POLITECNICO DI TORINO

Collegio di Ingegneria Gestionale

**Corso di Laurea Magistrale in
Engineering and Management**

Tesi di Laurea Magistrale

Nanostores in Developing Countries –
Direct Distribution to Increase Profitability and Market Penetration

Relatore
Prof. Luigi Benfratello

Candidato
Simone Bosio

A.A. 2018-2019

To my family for the unconditional support and love

Summary

In most emerging and developing countries, the traditional retail channel dominates the market for consumers good: millions of small, independent, and family-owned stores have conquered the retail landscape overcoming the modern retail formats. These nanostores are mainly located in the largest megacities of the world and give a home to hundreds of millions of consumers every day. Moreover, when a hundred cities represent 38% of the global GDP, a fast moving consumer goods company that wants to do business must be present in those realities. These large and dense cities create a challenge to profitably distribute consumer packaged goods to millions of fragmented, unorganized, cash and storage constrained stores. The thesis analyses the advantages of adopting a direct distribution strategy to supply the nanostore channel, together with the supplier's credit provision to improve logistics efficiency and foster growth in the developing countries around the world. First, an introduction to the environment where nanostores have rapidly grown has been provided: the concept of megacities and its characteristics are presented. After, nanostores' features have been analysed: physical characteristics, owner's demographics, consumers' behaviour, competitive advantage. Then, challenges and complexities to supply millions of nanostores presented. In the third chapter, direct and indirect distribution models are studied, and the advantages of each strategy presented. In the fourth chapter, the benefits of working in a negative cash conversion cycle are presented, and an analysis of the cash conversion cycle of five of the major players in the Indian FMCG industry conducted. Finally, the supplier's credit provision to the nanostore channel is presented, and suggestions and conclusions are drawn.

Acknowledgments

In the first place, I want to thank *Professor Luigi Benfratello*: his professionalism and constant availability have allowed the writing of this work and encouraged a smooth transition between the academic and working world.

I would also like to thank *Angelo* and all the boxing school of Chivasso for the good times spent together, for helping me grow and unload the tension before my exams.

A special thanks goes to all my course mates of these tough years, and especially to *Alberto Romani* and *Nicolò De Chellis*. Working with you guys has been a pleasure as well as a lot of fun. Never stop following your passions and a sincere good luck for the future.

Table of Contents

List of figures

List of tables

Chapter 1

Introduction

In the last several decades, emerging and developing countries have experienced unprecedented economic growth, and the potential consumption of these regions is as high as ever. According to a recent OECD paper, China and India have reached a tipping point where a large number of people will enter the middle class and drive consumption. The strengthening of the middle class, as this group tends to favour greater social cohesion, will provide skilled and productive labour and increase the demand for goods. Forecasts show that by 2030, over 70% of China's population could be middle class, consuming nearly $10 trillion in goods and services. India, as well, is projected to reach nearly 90% of the middle-class population by the same year. In this emerging and developing countries, the traditional retail channel dominates the market for consumers good; millions of small, independent, and family-owned stores have conquered the retail landscape overcoming the modern retail formats. Moreover, when a hundred cities represent 38% of the global GDP, a fast moving consumer goods company must be present in those realities. As a result of the economic changes and the concentration of GDP production into specific areas, emerging markets have overtaken developed one as the major source of growth for the Fast Moving Consumer Goods industry. According to a Procter & Gamble manager, the worldwide collective of nanostores is the FMCG second-largest customer just behind the 500 billion Walmart.

Around the world, millions of nanostores give a home to hundreds of millions of consumers every day. These nanostores flourish in large and dense cities, where density both affects how people are going to do shopping, and the business side of it. Nanostores survive as a major market because they serve a few hundred people with relevant basic products in small and ad hoc quantities, they provide relationship-based credit, they give a feeling of emotional proximity with the shopkeepers, and they are convenient due to the limited access to transportation by most of the population. Furthermore, nanostores have low barriers to entry,

1

and Consumer Packaging Good manufacturers have the interest to keep them alive because of the higher margins they can achieve by holding a dominant position against a small and fragmented ecosystem. Even if economics theory might suggest that forces for more efficient markets will push the traditional channel away, the social aspect of the nanostore environment cannot be ignored. Nanostores are not just a channel for products, but they also act as community hubs, where millions of consumers with low income can acquire basic goods while providing a source of employment for people with less marketable skills and people that need to work close to their homes.

