packaging
- Promotion

High-value Marketing Pool

<u>Supply</u>

If knowledge of the needs of customers is the foundation of demand in this model, then supply may be characterized as offering products as solutions to a customer's problem (Mosier, 2005). Vital to the success of any cooperative marketing pool based on quality characteristics is the ability to provide a steady and reliable supply of quality product (Yeboah, 2005). For product supply to be marketed as in a HVMP, it must be differentiable or otherwise identifiable by characteristics or branding. Successful implementation of a high-value marketing pool will depend on a consistent supply of a marketable product. An assessment of the quantities and qualities a growing region can reliably produce will form the basis of the development of a high-value marketing pool in terms of both size and structure.

<u>Organizational Capacity</u>

An evaluation of member support and motivation to shift their marketing paradigm is vital to the process of market transition. The desire to pursue new marketing efforts requires a positive and aggressive attitude (Anderson, 1988) and a culture that is proactive and progressive in supporting new marketing concepts. Producer desires for equitable marketing arrangements where high-quality producers are not seen as subsidizing low-quality producers may motivate market changes.

<div align="center">Strategic Choices</div>

Several choices are available to producers in the evaluation of marketing alternatives. First, they may choose to continue present marketing arrangements. This alternative may be described as a defensive or reactive marketing strategy where

producers attempt to survive through production efficiencies which will allow them to compete on a low-cost provider basis. The second alternative, is to pursue an offensive strategy (Cook & Iliopoulos, 1999; Lang, 1995; Cook 1995; Cook and Chaddad 2004) of increased returns via a proactive marketing strategy where marketing decisions are made by design rather than by default (Lang, 1995; Anderson, 1988).

Implementation

Once the decision is made to transition to a customer based, product differentiation market strategy, several key components must be implemented for successful marketing performance.

Customer Orientation

In this marketing program, marketing comes at the beginning rather than at the end of the production process (see Figure 1) and is centered on the ability to satisfy the ever changing wants and needs of customers (Anderson, 1988). Customer relations are created and managed by anticipating needs, demonstrating responsiveness, and building credibility and trust (Day, 1994).

Management and Membership Requirements

Excellent management is critical to success (Hardmeyer, 2005). Hire the best (Sapiro, 1922) and link managerial compensation to specific performance goals. Equity in the firm should be a significant component of the manager's compensation package (King, 1995). Member loyalty, the willingness to stick with the cooperative even though there exist short-run incentives to defect, is vital to a successful marketing program (Staatz, 1987a). Members must support long-run marketing objectives (Anderson, 1988)

and focus on customer's needs rather than membership (Fulton, 1999; Anderson, 1988).

Customers have first place in all decisions (Anderson, 1988).

Structure

Defined membership, either through upfront equity investment or some form of membership screening is an important component of high quality marketing. Costless entry and exit decrease loyalty (Staatz, 1987a) and substantial initial investment by the grower to participate provides more incentive to commit to the marketing program over a longer term (Lyford, 1998). Ability to provide some form of control over supply seems necessary for success (Sapiro, 1922; Cook, 1993) as well as the use of delivery contracts, whereby farmers are required to deliver according to plan regardless of the open market (Cook & Iliopoulos, 1999; Cross & Buccola, 2004). While the marketing organization may assist growers in marketing product that falls below the standards established for the HVMP (often times due to factors beyond the producer's control), such deliveries will not suffice for pool requirements.

Product

Quality, product performance, product reputation are vital. This includes an enforced inspection and grading system in which compliance is monitored (Sapiro, 1922; Lyford, 1998). Process integrity entails adherence to strict management practices and the submission of production records for documentation (SJV, 2005). Branding is important as it is the means by which a product enters the mind of the consumer with some sort of differentiated value (Bruer, Cassill, and Jones, 2005). Packaging must be perfect (Sapiro, 1922). The product must reach the consumer in the right condition and in the size that

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the consumer wants (Sapiro, 1922; Lyford, 1998). Marketing extension and promotion means that you must find markets or create markets if you cannot find them (Sapiro, 1922). Advertising, promotion, and merchandising are important (Lyford, 1998) with corporate (product specific) advertising being more important than generic advertising (Anderson, 1988).

