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Chief Editor:

Ahmad Tootoonchi
College of Business
Frostburg State University
101 Braddock Road
Frostburg, Maryland 21532
Tel: 301-687-4740
Tootoonchi@frostburg.edu

Editor:

Jill A. Morris
Department of English
Frostburg State University
101 Braddock Road
Frostburg, Maryland 21532
Tel: (301) 687-4238
jamorris@frostburg.edu

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Editorial Note

The May 2015 issue of the *Journal of International Business Disciplines (JIBD)* has been the result of a rigorous process in two stages:

- Stage 1: all papers that were submitted to the 2015 IABD conference went through blind reviews, and high quality papers were accepted for presentation at the conference.
- Stage 2: approximately ten percent of the accepted articles and one invited manuscript were selected for possible publication in *JIBD*, and the respective authors were contacted and asked to resubmit their papers for a second round of reviews. These manuscripts went through a rigorous review process by the editorial board members and external reviewers. In the end, three articles were recommended by the editorial board for publication in the May 2015 issue of *JIBD*.

JIBD is committed to maintaining high standards of quality in all of its publications.

Ahmad Tootoonchi, Chief Editor
Journal of International Business Disciplines

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ENTREPRENEURSHIP IN INDIA: THE CHALLENGES AHEAD

Adedamola A Ariyo, Cloudware Technologies
a.ariyo@queensu.ca

Jonathan Lee, University of Windsor
jlee@uwindsor.ca

David McCalman, University of Central Arkansas
davidm@uca.edu

ABSTRACT

India's dramatic macroeconomic success in the last quarter century has stemmed from a number of factors. This paper provides several of the antecedents for this, focusing especially on India's burgeoning entrepreneurship. Along with structural liberalization that has allowed the progress to date to take place, several factors—including socio-cultural ones—help explain the dynamism of Indian entrepreneurial activities. Several circumstances, such as access to capital and market conditions, are favorable for continued development, although some limiting factors, such as corruption, remain in place.

INTRODUCTION

Based on its economic performance, India has been lauded by a number of experts as the next Asian miracle. The argument has been made that one of the main reasons for India's economic success is its shifting from a system that was inspired by the Soviet model of state-sponsored commerce to one that is more market-oriented. Entrepreneurship in India has been influenced by factors such as religion and politics, which in the past have given the country a bad reputation within the business community. However, recent governments have made it their objective to make the country extremely business-friendly, both for its people and for foreign investors. Institutional reform appears to have gained greater momentum in India than in rapidly changing China, and the former outperforms the latter in a number of the World Bank's governance indicators.

While the country has made tremendous progress, issues of caste, bureaucracy, and corruption both at the state and national levels continue to be major problems. Furthermore, there are a number of Western researchers who are skeptical of India's economic success and believe that the country's social structure is a major roadblock to entrepreneurship. Moreover, political influence and corruption within the business community are problems that need immediate attention. This paper will attempt to discuss the various factors that shape Indian entrepreneurship along with the many challenges that face the country as it competes regionally to be the next Asian superpower.

ENTREPRENEURSHIP

Most modern-day interpretations of entrepreneurship have been derived from historical descriptions and case studies that centered on the free enterprise era of Western capitalism. Even today, the Western entrepreneur has been romanticized to such an extent that businessmen from developing economies continue to critique their accomplishments based on these models. According to Schumpeter's theory of economic development, *entrepreneur* is the term used to describe a specialized body of employers who venture out, take on risks and organize the allocation the labour and capital that is required to turn a business idea into reality (Javillonar & Peters, 1973).

An entrepreneur is also an innovator in that he or she introduces unique combinations of innovations. These innovations could be the introduction of a new product, a novel method of production, the uncovering of a new market, re-organizing a particular industry or finding out a new avenue for supplying raw materials and half-manufactured goods (Kumar, 2008). Entrepreneurship is basically a creative activity and a phenomenon that comes under the umbrella of leadership. Therefore, the entrepreneur has to be a manager, innovator, and promoter all in one (Uddin et al., 1990). When defining and attempting to understand entrepreneurship, it should be understood that there are generally two types (Schwab, 2011):

- Opportunity-based entrepreneurship – where an entrepreneur sees that there is a business opportunity and decides to pursue this as a realistic career choice.
- Necessity-based entrepreneurship – where an entrepreneur has no other option with respects to earning a livelihood. This is not based on choice but rather on compulsion.

While theoreticians such as Weber and Schumpeter were mainly concerned with defining entrepreneurship within the Western context, McClland devised a theory that could be applied universally. According to McClland, there is a causal relationship between what is known as the “achievement motive” and entrepreneurship (Javillonar & Peters, 1973). McClland defines *achievement motivation* as an individual's desire to succeed for his or her own personal accomplishment. He believed that the economic development of any country is accelerated by the rise of people within this particular psychological drive. Therefore, it can be said that India's recent economic success has been caused by its people possessing the achievement motive (Kumar, 2008).

One of the assumptions of the achievement motive theory is that an individual is independent and free to live his life according to his own wants and desires. However, this particular criterion for entrepreneurship appears to be more suited to Western societies rather to family oriented ones like India, China etc. In Western countries, the nuclear family is necessary for initial socialization in independence and self-reliance. In countries like the United States and Canada, children are expected to go out on their own upon reaching legal maturity. This means that they are left to their own devices with respect to career planning, paying for school and marriage (Petrus, 2008).

THE IMPORTANCE OF INDIA'S ECONOMIC LIBERALIZATION

Entrepreneurship in India has grown since India began liberalizing its economy in 1991. Some of the most prominent companies driving India's economic growth came into their own following liberalization. Take the case of the IT company, Infosys. From 1981 to 1991, the firm expanded by less than US \$5 million ("India's Liberalization," 2012). In the 20 years since liberalization, Infosys has grown into a US \$6 billion corporation with a global presence. The company's co-founder N.R. Narayana Murthy has emphatically stated that the company would not have achieved the kind of success that it has if it were not for liberalization. The success of Infosys and other companies that were set up post-1991 should remind the government that the country has a tremendous pool of talent that needs the right environment to flourish ("India's Liberalization," 2012).

According to a study conducted by Kaustubh Dhargalkar, the number of first generation companies listed in Group A of the Bombay Stock Exchange (BSE) has grown from 9 in 1991 to 30 in 2011. This number does not include those start-ups that moved out of Group A. If these companies were included, then the total number of first generation companies that got listed in Group A of the BSE from 1995 to 2011 would be 62. There are four main reasons why there has been great influence of first generation companies in the post-liberalization era ("India's Liberalization," 2012):

- Greater access to angel investors and venture capitalists which reduce the cost of starting a business;
- Technology has lowered the expenses associated with niche marketing;
- Stock markets have become more transparent and efficient which makes it easier for entrepreneurs to gain access to money;
- Indians in general have warmed to the idea of entrepreneurship.

SUCCESS OF INDIAN ENTREPRENEURS ABROAD

Indian entrepreneurs are highly successful in countries like the United States, Canada and the United Kingdom. In the U.S., the average net business income of Indian entrepreneurs is \$84,080 which is much greater than the national average of \$52,086. This is particularly striking when compared with India's per capita income of \$2,644 (Shivani et al, 2006). The question that is often asked is why are Indians such successful entrepreneurs abroad?

One hypothesis is that Indians have excellent educational backgrounds and that human capital plays a large role in their business success. In the U.S., Canada and U.K., Indian entrepreneurs are more likely to be college graduates than the locals (Huang, 2008). More than two thirds of Indian entrepreneurs in the United States have graduated from college or universities and the same applies to half of all Indian entrepreneurs in Canada. This is double the national average in both countries. The percentage is lower in the U.K. at one third but this is still higher than the national average (Huang, 2008).

While education is one the main reasons why Indian entrepreneurs are successful abroad, the fact of the matter is that these countries encourage entrepreneurship, have excellent infrastructures, superior technologies, and other various mechanisms in place to aid start ups. Corruption and red tape remain two of the most pressing issues facing entrepreneurship in India. Countries like the U.S., Canada and the U.K. allow entrepreneurs to grow and give them access to the networks, clients, advisors and capital required to make allow their ventures to succeed (Huang, 2008).

Since the 1990s, business conditions have improved in India especially in the area of IT. Despite this, Indians living abroad often complain about the complicated bureaucratic restrictions, corrupt and lackadaisical officials, and the presence of an infrastructure that causes daily difficulties such as unreliable power supplies, water shortages, congested highways, and extremely expensive telecommunications facilities. Furthermore, most non-resident Indians (NRIs) do not feel at home in India. This is because they are often faced with resentment whenever they return back home. This has a lot to do with India's long-standing hostility towards foreign companies (Kumar, 2008).

India's policy makers and entrepreneurs working in Silicon Valley communicate little if any even on matters pertaining to technology. Young graduates in India prefer to work for multinational companies because they believe that such firms will provide them with the opportunity to move to places like the United States and Canada. In Bangalore alone, software companies have reported turnover rates of 20-30 percent as workers make full use of the first opportunity that they have to migrate (Yep, 2012). Many of these workers eventually turn into successful entrepreneurs when placed in a conducive environment. However, recent reports have shown that a number of Indian entrepreneurs are returning home as their home country is beginning to offer them business opportunities that had hitherto been elusive (Wadhwa, 2011).

THE CURRENT STATE OF ENTREPRENEURSHIP IN INDIA

Researchers frequently refer to the *push-pull* hypothesis when attempting to explain why people decide to become entrepreneurs. This hypothesis has much to do with how one's economic environment influences entry into or exit from self-employment. Theoretically, high unemployment makes it difficult for people to be gainfully employed, thereby pushing them into self-employment. Simultaneously, if high unemployment reduces the demand for certain goods and services, individuals can be pulled out of self-employment (Petrus, 2008). The Indian government has long regarded self-employment as one of the main ways to alleviate poverty. Therefore, it has implemented various support programs such as the Integrated Rural Development Programme (IRDP), *Prime Minister's Rozgar Yojana* (PMRY) and *Sampoorna Grameen Rozgar Yojana* (SGRY) (Munshi & Rosenzweig, 2006).

These programs are meant to motivate those who are unemployed to go into business for themselves. They include credit guarantees, capital subsidies and special support through banks. The economic liberalization that began in 1991 focused on structural, fiscal, and industrial reform. With the removal of barriers, it was widely expected that there would be an increase in private investment and greater entrepreneurial opportunities (Munshi & Rosenzweig, 2006).

India began to loosen its grip on industrial regulation during the early 1970s. Trade liberalization started during the late 1970s and continued well into the 1980s. However, the 1991 economic liberalization policies of the Rajiv Gandhi administration gave Indian entrepreneurship the stimulus that it needed. As of 2011, 57 Indian companies have been listed in Forbes Global 2000 list of public companies (“57 Indian firms”, 2011). Although Indian society is patriarchal in nature, divisions of financial institutions such as JPMorgan Chase, HSBC, UBS, Royal Bank of Scotland and Fidelity International have been headed by women. In fact, women account for about half of the deputy governors at the Reserve Bank of India (MacDonald, 2006).

India’s economic success had been spearheaded by Indian Information Technology (IT) and the business process (BP) offshoring sector. The offshoring industry first started in back offices, ventured to BP and is slowly shifting towards more high-end functions such as Research and Development (R & D) (Uddin et al, 1990). A number of pharmaceutical companies from the United States are outsourcing drug development processes to India. It has been estimated that developing a drug in India was US\$ 100 million which is significantly cheaper than the US\$1 billion that it would cost to do the same in the U.S. India’s entrepreneurship is especially evident in the IT sector which exports US \$3.75 for every dollar that is earned in the country (Munshi & Rosenzweig, 2006).

While there is enormous optimism regarding India’s economic future, a detailed analysis of the figures show that there is great room for improvement. India lags behind a number of developing countries on key indicators that are related to entrepreneurial activities. On the World Economic Forum’s competitiveness index, India ranked a mere 56th while its biggest competitor, China, fared much better at 28th. The Indian business community has continued to decry the fact that infrastructure is the biggest hindrance to entrepreneurship in the country (Schwab, 2011).

The informal economy forms a substantial part of India’s GDP and this has continued to rise steadily. Given the fact that 70% of the nonagricultural workforce is informally employed, analysts have estimated that a massive 90% of India’s GDP comes from the informal work force. Since poverty reduction is one of main indicators of entrepreneurial success, it is fair to say that India has not been faring well on this front (Javillonar & Peters, 1973). According to recent reports, 41.6% of the population lives on less than US \$1.25 per day while 75.6% live on less than US \$2 a day. Furthermore, economic growth has failed to have a trickledown effect, and only the wealthiest and those in the urban centers have benefitted from entrepreneurship. A mere 10 families have control over 80% of the stock in the country’s largest corporations (Ailawadi, n.d.).

Large Indian companies have privileged access to land and have strong political connections that allow them to win most of the government contracts. This has meant that entrepreneurship has also become a birth-right. Families like the Tatas, Birlas and Ambanis have control over the majority of the country’s natural resources and since they have political support, they prevent smaller entrepreneurs from progressing (Huang, 2008). While India is often lauded for its democratic political system, the economy has numerous traits of oligarchic capitalism. Analysts have shown that the economic liberalization policies of 1991 have little or no effect in promoting small and medium enterprises (SMEs). The elite core of politically-connected businessmen have

insulated themselves from outside competition and continue to wield enormous power over the economy (“57 Indian firms”, n.d.).

DETERMINANTS OF ENTREPRENEURIAL BEHAVIOR IN INDIA

Market conditions

Access to local and foreign markets plays a significant role on entrepreneurial performance. Since the domestic market in India is quite large, it has allowed some Indian firms to successfully compete on the international markets. Observers have noted that Indian companies’ ability to deliver value for money has allowed them to operate efficiently in the African market (Wadhwa, 2011). This is because they are able to adapt their business model to those of other developing countries. However, government regulations remain one of the main hindrances to those wishing to access the domestic market in India. For example, if a company wished to bring in raw materials, they would have pay taxes and the same applies to when the export the finished product or when they transport materials within the state (Bertaux & Crable, 2009).

Issues of governance

Indian politics has been characterized by poor governance, lack of accountability, and abuse of power. India’s business elite have long developed alliances with those in power and tolerate corruption if it benefits them. On account of the corrupt system, potential entrepreneurs find it difficult to cope with the bribes that they have to pay at each and every juncture in order to get a project underway (Bertaux & Crable, 2009). There are also groups who believe in reverting back to traditional Hindu values and who view corporations as harbingers of Western evil. Since such groups have support with the government and opposition, they have to be paid attention to and this further restricts entrepreneurship (Fest, 2005).

India’s courts system is overwhelmingly overburdened and cases typically take years to be decided because of all the red tape involved. In India, it normally takes seven years to close a business as compared to the Organization for Economic Co-operation and Development (OECD) average of 1.7 years (Kumar, 2008). Furthermore, the average time to register any property in South Asia is 106 days while the OECD average is 25 years. Firms with over 100 employees need to take permission from the government in order to fire workers (Kaka, 2009).

Entrepreneurship and marketing initiatives face major obstacles such as confusing regulations. For example, in the retail sector there are hindrances such as signboard licenses and anti-hoarding laws. There is also the absence of competition laws in some parts of the Indian economy. For example, current laws work against major retailers and protect the interest of smaller stores (Kumar, 2008).

Access to capital

One of the main difficulties for Indian firms is gaining access to finance. This is despite the fact that there have been clear instructions from the Reserve Bank of India (RBI) and the Ministry of Finance to encourage the flow of capital. It is virtually impossible to get a bank loan or an angel investment if one is an up-and-coming entrepreneur. Such loans are usually set aside for major businesses and entrepreneurs have to fund their enterprises themselves. While this might be possible to some extent, it means that a small entrepreneur will never have the means to expand his or her company (Saberwal, 1976).

One other major problem is that there is no transparency regarding the financial situation of SMEs. There are even cases where the owners of such businesses are not fully aware of what precisely their financial situation is. Therefore, it is no surprise that bank will be hesitant to give out loans. Financial analysts have shown that a fairly large percentage of loans given to SMEs in the past have exacerbated the problem of non-performing assets (NPA) (MacDonald, 2006). Unless there are detailed financial statements, Indian banks will not be willing to take the risk and entrepreneurship as a whole will suffer. In order to comply with RBI regulations, banks might prefer to loan money to larger enterprises (Saberwal, 1976).

Recently, a credit guarantee system for SMEs was put in place by various financial institutions. One such scheme is the Credit Guarantee Fund Trust for MSEs (CGTMSE) where the life insurance cover is guaranteed for the main promoters of enterprises. Furthermore, some industry associations have signed MoUs with banks and other financial institutions in order to offer collateral security for start-up businesses (Huang, 2008).

FACTORS RELATED TO R&D AND TECHNOLOGY

When compared to most other developing countries like China and Brazil, India has been extremely slow in adopting Information and Communications Technology (ICT). A recent study conducted by Google India has shown has only 2 million out of 35 million SMEs had internet access. Despite this, there have been a few high profile cases of ICT being utilized in order to promote entrepreneurial activities (Munshi & Rosenzweig, 2006).

In October 2010, Intel made the announcement that they had joined with 70 Indian companies including the Bombay Stock Exchange in order to develop hardware and software for an inter-operable cloud. However, on the whole, R&D in India is poor. While India makes drugs and writes software for major Western companies, it has almost never developed anything of its own. This means that the country fares poorly on one major characteristic of entrepreneurship – innovation (Munshi & Rosenzweig, 2006).

Infrastructure

India's infrastructure has long been one of the main barriers limiting entrepreneurial activity. Roads are narrow and deteriorating with most development projects taking far too long. In 2007, there were only 1,500 trucks on Indian roads and one third of produce rotted before it could reach customers. The global financial crisis has made the situation worse (Yep, 2012).

In 2008, there were reports that close to half of the country's highway improvement projects that were valued at over US \$6 billion could be postponed by two years. Another issue has been sporadic power supply which has been a major roadblock to entrepreneurial activity, job creation, and poverty alleviation. As of December 2011, over 300 million Indian citizens had no access to electricity (Yep, 2012).

Reservation of Products

One of the more unusual policies in India is the reserving of particular products so that they can be exclusively produced by the small-scale sector. Critics have pointed out that this policy hindered the efficiency of SMEs. Over 800 products appear to have lost their original goal of creating local jobs by using locally available resources within a protective policy framework. This policy has been largely ineffective because the quality of products manufactured under the reserved category is far inferior to those that were non-reserved. Furthermore, lists of reserved products were changed for no other reason than political vested interests (Munshi & Rosenzweig, 2006).