Companies seeking to gain market share need to remain competitive in this channel because nanostores are not going to disappear and will continue to dominate the retail landscape of developing economies for the foreseeable future.

1.1. Literature review

In 2004, D'Andrea et al. studied the nanostore sector in Latin America to understand the drivers behind their collective success, even after a decade of success of the modern retail sector [3]. The main findings of the study are that these emerging consumers work with a very specific set of products, categories, and needs, that it is not just an economic or time matter for them to switch to the modern retail format. Indeed, the study showed that smaller scale retailers are better in fitting the emerging consumer need than the modern chain of supermarkets. The low-middle income class chose to rely on the nanostores channel because of its ability to satisfy their needs of convenience, emotional proximity, and informal credit.

In 2016, Kalsie and Arora investigated the correlation among various components of the working capital management and the stock price of six Indian FMCG companies [2]. The study found that the inventory turnover ratio, current ratio, and EPS have a significant impact on the stock prices of the companies, while the influences of the receivable turnover ratio were negligible.

In 2017, Blanco et al. published a book introducing the readers to the millions of nanostores around the world, that together represent a large part of the consumer goods market in emerging and developing countries [1]. The book presents a unique set of case studies of companies that have successfully created innovative approaches in the supply operations of the traditional retail format. Each chapter illustrates best practices, useful insights, commercial and logistics strategies for serving the nanostore channel efficiently. Overall,

Blanco et al. highlight the importance of nanostores in the current retailing landscape and describe effective distribution schemes to address the vast complexity in supplying this fragmented market.

In 2018, Boulaskil and Wijk considered a small traditional retailer that is managing its inventory under strict cash constraints, mainly because typically informal credit is offered to his customers [4]. The objective of the study was to determine the conditions that make it beneficial for the supplier to offer credit. To model the problem, the paper proposed a multi-period, stochastic inventory model, and found that even in the presence of the risk of the nanostore discontinuing its operation, the supplier often has a good incentive to provide credit, even if interest is not incurred. For this to hold, the operations of the retailer should be at least a little bit profitable in the first place.

1.2. Objective and Research Approach

The thesis studies the traditional retail format flourishing in the emerging and developing countries of the world known as nanostores. The term nanostores is usually used to describe small family operated stores that function as a single establishment, with formats ranging from permanent to semi-permanent and mobile infrastructure (open-air street fairs). The research takes the perspective of a FMCG supplier and analysis its distribution operations under the considerations of the nanostores' dynamics and characteristics. Different distribution strategies have been analysed, and the advantages of a direct service model presented in relation to the logistics cost, the demand growth and market penetration potential, its effect on the cash conversion cycle, and the opportunity to provide credit to specific nanostores.

In chapter 2, an analysis of the environment home to millions of nanostores is conducted and the characteristics of megacities in developing economies presented (2). Then, a detailed description of nanostores, their owners, and their competitive advantage examined (2.2). Finally, an analysis of the challenges and complexities in supplying nanostores presented (2.2.32.2.3).

In chapter 3, principles about channel selection are discussed and an analysis of direct and indirect models proposed (3.23.2). Finally, a conclusion on the reasons a direct channel is the most suitable to achieve growth and market penetration presented (3.3).

In chapter 4, a first description of the cash-to-cash cycle and its components is given and the the evolution of the indicator since its creation and across industries provided (1). Then, an analysis of the cash conversion cycle of five of the major players in the Indian FMCG industry is conducted (4.3). The following five companies were selected for the analysis: Hindustan Unilever Limited (HUL), Nestlé India, ITC Limited, Godrej Consumer Product Limited, and Dabur India. To gather the data needed in the analysis, financial statements of each company has been reviewed. Once data from the balance sheets and income statements from the years 2014-18 were found acceptable, data entry and process has been made using Microsoft EXCEL. The following parameters were chosen for the comparison between the five firms: cash conversion cycle, current ratio, ROCE, p/e ratio. Finally, the benefits of achieving a negative CCC and pairing it with a financial analysis are discussed (4.4).

