

Aziz Chopper Bike

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Abstract – Growing consumer demands has created a new niche market in the motorcycle industry that is quickly transforming the industry itself. Successful custom builders like Orange County Choppers and Metropolitan Choppers are providing their customers with an avenue to express their individuality and uniqueness, while accommodating every need and want. As a result, custom-built choppers have cornered a continually-growing market. This fact has forced stock producers, who have historically dominated the industry, to re-evaluate their strategy to compete with these smaller companies.

Keywords - motorcycle, breaks, suspension system, gear, clutch.

I. INTRODUCTION

Motorcycle riding in the United States today is more popular than it has been in the past. Since the early 1990s, there has been an explosion in the number of motorcyclists. This trend has spawned the rise of custom built machines that defy the imagination and teeter on the edge of a new art form. Shows like American Chopper and pop culture icons like Jesse James of West Coast Choppers have immortalized custom motorcycle builders. Recent box office hits such as Wild Hogs and Ghost Rider have prominently featured custom motorcycles. Out of this resurgence of motorcycle popularity, custom shoppers have begun to take market share from industry leaders.

The motorcycle industry is very volatile and a highly competitive market. Since the emergence of custom motorcycle shops, they have had to face



fierce competition locally and nationally. Major brands such as Harley-Davidson, Honda, and

BMW have dominated motorcycle sales in the United States for years. Thousands of custom-build motorcycle

shops have sprung up all over the nation within the last decade, providing more stiff competition within the market. Furthermore, common misconceptions portray custom-built cycles as too expensive and too high-maintenance.

The growing trend in the motorcycle industry creates opportunities for small businesses and entrepreneurs to enter the market. Analysts expect the global motorcycle industry to possibly grow as much as 40% by 2007 [11]. Aside from the major manufacturers like Harley-Davidson and Honda, a growing industry like that of motorcycles can support:

A myriad of small and mid-size players, including motorcycle dealers, manufacturers/retailers of aftermarket add-ons, custom builders who create small numbers of highly individualized bikes, and apparel manufacturers/retailers [11].

The motorcycle industry is the strongest it has been since the inception of the machines in the early Twentieth Century. The industry is expanding rapidly with new competitors and new customers entering the market.

II.SYSTEM MODEL

Paul Teutul, Sr., metalworker by trade and founder of Orange County Choppers, Inc., first began his business of building custom choppers out of his basement in Montgomery, NY. With the creative help of his oldest son, Paul Jr., the two were soon on their way to the top with the success of Paul Sr.'s first bike "True Blue" at Daytona Bikeoberfest in 1999. From that point on, Paul Sr. knew he had something and established Orange County Choppers, Inc. that same year. 11 The Teutuls quickly became recognized by chopper enthusiasts everywhere. They were not only making name for themselves in the custom chopper world, but were picked up by the Discovery Channel in 2002 as the basis for what is now the hit television series, American Chopper. Their popularity has led them to build custom theme bikes for some of the biggest names in corporate America, such as Microsoft, Lincoln, and Coca-Cola. Today, Orange County Choppers is regarded as one of the world's premier builders of custom motorcycles [57].





Fig:During Manufacturing



Fig-Motorcycle Modal(After Manufacturing)

Anywhere you go, you are bound to see something with Orange County Choppers name or logo on it. Orange County Choppers has positioned itself to be the best in the business. They have built a brand, marketed it, promoted it and have reaped the profits from having a successful company. In addition to the company's home store in Montgomery, NY, Orange County Choppers have several authorized dealers in Texas, Florida, New Jersey and Florida. These dealers sell Orange County Choppers in their stores. This allows customers to purchase bikes up and down the East Coast.

Orange County Choppers pricing strategy is consistent with the rest of the bike builders in the market. Prices for a custom chopper start around \$30,000. Depending on the different aspects of the bike, wheels, engine, paint, etc., one could easily spend \$200,000 on a bike from Orange County Choppers. Orange County Choppers provides its customers with a wide array of products to meet their customers' demands. In addition to custom choppers, apparel and merchandise, American Chopper, a television show, aired on TLC. These provide the company with the opportunity to capitalize on the market through various mediums.