Feedback

An additional important component of the model is the inclusion of a feedback loop from the newly established high-value marketing pool to the original core elements of the system. As producers successfully and consistently satisfy their customers' demands, the high-value marketing pool may become the market of choice for specific customers seeking specific product traits. As producers are rewarded in the marketplace for producing a product of higher quality, it is expected that this will offer encouragement for producers to increase efforts and investments to further quality initiatives. As additional limitations and constraints are overcome, this will likely strengthen producer loyalty and commitment to the cooperative.

The core elements themselves may be interconnected as well. Producer commitment to quality and to the customer will reinforce efforts of process integrity and customer satisfaction. As a branded, quality assured product is recognized by the marketplace, it will by reputation increase the demand for the product. Concern over issues of income equity and product quality may influence the way organizations organize their memberships and enforce compliance of quality standards. Therefore, feedback loops are illustrated between the core elements to reflect this factor integration.

A key element of this research is the application of the above transition model in the context of a specific marketing situation. It will be appropriate to investigate a case in which agricultural producers seek to gain additional returns by moving from marketing a commodity to marketing a differentiated product. By assembling a focus group of cotton farmers from West Texas, it will be possible to gain their perspectives on the strengths and weaknesses of the model we have designed and the degree to which they might be interested in participating in such a marketing program.

Past decades have established the reputation of West Texas cotton as being a coarse count raw material, suitable for bottom-weight textiles that are not subjected to sophisticated dyeing and finishing (West Texas cotton is sometimes referred to as 'denim cotton'). However, the reality today is quite different from the past. New varieties with competitive yields and significantly improved fiber properties have been planted on ever larger shares of the cotton acreage in West Texas. A threshold level of high-quality cotton is now grown in West Texas that may make it feasible to target this area for such a HVMP marketing program. The successful operation of a HVMP would be expected to create the virtuous cycle of behavior discussed above. Demonstrably higher prices for high-quality cotton will cause more producers to grow high-quality varieties. This in turn gives momentum to altering the global reputation of cotton grown in West Texas which then commands quality premiums.

The model presented will guide those interested in establishing a HVMP in transitioning from a single product marketing pool to a more narrowly defined, high-

value pool. The economic climate in which this transition is considered is characterized by free trade initiatives, globalization, and declining price and policy support for agricultural commodities. Theory from the discipline of strategic management informs us that successful firm performance results from an adequate fit between strategic choice and the economic environment. The implementation of a high-value marketing pool represents one means by which producers may align their marketing strategy to an evolving economic environment.

Conclusion

The purpose of this paper was to develop a model for an evaluation of the concept of high-value marketing pools. Such a marketing initiative is reflective of the needed paradigm shift in marketing focus from commodity to product which may lead to a competitive advantage for producers in the global marketplace. While it is easy to find calls for a transition in marketing agricultural commodities from homogeneous commodities to differentiated products, such as would be the case with HVMPs, no unified model exists to systematically evaluate this marketing alternative. While we advocate the application of the model developed here for the case of West Texas upland cotton, it may find use in a wide variety of industries or crops. The possibility exists that this model may be applied in other contexts for other commodities and other marketing systems. If so, it may assist other agricultural producers escape "commodity hell" (Immelt, 2003) and apply concepts of innovation and differentiation in the marketing of their products.

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Survey Questionnaire for High-value Marketing Pools

Company_____

What business are you in? _____

_____

Headquarters location_____

Representative_____

Title/Responsibilities_____

_____

Contact Information_____

_____

_____

1. Does your company sell a product with unique features that set it apart from competitors?
    a. _____yes
    b. _____no
    c. _____don't know

2. Does your company produce and/or market a product with your brand name on it?
    a. _____yes
    b. _____no
    c. _____don't know

3. What activities does your company engage in to promote or advertise your product?
    a. _____Industry-wide, generic promotion such as check-off sponsored advertising
    b. _____Media advertising of your specific product or brand (TV, radio, newspaper, magazines, etc.)
    c. _____Personal contact with potential users of your product
    d. _____Trade shows, trade publications
    e. _____Other, please specify_____

4. Does your company receive a price premium for its product(s) because of quality and/or service characteristics (e.g. on time delivery, customer support, exceptional quality)?
   a. _____yes
   b. _____no
   c. _____don't know