THE EXTENDED FAMILY SYSTEM AND ENTREPRENEURSHIP

In developing countries like India, the extended family system makes it harder for individuals to display the kind of independence that is necessary for entrepreneurship. The basic unit of the extended family takes up most of the individual's time and his or her activities have to revolve round it. Personal desires come secondary and family even has a say in matters such as the choosing of a mate (Ailawadi, n.d.).

Traditional Indian joint families comprise of three generations all of whom live under the same roof. Similar to any commune, this particular unit is self-sufficient both socially and economically. For each individual, the family is the focal point for all social, religious and recreational activities. Within this circle of trust, important decisions concerning marriage, education and careers, are made and all key events take place (Bertraux & Crable, 2009).

Many Western researchers believe that the extended family system needs to be eliminated in order to inculcate the entrepreneurial spirit among the citizens of developing countries. This is based on the assumption that individuals who depend upon extended families will be unable to

take the initiative for advancing themselves both socially and economically. Given that an individual has to share his or her profits with the joint family, Western researchers believe that there is less motivation for working hard (Fest, 2005).

While this may be a valid point, researchers appear to be unwilling to concede that providing for one's family might be an extremely potent motivation for entrepreneurship. In developed countries, business executives toil hard in order to develop an identity and to be recognized for their achievement. In countries like India, a person's identifies himself or herself with the extended family and therefore, is willing to put in the hard work required to benefit the whole family (Javillonar & Peters, 1973).

RELIGION AND ENTREPRENEURSHIP WITHIN THE INDIAN CONTEXT

In South Asia, the main religions are Hinduism, Islam, Christianity, Jainism, Sikhism and Buddhism. Historically, both Buddhism and Sikhism have links with Hinduism. Therefore, since most South Asians are Hindus, Hinduism is likely to impact individual decisions regarding business and entrepreneurship in India. While most religions give encouragement and hope to their followers with respect to changing their socio-economic when on Earth, Hinduism is unique in its dictates and ideology (Saberwal, 1976).

The lives of Hindus are guided by four key principles – *Dharma* or righteousness, *Artha* or earnings, *Kama* or desire, and *Moksha* or liberation. According to Hinduism, each human being is regarded as being an *Amrutasya Putraha* i.e. a child who is both divine and immortal. One's main purpose in life is to break the cycle of birth and re-birth and attain ultimate liberation. Therefore, material gains are of little consequence if a human being does not live to comprehend reality and achieve *Moksha* (Saberwal, 1976).

Hindu scriptures stipulate that individuals are supposed to follow righteousness, perform their duties and earn a living, ensure that their desires are satisfied and, eventually, seek liberation. The four principles can also be interpreted in another way—a good Hindu should earn his livelihood honestly and his or her only desire should be for liberation (Saberwal, 1976).

This particular evaluation of the scriptures is important because it teaches the individual that it is wrong to get lost in worldly pursuits. Entrepreneurship can definitely be classified as a worldly pursuit and if a person simply has to be totally involved in it if he or she wishes to make it a success. Therefore, there is appears to a distinct conflict between entrepreneurship and traditional Hinduism (Saberwal, 1976).

Another concept that is central to Hinduism and by extension, to Indian life in general, is *Varna*. This refers to the classification of individuals into various castes. According to Indian history, Indian society was divided into four major castes—*Brahmins*, *Kshatriyas*, *Vyshyas* and *Shudras*. The *Brahmins* were the intellectual elite and took upon the roles of priests, scholars and advisors to the monarchs (Saberwal, 1976). *Kshatriyas* were the protectors and administrators of the communities and comprised of kings and noblemen. The business class, which included traders

and entrepreneurs, were *Vyshyas* while the individuals of all other occupations were called *Shudras*. This particular system of classification continued across generations and to a large extent, determined the occupations of the majority of Hindus (Shivani et al, 2006).

The start of European commercial enterprise in India began around the 1600s and, at the time, did not have a major impact on the activities of the *Vyshyas* (Shivani et al., 2006). There was a huge demand for Indian goods in Europe during the 17th century and the East Indian companies ensured that these demands were met. Given that there was less demand for European goods in India, the balance of trade always remained in favour of the latter. Despite the fact that most European governments placed restrictions on the transfer of bullion from their respective countries, the various commercial companies had brought these treasures into India in order to finance their operations (Shivani et al., 2006).

In 1700 and 1720, the British government had to modify its customs regulations in order to reduce the reliance on Indian textiles. Hence, European activities in India largely favoured the latter till 1757 when the British had taken over a large part of Bengal. For India to eventually become an economic superpower, it has to ensure that these dynamics are in place again but, of course, on its own terms (Shivani et al., 2006).

In the 18th century, the most gains were made by the *Vyshyas*. While the weavers manufactured the textile goods that were wanted by the Europeans, they did not have the wherewithal to finance their operations themselves. Therefore, they had to depend on the *Vyshyas* to fund them, “under a system of contract which precluded any marginal profit accruing to the manufacturers”. The *Vyshyas* utilized the gains made from such activities to finance trade and money-lending (Saberwal, 1976).

Therefore, while the *Vyshyas* made amassed huge fortunes from money lending, they did not utilize the profits for investment in manufacturing or diversification. Ultimately, this lack on initiative and adherence to caste based roles eventually gave the British the upper hand in India. The Jagat Seths served the Nawab of Bengal as collectors of revenue and support the British in their economic and political activities. This support proved to be decisive as the British were able to gain control of Bengal in 1757 and cut off the *Vyshyas* from their sources of profit (Saberwal, 1976).

So, the question that needs to be asked is – did religion have a negative bearing on entrepreneurship and will this continue to be the case in the years to come. Max Weber and other researchers supporting his line of thinking have come to the conclusion that the Hindu value system has a number of negative elements that encourage occupational divisions and prevent human beings from achieving their true potential. Critics of the Weberian school of thought have pointed out that this approach makes a number of assumptions (Saberwal, 1976):

- That there was only one system of Hindu values;
- That this single value system pervaded the entire Indian social fabric and influence followers of other religions such as Islam;
- That there was an internalization of these values which were then translated on a daily basis;
- That these values were immune to change.

While the four key principles of Hinduism are known to all followers, the religion can be divided into a number of sects that have a combination of complementary and seemingly contradictory beliefs. Therefore, to even suggest that the Hindu value system has and will hinder enterprise in India is to ignore the diversity that exists within the religion. For example, Jainism is a sub-sect of Hinduism that stresses on *aparigraha* (detachment from the material world), *ahimsa* (non-violence), *aasteya* (desisting from stealing) and *brahmacharya* (detachment from sensual pleasures) (Shivani et al, 2006).

Despite the ascetic nature of their faiths, Jains are among the most successful and enduring business communities in the world. This suggests that the business behavior of the Jains appear to run counter to the essence of their faith. Therefore, to presume that every Indian will stay true to his or her value system and stay away from entrepreneurship is mistaken (Shivani et al, 2006).

Unlike their Western counterparts, researchers such as Shivani et al (2006) have argued that Indians are as materialistic as the citizens of developed countries. They have categorically stated that the Indian world view is made up of both spiritual and material values. This can be gauged by the fact that despite the caste system, ordinary citizens do live side by side and depend on one another for their livelihood (Shivani et al, 2006).

Despite the fact that renunciation is a dominant part of the Indian value system, ascetics and holy men only account for a small fraction of the population. There have always been a sufficient number of Indians who are willing to do the work required to provide for themselves and their families (Shivani et al, 2006).

HOW TO CREATE INDIAN ENTREPRENEURS?

Mckinsey and Company-Nasscom have reported that India requires a minimum of 8000 new businesses in order to eventually build a US \$87 billion IT sector. Over the next decade, there will be between 110 and 130 million Indians looking with 80-100 million of them searching for their first place of employment. To further complicate matters, over 50% of the 230 million Indians employed in the rural areas have zero productivity (Wadhwa, 2011).

Given that the government and the current businesses will not be able to effectively respond to the high demand for jobs, it is up to entrepreneurs to take up the challenge. Given that the current economy is knowledge based and that there is a wealth of talent, there is almost infinite opportunity for ordinary Indians to become entrepreneurs. In order to create the right environment to nurture such talent, India has to concentrate on four key areas (Yep, 2012) as explained below.

Creating a conducive atmosphere for success

It should be easier to start a business. Indian entrepreneurs generally venture out on their own by borrowing money from friends and family. The CEO plays a number of roles with the main ones being business strategist and salesman. He or she will only be organizing a professional team month or even years after starting a business and there will be few external partners. When comparing this process to those of start-ups in the Silicon Valley, it is easy to see why India still lags behind in terms of entrepreneurship (Vaidyanathan, 2011).

In Silicon Valley, a Venture Capitalist (VC) or angel investor is often brought on as soon as the business is started and all major decisions are made by a professional management team. Multifunctional teams will be quickly assembled and partnerships will be negotiated in order to scale up the business. India can move forward by creating specific areas (like the Silicon Valley) where ideas can be speedily and efficiently developed into functioning businesses. For example, Gurgaon and Hyderabad can be remote areas while Bangalore can concentrate on IT. Universities and other educational institutions can be included as partners in developing such areas (Vaidyanathan, 2011).

Ensure entrepreneurs are able to get the skills that they require

Most Indian start-up businesses are limited by two skill gaps—entrepreneurial and functional. The latter refers to aspects such as product development and marketing skills. Once again, universities and educational institutions would be the best option for equipping entrepreneurs with the skills that they need to create and maintain successful businesses (Vaidyanathan, 2011).

Ensure entrepreneurs are able to gain access to capital

Indian entrepreneurs have long had difficulties in gaining access capital. In the past few years, a number of Venture Funds have entered the Indian market and are now providing important knowledge and access to potential investors, manufacturers and clients from around the world. Despite this, entrepreneurs are hampered by the fact that there are only a few angel investors who can aid them before the Venture Capitalists (VCs) can take over. Therefore, India has to look into creating a global support network of angels who can aid fledgling businesses (Uddin et al, 1990).

Ensure that there is networking and exchange of ideas

More than universities and colleges, entrepreneurs learn from their own experiences and those of others. Since globalization and the Asian market are growing rapidly, it presents the country with

great opportunity to create a number of entrepreneurs who can be leaders and who can help others as they strive in the global economy (Uddin et al., 1990).

INITIATIVES TAKEN BY THE GOVERNMENT TO PROMOTE ENTREPRENEURSHIP

THE MSMED Act of 2006

The landmark Micro, Small and Medium Enterprises Development (MSMED) Act of 2006 categorically states that entrepreneurs play a dynamic role in an increasingly globalized world. The MSMED Act has three clear initiatives (Schwab, 2011):

- Increase competitiveness by encouraging innovation amongst firms and laying emphasis on quality;
- Working towards a larger market presence and not being satisfied with domestic success;
- Increasing connections with different stakeholders with a goal to benefit from national and global networks.

The Act specifically stresses the importance of networking with stakeholders both upstream and downstream in the whole global value chain (i.e. from procuring raw materials to manufacturing to marketing to customer service) (Uddin et al, 1990).

Enhancing competitiveness

The government has gradually begun to recognize the importance of promoting entrepreneurship by lowering the cost of production, improving the quality of products and services, and by focusing on niche markets. For this purpose, the government has set up the National Manufacturing Competitiveness Council (NMCC), which would identify and concentrate on promising entrepreneurs and firms. Upon identification, the NMCC will aid these enterprises by upgrading technology, design and IPR protection, implementing marketing and sales promotion strategies and improving skills. The NMCC has identified four main areas for appropriate intervention (Uddin et al., 1990):

- Marketing
- Information technology
- Financial and general management
- Manufacturing and engineering

The plans proposed by the NMCC will be carried out on the basis of a Public Private Partnership (PPP) with provisions for sharing by firms and the government. In order to encourage competitiveness among potential entrepreneurs and existing SMEs, the Indo-Japan Cooperation Agreement was signed in December 2006 which in turn led to the setting up of the Visionary

Leaders for Manufacturing Programme (VLMP). The goal of the latter is to create a pool of 300 managers, professionals, CEOs and entrepreneurs who will utilize Japanese experiences to impart knowledge and training to local talent (Shivani et al., 2006).

Promoting innovation and awareness regarding quality

One of the main areas of concern for developing entrepreneurship in India has been the creation of a business environment that stresses on innovation and on delivery of quality products and services. The most successful companies in the world recognize that quality of products and services determines whether or not they can be successfully marketed. Indian SMEs continue to lag in this area (Shivani et al, 2006).

The Small Industries Development Bank of India (SIDBI) has collaborated with the Asian and Pacific Centre for Transfer of Technology which would aid Indians SMEs in improving their ability to develop, transfer, adapt and implement technology that are relevant to the region. Furthermore, the collaboration will give Indian SMEs the chance to network with foreign companies and negotiate exchange of ideas and technology (Fest, 2005).

Allowing Indian companies to be part of global value chains and markets

It is imperative that Indian companies have the opportunity to participate in global value chains. This would allow them to enhance their technological capability and expand their access to the global market. While India has long been known for having a protective economic policy, there has been a significant relaxing of foreign direct investment (FDI) norms (Fest, 2005). This has attracted a large number of multinational corporations to invest in India. Further, the government is pushing forward plans to improve networking between Indian companies and foreign firms (Petras, 2008).

With respect to competing in foreign markets, the Ministry of Commerce and the Ministry of MSME have developed Market Development Assistance (MDA) schemes which fund participation of Indian SMEs in trade fairs, study tours, publicity etc. The Ministry of Commerce has highlighted the following aspects of business promotion by Indian companies overseas (Petras, 2008):

- Assist exporters for promotion activities overseas;
- Aid approved organizations and trade bodies in taking on activities that are linked to export promotion efforts for various members;
- Help export promotion councils to take on promotion activities for their products and services;
- Assist in other residual activities that are linked with marketing promotion activities overseas.

THE FUTURE OF ENTREPRENEURSHIP IN INDIA

The central and state governments are taking an active interest in promoting the growth of entrepreneurship within the country. There is increased encouragement for people to form new enterprises, and governments are even supporting entrepreneurs with infrastructure and tax incentives. Financial experts have stated that more legislators are beginning to realize that new businesses create jobs and boost the economic output of the region. They have advised that state governments should concentrate on developing their own innovative industries so that there is increased entrepreneurial activity within their borders.

While the support of the government is important, society also plays an important role in promoting entrepreneurship. This is where the media comes in. Media outlets as NDTV and CNN-IBN should continue to report on the achievements of both small and major entrepreneurs and emphasize the need for such practices throughout the country (Ailawadi, n.d.).

THE “BRIAN GAIN” AS INDIAN ENTREPRENEURS RETURN HOME

Among the most significant factors drawing Indian entrepreneurs back home are access to local markets, greater economic opportunities and family ties. According to a recent report, 60% of Indian entrepreneurs said that they were returning home because of the availability of economic opportunities while 56% and 76% were attracted by local markets and family ties respectively. The most obvious advantage to doing business in India is the lower operating costs. In addition, the Indian market is filled with qualified professionals who can be hired at cheaper rates than in countries like the U.S. (Wadhwa, 2011).

The waning economic fortune of the U.S. has prompted many young entrepreneurs to look closer to home for investing in business ventures. Most analysts believe that India offers an untapped market that is open to experimental and innovative ideas. Furthermore, the middle class now has the money to indulge themselves. Unlike ten to twenty years ago, entrepreneurs have greater access funding which reduces their operating costs and makes it easier for them to open businesses. Previously, young graduates used to work in Silicon Valley and use the money earned there to make their startups. Now, there are people and institutions that realize the importance of entrepreneurship and are willing to invest in promising ventures (Vaidyanathan, 2011).

CONCLUSION

India's rise as an economic powerhouse has been one of the most encouraging stories of the last twenty years. For a country that long suffered from poverty, poor infrastructure and corrupt governance, the success of entrepreneurs both at home and abroad proves that there is significant pool of talent available. Corruption remains a pressing problem as the corporate sector has been

hit with a number of scandals that have damaged India's reputation within the international business community.

However, what should be encouraging for the country is the fact that a number of Indian entrepreneurs are returning home from abroad. This shows that India is becoming more open to the idea of entrepreneurship and that the public is willing to indulge in different products and services. Furthermore, India has showed that entrepreneurship can be an antidote to old divisions along the lines of class, caste and religion. The desire to improve the country's economy and to compete with the Western nations has united ambitious individuals from all walks of life and will be the catalyst for future success.

India has long possessed the antecedents of macroeconomic success in general, and entrepreneurial vigor in particular. The country has had a mixed bag of strengths and weaknesses with which to fulfill the promise of dynamic development. Recent history has seen the results of harnessing the economy's strengths. While obstacles remain, the path of proven developmental policies is clearer now than before, and the hope of continued entrepreneurial success is firm.

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SUSTAINABILITY AND STRATIFIED NONCOMPLIANCE IN THE PHARMACEUTICAL INDUSTRY

Robert A. Page, Jr., Southern Connecticut State University
pager1@southernct.edu

Danielle M. Cyr, Southern Connecticut State University
cyrd4@owls.southernct.edu

Anthony S. Richardson, Southern Connecticut State University
richardsona4@southernct.edu

ABSTRACT

The emerging field of strategic sustainability tracks the impact of corporate performance on profits, people and place (environment). Applying this model to the pharmaceutical industry, this paper examines patterns of non-compliance, particularly in regards to product safety (people). This paper explores a key performance indicator (KPI) metrics model for use in a Decision Support System (DSS) to track several major areas of non-compliance. A breakdown of warning letters issued by FDA inspector offices in recent years provides insight into the limitations of non-compliance metrics currently used by the FDA to enforce oversight. The FDA's effectiveness to police non-compliance is undermined by their lack of funding and reactivity, rather than proactive approaches, such as the application of metrics on the supply chain level of analysis. Final investigation shows that regulatory oversight should be proportional to potential profitability of an organization given that larger pharmaceutical companies have more sophisticated supply chain infrastructures which can be used to offload non-compliance risk. Implications are further discussed.

INTRODUCTION

Strategic sustainability argues that effective corporate performance must balance the legitimate needs of owner/investors, customers/communities, and the environment over the entire product class lifecycle in order to be considered sustainable (Borland, 2009; Presley, Meade & Sarkis, 2007). While the pharmaceutical industry is legendary for returning profits to its owner/investors, performance concerning lifecycle sustainability for customers and communities remains controversial. The issue of pharmaceutical noncompliance, or the act of a pharmaceutical company not following societal laws and regulations, has become an increasing problem in recent years. In terms of product safety, while the FDA has a variety of metrics available to track enforcement, political influence and under-funding hampers its efforts. Given these mediating variables are unlikely to change, this paper explores the nature of non-compliance and presents a targeted enforcement model to maximize effective resource allocation.