Savage Cycles, Incorporated, is a custom motorcycle shop located in Frostburg, Maryland. It was formed about five years ago by three partners who had a wealth of experience in the business and a dream of creating awesome bikes for a living. The firm builds custom motorcycles, does custom work on stock motorcycles, does general cycle maintenance on all makes and models, and sells apparel [64]. The firm actually consists of three companies: one company manufactures motorcycles (Savage Cycles Manufacturing, Inc.), another sells the finished product (Savage Cycles LLC), and the third firm markets and sells apparel and other small products bearing the company's name (Savage Cycles Sales, Inc.) [64]. Currently, the company employs two additional fabricators other than the original owners. All five employees are involved in the building and fabrication of every motorcycle [62]. Sean Snyder, the principle owner, has always tried to keep Savage Cycles a small company so that unique, well-built motorcycles remain the goal. Their ability to wield a dream into reality gives Savage Cycles a competitive advantage in the motorcycle industry. Their recent build for Nationwide Insurance serves as a prefect example of the firm's craftsmanship and incredible vision. Although the management desires more business in the form of unique builds, the owners do not want to reach the point where they have too many builds at once and quality begins to suffer [64]. The firm has always considered their market to be the Mideast region, and sometimes even nationwide. They have utilized the Internet for both a webpage and a myspace.com account [64].

More recently, Savage Cycles has begun to do all types of service work and custom fabrication on stock motorcycles. This effort, according to management, is an attempt to create more steady business from the local area. The largest revenue earner for the firm still remains the countless custom built motorcycles, but service and customizing work has been on the rise for the company. Savage Cycles will service any brand motorcycle, and can customize any stock bike for customers. Savage Cycles has experienced moderate growth since its inception and continues to changes its positioning within the industry in order to achieve brand equity. 12 The Savage Cycles management philosophy can best be summed up by two quotes that are attributed to co-owners Sean Snyder, Mike Dixon and Jeremy Gordon. The quotes are "Less people means less @#%\$ ups," and "This ain't no TV show, this is a custom bike business." The quotes can be found on their web site and in the latest edition of Deep Creek Magazine, which features a four-page profile of the unique bike shop. Both quotes are prominently highlighted in the layout of the article and the management team went out of their way to put extra emphasis on what seems to be "words to live by' in the way they run their business. Both axioms permeate everything they do in their small shop [16]. As managers,



the Savage Cycles team has a great deal of confidence in the team of employees they have assembled and each member of the team brings a wealth of knowledge to the table. Each employee has a specialty and they are treated as the expert in their area of craftsmanship. After they have agreed to work on a particular bike build, the Savage team puts their heads together to plan out how the work is going to progress and who is responsible for various parts of the project. From there, the management team simply lets their employees get to work on the bike and they get out of the way. One of the big advantages with Savage Cycles having a small staff is that it is a shop where everyone works on the bikes. The co-owners are down in the shop, working side-by-side with the other employees. Everybody knows what is going on and there are very few layers of management. This is not a shop where you have an isolated owner who sits upstairs in some big office and rarely sees the day-to-day operation. Everyone works together very well and they are very close, literally, to each of their projects. V-twin Biker Magazine's staff stated, "in fact, you could say that this group manages itself." Metropolitan Choppers, located in Frederick, Maryland, is a relatively new custom motorcycle shop in the industry that has been making waves since their induction in 2004. Donald Trump has dubbed Metropolitan Choppers the "Rolls Royce of Choppers." Rick Hill and "Big" Dan Kessinger manage the shop together. Metropolitan Choppers, like most other custom-build companies, fabricates motorcycles, customize stock bikes, and sells apparel. Much like the Teutuls of Orange County Choppers, Rick Hill's family originally owned Metropolitan Steel, which served as a perfect segway into the motorcycle industry. "Big" Dan Kessinger was a former employee of Metropolitan Steel and is now the manager of Metropolitan Choppers. Metropolitan Choppers quickly gained recognition when several highprofile individuals purchased a custom motorcycle. Word of mouth marketing from these celebrities has spawned new interest from viable customers nationwide. As a result of this success, large corporations are now seeking out Metropolitan Choppers. For example, the recent success of the Treasure Island build has made the firm an attraction of its own in Las Vegas. A joint venture between Metropolitan Choppers and Treasure Island Casino and Resort is being established to launch a product line based off of the bike. This success has attracted the interest of other well-known casinos in sin city to adopt similar strategies with Metropolitan Choppers. Metropolitan Choppers claims that each of their motorcycles is a unique work of art which cannot be duplicated by any other firm. Each machine is carefully crafted and designed intricately to coincide with a theme chosen by the purchaser. As a result, Metropolitan Choppers has positioned themselves in the market as a high-end, uniquely original motorcycle producer. The average price of a motorcycle purchased at