5. How would you rate your company's program for product quality standards? Let "industry standard" refer to commonly practiced grading standards such as USDA grading and "exceptional" refer to an ISO 9000 or Six Sigma-type quality assurance program much above industry norms.

   industry standard   *exceptional*
        1   2   3   4   5   DK/NA

6. Compared to major competitors, how competent is your company in delivering to your customers the quality product they want (time, place, amount, packaging, condition, etc.)?

   worse   *about the same*   *much better*
        1   2   3   4   5   DK/NA

7. On a scale of 1 to 5 where 1 represents "strongly disagree" and 5 represents "strongly agree", how would you respond to the following statement: My company has an excellent reputation in the industry as a reliable and consistent supplier of quality products. (circle one)

   strongly disagree   *strongly agree*
        1   2   3   4   5   DK/NA

8. Does your organization screen potential new members/growers based on demonstrated production histories and management practices?
   a. _____yes
   b. _____no
   c. _____don't know

9. To participate in your marketing program, must members make an upfront equity investment and be obligated to deliver products in proportion to the amount of equity stock ?
   a. _____yes, current amount per equity share $_____
   b. _____no
   c. _____don't know

10. Does your company require producers to abide by delivery contracts regardless of conditions in the open market?
    a. _____yes
    b. _____no
    c. _____don't know

11. Does your company have approved production practices which producers must follow and verify?
    a. _____yes
    b. _____no
    c. _____don't know

12. How does your marketing pool handle pool deliveries that, due to no fault of the producer (e.g. weather, insects, etc.), fail to meet the quality standards your buyers demand?
    a. _____producers are liable for deliveries and must make purchases in the open market to fulfill contract specifications
    b. _____a two-tier marketing plan is in place that allows a marketing outlet when deliveries are of sub par quality.
    c. _____other, please describe

13. How would you rate the willingness and support your membership gives to new marketing programs and new product development?

    reluctant support   *willing support*
            1   2   3   4   5   DK/NA

14. Price may not be the only motivating factor for producers to support a marketing cooperative. Membership may be motivated by other factors such as the preservation of community and support of rural America, often referred to as "cooperative ideology". On a scale of 1 to 5 where 1 represents "other factors" and 5 represents "price only", how would you ascribe the motivation of most of your members' to participate in your marketing program? (circle one)

other factors   *price only*
            1   2   3   4   5   DK/NA

15. What percentage of growers typically stays with your marketing program each year?
    a. _____0% to 50%
    b. _____50% to 70%
    c. _____70% to 80%
    d. _____80% to 90%
    e. _____90% to 100%
    f. _____don't know

16. How many employees do you have (FTE)?
    a. _____1 to 9
    b. _____10 to 19
    c. _____20 to 99
    d. _____100+

17. Does your company require employee training to improve the quality of customer service it provides?
    a. _____yes
    b. _____no
    c. _____don't know

18. Does your company have a clearly stated marketing plan with a specific set of goals and objectives to achieve?
    a. _____yes
    b. _____no
    c. _____don't know

19. On a scale of 1 to 5 where 1 represents "little or none" and 5 represents "a significant amount", how would you rate the resources (time and financial) that your company commits to gathering information about your customers, your competition, and the market for your primary product(s).

     little or none   *a significant amount*
                   1   2   3   4   5   DK/NA

20. How active is your company in its search for and evaluation of new marketing growth opportunities?

     not very active   *very active*
                   1   2   3   4   5   DK/NA

21. In the last 3 years, has your company made any major changes to its marketing initiatives, started new marketing programs, or developed any new products?
     a. _____yes
     b. _____no
     c. _____don't know

22. How would you rate the time and resources committed by your company to developing and maintaining its relationship with customers? (circle one)

     not significant   *very significant*
                   1   2   3   4   5   DK/NA

23. Are the top managers of your company compensated according to specific performance goals of the organization?
     a. _____yes
     b. _____no
     c. _____don't know

24. What is your annual value of product sold?
     a. _____$0-$99,999
     b. _____$100,000-$499,999
     c. _____$500,000-$999,999
     d. _____$1,000,000-$4,999,999
     e. _____$5,000,000+

Are there other factors that you think are critical to the successful performance of your business? Please describe.