In the last and final chapter, conclusions of adopting a direct distribution strategy to supply the nanostore channel are drawn. For a company seeking to gain market share and demand growth, direct distribution is a key element in preventing shelf space erosion while remaining competitive in the market.

Chapter 2

Traditional Retail Format in Emerging Markets

In this chapter, a definition of nanostores, their environment, and the challenges and complexities to supply them will be provided. First, an analysis of the environment home to millions of nanostores will be conducted: characteristics of megacities in developing economies will be presented (2). Then, a detailed description of nanostores, their owners, and their competitive advantage will be examined (2.2). Finally, an analysis of the challenges and complexities in supplying nanostores presented (2.2.3).

2.1. Megacities in Developing Countries

In 1904, one of the earliest uses of the word *megacities* was documented in the University of Texas to designate cities with more than 8 million inhabitants. Nowadays, the term *megacity* is used to define a large city, or any urban agglomeration having more than 10 million inhabitants [5] [6]. The core concept of the definition is an urban area with a large population such that it is hardly found elsewhere, especially in European and North American countries.

In 1950, the world's urban population was 751 million, sixty years later 4.2 billion. Today, 55% of the world's population lives in urban areas, a proportion that is expected to increase to 68% by 2050. This increase in urbanization, together with the overall growth of population, could add another 2.5 billion by 2050, with close to 90% of the growth accounted by developing countries, with Asia and Africa at the top.

Table 1. The Population of the World and Regions, 2017, 2030, 2050, and 2100, according to the medium-variant projection *[7]*

Population (millions)

Region	2017	2030	2050	2100
World	7 550	8 551	9 772	11 184
Africa	1 256	1 704	2 528	4 468
Asia	4 504	4 947	5 257	4 780
Europe	742	739	716	653
Latin America and the Caribbean	646	718	780	712
Northern America	361	395	435	499
Oceania	41	48	57	72

2.1.1. Growth, Density, and Urbanization

By 2030, the world is projected to have 43 *megacities* with more than 10 million inhabitants, and most of them concentrated in developing regions [8]. Seven of the eight new *megacities* are located in emerging and developing countries, Asia and Africa. Tokyo is the world's largest city with an agglomeration of 37 million inhabitants, followed by New Delhi with 29 million, Shanghai with 26 million, and Mexico City and São Paulo, each with around 22 million inhabitants. Today, Cairo, Mumbai, Beijing, and Dhaka all have close to 20 million inhabitants.

Considering the ranking, three out of nine cities belong to the Asian region, three to the Indian region, and the remaining to Latin America. Except for Latin America, which is close of being the Country with the highest percentage of urbanization (81%), China has still a relatively low rate of urbanization (51%), with India being the lowest among the three (31%).

Table 2. Urbanization Ranking by Region *[7]*

Region	Urbanization Percentage
Northern America	82%
Latin America and the Caribbean	81%
Europe	74%
Oceania	68%
Asia	50%
China	51%
India	31%
Africa	43%

Although the low level of urbanization of China and India compared to Europe and North America, they have some of the largest and densely populated cities in the world: the average density of Mumbai (28,500 pop/m²) is almost three times higher than the one in New York City (11,000 pop/m²).