Metropolitan Choppers is around \$100,000 [25]. Only the most affluent individuals or successful corporations could afford this price, which is the target market Rick Hill seeks to attract. All three custom motorcycle shops operate similar businesses with similar strategies. Like any other custom shop, these three firms attempt to offer unlimited options to their customers. Each company is in different phases regarding their pursuit of establishing brand equity. Orange County Choppers has successfully established brand equity and is at the peak of popularity. In addition to becoming television 13 icons, the firm now offers apparel and memorabilia in addition to their uniquely designed motorcycles. Metropolitan Choppers is on the verge of establishing brand equity on a national level. Recent builds have been completed for 84 Lumber, Treasure Island, John Daly, and for the popular television show Fear Factor. Savage Cycles is on the other spectrum of brand equity. Only recently has the firm peaked interests on a national level with their Jack Daniel's and Nationwide Insurance themed bikes. All three custom builders have penetrated the market and stole market share from the "big dogs" who have historically dominated the industry.



Fig:During Testing

III. CONCLUSION

As a result of cultural shifts in American Society towards customization and uniqueness, a new niche market for custom motorcycles has come to fruition. This niche market is constantly expanding and continually decreasing the amount of sales going towards stock motorcycles. Custom motorcycle shops are driving changes within the industry. A prominent example of this change is that now the stock industry offers more models than ever before to attract consumers. Honda currently offers 107 different models; however, the firm cannot meet every demand of every customer. Currently, the demographics of the economy are supportive of the growing niche market. Motorcycling has become mainstream; consequently, successful and affluent members of the baby boomer generation now find themselves wanting to ride. Lawyers, doctors, and other wealthy Americans want to join the motorcycling trend, but 14 still want to retain their individuality and uniqueness while flaunting their wealth. Buying a custom chopper represents this avenue.



IV. FUTURE SCOPES

In Some indeterminate amount of time in the future and seeing a chopper bike is as commonplace as seeing a fancy car. This type of has real

REFRENCE:

- [1] Campbell, Anita. "Motorcycle Industry Offers Opportunity for Smaller Enterprises." Small Business Trends 3 Nov.
- [2] "ABATE." 2007. 23 Feb. 2007
- [3] "Annual Report: Harley-Davidson." Harley-Davidson Motorcycles. 2007. 16 Feb. 2007
- [4] Arabe, Katrina C. "On a Roll, Motorcycle Industry Hums Along." ThomasNet. 26 Jan. 2005. 11 Feb. 2007
- [5] Associated Press. "Lawmaker Comes Down on Plastic Gonads." Baltimore Sun. 22 February 2007. 26 Feb. 2007
- [6] Associated Press. "Transportation Secretary Urges Helmet Use." 17 February 2007. 25 Feb. 2007.
- [7] Ballon, Marc. Born to be Wild. New York: Bantam Publishing, 1997.
- [8] "Big Bear Chopper." Big Bear Chopper. 2007. 14 Feb. 2007.
- [9] Biker's Rights.com. "History: The New EPA Motorcycle Emissions: EPA'S Regulations May Threaten Motorcycling As We Know It." 27 Feb. 2007.
- [10] "BMW." BMW. 2006. 14 Feb. 2007
- [11] "BMW Canada." BMW Motorcycles. 2007. 16 Feb. 2007.
- [12] Campbell, Anita. "Motorcycle Industry Offers Opportunity for Smaller Enterprises." Small Business Trends. 3 Nov. 2003. 11 Feb. 2007
- [13] Canfield, Kevin. "Who Watches NFL, by the #'s." Media Life Magazine. 13 Sept. 2002. 8 May 2007
- [14] Easyriders Magazine. 2007. 27 Feb. 2007
- [15] "Examining the Motorcycle Industry Today." Harley-Davidson Motorcycles. 2006. 20 June 2006[15] Gangloff, Corinne. "World Motorcycles Demand to Exceed 41 million Units by 2009." Freedonia Group. 15 Nov. 2005. 3 Mar. 2007
- [16] Glotfelty, Amy. "Savage Cycles Building More Than Just a Bike!" Deep Creek Magazine. Jan.- Feb. 2007: 18-21.
- [16] Greene, Julie. "Choice Choppers." Hagerstown Herald-Mail.25 March 2007. 16
- [17] Greywitt, Michael & Scroggs, Matthew. "More than Two-Thirds of All New-Motorcycle Owners Ride the Information Superhighway." J.D. Power and Associates Reports. 18 January 2000.
- [18] Hall, Robert W. Indiana University. Interview.
- [19] "Harley Davidson." Harley-Davidson Motorcycles. 2007. 14 Feb. 2007