PHARMACEUTICAL INDUSTRY SUSTAINABILITY

Pharmaceuticals rank among the most lucrative of products. The distributors and wholesalers of pharmaceutical products pulled in revenues of over \$340 billion in 2011 (Fein, 2012) and are expected to grow to over \$400 billion within three years (WHO, 2014). The 10 largest drug companies control over one-third of this market, with profit margins of approximately 30% (WHO, 2014). The contract research industry posted \$21.4 billion in revenue in 2010 (Mansell, 2012), while contract manufacturing facilities are estimated to reach revenues of \$64 billion per year by 2016 (ASDReports, 2012).

The manufacture of pharmaceuticals involves the large batch manufacture of "fine" chemicals with huge potential environmental impacts. The organic, inorganic, and synthetic processes involved are extraordinarily complex, making green impact comparative analyses of manufacturing methods very difficult, leading to controversies over what metrics to use and their accuracy as evidence of environmental sustainability (Yang et al., 2013). A more comprehensive lifecycle perspective involves an analysis of resources, materials, processing, cleaning, renewability, and disposal (Jiménez-González, Constable, & Ponder, 2012), accompanied by similar disputes over whether common metrics are too simplistic to accurately measure the environmental impact of fine chemical batch processing (Cirzons et. al., 2001; Watson, 2012). The environmental consequences of pharmaceutical compounds and manufacturing products disposal — as well as supply chain discharge of the same into the environment—is of particular concern (Pandya Amit, & Mavani Prati, 2012). This has led to an explosion of interest in "green chemistry" with accompanying claims of sustainability by pharmaceutical firms. Lilly, for example, has an award winning green pharmacy program addressing seven lifecycle stages:

- Research and Development
- Materials and natural resources
- Manufacturing
- Sales and Marketing
- Product transportation and packaging
- Product use
- Product end-of-life (Lilly, 2014)

However, critics allege the stellar economic performance of many pharmaceutical companies has come at the expense of the environment. Some firms base their claims of corporate sustainability on superficial changes that have minimal real environmental impact, such as trivial changes in product packaging (Singleton, 2013). Others are accused of regarding sustainability as just another formal requirement in the annual report, and putting a positive spin on selective metrics accordingly. In some cases tracking sustainability with inadequate metrics becomes a necessary foundation for positive public relations and the appearance of accountability (Marquis & Toffel, 2011; Schneider, Wilson & Rosenbeck, 2010). As Du summarizes: "Many firms advertise that they follow environmentally friendly practices to cover their true activities, a practice called greenwashing, which can cause the public to doubt the sincerity of greenization messages" (Du, 2015, p. 107). This paper will not explore environmental non-compliance in this area until a clear consensus emerges concerning tracking metrics, compliance standards, and methods of enforcement.

This same "greenwashing" mentality also threatens the people and community aspect of sustainability. Given the gravity of pharmaceutical noncompliance on large numbers of patients, this dimension of sustainability will be the focus of this paper. Every few months there seems to be another press release regarding a pharmaceutical company reaching a settlement for an exorbitant amount of money because of illegal marketing tactics, safety blunders or hidden research findings, in no small part due to inadequate or misleading metrics. In an effort to explain the rationale behind this "epidemic," an industry analysis will be performed for the pharmaceutical industry as a whole.

Given the inherent conflict of interest between corporate profit and public safety, the pharmaceutical and biotechnology fields are some of the most strictly regulated industries in the United States, as well as the rest of the world because of the public health issues involved—lives are literally at stake. With thousands of regulations covering areas such as nonclinical laboratory studies, marketing materials, and product labeling, the resources required to comply with the regulations are significant (Hale, Borys, & Adams, 2011). A widely accepted estimate for the cost of bringing a drug to market from start to finish is roughly \$800 million to \$1 billion (Harper, 2012). However, including the research and development spending of 12 of the largest pharmaceutical companies between 1997 and 2011, and the number of approved medicines within that time frame, reveals a cost of \$4 to \$11 billion per drug (Harper, 2012).

The U.S. Food and Drug Administration (FDA) asserts that regulations are necessary to ensure the products that are sold to the public are safe and effective. The Department of Justice Assistant Attorney General Tony West has publicly stated that the mission of the government is to dispel the myth that fines and civil lawsuits are just a cost of doing business (West, 2011). The FDA argues only regulatory oversight offsets the corrupting effect of corporate profit motive, which creates conflicts of interest between corporations and public health (Braithwaite, 2013; Gagnon, 2013). Given the enormous costs of drug development and approval, researchers note that corporations have a vested interest to maximize marketing, distribution and sales over emergent product safety issues, certainly until the R&D investment cost has been recouped (Brezis & Wiist, 2011; Mintzes, et. al., 2013). These pressures are intensified as the product patents approach their expiration date, allowing generic drug companies to create "bioequivalent" knockoffs at a fraction of the cost.

Politics and Resource Constraints

It is clear that, as with any other industry, politics play a large factor in the FDA's decision-making process. In 2009, the FDA plainly admitted that "four New Jersey congressmen and its own former commissioner unduly influenced the process that led to its decision last year to approve a patch for injured knees" (Harris & Halbfinger, 2009). The FDA went on to say that although they had not approved the product on multiple occasions, the persistent pressure of the legislators, who had considerable campaign contributions from the makers of the product, was too great and the scientific bodies that renounced the product were overruled. A recent study taken by members of the Union of Concerned Scientists noted that "One in four participants answered yes when asked, 'Have you ever been pressured to approve or recommend approval for

a device or product despite reservations about the safety, efficacy or quality of the product?”” (Spencer, 2012). Not only political pressure, but budgetary constraints can only allow the FDA to review so much data and to inspect so many facilities in an attempt to keep the American people safe from faulty drugs and devices. Consequently, the FDA had petitioned for a budget just shy of \$4.5 billion dollars for fiscal year 2013, an increase of over \$650 million from the previous fiscal year (FDA, 2012). By all accounts, they only received \$3.9 billion; falling far short of funds they feel necessary to perform their job at the highest of levels (Mercola, 2013).

Non-Compliance Metrics

Regulatory non-compliance stems from: (i) compliance being too costly (Hale, Borys & Adams, 2011; Malhorta, 2012), (ii) “regulatory ambiguity” (Clifford, 2009), and (iii) risk-based assessment leading to regulatory defiance (Braithwaite, 2013; Gagnon, 2013). Motives for noncompliance are rarely mutually exclusive, with many variables entering the equation. In an effort to quantify the incidence of noncompliance and the implications that noncompliant behavior poses to the industry, a set of research methods have been devised. Table 1 shows the different agencies and the data they gather to quantify noncompliance.

TABLE 1: FEDERAL METRICS BY AGENCY

Agency	Data
U.S. Food and Drug Administration (U.S.FDA), Center for Drug Evaluation and Research (CDER)	Inspectional Observation (483), Warning Letter, Untitled Letter
U.S. Department of Justice (U.S.Doj)	Criminal and Civil Litigation and Settlements
U.S. Department of Health and Human Services, Office of Inspector General (HHS OIG)	Corporate Integrity Agreement (CIA)

The U.S.FDA CDER issues Warning Letters, Untitled Letters, and Inspectional Observations for noncompliance based on information obtained from (1) findings during facility inspections, (2) marketing and advertising material review, and (3) investigations of companies, among other situations (U.S.Food and Drug Administration, 2010). The U.S.Doj has prosecuted dozens of pharmaceutical companies over recent years and with the monetary values of these case settlements available to the public, this becomes an important area to gain quantitative information regarding noncompliance. As a result of settlements and convictions by the U.S.Doj, the HHS OIG requires many companies to enter into a Corporate Integrity Agreement (Volkov, 2012). CIAs are contracts agreed upon, typically as a result of litigation, by the HHS OIG and the company in question to “prevent off-label marketing violations, anti-kickback and False Claims Act violations” (Volkov, 2012). Because CIAs are issued in the most egregious noncompliance settlements, using them for research data gives insight into major industry issues.

Within the CDER, there are 5 divisions developed to focus on specific aspects of the U.S.FDA regulations. Table 2 shows the different divisions of the CDER, along with the abbreviation that will be used going forward and the purpose of each division. By looking specifically at the purpose of each division, one is able to differentiate the types of noncompliance committed to attain a better understanding of the core behaviors used in the industry.

TABLE 2 – DIVISIONS OF THE CDER

Division of CDER	Abbreviation	Purpose
Office of Prescription Drug Promotion	OPDP	Monitors promotional activities of drug companies including marketing and advertising materials.
Office of Unapproved Drugs and Labeling Compliance	UDLC	Controls the sale and use of unapproved drugs and ingredients.
Office of Manufacturing and Product Quality	OMPQ	Ensures cGMPs are used, all pharmaceutical products produced and imported to U.S. meet all quality control measures so they are safe and effective for consumption
Office of Compliance/ Immediate Office	OC/IO	Promotes CDER's overarching mission to "minimize consumer exposure to unsafe, ineffective, or poor quality drugs" (Bernstein, 2012).
Office of Scientific Investigation	OSI	Ensures compliance by scientific investigators with laws and regulations including good clinical and laboratory practices (Center for Drug Evaluation and Research, 2012).

MAJOR AREAS OF NONCOMPLIANCE

In the pharmaceutical industry, there are several areas where noncompliance is usually discovered. Noncompliance can be exposed through many avenues, such as facility inspections by regulatory agencies and lawsuits brought on by the private sector. The most egregious and prevalent areas of concern include (1) failure to file, or falsifying, reports on safety data, (2) not remaining in compliance with current Good Manufacturing Practices, or cGMPs, (3) off-label drug promotion, and (4) violations of the False Claims Act (U.S.Food and Drug Administration, 2012). It should also be mentioned that many of these compliance issues are interconnected, with most recent high-monetary settlements being handed down first for noncompliance of regulations which then results in violations of the False Claims Act. Of the 12 most recent major settlements found on the FDA website where the guilty party was a pharmaceutical company as a

whole, 10 were found in violation of the False Claims Act, with those violations stemming from noncompliance issues (U.S. Food and Drug Administration, 2012).

Safety

The act of falsely reporting or failing to report safety data to regulatory agencies and health care professionals has become increasingly evident in recent years. Of the 26 pharmaceutical settlements where over \$100 million were awarded between January 2009 and May 2011, 8 settlements worth over \$8.6 billion were directly related to drug safety issues (Giniat, 2011). More recently, there have been two landmark cases—GlaxoSmithKline and Merck—where criminal and civil fines in excess of \$850 million have been handed down in direct relation to drug safety claims and reporting (Office of Public Affairs, 2012; U.S. Attorney District of MA, 2011).

While penalties have increased, they matter most only when the fines involved match or exceed the profits gained from the infraction (Braithwaite, 2013; Gagnon, 2013). Increasing penalties to that level is controversial and politically charged. Instead the FDA is using Corporate Integrity Agreements [CIAs] with teeth, such as requiring that companies “compensate its sales force based on the quality of service offered to doctors instead of sales volume,” to allow the “company to recoup bonuses or company stock for up to three years from executives caught engaging in illegal behavior”, to post all payments given to health care providers on their company website so it will become public record, and to exclude companies from Medicare and Medicaid for breach of the CIA, effectively reducing possible future revenues significantly (McCarthy, 2012; Zwick, 2012). Further, they are targeting individual executives with criminal penalties and career-ending bans from future involvement in Medicare and Medicaid (Pickett, 2011; Wechsler, 2012; Zwick, 2012).

Current Good Manufacturing Practice Violations

Current Good Manufacturing Practices, or cGMPs, are regulations put in place to control the way that medications on the open market have been produced (U.S. Food and Drug Administration, 2012). The FDA explains that “adherence to the cGMP regulations assures the identity, strength, quality, and purity of drug products by requiring that manufacturers of medications adequately control manufacturing operations” (Food and Drug Administration, 2009). To violate a cGMP regulation, a company may not keep their manufacturing equipment maintenance records up to date, have inadequate methods of testing samples, or have contamination issues with their products. Recently, there has been an increase in warning letters and untitled letters issued from the OMPQ. Figure 1 shows that the incidence of noncompliance resulting in warning letters has increased from 0 letters in 2003 to 16 letters in the first 10 months of 2012, peaking in 2011 with 19 letters issued.

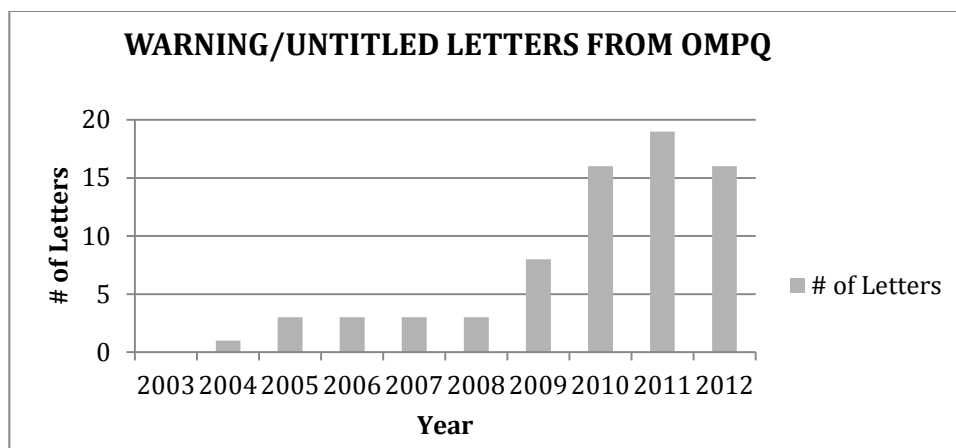


Figure 1—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012)

The issuance of warning and untitled letters is not the only indication that cGMP noncompliance is on the rise. As with drug safety violations, various cGMP issues are costing pharmaceutical companies millions of dollars in fines plus lost revenue for down-time at manufacturing facilities requiring necessary updates to return to compliance (Shanley, 2009). To avoid these fines, there is a growing trend of contract and generic drug manufacturing facilities in foreign countries, most notably China and India, which has become the focus of the OMPQ warning letters, as illustrated in Figure 2.

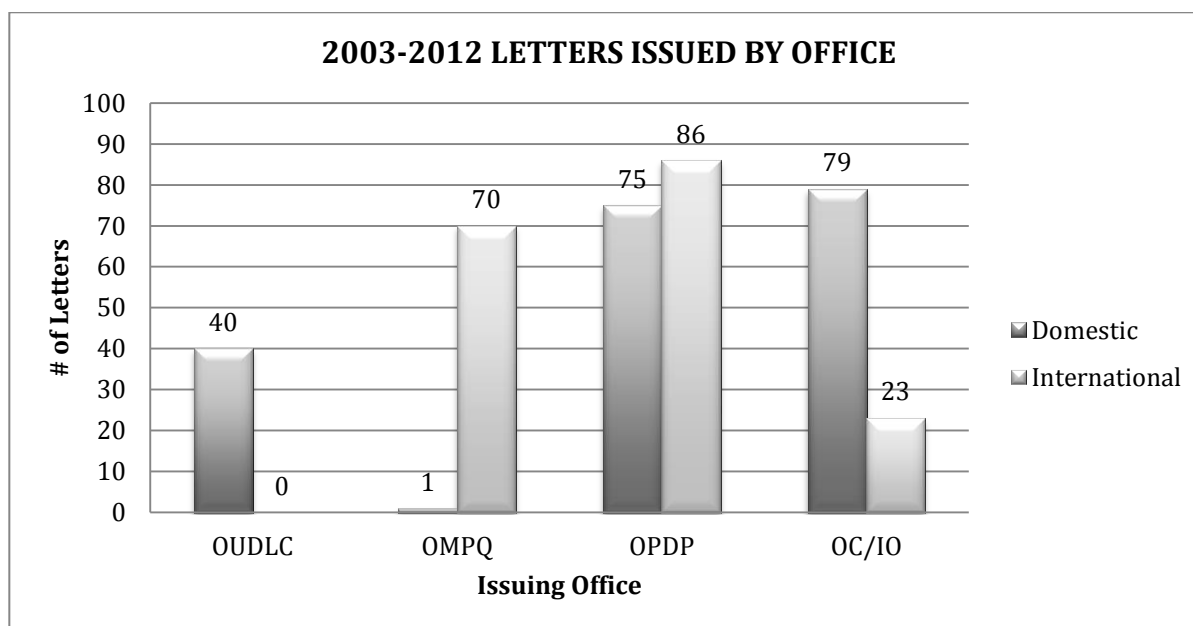


Figure 2—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012; Cacciotti & Clinton, 2011).

Off-label Illegal Promotion

Off-label promotion is characterized as the act of marketing a drug for uses that have not yet been approved by the Food and Drug Administration (Sampson & Wesoloski, 2012). It is a fairly common occurrence for medications to be prescribed by doctors for ailments that the FDA has not approved them for (Stafford, 2008). For instance, the medication Amitriptyline is approved to treat depression (Drugs.com, 2012). However, the drug is frequently prescribed for anything from irritable bowel syndrome to preventative therapy for migraines, despite the fact that there is little clinical research that has proven the effectiveness of that drug in treating those diseases. While doctors are allowed to prescribe a medication any way they see fit, pharmaceutical companies are strictly forbidden from marketing their drugs for any conditions not approved by the FDA (Stafford, 2008). Figure 3 shows the number of warning and untitled letters issued from the OPDP as compared to all other letters issued per year from all other divisions of the CDER in the last decade.