The rapid urbanization growth experienced by these developing countries leads to many infrastructural problems. When a city grows at a manageable rate, around 1% per year [9], its infrastructure can keep the pace with the increase in the population and its demands: necessities infrastructures such as roads, sewers, water treatment facilities, public transportation, schools, clinics, parking areas, and housing can be planned and built alongside the growth of the urban population. Instead, when urbanization rates are well above 2% for several years (**Figure 1**), and especially in emerging and developing countries, infrastructure development cannot keep up with the overwhelming increase in the urban population. Poor infrastructure not able to satisfy the population's basic needs results in a large number of residents forced to create their provisions with whatever is available, causing the rise of slums with the consequent problems of crime, safety, public health, environment, and land use.
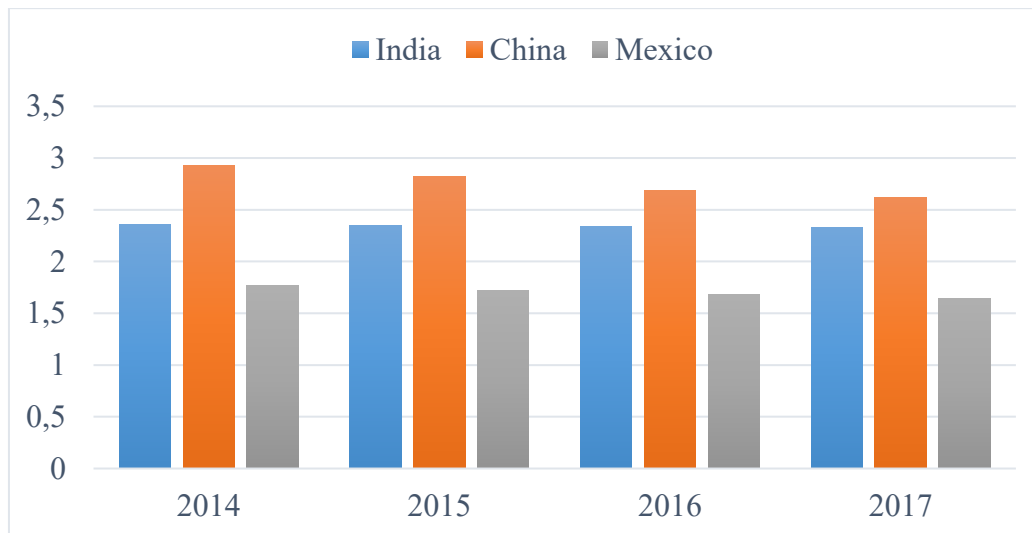
Figure 1. Urban Population Growth, 2014-17, India, China, and Mexico. *Source*: United Nations – World Urbanization Prospect.

The uncontrolled and rapid growth, in conjunction with extremely dense areas, lead to two other major problems of *megacities*: congestion and pollution. In these cities, traffic jams are a daily routine, with the vehicles' average speed dropping to the walking one (5km/h) in certain areas. Moreover, the lack of parking spots, loading and unloading areas, narrow and steep streets, all contribute in adding complexity to the logistics operations of FMCG companies.

2.1.2. Gross Domestic Product Growth

Economic growth is one of the most important indicators of a healthy economy. When the GDP of a region keeps growing over time, the country becomes more productive with the corresponding rise in the level of employment; citizens become wealthier, the government can collect extra tax income for public expenditure, and the economy keeps developing.
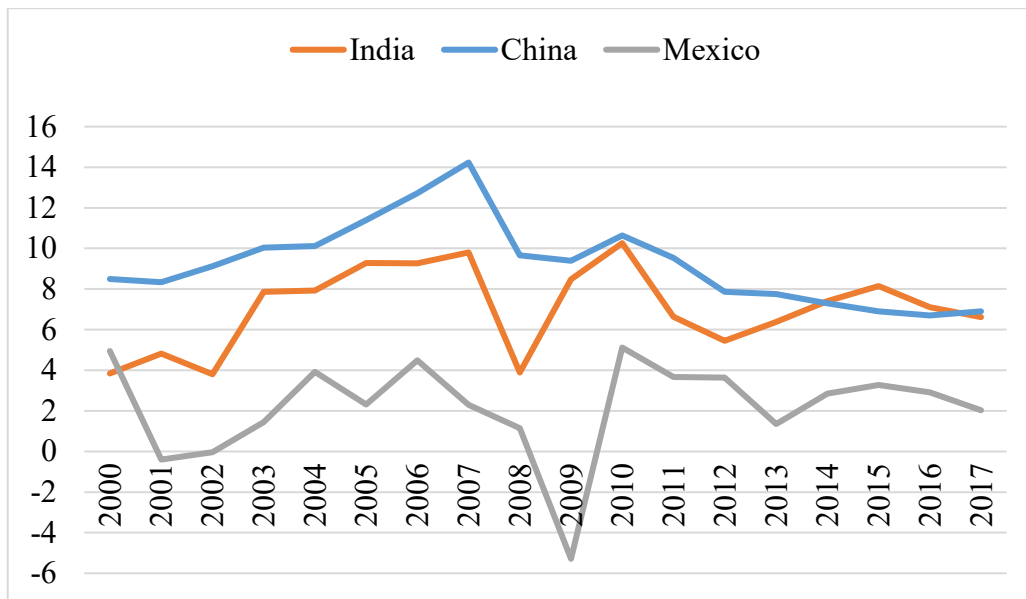
Figure 2. GDP Growth 2000-17, China, India, Mexico. *Source*: World Bank Data, Data Bank – GDP growth.