- [20] "Harley-Davidson Canada." Harley-Davidson Motorcycles. 2007. 11 Feb. 2007
- [21] Hauf, Amy. "Savage Cycles A Shop/Industrial Dungeon Like No Other." P&OM Garage.Com. 15 Jan. 2005. 4 Mar. 2007
- [22] "History." Honda in America. 5 Jan. 2007. 23 Feb. 2007 http://corporate.honda.com/america/history.aspx[25] Hill, Rick. Personal Interview. April 2007.[26] "Honda." Honda. 2006. 14 Feb. 2007
- [23] "Honda 2002 Annual Report." Motosargentinas. 2007. 11 Feb. 2007
- [24] "Honda Rider's Club of America." Honda Motorcycles. 1 Jan. 2007. 25 Feb. 2007
- [25] Hunger, J. D. & Wheelen, T. L. (2007). Essentials of Strategic Management (4th ed.). Upper Saddle River: Pearson Education, Inc.
- [26] "Justice for All Facing up to the consequences of crashes." American Motorcyclist Association. 16 January 2007. 26 Feb. 2007
- [27] Keyes, Scott. "In House Operation." Biker Beauties. 10 Nov. 2006. 3 Mar. 2007
- [28] Lautenberg, Senator Frank R. Letter. "National Helmet Law Letter to Governors." 12 September 2006.
- [29] "Motorcycle Dealers." Answers.com. 2007. 19 Apr. 2007
- [30] "Motorcycle History." MotorHelmets. 2007. 20 Feb. 2007 17
- [31] Motorcycle Industry Council (MIC). 2004 Motorcycle Statistical Annual. Discover Today's Motorcycling: Irvine, California. 2004.
- [32] "Motorcycle Menace: Introduction." Morning Side. 2007. 20 Feb. 2007
- [33] "Motorcycle Sales Top One Million, Again." MotorcycleUSA.com. 2007. 16 Feb. 2007.
- [34] "Motorcycle Section." NoiseOff. 2007. 27 Feb. 2007
- [35] "Motorcycle Test Drive." Motorcycle Test Drive. 2007. 2 March 2007
- [36] "Motorcycle Types The Styles of Motorcycles." About.com. 2007. 2 March 2007.[41] "Motorcycles." Central Intelligence Agency (CIA). 2007. 21 Feb. 2007
- [37] "Motorcycles." Federal Reserve System. 2007. 19 Feb. 2007
- [38] "Motorcycles." Japanese Automobile Manufacturers Association. 2007. 27 Feb. 2007[44] "Motorcycles." Market Research. 2007. 12 Feb. 2007
- [39] "Motorcycles." National Savings and Investments. 2007. 24 Feb. 2007
- [40] "Motorcycles." www.fueleconomy.gov. 2007. 16 Feb. 2007
- [41] "Motorcycles." Motorcycle & Moped Industry Council. 2007. 11 Feb. 2007
- [42] "Motorcycles." NASDAQ. 2007. 19 Feb. 2007



- [43] "Motorcycles." Robb Report MotorCycling Magazine. 15 Feb. 2006. 26 Feb. 2007
- [44] "Motorcycles." U.S. Census Bureau. 2007. 26 Feb. 2007
- [45] "Motorcycles." U.S.-Vietnam Trade Council. 2007. 9 Feb. 2007
- [46] "Motorcycles in the United States, Industry Profile." Datamonitor.com. 2006. 25 Apr. 2007[53] "MRF Leaders Report." Motorcycle Riders Federation. 12 January 2007. 24 Feb. 2007 18
- [47] "New EPA emissions rules may mark end of two-strokes." American Motorcyclist Association. 2007. 27 Sept. 2003
- [48] "New Motorcycle/ATV Owner Survey." webBikeWorld. 2007. 11 Feb. 2007
- [49] Nordwall, Eric. "Motorcycle Sales Grow for the 14th Year." USA Today. 16 February 2007, Money edition, Section B: 1B
- [50] "Orange County Choppers." Orange County Choppers. 2007. 14 Feb. 2007
- [51] "Population Division of the Department of Economic and Social Affairs of the United Nations." United Nations. 2007. 4 Feb. 2007
- [52] Powell, Kimmy. "The Facts about Myspace." Big Bruin Tech News and Reviews. 11 April 2006.[60] "Products." Savage Cycles. 12 Jan. 2007. 24 Feb. 2007
- [53] Ramspott, Becca. "Alum's Co. Makes State-of-the- Art Motorcycles with Personal Touches." FSU's Profile Magazine. Spring 2007
- [54] "Savage Cycles." Savage Cycles Incorporated. 2007. 14 Feb. 2007
- [55] "Savage Cycles Grand Opening / Frostburg, MD." Thunder Roads of PA. 1 Dec. 2004: 44. 03 March 2007
- [56] Snyder, Sean. Personal Interview.

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