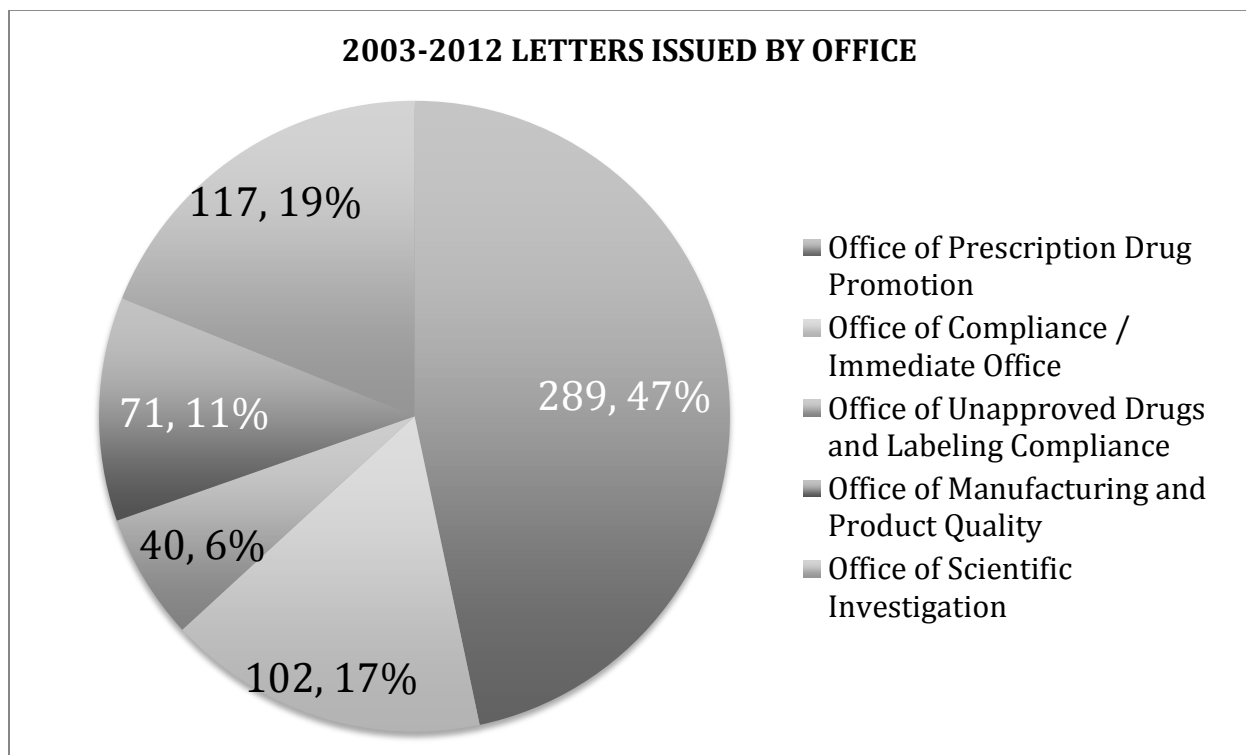


Figure 3—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012)

As is evident by the figure, the OPDP issued by far the largest proportion of letters at 47%, with a clear focus on drug marketing and advertising (U.S. Food and Drug Administration, 2012).

There are only a couple of years where the other offices issued significantly more letters, and there have been several years where the OPDP has issued more letters than all other offices combined (U.S. Food and Drug Administration, 2012). These practices can encompass many different points of noncompliance, from marketing a drug for a use while the drug is in the

approval phase to falsifying data to show other possible unapproved uses. These instances of off-label and illegal promotion show how interconnected noncompliance can be.

As complexity has grown, enforcement has become more difficult - the overall frequency of ODPD letters has declined (Senak, 2014), as illustrated in Figure 4.

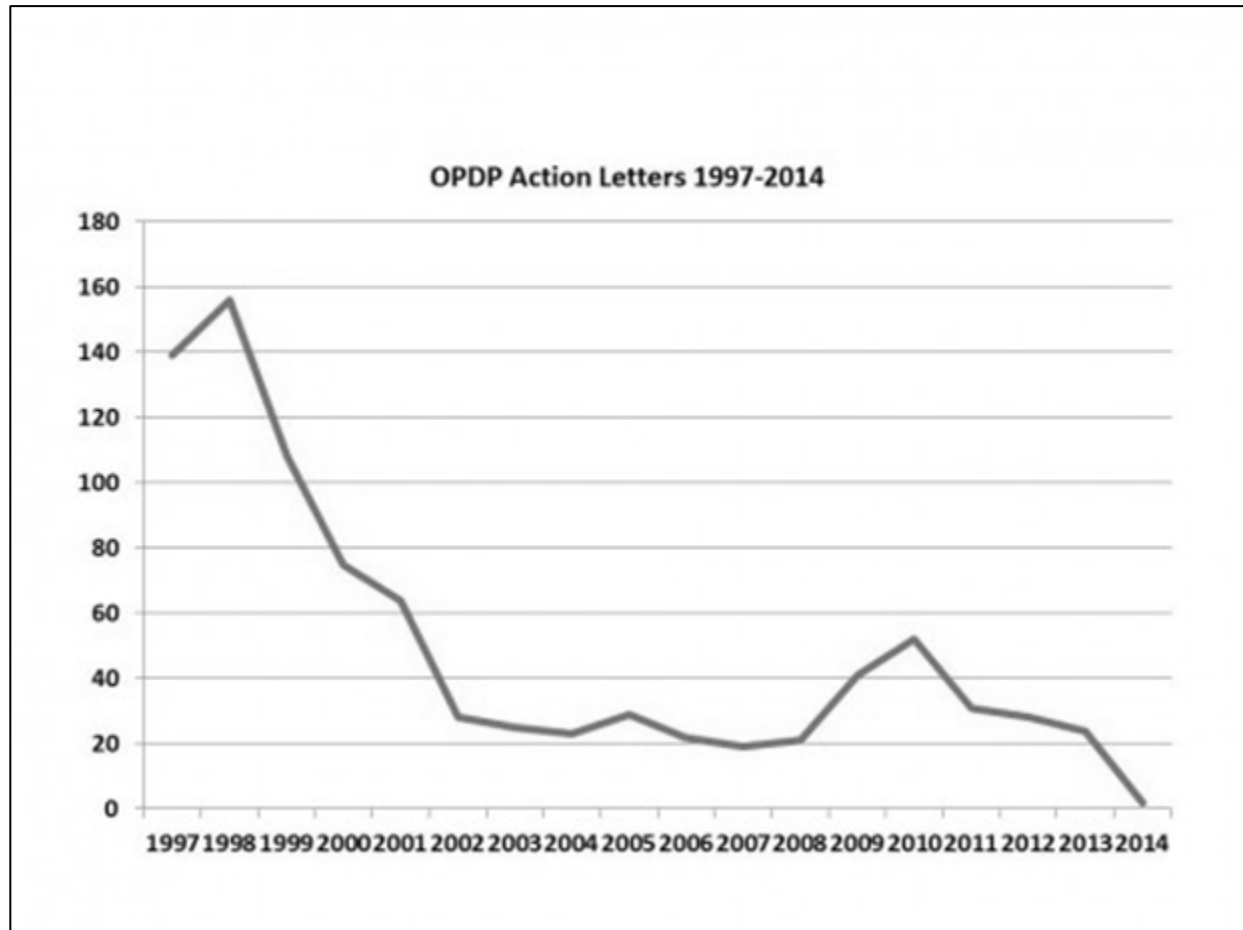


FIGURE 4—DATA COMPILED FROM THE U.S. FDA WEBSITE (U.S. FOOD AND DRUG ADMINISTRATION, 2012)

Government health program fraud

Several different points of noncompliance that could potentially defraud the government, and in turn violate the false claims act, include physician kickbacks, making false claims of using illegal promotional tactics that lead to increased sales, and reimbursement from federal and state programs, or price-reporting strategies. 83% of recent major investigations have resulted in civil fines and forfeitures for violating the false claims act. It should also be noted that, as figure 5 shows, 56% of fines and forfeitures collected due to pharmaceutical compliance investigations have been civil fines, which are paid based on the fraudulent activities occurring against government and state health programs (U.S. Food and Drug Administration, 2012). This can involve Medicare, Medicaid, Tricare, and any other health program paid for by taxpayer money (American Cancer Society, 2012). When civil fines are paid, the majority of the money goes to the federal government, with an additional portion being paid to state governments for their Medicaid programs (U.S. Food and Drug Administration, 2012). In the first half of 2012 alone, payouts of \$5 billion and \$1.6 billion had been made by pharmaceutical companies to federal and state governments, respectively (Almashat & Wolfe, 2012).

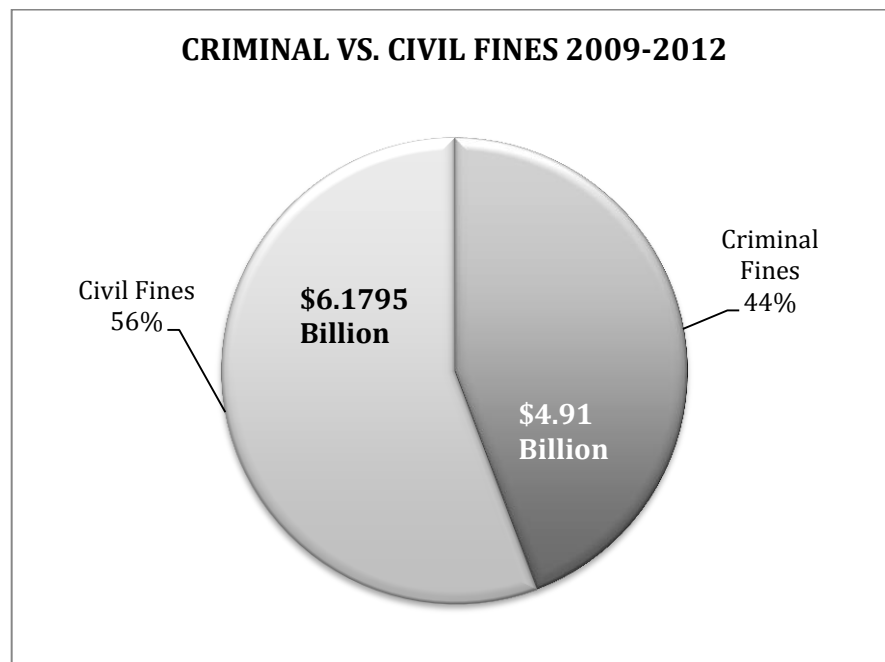


Figure 5—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012)

IMPLICATIONS

Pharmaceutical noncompliance has become an obvious issue over the last 15 years, and with the industry's transgressions of the mid-2000's still being played out in large investigations and court cases for years to come, there is seemingly no end in sight. In an age where heavy

regulatory control and oversight are increasingly necessary, there are thousands of pharmaceutical companies who find themselves in a noncompliant state on a seemingly daily basis. Warning letters are looked at in the industry very harshly because companies or people typically only receive them when there has been particularly egregious noncompliance (Gogtay et al., 2011). However, this is just the tip of the iceberg—the data being gathered is not comprehensive and some of the most important issues are not even being systematically tracked.

The contention that regulation is increasing is moderated by the record of enforcement. A breakdown of letters issued each year from 2003 to 2012 shows a clearer picture of how the CDER has taken action against noncompliance in recent years, as illustrated in Figure 6.

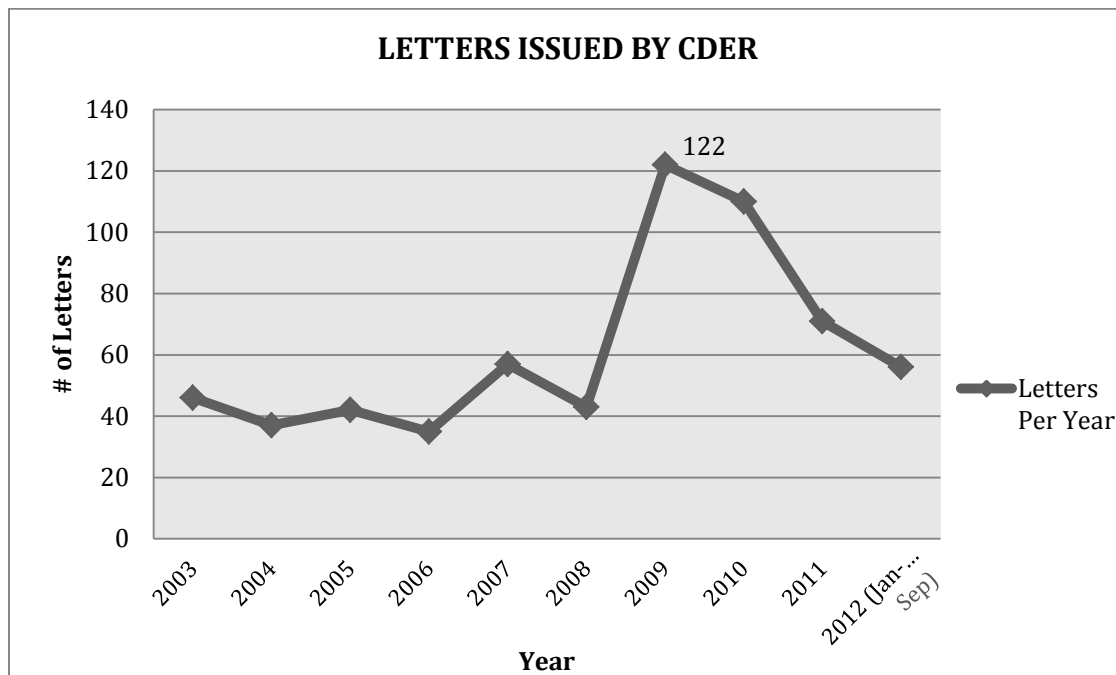


Figure 6—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012)

As can be seen in Figure 6, enforcement activities remained at similar levels for the first six years of the past decade before spiking to a high of 122 letters issued in 2009 (U.S. Food and Drug Administration, 2012). It should be noted that in 2009, 40 warning letters were issued by the OC/IO to many internet pharmaceutical retailers for misbranded or unapproved medications (U.S. Food and Drug Administration, 2012). Due to this apparent spike in warning letters, the year 2009 should not be considered consistent with average enforcement actions by the CDER or U.S. FDA. Looking at 2011 and the first 9 months of 2012, it appears the FDA has increased their direct oversight of the industry from the first 6 years of the past decade, with a 60% increase in warning and untitled letters issued in the past 22 months (U.S. Food and Drug Administration, 2012). However, the trend tracks downward. This increase in letters seems focused on areas of scandal: misleading off-label drug promotions and foreign drug manufacturing quality. The overall number of letters will shortly return to equilibrium, which is surprising given allegations of the increasing sophistication of the large drug makers in "gaming the system."

There are also serious resource constraints (Light, Lexchin & Darrow, 2013; Senak, 2011). For example, when analyzing regions impacted by the OPDP, the letters on drug promotion are dispersed evenly between U.S. and European countries, with a small percentage in Asia (U.S. Food and Drug Administration, 2012), as illustrated in Figure 7.

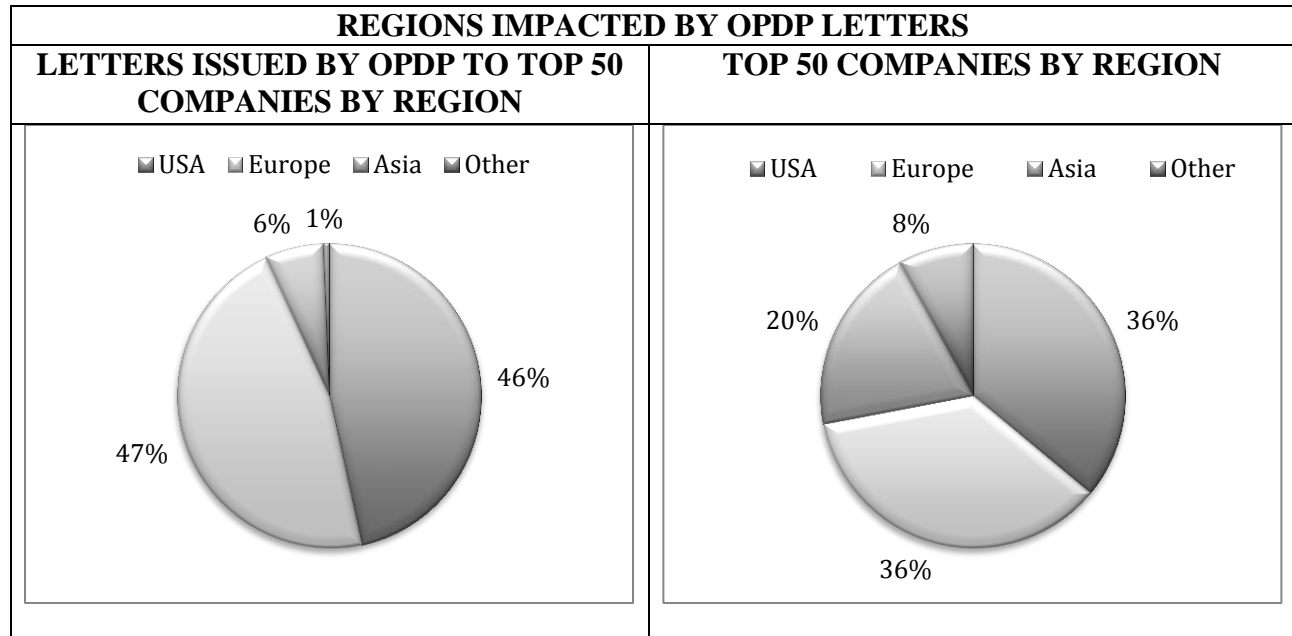


Figure 7—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012; Cacciotti & Clinton, 2011)

This focus on America and Europe, with the relative exclusion of Asia, is not an accurate reflection of emerging supply chain trends (Zwick, 2012). This seems to be driven more by appearances of enforcement parity between domestic and foreign drug makers in Europe, overlooking the explosion of Asian drug manufacturing, as constrained by political and resources issues. Critics summarize:

The current Food and Drug Administration (FDA) system of regulating drug safety has serious limitations ... the public increasingly perceives the FDA as having become too close to the regulated pharmaceutical industry; the FDA's safety oversight structure is suboptimal; and the FDA's expertise and resources in drug safety and public health are limited. (Furberg et al. 2006)

Drug Promotion

Companies with more visibility, larger advertising budgets, and more marketing personnel have an increased susceptibility to being targeted for promotional noncompliance (Mintzes et al., 2013). This is to be expected following spectacular scandals such as Depakote, where Abbott maintained a dedicated sales force to market the drug to nursing homes when no evidence of efficacy for elderly patients existed, and evidence of adverse side-effects was being suppressed

(Office of Public Affairs, 2012). In the future, the FDA has announced an expansion of the scope of its investigations to include the internet and marketing on social networking sites (Zwick, 2012). This is one arena where metrics are relatively clear-cut –a comparison of promotional claims versus effective, approved FDA uses.