2.1.3.   Income Disparity

Despite the rise in the GDP, which is typical of both emerging and developing countries, economic growth is not the same as economic development. Economic development aims at improving the standards of living of the population and reducing poverty, but while there cannot be economic development without economic growth, the opposite is partially true; it could take as long as many years of economic growth before seeing some concrete results on the overall well-being of citizens.

In economics, the GINI index is used to represent the wealth distribution of the citizens of a nation and is the most commonly used coefficient to describe inequalities within a country. The index is normally a bounded value between zero (perfect equality) and a hundred (maximal inequality).
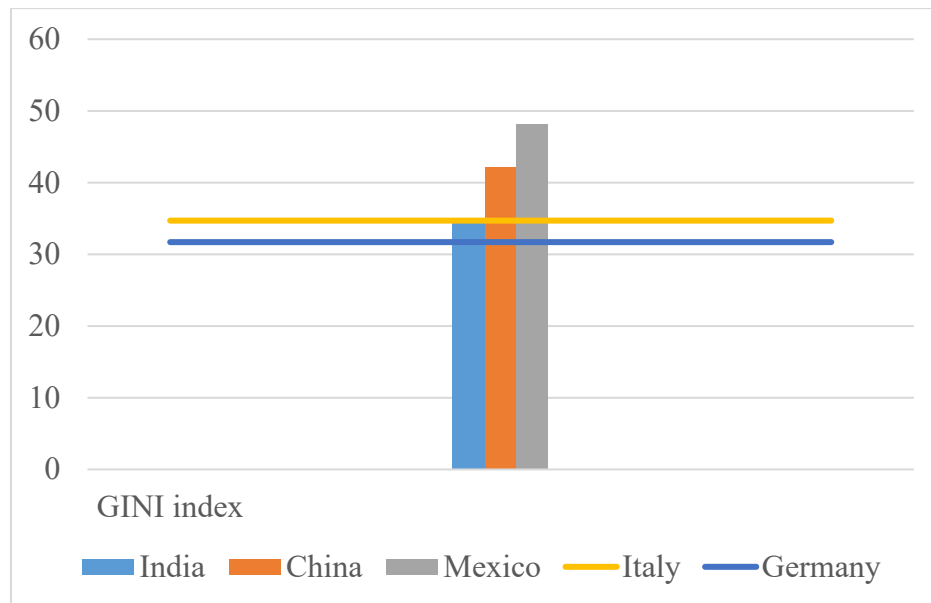
Figure 3. GINI Index, India, China, and Mexico. *Source*: World Bank Data, Data Bank –
GINI Index.

Figure 3 shows the comparison between the GINI indexes of developing countries with developed ones. Mexico and China show a high level of income disparity between individuals and even a higher ratio of the average income of the richest 20% to the poorest 20%; almost three times higher than Germany (4.3) and two times higher than Italy (6.5) [10]. At first, India's level of inequality appears low according to international standards, but this misconception comes from the way the GINI index is computed for the country. India's inequality is measured by the consumer expenditure data, which is not comparable to the GINI index of most countries where the coefficient is measured by the income dimension. Indeed, the most credible source of GINI index in the country is measured by the NSSO (National Sample Survey Office) of India, which tends to underestimate the consumption of rich, and because of the inherent characteristics of consumption which is a smoothed measure, unlike income. According to the Credit Suisse Global Wealth Report (2017), the top 10% of Indian households held 62% of the total wealth of the country in 2012. Hence, by now considering wealth in the equation, the GINI of the wealth of India is at 87, which puts the country among the ones with the highest level of inequality [11].

The rapid economic growth that these developing countries are experiencing, together with the increase in the urbanization's percentage and the poor infrastructure, creates huge income disparity between people leaving in the same area; people leaving close to each other may have completely different incomes, preferences, and shopping behaviours. Large income

inequalities cause high crime rates that add complexity to the operations of consumer packaged goods companies, where deliveries are mostly cash-on-delivery based.

2.1.4.   Middle-Class Income Growth

Another typical characteristic of developing economies is the rapid growth of the middle class. When defining the middle class as those households with daily income per capita between $11 and $110 in 2011 PPP terms [12], according to a recent OECD paper, China and India have reached a tipping point where a large number of people will enter the middle class and drive consumption [13]. The strengthening of the middle class, as this group tends to favour greater social cohesion, will provide skilled and productive labour, increase in the demand of goods and services, and will foster the role of the domestic market as an engine of growth [14].

Forecasts show that by 2030, over 70% of China's population could be middle class, consuming nearly $10 trillion in goods and services (figure 4). India, as well, is projected to reach nearly 90% of the middle-class population by the same year (figure 5) [13].
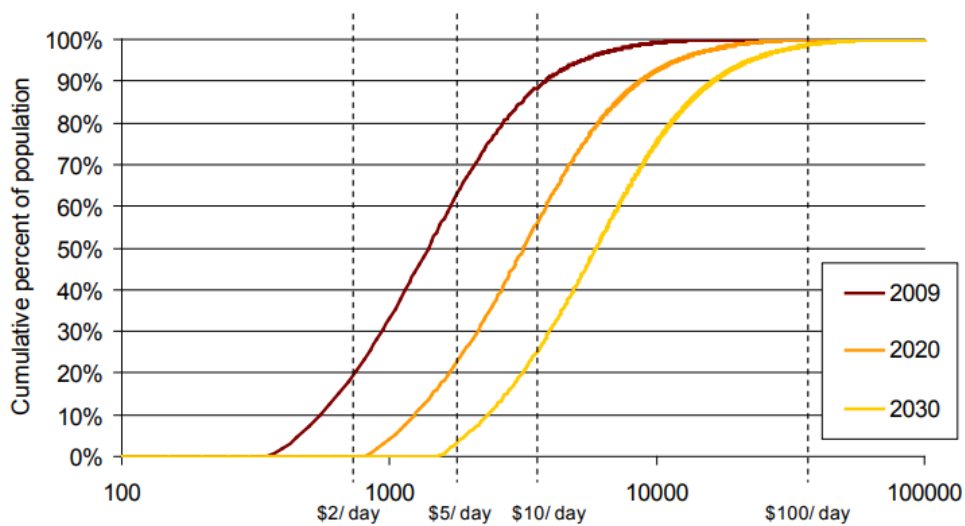
Figure 4. China Forecasted Annual Income, 2005 PPP$ log scale *[13]*.
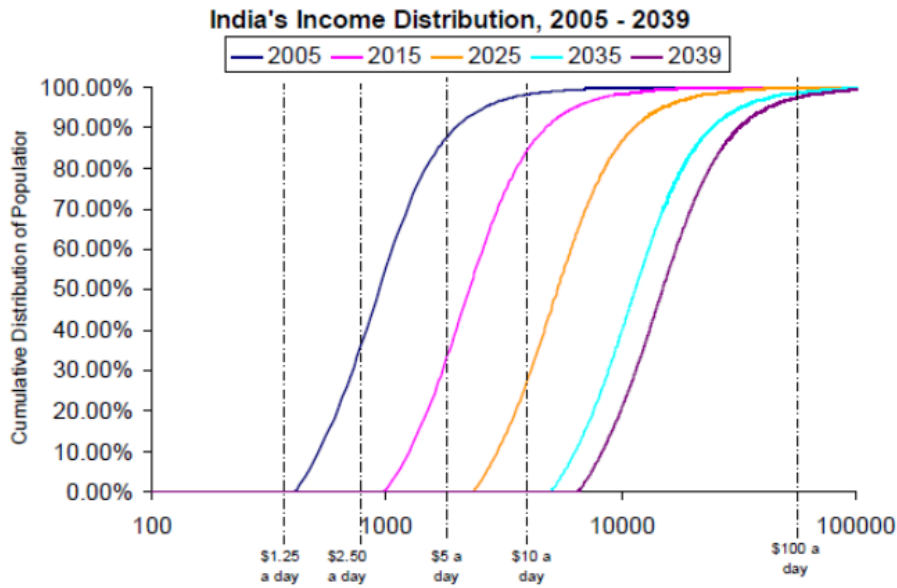
Figure 5. India Forecasted Annual Income, 2005 PPP$ log scale *[13]*.