Safety

With metrics, the adage is "garbage in, garbage out." Beyond minimizing political influence in data analysis and interpretation, the FDA must be given the authority and resources necessary to gather comprehensive, accurate data. Critics allege the FDA lacks the capacity to track and enforce drug safety issues (Light, Lexchin & Darrow, 2013; Zwick, 2012) such as:

... the design of initial preapproval studies lets uncommon, serious adverse events go undetected; massive underreporting of adverse events to the FDA, post marketing surveillance system reduces the ability to quantify risk accurately; manufacturers do not fulfill the majority of their post marketing safety study commitments; the FDA lacks authority to pursue sponsors who violate regulations and ignore post marketing safety study commitments ..." (Furberg et al., 2006)

Manufacturing Quality

Given the growing number of firms not remaining in compliance with current Good Manufacturing Practices, or cGMPs, this is an area of particular concern. The FDA response of doubling the frequency of drug company inspections is only as effective as the expertise of FDA examiners (Furberg et al., 2006; Hale, Borys & Adams, 2011). The FDA is trying to pay particular attention to focus on the quality of the supply chain, so 30 percent of drug maker inspections now are taking place outside the United States. (Zwick, 2012). While the industry has evolved from single corporations to complex, inter-dependent supply chains, the FDA analysis lags behind.

CONCLUSION

The FDA seems reactive, focusing on areas brought to the forefront by crises and scandal. In this arena, policy makers seem to adopt a "remedial," or problem-oriented, approach towards drug safety enforcement. They are criticized for ambiguity in their standards of how to balance public health with profit motive. This is true of most public policy:

The characteristics of the strategy support and encourage the analyst to identify situations or ills from which to move away rather than goals toward which to move. Even short term goals are defined largely in terms of reducing some observed ill rather than in terms of a known objective of another sort. Policy aims at suppressing vice even though virtue

cannot be defined, let alone concretized as a goal; at attending to mental illness even though we are not sure what attitudes and behaviors are most healthy; ... at eliminating inequities in the tax structure even though we do not agree on equity; [etc.]... (Braybrooke & Lindbloom, 1963, p. 102)

Their attempts to remediate are usually so cumbersome they prove to be as controversial as the set of problems they were intended to remedy. Concerning regulation and policy, consensus evaporates as specific rules emerge. As the adage notes: "the Devil's in the details."

This is due, in no small part, to the plethora of unfunded mandates hoisted upon the FDA by Congress. They are being asked to do more with less, but that is proving very difficult. Right now FDA oversight consists of inspections, warning letters, fines, CIAs, sanctions on executives and the nuclear option—banishment from government health care program markets (Office of Inspector General, 2012; Senak, 2011; U.S. Food and Drug Administration, 2010; Volkov, 2012). However, the FDA's ability to deploy and enforce is chronically undermined by political interference and resource constraints.

In the private sector, businesses have responded to similar dynamics with customer profiling—providing different types of customers with different levels of services, given a cost/benefit analysis (Whittle & Foster, 1989). For FDA regulation purposes, the following variables can be used to profile drug manufacturers:

The Supply Chain as the Level of Analysis

Tracking individual firms tends to undermine the proposition that large pharmaceutical firms deserve more oversight. Note that the proportion of letters given to larger firms is hardly disproportionate, as illustrated in Figure 8.

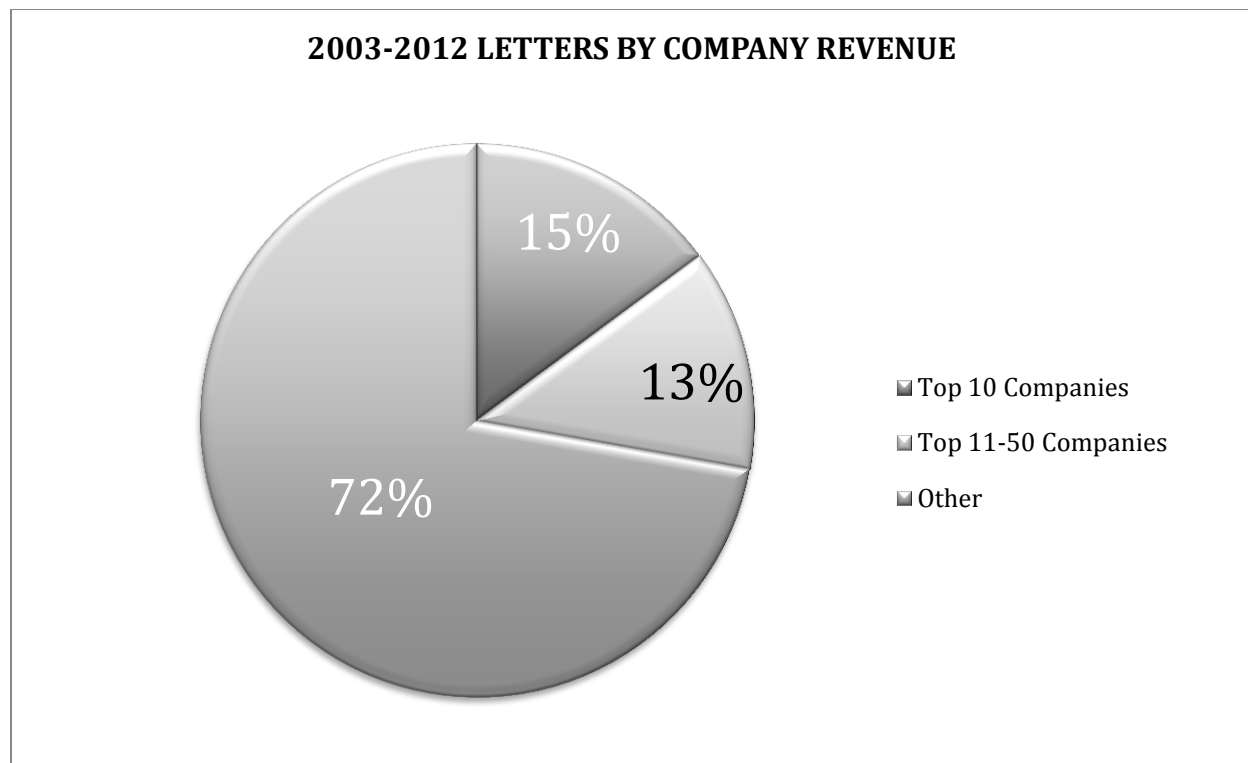


Figure 8—Data compiled from U.S. FDA website (U.S. Food and Drug Administration, 2012; Cacciotti & Clinton, 2011)

However, these large firms may be offloading violations further up and down the supply chain. Considering the non-compliance rates by an entire supply chain gives a more accurate picture, but is not being tracked.

The sophistication of the supply chain

The more sophisticated the supply chain, the tighter the regulatory oversight should be. Size, resources, and dedicated marketing departments increase the likelihood of non-compliance in favor of market penetration and expansion. Smaller, less sophisticated supply chains lack the resources and the capacity to "game the system," and are much more likely to do everything they can to avoid the ire of the FDA—they are not "too big to fail."

The profit potential of non-compliance

FDA penalties are a credible threat for smaller supply chains, whose profitability would be devastated by FDA action. However, as the potential profitability of non-compliance increases, so should regulatory oversight. These relationships are illustrated in Figure 9.

DRUG MAKER ENFORCEMENT PROFILES

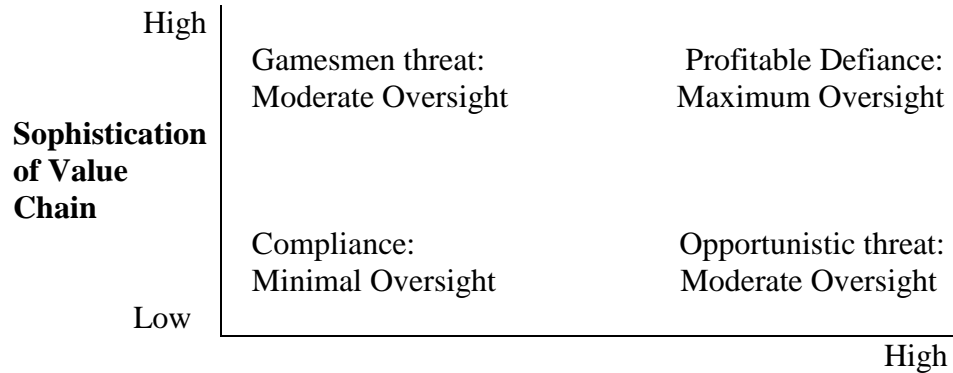


Figure 9—Profit Potential of Non-compliance

Minimum oversight.

When drug makers are medium or smaller, and are embedded in medium to small supply chains, they tend to be extremely compliant, and should be rewarded for their performance. Streamlining procedures and minimizing oversight seems more than appropriate. The DOJ and HHS OIG have already adopted this policy, as illustrated in Table 3.

TABLE 3 – DATA TYPES BY AGENCY			
Agency	Data	Benefits	Disadvantages
U.S. Food and Drug Administration (U.S.FDA), Center for Drug Evaluation and Research (CDER)	Inspectional Observation (483), Warning Letter, Untitled Letter	Target Specific Violations, quantitative and qualitative data	Only covers noncompliance observed
U.S. Department of Justice (U.S.Doj)	Criminal and Civil Litigation and Settlements	Quantifies noncompliance by monetary value	Does not always reflect noncompliance in smaller companies
U.S. Department of Health and Human Services, Office of Inspector General (HHS OIG)	Corporate Integrity Agreement (CIA)	Issued to companies based on noncompliance	Not typically issued to smaller companies or outside of litigation/settlements

Moderate oversight

When firms are tempted to be non-compliant by the sophistication of their supply chains and marketing departments, or by the opportunity to "make a killing"—in both profits and patients—they deserve a higher level of oversight. This oversight can diminish if these firms are willing to agree to CIAs with penalties for non-compliance drastic enough to offset those temptations, or given a superior history of past compliance (no scandals).

Maximum oversight

When firms have little reason not to defy regulation, given the sophistication of their marketing and their ability to offload risk upstream or downstream in their supply chains, there is no reason not to focus most available enforcement resources here. Given the political pull of "Big Pharma" this is unlikely to happen.

Potential future research methods to continue on this path may include detailed tracking the response of companies to the penalties they have incurred by the FDA and civil agreements and settlements. Have companies swept their settlements under the rug, to remain out of sight or have they approached them head on, making critical process changes that will ensure a much lessened likelihood of them ever happening again? How companies respond to the negative reactions of public and private entities alike may project the future trajectory of noncompliance in the pharmaceutical industry.

Such performance indicators need to be systematically tracked. It can be observed at times that current oversight practices do not follow any specific decision trees or algorithm to ensure qualified decisions are provided as options. Given this current state, there exists an opportunity for FDA Inspectors to gather and assess key performance indicators (KPIs) from drug makers for use in a Decision Support System (DSS), based upon daily electronic data interchange existing today between drug companies and the FDA. A DSS is a computer-based information system that supports business or organizational decision-making activities by shifting through and organizing vast amounts of data for analysis (Wainright & Mulligan, 2013). While various DSS systems are commonly employed by pharmaceutical companies in a variety of functions such as R&D and supply chain management for decades (Iseli et. al., 1991; Weber & Ellram, 1993), government agencies continue to seriously lag in their adoption (Staab & Studer, 2010).

Such a system would guide FDA Inspectors on the level of monitoring required by the DSS and then necessitate at what level of detail (and how often) on-site inspections should occur based underperforming KPIs, relative to the DSS set algorithms. Benefits include:

- ***Transparency:*** The KPI reporting mechanism will allow drug companies to provide accurate and full disclosure on a weekly or monthly basis regarding cases that are medically and scientifically reviewed.
- ***Costs savings:*** The potential for significant labor savings exists for FDA Inspectors, given that lengthy onsite inspections would be limited to only when necessary (based upon KPIs decision models). Given the expected drop in resource demand for pharma inspection, FDA inspector resources could be deployed to other departments in need.

- **New Best Practices:** New best practices for monitoring and controlling drug companies can be established, based on observations made regarding supply chain size and complexity.

If implemented, FDA inspectors would benefit from a self-reporting system utilized by drug makers, which would require minimal resource support from the FDA over the long-term. This decision support model would provide a single inspector with a wide purview on compliance performance for variously sized drug makers with the “click of a mouse” versus the lengthy onsite hands-on approach during a routine site visit.

For example, examine a hypothetical dashboard (“report card”) and reporting mechanism for use by the FDA Pharmaceutical Inspectors to measure and determine the level of future oversight required for a drug manufacturing company, based upon a specific set of metrics, as illustrated in Figure 10:

COMPLIANCE DASHBOARD

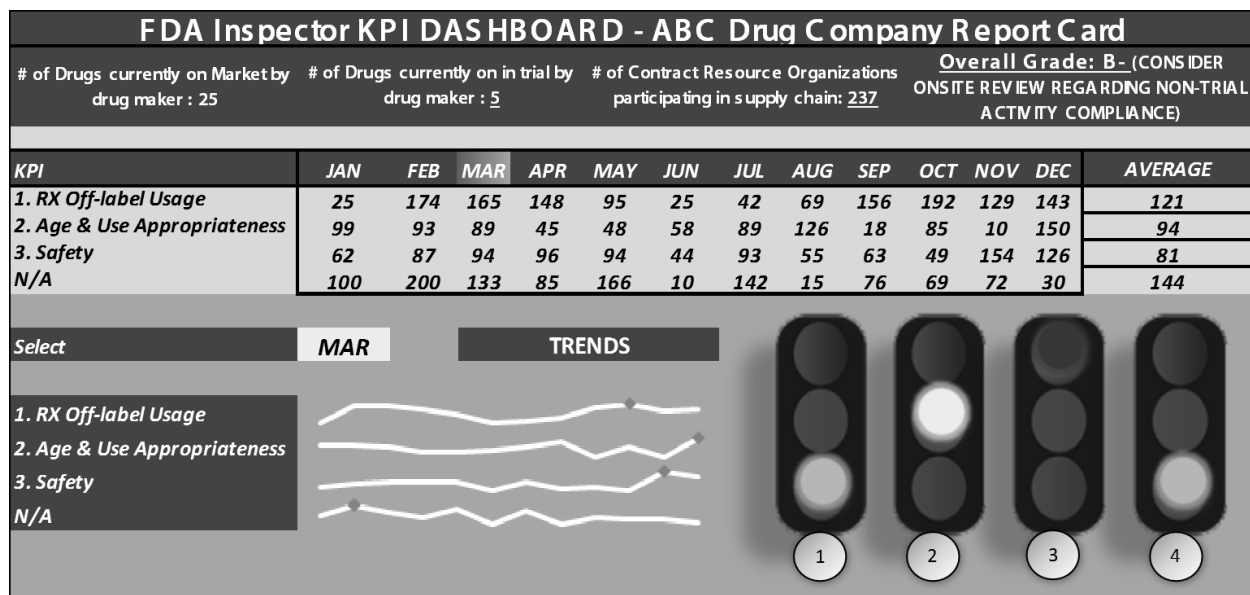


Figure 10

Drug Promotion

- RX Off-label Usage - develop KPI per drug classes, and the likelihood of off-label usage algorithm)
- Age & Use Appropriateness (KPI based on trials and source of usage)

Safety

- Adverse Event (for both off label and as directed usage) (KPI per drug, based upon relative % to RXs)
- # of Drugs currently on Market by drug maker (per defined threshold matrix associated to this value)

- # of Drugs currently on in trial by drug maker (per defined threshold matrix associated to this value)
- # Contract Resource Organizations (CROs) participating in supply chain (per defined threshold matrix associated to this value)

Given the politics and costs involved, the likelihood of such a system remains problematic. The subject of noncompliance is something that both pharmaceutical companies and their regulatory bodies will have to grapple with perpetually, for as long as it continues to be so financially enticing. Take solace in the fact that the vast majority of pharmaceutical companies continue to comply with regulations and provide the very best treatments they have to offer, with a conscious eye on healing, rather than hurting.

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IS MORE BETTER? DIVERSIFICATION STRATEGY IN THE VENTURE CAPITAL MARKET

Pingying Zhang, University of North Florida
pingying.zhang@unf.edu

Marjory Templeton, University of North Florida
mtemple@unf.edu

Andres Gallo, University of North Florida
agallo@unf.edu

ABSTRACT

Diversification strategy in the venture capital (VC) market has received increasing research interest, as studies have shown this strategy adds value to venture capitalists' (VCs) investment. We build on previous study results and investigate how the nature of diversification strategy—related and unrelated—affects VCs' investment including early startups. We draw arguments from a perspective of efficient knowledge management and a perspective of structural coordination need. Two opposing hypotheses are developed. Secondary data of the VC investment from 1990 to 2010 was collected and panel analysis was performed. The study results suggest that related diversification is associated with better VC firm performance, while unrelated diversification shows little effect.

INTRODUCTION

Research about investment strategies in the venture capital (VC) market has always been an important topic for entrepreneurship studies (Croce, Marti, & Murtinu, 2013; Davila, Foster, & Gupta, 2003; Gupta & Sapienza, 1992; Matusik & Fitza, 2012; Tyebjee & Bruno, 1984). Two polarizing investment strategies have received special attention: specialization and diversification. Specialization strategy is a low level of diversification, mainly targeting a few businesses from one industry. This strategy gains benefits from an efficient knowledge management in a domain area (Busenitz & Barney, 1997; Heeley & Matusik, 2006). Diversification strategy targets multiple businesses across various industries. This strategy benefits from the value of a diverse knowledge pool across industries, which facilitates the identification of an innovative solution to unique venture problems (Ahuja & Katila, 2001). In previous studies, when venture capitalists (VCs) invest in early startups, they prefer specialization to diversification (Gupta & Sapienza, 1992; Norton & Tenenbaum, 1993). Nevertheless, some researchers are doubtful about the benefits of such a preference, as both strategies seem to be equally effective (Matusik & Fitza, 2012). We continue this line of research and ask: *If VCs choose diversification strategy to manage their investment, including early*

startups, how does the nature of diversification—related or unrelated—influence firm performance?

Venture capital is defined as a professionally managed pool of equity capital, which is contributed by wealthy limited partners of a VC firm (Hisrich, Peters, & Shepherd, 2008). VC financing is one essential funding source for startups, and VCs' investment strategies influence startups' financing approaches (Hisrich et al., 2008; Meyer & Crane, 2011; Stevenson & Roberts, 2006).