Compared to India and China, the percentage of the middle class in Latin America differs a lot from country to country, but on average the region can be considered already a middle class one (close to 50%). Instead, China and India are not yet middle-class countries, but the rapid economic growth and the increase in wages lead to a rise in the purchasing power of the citizens belonging to the low class. This large pie of the population that is slowly becoming wealthier will soon enter the middle-class segment and boost consumption. Citizens will begin spending more of the accumulated wealth on products such as food and personal health (toothbrush, toothpaste, e.g.) and this new phenomenon provides an amazing opportunity for fast moving consumer goods' companies and the corresponding traditional retail channel; stores' sales and manufacturers' demand will rapidly grow, as well as distribution costs with them.

2.1.5. Politics and Regulations

Emerging and developing countries are usually characterized by an unstable politic situation and by a dynamic regulation which is not always coherent with the previously established rules.

In these *megacities*, the priority for the government is public mobility, not freight transportation. For this reason, public policies focus on methods and ways to improve the quality of lives of people and do not care if this negatively affects city distribution. Circulation stops during peak hours, restrictions to access the city centre, restrictions on the weight and dimension of trucks, increased pedestrianization, rules against pollution, together with the scarcity or paid loading and unloading areas contribute in adding complexity to the supply operations of millions of *nanostores* around the world. According to Sriraman et al. [15], besides fuel cost, loading and unloading charges and wayside expenses are the major cost components of transport operators.

On a national level, FDI regulation can have a major impact on the traditional retail sector. FDI is the investment in a foreign country through the acquisition of a local company or the establishment of a new one; these massive inflows of cash and investments provide the impetus for the development of a country [16]. FDI regulation is a hot topic in every developing country since it is strongly linked to the protection of the traditional retail sector. Nowadays, in India, as well as in China and Latin America, FDI regulation is looser than what it used to be, and this can be seen as a threat to the traditional retail channel. Although the favourable legislation will determine an increase of the modern retail market share, the nanostores landscape will not be swiped away but rather coexist with the new retail channel. The reasons for this coexisting between the two realities will be explained in section 2.2.2 when the competitive advantage of nanostores is presented.

2.2. Nanostores

Nanostores belong to the traditional retail sector, a channel maintained by independent, non-organized retailers. The term nanostores is usually used to describe small family operated stores that function as a single establishment. Their floor space is typically less than 100 m² and often much smaller, with formats ranging from permanent to semi-permanent and mobile infrastructure (open-air street fairs) [1]. These businesses offer mostly behind the counter service with a few offering small self-service. The traditional retail channel contrasts the modern format: a retail organization that features branded store formats, under central ownership or franchised, with centralized purchasing and distribution functions. Examples of modern retailers include hypermarkets or superstores (Carrefour, Walmart), mid-sized supermarkets, and small convenience stores (7-Eleven, Tesco).

Table 3. Traditional and Modern Channel Characteristics *[1]*

	Traditional Channel	Modern Channel
Functions	Single store, owner-operator	Professionals, dispersed
Financial Flow	Cash, relationship-based credit	Formal credit, bank transfers
Line Items	Consumer units, mixed case pack	Full case packs to store, pallets to retailer distribution centre
Number of SKUs	100+	1 000 – 10 000+
Category Depth	1 – 2	6 – 12
Number of Consumers Served per Store	100+	10 000+
Technology	Personal mobile phone or smartphone	ERP systems, POS scanning electronic data interchange

2.2.1. Basic Information

In the following section, a basic framework on the traditional retail channel in Beijing will be provided. The information presented is derived from a series of interviews, surveys, and studies, conducted between 2012 and 2014 [17], and by a research on the nanostores landscape in Latin America [3].