The VC market is different from the general financial market. In this market, VCs raise capital from their partners, with the amount varying between \$100 million and \$500 million under management (Clercq, Fried, Lehtonen, & Sapienza, 2006). Investment decisions are made collectively by individual VCs who are also the partners. VCs earn a management fee of 1 to 2.5 percent of the fund's committed capital, covering their salaries and management expenses. VCs also receive a share of 20 percent of the profits of the fund. In terms of management style, VCs show more hands-on involvement in their portfolio ventures than investors from the general financial markets (Clercq et al., 2006).

There are four VC financing stages: seed, early, expansion and later stage. Financing for early startups occurs at the first two stages, which most VCs choose to avoid because of the higher risk associated with the stages (Clercq et al., 2006). Two consequences follow from this approach. First, the supply of VC financing drops for early startups that, however, can be a main force of economic growth in a society. Second, avoiding early startups reduces the potential return of VCs as suggested by the high risk-high return relationship, an ultimate goal of the VC market. It is possible for VCs to manage the stage-related risk, as research has shown that VCs with exposure to the seed and early stage can perform well (Wright & Robbie, 1998). We focus on VC firms that do not avoid the stage-related risk, and aim to understand the relationship between the nature of diversification strategy and firm performance.

We draw arguments from knowledge management literature (Barnett, Greve, & Park, 1994; Busenitz & Barney, 1997; Ingram & Baum, 1997), and a perspective of structural coordination need in the strategy field (Hill & Hoskisson, 1987). We use knowledge management to analyze efficiency under related and unrelated diversification strategies, and we apply structural coordination need to examine structural features of these two strategies.

There are two major contributions in this paper. First, departing from analyzing the level of diversification, an often-examined topic, we study the nature of diversification—related and unrelated diversification, which has received little research attention in the VC market. Second, our study shows that VCs can do well at seed and early stage by deploying a specific diversification strategy, a result perhaps can encourage VCs to include early startups in their portfolios and play an active role for them.

The rest of the paper is structured as follows: we first present a literature review of diversification strategy, perspectives of knowledge management, and structural coordination need. Hypotheses are then developed. After that, we introduce the research methodology and

data collection, followed by the section of analysis and results. Last, we conclude the paper with a discussion and future research suggestions.

THEORY AND HYPOTHESES

Venture financing strategy has progressed from a general investment strategy (Fried & Hisrich, 1994; Paul, Whittam, & Wyper, 2007; Tyebjee & Bruno, 1984) to a more refined classification, such as specialization vs. diversification strategy (Ahuja & Katila, 2001; Fern, Cardinal, & O'Neill, 2012; Heeley & Matusik, 2006; Matusik & Fitza, 2012). Specialization strategy, also termed as a low-level of diversification strategy, focuses on developing specialized knowledge in a domain area of an industry. According to knowledge management, this strategy can minimize coordination costs because efficient information processing becomes possible within the domain of expertise (Barnett et al., 1994). Consequently, when VCs select investment candidates, they choose new ventures from the same domain area to leverage the specialized knowledge. There are, however, limitations associated with this strategy. Mastering specialized knowledge does not promote the skill of identifying an innovative solution outside the pre-defined domain (Ahuja & Katila, 2001). As a result, diversification strategy becomes attractive. This strategy calls attention to a knowledge pool from related and unrelated fields, which can strengthen investors' ability to seek innovative answers outside the box. Specifically, diversification strategy helps to develop a type of analogical thinking skill that taps into similarities among different knowledge domains to find novel solutions to address complex venture problems at hand (Gavetti, Levinthal, & Rivkin, 2005). The ability to find novelty is particularly useful for investments that include early startups where new problems that have not been seen or solved often surface. In short, from the perspective of knowledge management, specialization strategy improves the efficiency of knowledge utilization in a domain area, while diversification strategy improves the skill of identifying novel solutions from a knowledge pool.

Earlier studies of specialization and diversification strategy in the VC industry suggest that specialization works better than diversification particularly at the early stage of a venture (Gupta & Sapienza, 1992; Norton & Tenenbaum, 1993). Nevertheless, Matusik and Fitza argued that both strategies should be equally emphasized, as both strategies create operational flexibility and adaptability that startups need (2012). They showed a "U" curvilinear relationship between the level of diversification and firm performance. That is, VCs who apply specialization strategy or a high level of diversification strategy achieve better firm performance than VCs who apply a medium level of diversification strategy. This is an intriguing finding in two ways. First, it questions early observations where VCs seem to prefer specialization to diversification when investment in early startups is involved. Second, it questions a general understanding of an inverted "U" curvilinear relationship between firm performance and the level of diversification from the strategy field, where a medium level of diversification outperforms specialization and a high level of diversification (Hill & Hoskisson, 1987; Palich, Cardinal, & Miller, 2000).

The above new development suggests that VCs do not shy away from diversification strategy when they include early startups in their portfolios. If they do take diversification strategy, we propose that the nature of diversification perhaps sheds light on the above intriguing findings—the purpose of our investigation.

When a firm follows diversification strategy, the strategy can be related or unrelated in nature (Hill & Hoskisson, 1987; Hitt, Ireland, & Hoskisson, 2010). Related diversification describes a relationship among the diversified businesses. The relationship could be exemplified as knowledge sharing and activities sharing among portfolio businesses, or know-how transferring from headquarters to businesses. Synergy is created when joint activities are identified, integration is supported or knowledge is spread through links among businesses. Unrelated diversification occurs when diversified businesses could hardly be linked with each other. Instead of creating synergy, unrelated diversification creates financial economies from the internal capital market. That is, pooling together imperfectly correlated income streams generated by unrelated businesses would produce a superior return, as the unrelated businesses cancel out each other's inherited firm specific risks (Bodie, Kane, & Marcus, 2002).

There is a difference between studies of specialization vs. diversification and those of related vs. unrelated diversification. Studies that investigate specialization vs. diversification are interested in the level of total diversification in a portfolio. Studies that examine related and unrelated diversification are interested in the relationship among diversified businesses. For example, at a high level of diversification, the diversified businesses could be related to each other, or unrelated to each other.

COORDINATION NEED

Coordination need describes how various portfolio ventures are managed under a specific diversification structure and costs to satisfy that structural need (Hill & Hoskisson, 1987). Related and unrelated diversification strategies create different coordination needs and therefore different coordination costs. We are thus recommended to examine coordination need to ensure the strategy of a business fits the structure of the business (Hill & Hoskisson, 1987).

One specific coordination need that differentiates related from unrelated diversification comes from corporate control of portfolio ventures (Hill & Hoskisson, 1987). For example, if related diversification strategy is selected, it is necessary to establish corporate control to ensure connections among portfolio ventures such that synergy can be efficiently and effectively created. In the case of unrelated diversification, corporate control is nevertheless of little concern. This is because the benefit of unrelated diversification relies on the efficiency of the internal capital market of a firm, where individual businesses are highly responsible for their own profits and losses, and they are rewarded by their performance through receiving more corporate resources. Business efficiency is encouraged at the individual level to save costs and to increase return. Consequently, unrelated diversification creates less structural need for corporate control than related diversification, and is therefore less costly than a related diversification strategy.

In the VC market, studies show that individual ventures in a portfolio operate independently, and they seldom share resources with one another (Matusik & Fitza, 2012). This observation indicates that the creation of connections among portfolio ventures is not the focus of VCs. Unrelated diversification seems to be a better fit with this structural feature, which demands little

coordination among portfolio ventures and consequently results in less control costs. If related diversification strategy is chosen to govern a portfolio with little need for coordination, costs would be generated that can become exceedingly high and soon overruns the value of diversification (Hill & Hoskisson, 1987; Norton & Tenenbaum, 1993). It is reasonable to suggest that unrelated diversification strategy performs better than related diversification strategy in the VC market.

The above conclusion finds further support from a general understanding of financial portfolio management. According to financial portfolio literature, unrelated diversification strategy targets industries of great varieties, which reduces unsystematic risk that is industry specific to an arbitrarily low level (Bodie et al., 2002). For example, the biotechnology and computer software industries have little in common, and a portfolio of businesses from these two industries greatly reduces the unsystematic risk that is industry specific. Related diversification, on the other hand, is less efficient, as related diversification targets industries with some similarities. For example, hardware and software industries share similarities of the high-tech sector, and the portfolio formed by these two industries could not optimally reduce unsystematic risk that relates to the high-tech sector. To put it differently, portfolio risk management is better carried out through unrelated diversification strategy.

Comparing with related diversification, unrelated diversification strategy fits VCs' independent portfolio structure better, it is less costly and it is more efficient in spreading unsystematic risks. VC firms including early startups are likely to choose unrelated diversification strategy.

Hypothesis 1: Unrelated diversification strategy strengthens firm performance for VCs who include early startups.

Knowledge management: The knowledge management perspective has been applied to distinguish between the effect of specialization and diversification strategy (Matusik & Fitza, 2012). We apply this perspective to address the difference between related and unrelated diversification. Specifically, related diversification provides more efficient knowledge management than an unrelated one. Meanwhile, related diversification facilitates the identification of novel solution to solve venture problems, which specialization could not do (Matusik & Fitza, 2012).

Similar to the argument of specialization strategy (Ahuja & Katila, 2001; Heeley & Matusik, 2006), the creation of a shared knowledge base is more feasible between related industries than unrelated industries. For example, the degree of the domain knowledge background between computer programming and computer software—two related industries—is higher than that between computer programming and financial service—two unrelated industries. Concerning knowledge management, shared knowledge makes it possible to effectively communicate information of critical importance using a common knowledge base to cohesively solve venture problems (Lane & Lubatkin, 1998), and to even produce innovative outputs because of accumulated superior knowledge (Ahuja & Katila, 2001). It is also important to point out that VCs learn from their successful portfolio ventures (Clercq & Sapienza, 2005), and the learning effect becomes more valuable when VCs integrate additional new knowledge with the current knowledge base (Grant, 1996). We further assert that the efficiency of integration improves

when knowledge is related between learning and the current portfolio, as learning facilitated by related diversification strengthens VCs' capability to exploit others' knowledge in the network (Clercq & Dimov, 2008), such that co-investors are efficiently and effectively identified and risks of portfolio ventures are reduced (March, 1991; Uotila, Maula, Keil, & Zahra, 2009).

The perspective of knowledge management is in line with VCs' hands-on management style. Studies show that young ventures face great challenges such as identifying a viable business model, and VCs provide multiple services besides capital injection (Clercq et al., 2006; Sapienza, 1992). For example, VCs help ventures to develop organizational structures, transfer marketing experiences, recruit key personnel, provide technological insights, secure follow-up financing and so on (Sapienza, 1992; Shane & Cable, 2002). The efficiency of offering those services varies depending on the number of portfolio ventures involved. According to literature from the strategy field, unrelated diversification can involve more ventures in a portfolio than related diversification (Hill & Hoskisson, 1987; Palich et al., 2000), and consequently if unrelated diversification is chosen, the level of attention that VCs give to each individual venture is likely to decrease and the quality of VCs' service is likely to drop.

Related diversification also strengthens VCs' skill of identifying novel solutions. This is because portfolio ventures are from various industries even though they share some knowledge backgrounds. The difference between related and unrelated diversification is perhaps the degree of knowledge varieties in the pool. That is, the knowledge pool associated with related diversification is less differentiated; it is nevertheless beyond one focused knowledge domain and can still enable the development of analogical skill, the key to innovative solutions (Gavetti et al., 2005). In addition, the level of appropriateness of a novel solution to a venture problem is perhaps higher when a related industry is involved, as the analogical skill is hard to cultivate without some levels of similarities.

Related diversification may not optimally reduce the unsystematic risks that are industry specific, but to a certain degree, superior knowledge accumulated in one industry can serve as a good guide in venture selection from other industries. For example, knowledge in 4G technology from the telecommunication industry can benefit selection of ventures from other industries that utilize this technology such as the gaming industry, high definition mobile TV, and video conferencing.

In conclusion, related diversification shows a distinctive advantage over an unrelated one in terms of the efficient knowledge management. This leads to our second hypothesis:

Hypothesis 2: Related diversification strategy strengthens firm performance for VCs who include early startups.

METHODOLOGY AND DATA

We performed panel data analysis to test the hypotheses in the study. Panel data analysis is known as an effective tool to examine cross-sectional time-series data. This tool allows us to control for variables that are difficult to observe or measure and are unique to individual

observation over time, therefore enables us to uncover the underlying mechanism across individual VC firms. Furthermore, we are able to better use the full set of information available both across companies and over time.

Secondary data is collected from Private Market of Thomson Reuters, which is a major database for studying the VC market (Matusik & Fitza, 2012; Shane & Cable, 2002; Tyebjee & Bruno, 1984). We draw our data primarily from the U.S. VC market. There are thousands of VC firms registered between 1969 and 2012 in the database. We selected VC firms with investment exposure to the seed and early stage, and screened out VC firms without providing information about the size of capital under management and the outcome of their investment.

According to the National Venture Capital Association, VC investment typically lasts ten years, while some studies use an eight-year duration as the investment period (Matusik & Fitza, 2012). In this study, we follow Matusik and Fitza's (2012) footsteps, assuming that VCs would hold their investment up to eight years. This assumption has the implication on the measurement of dependent, independent and control variables. Specifically, our dependent variable, the percentage of ultimately successful investment made by a VC firm, is collected between 1990 and 2010, and the independent and control variables are the moving average of the eight-year window. For example, the successful investment in 1990 is regressed on variables averaged over the period from 1990 to 1997, the successful investment in 1991 is regressed on variables averaged over the period from 1991 to 1998, and the successful investment in 2003 is regressed on variables averaged over the period from 2003 to 2010. The reasoning is that a successful investment is the outcome of resources endowed during an eight-year period (Matusick & Fitza, 2012, P: 414). The total observation is 3,584 for 256 VC firms for our analysis period.

DEPENDENT VARIABLE

Ideally, VC performance should be measured by internal rate of return; however, this information is generally difficult to obtain because of the nature of the industry (Hsu, 2004). Some researchers have used percentage of total investment that goes IPO (Initial Public Offerings) as a desired outcome to measure VC firm performance (Clercq & Dimov, 2008; Matusik & Fitza, 2012). Besides IPO, acquisition is also used as another important exit strategy to realize high return (Hisrich et al., 2008). In this study, we use the percentage of total investment of a VC firm in a particular year that ultimately IPOed as the proxy of the VC firm's performance in that year.

INDEPENDENT VARIABLES

We use the entropy measure of diversification (Palepu, 1985). This measurement is central to our investigation of related and unrelated diversification. Entropy measure takes both the number and the classification of industries into consideration, and calculates an index. There are three indices measuring related, unrelated and total diversification. The total diversification index can

be indirectly calculated through the sum of related and unrelated diversification indices (Palepu, 1985). It reflects the diversification level of the total portfolio, and this method has been widely used to study diversification (Fitza, Matusik, & Mosakowski, 2009; Matusik & Fitza, 2012). However, the total diversification index does not tell us the difference between related and unrelated diversification. Departing from earlier studies such as Matusik and Fitza's study in 2012, we distinguish between related and unrelated diversification by directly measuring them using the method developed by Palepu (1985).

Private Market of Thomson Reuters has used the industry coding system based on the Venture Economics Industry Codes (VEIC), which is slightly different from the Standard Industrial Classification Codes (SIC). However, the VEIC coding is structured in the same logic as the SIC such that the numerical distance between industries informs the relatedness of the industries. Moreover, the VEIC classification is more fine-grained towards the high-tech sector, but not so much towards the non-tech-sector. This difference has little influence on studies in the VC industry where major attentions are played in the in-tech-sector (Matusik & Fitza, 2012).

Let DR_j stand for related diversification arising out of investing in several industry segments i within an industry group j , and is defined as:

$$DR_j = \sum_{i \in j} I_i^j \ln(I_i^j)$$

where i stands for each industry segment that belongs to the industry group j . I_i^j is the percentage of the investment of each industry i in the investment of the industry group j . The total related diversification DR is the weighted average of DR_j within all groups the VC firm has invested, defined as:

$$DR = \sum_{j=1}^m DR_j I^j$$

where I^j is the percentage of the investment of the industry group j in the total investment of the VC firm.

Let DU stand for unrelated diversification, measuring diversification across different industry groups. It is a weighted average of all the industry groups, and defined as:

$$DU = \sum_{i=1}^m I_i^j \ln(I_i^j)$$

Let DI be the total diversification index. As we stated earlier, it can be derived from the sum of related and unrelated diversification:

$$\begin{aligned} DI &= \sum_{j=1}^m DR_j I^j + \sum_{i=1}^m I_i^j \ln(I_i^j) \\ &= \sum_{i=1}^m \sum_{j \in i} I_i^j \ln(I_i^j) \end{aligned}$$

We also measure the percentage of related diversification in total diversification. This measurement indicates to what extent the portfolio ventures are related in nature:

$$PerDR = DR / DT$$

CONTROL VARIABLES

VC investment occurs in all four stages: seed financing, early financing, expansion stage and later stage (Clercq et al., 2006). Departing from earlier study design where an average stage of investment is used (Matusik & Fitza, 2012), we look into the detailed exposure to each stage, which is the percentage of total investment in each stage.

VCs generally make investment decision from referral, and they often choose to co-invest with other investors from the referral network to better leverage their resources (Wright & Lockett, 2003). It is argued that business screening risks are reduced, operational efficiency is achieved and problem solving skill is enhanced because of the added value from co-investors (Gupta & Sapienza, 1992). Co-investing also reduces the costs of coordination as coordination effort could be shared among co-investors, making a higher level of diversification not only feasible but also less risky. We therefore control the effect of co-investment by controlling for the average number of co-investors a VC firm has for a given eight-year window.

Size of capital can influence the performance of VC investment (Gupta & Sapienza, 1992), and we control for it. The size of capital describes the total available investment capital under management. In general, there is a great variation of the size between \$100 and \$500 million (Clercq et al., 2006). The smaller the size, the fewer the choices a VC firm can afford. It is also interesting to point out that when VCs have more successful track records of investments, more investors will put their money in the VC firm (Gupta & Sapienza, 1992).

ANALYSIS AND RESULTS

Data Description

In our data, the oldest firm was founded in 1911, and the youngest one in 2002. The medium of founding year of VC firms is 1982. The mean of the fund size under management is \$211 million. In our data, most of the VC firms have about five major co-investors, and most of them have exposure to all stages. Overall, in an eight-period window, 19% of the annual investment of a VC firm is at seed stage, and 57% at early stage. This investment pattern indicates that our data captures VC firms with exposure to the seed and early stage. We present the descriptive statistics and Pearson correlation coefficients in Table 1.

TABLE 1: DESCRIPTIVE STATISTICS AND CORRELATIONS

	Mean	Std. error										
Ipo%	.163	.31										
Seed%	.198	.193	.045									
Early%	.570	.248	-.100**	-.268**								
Expansion %	.318	.260	.044	-.296**	-.655**							
Later%	.158	.189	.063	-.161**	-.519**	.035						
Related D	.338	.312	-.001	.115*	.075*	-.005	-.238**					
Unrelated D	.920	.619	-.126**	.106**	.001	.035	-.161**	.124**				
Total D	1.258	.832	-.104**	.142**	.036	.026	.245**	.574**	.883**			
PerDR	.254	.186	.057	.027	.054	-.030	-.078*	.780**	-.482**	-.053		
Size	211	164	.075*	.055	.039	-.049	-.057	.054	-.116**	-.071	.127**	
Co-investors	5.989	2.448	-.036	-.103**	.116**	-.048	-.025	-.054	.038	.005	-.101**	-.472**

** . Correlation is significant at the 0.01 level, * . Correlation is significant at the 0.05 level

In Table 1, there are significant and negative correlations between different stages, such as seed and early, seed and expansion, and seed and later stage. This may help to explain that investment in one stage will reduce capital available for other stages. The coefficient is 0.655 between early and expansion and 0.519 between early and later stage. It suggests a possibility of multicollinearity among stage variables (Tabachnick & Fidell, 2007), and we therefore perform four panel regression models, using one stage for one model.

The relationships between stage and diversification strategies are worthy of exploring. The coefficients are significant and positive between the seed stage and the three indices—related, unrelated and total diversification—at 0.115, 0.106 and 0.142 respectively. As we outlined earlier, the total diversification is the sum of related and unrelated diversification, the significant coefficients indicate that, first, VC firms do diversify their portfolios at the seed stage, and second, both related and unrelated diversification are equally chosen as the diversification strategy. A similar conclusion emerges between the early stage and the three indices with one difference: VC firms seem to prefer related to unrelated diversification at early stage, as there is only one significant coefficient observed for related diversification at 0.075. There is no significant coefficient between the expansion stage and the three indices. For the later stage, there are significant but negative coefficients between this stage and the three indices. Further exploration of the data through regression is necessary. The three indices are also significantly correlated with each other. For example, related and unrelated diversification indices are positively correlated at the level of 0.124. However, the coefficient is 0.575 between related and total diversification indices and 0.884 between unrelated and total diversification indices, suggesting excluding the total diversification index in regression model due to the possibility of multicollinearity.

The size of the capital under management is significantly and positively correlated with the percentage of IPO at 0.075. This observation is in line with the conventional wisdom that there are more successful portfolio ventures when the investment capital gets larger. We also observe a significant but negative correlation between the size of capital and the number of co-investors, which suggests that the more capital a VC firm has, the less likelihood the VC firm will use the co-investment method.

RESULTS

The following regression analysis is performed:

$$Performance_i = a + \beta_1 Stage_i + \beta_2 \sum DiversificationIndex_i + \beta_3 \sum Control_i + \varepsilon_i$$

The regression estimates the effect from four different stages and two diversification strategies. Eight panel regression models were performed. The results are presented in Table 2. In running Panel Data analysis, it is necessary to select the type of panel data model that corresponds to the case in hand, that is, whether the fixed effect or random effect model should be used (Greene, 2008). The Hausman test is performed to select between these models, and the results show that

the fixed effect is the most suitable one for all eight regressions. F statistics indicate that all models are significant.

TABLE 2: RESULTS OF PANEL REGRESSION ANALYSIS

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Constant	.248* (.098)	.234** (.084)	.354*** (.091)	.302* (.152)	.262* (.109)	.248** (.095)	.292** (.103)	.467* (.180)
Size	.001** (.001)	.001 (.001)	.001 (.001)	.001** (.001)	.001* (.001)	.001 (.001)	.001 (.001)	.001*** (.001)
Co-investment	-.049*** (.011)	-.029** (.009)	-.044*** (.010)	-.035* (.015)	-.053*** (.011)	-.036*** (.010)	-.045*** (.011)	-.046** (.016)
Seed%	.133* (.067)				.168* (.069)			
Early%		-.073 (.052)				-.075 (.053)		
Expansion%			-.167* (.065)				-.126 (.070)	
Late%				-.078 (.125)				-.084 (.133)
Related D	.137** (.046)	.148** (.042)	.143** (.045)	.117 (.070)				
Unrelated D	.031 (.036)	.041 (.032)	.023 (.034)	-.069 (.054)	.043 (.040)	.078* (.034)	.073 (.037)	.119 (.061)
PerDR					.223* (.091)	.220** (.079)	.251** (.089)	.035 (.143)
F value	.000	.000	.000	.002	.000	.000	.000	.006

Standard coefficients are reported in the table, with standard errors presented in the parentheses.
***. $P < .001$, **. $P < .01$, *. $P < 0.05$.

Hypotheses 1 and 2 are opposed to each other. Hypothesis 1 states that unrelated diversification strengthens firm performance with exposure to the seed and early stage, while hypothesis 2 describes otherwise. The direct effect of related and unrelated diversification is examined from model one to model four. The indirect effect exemplified by the percentage of related diversification in the total diversification index (PerDR) is examined from model five to model eight. For the seed stage, the coefficient is significant at 0.137 for related diversification as shown in model one, while the coefficient is not significant for unrelated diversification. In model five, the coefficient of PerDR is significant at 0.223, but not significant for unrelated diversification for the seed stage. For the early stage, the coefficient of related diversification is significant at 0.148 in model two, while the coefficient of unrelated diversification is not significant. In model six, the coefficient of PerDR is significant at 0.220, and we also have a significant coefficient for unrelated diversification but with a much weaker influence of 0.078. For the expansion stage, related diversification has shown a significant effect in model three and model seven. For the later stage, there is no significant effect detected for either related or unrelated diversification in model four and model eight. The overall results seem to suggest that related diversification improves firm performance for VC firms with exposure to the seed and early stage. Hypothesis 2 is accepted.

DISCUSSION AND CONCLUSION

Earlier studies of diversification strategy in the VC market have focused on the level of diversification (Matusik & Fitza, 2012). We build on the earlier results to explore the nature of diversification. Using a perspective of knowledge management and structural coordination need, we try to understand how the nature of diversification strategy, related and unrelated, affects firm performance for VCs who include early startups. Secondary data was collected from Private Market of Thomson Reuters. Panel data analysis was performed. The overall results of our models indicate that related diversification improves firm performance, while unrelated diversification has little effect.

It is difficult to examine the difference between related and unrelated diversification strategy using a total diversification index as shown in early studies (Matusik & Fitza, 2012). In our methodology, we separate related diversification from unrelated through measuring 1) the related and unrelated diversification indices separately and 2) the percentage of relatedness in the total diversification index (PerDR). The use of PerDR can complement our understanding of the related diversification and total diversification indices. This is because the total diversification index is the sum of the related and unrelated indices (Palepu, 1985), and a high value of the related diversification index does not necessarily mean that the total portfolio is related if the unrelated index is even higher than the related index. In addition, PerDR sheds some interesting observations in our study: When we compare the coefficients of PerDR with that of the related diversification index in panel regressions, the value of PerDR is higher than that of the related diversification index. For example, comparing model one with model five, the coefficient of the related diversification index is 0.137, while the coefficient of PerDR is 0.223. Model one suggests that using related diversification strategy is important for a VC firm's performance, and model five further suggests that a higher percentage of related diversification in the VC firm's portfolio is critical as well. In other words, the degree of relatedness of a portfolio perhaps is more influential than related diversification alone.

The study result supports the argument from knowledge management where the efficiency of knowledge management is critical for firm performance. The result does not support the perspective of structural coordination need, which can be explained by VCs' hands-on working style. That is, the close involvement of managing a related diversification portfolio generates higher value than costs saving of managing an unrelated diversification portfolio.

EARLY STAGE INVESTMENT

VC financing is only one part of external financing for early startups; nevertheless it is a crucial part because of the magnitude of the capital provision by VCs. However, a trend has gradually formed over years where VCs shy away from early startups, leaving the supply of financing for early startups to angel investors (Clercq et al., 2006; Jose, Roure, & Aernoudt, 2005; Morrisette, 2007; Van Osnabrugge, 2000). For example, in our database, we found more than 80% of VC deals in the U.S. market from 1969 to 2012 avoided investment at seed and early stage. The main

reason behind the lack of enthusiasm is perhaps the risk associated with the stage (Jose et al., 2005). As a result, VCs select ventures that have passed the seed and early stage development, where the ventures have shown well-developed concepts and have already generated a positive cash flow but looking for ways to expand (Clercq et al., 2006). Nevertheless, economic development of a society depends on a healthy growth of early startups in that society, and VCs are valuable to early startups (Croce et al., 2013). This study thus focuses on the specific group of VCs who do finance early startups, and our results suggest that these VCs can manage the stage related risk and improve firm performance through strategy.

Our study suggests that the nature of diversification is more important than the number of diversification, and thus more diversification is not necessarily better. This conclusion is consistent with the argument from the strategy field where a medium level of diversification outperforms a high level of diversification (Hill & Hoskisson, 1987; Palich et al., 2000).

LIMITATIONS AND FUTURE RESEARCH

There are several limitations in this study. First, our data collection is from the U.S. market. Albeit that the U.S. market is the largest VC market in the world, there is a possibility of data selection bias due to the limitation to one nation. Future research should replicate the panel regression by using a more inclusive database. Second, this study supports the argument from the perspective of efficient knowledge management; but, how knowledge experience of VCs moderates the relationship between firm strategy and firm performance is not explored. For example, one study shows that VCs' industrial experience moderates the relationship between co-investment and firm performance (Clercq & Dimov, 2008), and future research can investigate similar moderating effects between diversification strategy and firm performance. Third, this study examined the direct impact of related and unrelated diversification strategies on firm performance. There is a possibility that diversification strategy interacts with other variables creating mediating effect on firm performance, an area that future studies can also examine. Fourth, this study has used secondary data to analyze related and unrelated diversification; future research should consider survey method to enhance our understanding of VCs' preferences towards related and unrelated diversification. On the whole, this paper has presented some interesting findings about related diversification in the VC market.

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STUDY ON THE TEMPORAL EVOLUTION OF RELATIONSHIPS AMONG RESIDENTS' SUPPORT AND PERCEIVED IMPACTS OF TOURISM IN FOREST PARK

Huang Dongmei, Central South University of Forestry and Technology, China
1134306592@qq.com

Zhang Qing, Central South University of Forestry and Technology, China
welcometoqz@hotmail.com

William L. Anderson, Frostburg State University
banderson@frostburg.edu

ABSTRACT

This study explores changes in the relationships between residents' perception of the impact of tourism and support of tourism at Zhangjiajie National Forest Park, conducted via a three-year longitudinal study that employs a Structural Equation Model. The study concluded that: (1) from 2010 to 2012, the overall trend of these relationships moved from indirect to direct; (2) the influence of residents' understanding and participation in tourism support became more and more significant; (3) the general trend of the relationships between support and perception was that the effect of residents' perceived economic impact reduced and the influence of residents' perceived social impact increased generally.

INTRODUCTION

Because they are an important tourism interest group, community residents' perception of tourism's impact and support has been seen as a key indicator of sustainable development of tourism destinations. Recently, the community has gained importance in the status and development of tourism in China. In the past people paid little attention to the importance of the local community and relevant research. Since 2004, research focusing on community participation increased rapidly in China, but as a result of a late start and weak structure, the existing research focused on only three aspects: residents' perception, attitudes towards tourism, and its influencing factors. The past research lacked comparative research on changes in residents' attitudes and perception of tourism's impact on the community. Under these circumstances, this researcher selected the Zhangjiajie National Forest Park for study because it is in a period of transformation. It will be examined through a comparative analysis between the relationships among local residents' tourism support and their perceived impacts of tourism over three years from 2010 to 2012. The study focuses on identifying the real needs of local people and serving as a reference for community management in the Zhangjiajie National Forest Park and similar parks.

REVIEW OF LITERATURE

A review of related literature indicated that longitudinal changes in the relationships among local residents' perceived impacts of tourism and their attitude towards tourism mainly included two forms: first, there are changes in residents' attitudes and perceptions between pre- and post-tourism events and second, there are changes in residents' attitudes and perceptions over the various development phases of tourism.

In terms of changes in residents' attitudes and perceptions between pre- and post- tourism events, Kim, Gursoy & Lee (2002) made a comparison in residents' perceived impact before and after the World Cup in South Korea in 2002. They proposed that significant differences existed in every dimension of residents' perception between the two time periods. Waitt (2003) examined the changes in enthusiasm of host city residents between 1998 and 2000 towards the Sydney Olympics. Waitt indicated that these changes were related to residents' family structure, place of residence, and benefits from Olympic Games. Pranic, Petric & Cetinic (2012) studied the changes in residents' perceived social impacts of sport tourism events based on empirical analysis on Croatia. Kim & Petric (2005) made a comparison of residents' opinions and perceptions on impacts over two points in time and concluded that attitudes of residents towards the event are likely to be modifiable with passage of time. Lorde, Greenidge & Devonish (2011) investigated the pre- and post-perceptions of Barbadian residents on the impacts of hosting the ICC Cricket World Cup 2007—they found that significant differences of residents' perception existed in all seven study factors including benefits of cultural exchange and traffic congestion before and after games.

With regard to changes in residents' attitudes and perceptions over the various development phases, Young, Thyne & Lawson (1999) undertook a comparative study of tourism perception on 10 New Zealand tourist destinations and concluded that general events occurring in society might have a halo effect on residents' perception of tourism. Lee & Back (2006) used a structural equation to explore changes in attitudes of residents towards casino development over a 4-year period. Lu Song, Zhang Jie & Su Qin (2009), selecting Xidi as a case study, analyzed the longitude changes in residents' perception of tourism impacts. They concluded that residents paid more and more attention to the socio-cultural impact and environmental impact of tourism during the four years and these changes were influenced by various factors about individuals, scenic spots, and government. Joseph & Amanda (2011) used qualitative and quantitative analysis to assess the impacts of Community Based Natural Resource Management (CBNRM) on residents' attitudes towards tourism development and conservation in the Okavango Delta. The study results indicated that there were changes in resident attitudes from negative to positive towards tourism and conservation.

As mentioned above, progress has been made in the study of residents' attitudes towards tourism and the perceived impact of tourism, according to research trends of cross-time and cross-region comparison, but there are a few shortcomings have been identified in the existing comparative studies—especially in China. First, the investigation subjects are residents in selective tourist destinations, such as near casinos and/or ancient villages, but very few of these destinations are closely related to a community—including ecotourism areas and world natural heritages.

Secondly, the amount of existing research not only is relatively little, but also primarily comes from overseas locations, and there is an obvious weakness due to the duration of research time. Finally but not least, most studies stopped at analyzing the differences in attitudes and perceptions of locals, whereas the specific changes in relationships between residents' attitudes and perceptions are not further discussed. In this respect, this study started with research on the differences in the influencing factors leading to residents' attitudes and perceptions changing, then compared the relationships in different time periods from two angles, i.e. the changes in orientation and intensity of relationships.

METHODS

Conceptual Model and Hypothesis

The existing studies revealed that the primary influencing factors of residents' support of tourism (part of their attitudes towards tourism) and their perceived impacts of tourism can be classified into four aspects: (1) residents' demographic characteristics (*Ritchie, 1988; Sheldon & Var, 1984*), (2) participation in tourism (*Davis et al., 1988; Woosnam & Norman, 2009*), (3) duration of residence (*Lankford, 1994*) and (4) the specific perceived impacts of tourism (*Brian, 1993; Paul et al., 1999; Pizam & Abraham, 1978*). Furthermore, the relationships between residents' perceived impacts of tourism and support for tourism changes with the temporal variation and regional difference (*Michael & Richard, 1998; Cevat, 2002; Victor et al., 2002; Choong-Ki et al., 2010*). Based on conclusions above, the conceptual model and hypothesis of this study were proposed as follows:

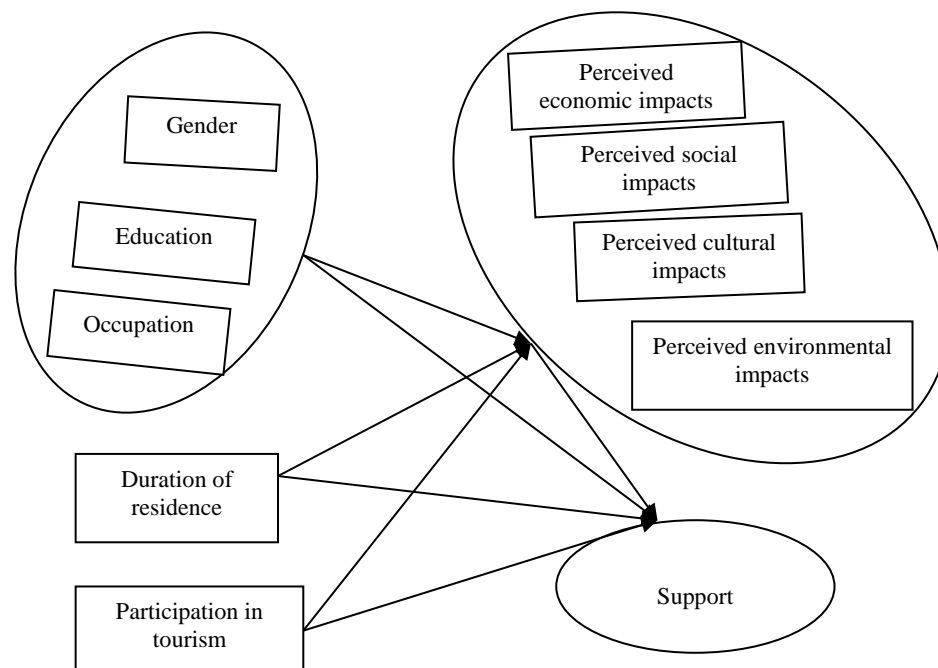


FIGURE 1—proposed conceptual model of residents' attitudes and perceptions of Zhangjiajie National Forestry Park

H1: There is a significant difference in the factors influencing residents' perceived impacts of tourism and support during years from 2010 to 2012.

H1-1: There is a significant difference in the demographic factors influencing residents' perceived impacts of tourism and support during years from 2010 to 2012.

H1-2: There is a significant difference in the effect residents' duration of residence had on their perceived impacts of tourism and support during years from 2010 to 2012.

H1-3: There is a significant difference in the effect residents' participation in tourism had on their perceived impacts of tourism and support during years from 2010 to 2012.

H1-4: There is a significant difference in residents' perceived impacts of tourism influencing their support for tourism during years from 2010 to 2012.

H2: There is a significant difference in the relationships among residents' perceived impacts of tourism and support during years from 2010 to 2012.

H2-1: The effect residents' perceived economic impacts of tourism had on their support decreases during years from 2010 to 2012.

H2-2: The effect residents' perceived social impacts of tourism had on their support increases during years from 2010 to 2012.

H2-3: The effect residents' perceived cultural impacts of tourism had on their support increases during years from 2010 to 2012.

H2-4: The effect residents' perceived environmental impacts of tourism had on their support increases during years from 2010 to 2012.

Data Collection and Measurements

Data Collection

Four separate communities were selected as the study subjects with a questionnaire used as the main method used to collect essential data for the survey research. The data for this study was collected in four different time frames, including one pre-survey and three post-surveys.

The pre-survey was conducted mostly via personal interviews, the intent being to gain related references for the questionnaire revision; the three post-surveys were administered to the local residents in July and August each year from 2010 to 2012, and a total of 339 usable questionnaires were collected for analysis (including 101 respondents in 2010, 128 respondents in 2011 and 110 respondents in 2012).

Measurements

Measurement items in this study were first generated from a review of research on residents' attitudes and perceptions, after which the interviews with local communities in pre-survey

further helped to revise and improve them. The pilot-tested items consisted of 17 variables, including the background information, tourism attitude scale, and perceived impacts scale.

To ensure the reliability of every sub-construct, a reliability analysis was done first. The results indicated that the coefficient Alpha of three sub-constructs (they are the perceived economic construct, social impact construct, and cultural construct) was 0.661, 0.613 and 0.679 respectively, which was close to the minimum standard for reliability of 0.7 recommended by Nunnally and Bernstein, and the perceived environmental construct was removed from the proposal model for its coefficient Alpha being 0.223.

RESULTS

Homogeneity Test of Samples

To ensure that there were no significant differences in the demographic characteristics of residents in the different data collection periods, the homogeneity test was performed before the data analysis. The results of the chi-square test are summarized in Table 1 and show that there was no significant difference in the gender, age, education, occupation, income and place of residence of respondents in three different years, which excluded the deviation resulting from improper sampling.

TABLE 1—HOMOGENEITY TEST OF SAMPLES

Variables	Value	Sig.(two-tailed)	Results
Gender	2.829	0.587	No significant difference
Age	11.670	0.308	No significant difference
Education	6.461	0.775	No significant difference
Occupation	12.112	0.597	No significant difference
Income	11.571	0.171	No significant difference
Place of residence	6.196	0.402	No significant difference

Analysis of Changes in the Influencing Factors of Residents' Support and Perceptions

The influencing factors of residents' support and perceptions were confirmed through the revision and fitting of three structural equation models of residents' support and perceptions for each year.

Confirmation of Factors Influencing Residents' Support and Perceptions in 2010

Factors influencing residents' support in 2010 can be categorized into two kinds including (1) residents' participation in tourism and (2) residents' perceptions of tourism's impacts: (3) residents' participation level in tourism could directly lead to the changes in their support; and residents' perceptions of economic impacts was one of the main factors influencing residents' support, while their perceived social and cultural impacts had no significant effects on it.

As shown in Table 2, one factor influencing residents' perceptions in 2010 was the residents' demographic characteristics, including their gender and education background. The others were residents' perceptions of tourism impacts themselves, the perceived social impacts differed when residents' perceived economic impacts were different, and the perceived cultural impacts changed when residents' perceived social impacts varied.

TABLE 2—THE MAIN FACTOR INFLUENCING RESIDENTS' SUPPORT AND PERCEPTIONS IN 2010

Relationships among variables			Estimate	C.R.	P
Perceived economic impacts	←	Gender	0.507	3.906	0.000
Perceived economic impacts	←	Education	-0.132	-2.049	0.040
Perceived social impacts	←	Perceived economic impacts	0.585	4.275	0.000
Support	←	Perceived economic impacts	0.980	5.350	0.000
Perceived cultural impacts	←	Perceived social impacts	0.491	2.924	0.003
Support	←	Participation in tourism	0.157	2.187	0.029

Confirmation of Factors Influencing Residents' Support and Perceptions in 2011

The factors influencing residents' support in 2011 also consisted of the same factors influencing support in 2010. Residents' participation in tourism had significant effects on their support, but the significant effect on support of perceptions was reflected not only in residents' perceived economic impacts but also in the perceived social impacts.

According to the results in Table 3, changes in residents' perceptions of tourism impacts were primarily affected by the interaction of various specific perceived impacts of tourism. More specifically, residents who had different perceived social impacts had different perceived economic and cultural impacts, and residents' perceived economic impacts directly exerted influence on their perceived cultural impacts.

TABLE 3—THE MAIN FACTOR INFLUENCING RESIDENTS’ SUPPORT AND PERCEPTIONS IN 2011

Relationships among variables			Estimate	C.R.	P
Perceived economic impacts	←	Perceived social impacts	0.092	2.472	0.013
Support	←	Perceived economic impacts	0.804	2.311	0.021
Perceived cultural impacts	←	Perceived economic impacts	0.908	2.389	0.017
Support	←	Participation in tourism	0.111	2.797	0.005
Support	←	Perceived social impacts	0.245	4.241	0.000
Perceived cultural impacts	←	Perceived social impacts	0.144	2.429	0.015

Confirmation of Factors Influencing Residents’ Support and Perceptions in 2012

The results in Table 4 indicate that with the development of tourism, the effect that residents’ perceptions (including those of economic, social, and cultural impacts) had on tourism support became increasingly significant, and the influence of occupation on residents’ tourism support also increased.

In contrast, factors influencing residents’ perceptions of tourism impacts in 2012 also changed. The interactions among various specific perceived impacts of tourism disappeared, and residents’ occupation became the only factor which had a statistically-significant effect on their perceptions.

TABLE 4—THE MAIN FACTOR INFLUENCING RESIDENTS’ SUPPORT AND PERCEPTIONS IN 2012

Relationships among variables			Estimate	C.R.	P
Perceived social impacts	←	Occupation	0.107	1.970	0.049
Support	←	Perceived social impacts	-0.184	-2.596	0.009
Support	←	Perceived cultural impacts	0.992	3.472	0.000
Support	←	Education	0.167	3.137	0.002
Support	←	Perceived economic impacts	0.242	3.292	0.000

Comparison of Factors Influencing Residents' Support and Perceptions in Each Year

According to the data analysis above, differences in factors influencing residents' support and perceptions in each year can be summarized as follows:

- In 2010, residents' participation level in tourism directly affected their support of tourism; demographic characteristics had significant effect on perceived economic impacts and the interactions among kinds of perceived impacts did exist.
- In 2011, the effect residents' participation level in tourism had on their support of tourism remained. The perceived social impacts became one of the new factors affected by other kinds of specific perceptions.
- During 2012, the direct influence demographic characteristics had on residents' support and perceptions became more significant. At the same time, the effect residents' participation level in tourism became insignificant, while residents' perceived impacts notably affected their support.

As a result, all sub-hypotheses in H1 mentioned above except for the second hypothesis could be tested, with results demonstrating significant differences in the factors influencing residents' perceived impacts of tourism and support during years from 2010 to 2012.

Analysis on the Changes in Relationships between Residents' Perceived Impacts of Tourism and Support for Tourism

Analysis on the Changes in Orientation of the Relationships among Residents' Support and Perceptions

As shows in Table 5, fitness indices of the structural equation models of residents' support and perceptions during years from 2010 to 2012 met the relevant standard, which indicates that these three models fit in well with the data collected and further research could proceed.

TABLE 5—THE FITNESS EVALUATION ON STRUCTURAL EQUATION MODELS OF RESIDENTS’ SUPPORT AND PERCEPTIONS

	Index	2010	2011	2012	Evaluation criterion
Comparative fit index	χ^2	192.681	99.356	53.318	not significant
	df	112	83	39	
	χ^2 /df	1.720	1.197	1.369	<2
	RMSEA	0.085	0.039	0.058	<0.08
Parsimony fit index	PNFI	0.548	0.636	0.587	>0.5
	PGFI	0.672	0.758	0.669	>0.5
Incremental fit index	CFI	0.816	0.959	0.944	>0.90

Figure 2 presents the revised models of residents’ support and perceptions in each year, which implied that not only that the factors influencing residents’ support and perceptions were different during years from 2010 to 2012, so differed the orientation of relationships among them.

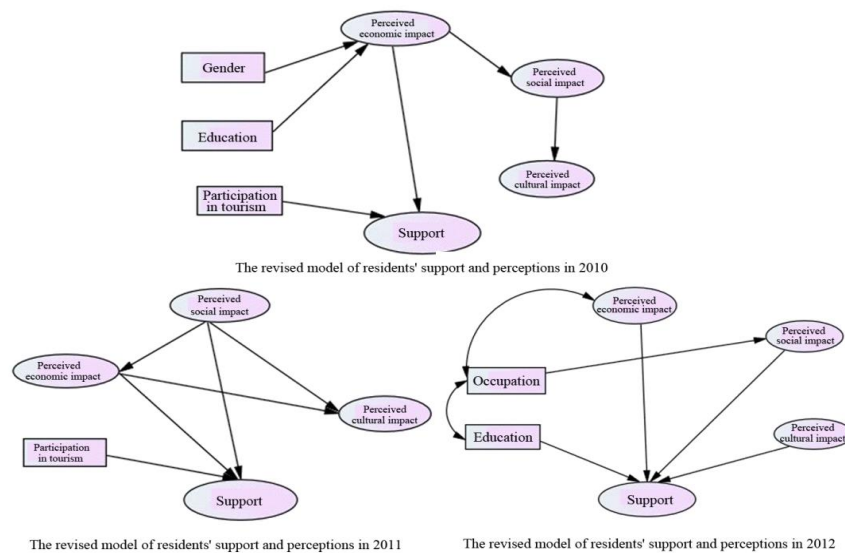


FIGURE 2—Comparisons on three revised model of residents’ support and perceptions

Analysis on the differences in orientation of relationships between residents' support and perceptions in the years 2010 and 2011

The differences in orientation of relationships between residents' support and between 2010 and 2011 were as follows:

- In 2010, residents' perceived economic impacts had significant effects on the perceived social impact of tourism which then affected the perceived cultural impact indirectly via perceived social impact.
- In 2011, residents' perceived social impacts directly influenced their perceived economic impact. Conversely, the effects that perceived economic impacts had on perceived cultural impacts changed from indirect to direct. Second, the influence of residents' demographic characteristics had on their support disappeared; however, the perceived social impact's effect on support was highlighted.

Analysis of differences in orientation of relationships between residents' support and perceptions in 2011 and 2012

Differences in orientation of relationships between residents' support and perceptions in years of 2011 and 2012 are reflected in changes of direct and indirect relationships. In 2011, residents' support was affected not only by their perceived economic and social impacts directly, but also indirectly by the perceived social impact via perceived economic impact. In 2012, however, all these relationships converted to direct ones.

Analysis on differences in orientation of relationships between residents' support and perceptions in years 2010 and 2012

The differences in relationships between residents' support and perceptions in the years 2010 and 2012 were relatively small. The biggest change during these two years was the effect that residents' education had on their tourism support changed from being direct in 2010 to indirect in 2012.

Analysis of Changes in Intensity of Relationships among Residents' Support and Perceptions

Based upon the common relationships between residents' support and perceptions, data analysis for this part was done by combining the path coefficient of relationships in the three revised models mentioned above. The path coefficient and total effect for each relationship are shown in Figure 3.

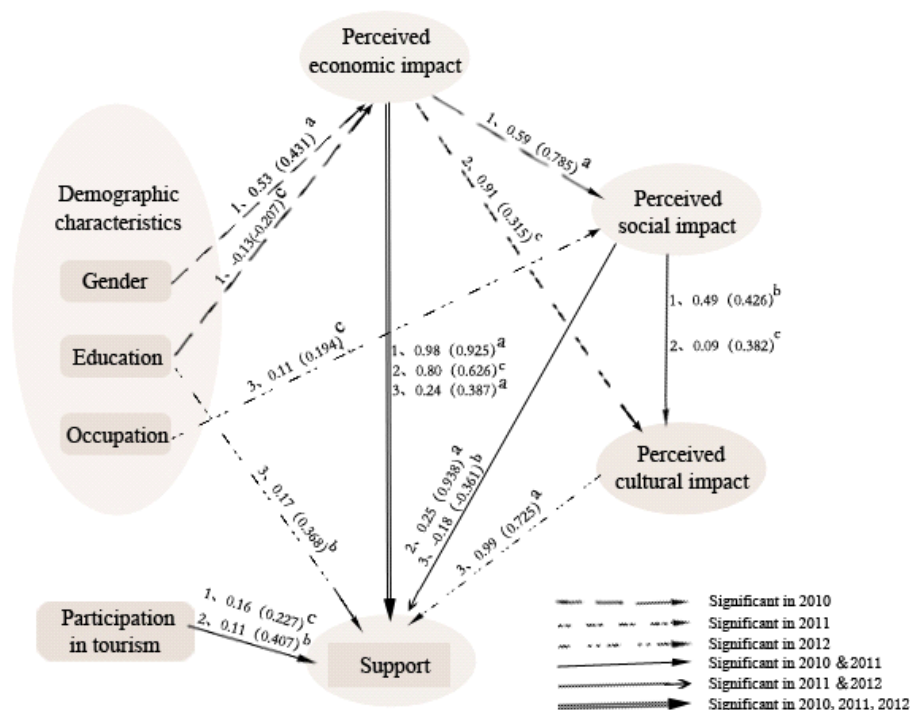


FIGURE 3—STANDARDIZED MAXIMUM-LIKELIHOOD PARAMETER ESTIMATES FOR THREE MODELS

Analysis of changes in intensity of relationships among residents' support and perceptions in years 2010 and 2011

Overall, changes in the intensity of relationships between 2010 and 2011 are reflected mostly in two aspects:

The first is the intensity of relationships between residents' participation level in tourism and their support for tourism. During the first two years, the total effect that residents' participation level in tourism had on their support was a continuous increase. In 2011, a unit increase in residents' participation level in tourism brought 0.18 units more support for tourism, in contrast with the results from 2010.

The other is that the effect residents' perceived economic impact had on their support decreased but the perceived social impact effect became increasingly significant. From 2010 to 2011, the total effect that residents' perceptions of economic impact had on support dropped from 0.925 to 0.626, indicating that correlation between residents' support and their perceived economic impact became weaker as tourism developed. On the other hand, whether or not local residents supported tourism development was dependent upon the perceived social impact increased from 0 to 0.938.

Analysis of changes in intensity of relationships among residents' support and perceptions in years 2011 and 2012

The changes in the intensity of relationships among residents' support and perceptions in years of 2011 and 2012 included three aspects:

First, the effect which residents' occupation and education had on their perceived impacts and support became increasingly significant. In 2012, the total effect that residents' occupation had on the perceived social impact and those whose education influenced support were 0.194 and 0.368 respectively. The result implies that residents' understanding and participation in tourism significantly influenced their support for tourism.

Second, residents' perceived economic impact has a decreasing effect on support. In return, the effect residents' perceived social impact becomes increasingly significant. In 2012, the path coefficient of the relationship between residents' perceived economic impact and support for tourism decreased from 0.8 in 2011 to 0.24, and its corresponding total effect turned from 0.626 to 0.387, suggesting that the influence of residents' perceived economic impact weakened the development of tourism. In addition, every unit of residents' perceived social impact brings about 0.938 units of increase in their support for tourism in 2011, but in the later year, this effect declines to 0.361, indicating that social impact of tourism cannot be ignored during the process of tourism growth.

Another change is reflected in the residents' perceived cultural impact had on tourism support. The increase from 0 to 0.725 implies that the protection of traditional culture should be important in the later development of Zhangjiajie National Forestry Park.

Analysis on changes in intensity of relationships among residents' support and perceptions in years of 2010 and 2012

Changes in the intensity of relationships among residents' support and perceptions in the years between 2010 and 2012 are divided into three parts. The first change, which examines the effect of residents' gender and education on their perceptions and effects that their participation level in tourism had on support, moves from 0.431 and -0.207 in 2010 respectively. The second difference results from the changes of residents' perceived economic impact and the increased effect of residents' perceived social and cultural impact had on tourism support. This means that with the growth of tourism, the local community gradually becomes saturated with tourism, with residents more likely to place less emphasis upon the economic impact (the path coefficient of relationship between residents' perceived economic impact and support for tourism declines from 0.98 to 0.24) and pay more attention to the social and cultural impact of tourism. The last significant change is the disappearance of the effect residents' perceived economic impact has on their perceived social impact, and the perceived social impact has upon their perceived cultural impact, which were 0.785 and 0.426 respectively in 2010.

As a result of these changes, all sub hypothesis in H2 mentioned above except the fourth one can be tested.

CONCLUSION

This study uses a comparative analysis on the relationships among local residents' tourism support and perceived impacts of tourism over three years from 2010 to 2012. It introduces influencing factors such as residents' demographic characteristics, duration of residence and participation in tourism, and the conclusions shed light on the specific changes in residents' support and perceptions during these three years.

First, the overall trend of orientation changes in relationships among residents' support and perceptions were reflected as the transformation from indirect to direct. In 2010, the influence residents' demographic characteristics and perceived impacts had on their tourism support was exerted mainly via perceived economic impact. In 2012, however, factors including residents' demographic characteristics, participation in tourism and perceived impacts themselves had a direct effect on support and perceptions.

Second, the effect of residents' understanding and participation on their tourism support becomes increasingly significant, as the main factors influencing residents' understanding and participation in tourism, residents' occupation and education show a growing effect on their support for tourism, which increased from 0 to 0.194 and 0.368 respectively.

Third, the general trend of the relationship between support and perceptions is that the effect of residents' perceived economic impact is reduced (the total effect of it was 0.925, 0.626 and 0.387 respectively) and the influence of perceived social impact increased continuously (the total effect of it was 0, 0.938 and -0.361 respectively), suggesting that the increase in residents' support for tourism based upon the perceived economic impact was decreasing, but concerns of perceived social impact were increasing. The results imply that administrators promoting development of tourism in Zhangjiajie National Forestry Park should place more importance on the social and cultural impacts of tourism when taking in account the attitudes of area residents.

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