Figure 6. Nanostores in China and India

Ownership Structure

Most nanostores are family owned, very few hire employees, with the most being staffed by family members. The majority of the owners are between 40 and 60 years old, they lack an official management training, and most of them learned the business through practice and experience. Only 20% of the nanostores' owners were motivated by the desire to make a fortune, with the remaining just aiming to make a living in the city. In general, the profit margins of the traditional channel are low, and the income covers rental and living expenses with just a little extra for savings. Despite the breakeven nature of these nanostores, they are opened for many hours a day; most of them are opened from 10 to 24 hours a day, with the average being around 17 hours a day [1].
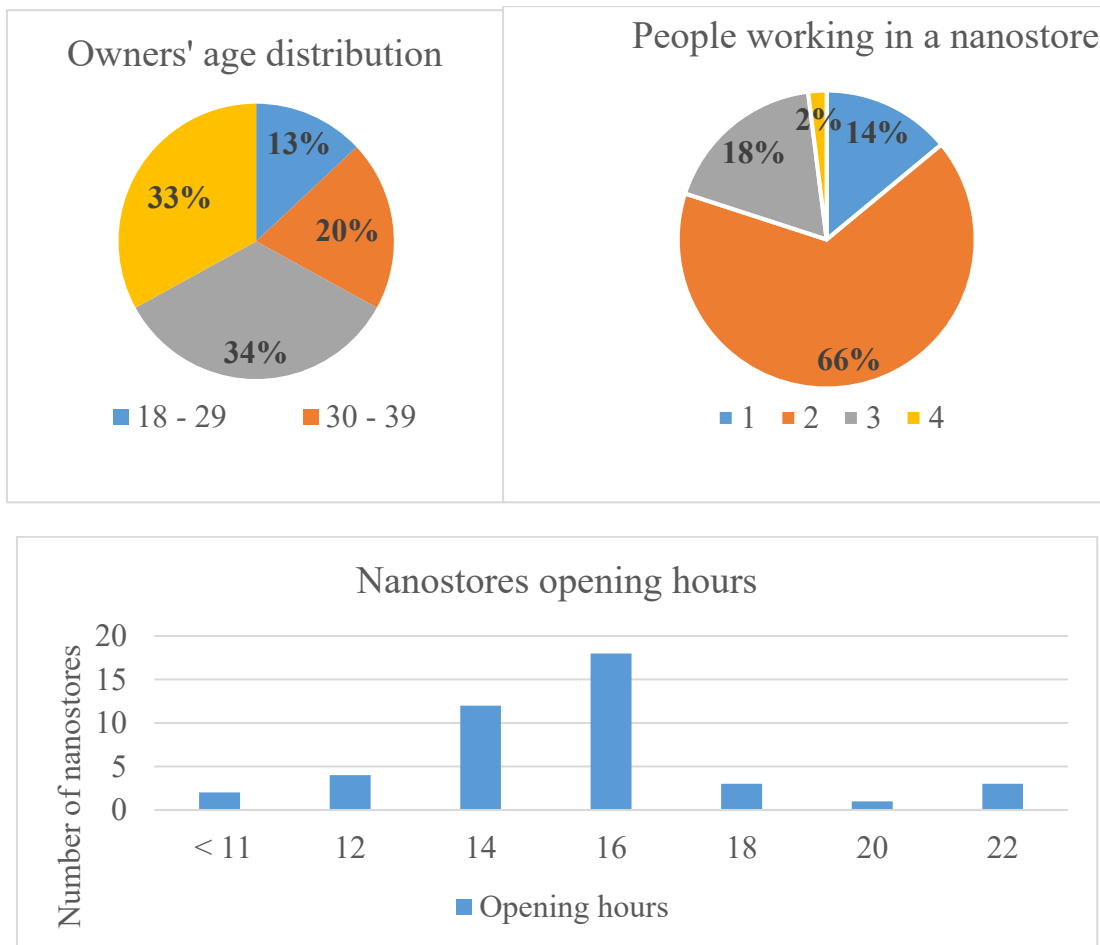
Figure 7. Owners' age distribution, number of people working, and opening hour *[1]*

Assortment and Inventory Management

Nanostores carry a wide range of products tailored to their customers' needs. Generally speaking, the assortment ranges from FMCG goods such as bottled water and other beverages, snacks, convenience food, and daily cleaning products, to fresh food and personal care items.

The limited storage space, which in many cases is the shelf space itself, constrain both the number of SKUs and the inventory strategies of nanostores. The majority of the stocked SKUs are first-tier brands [3], and the retailers serve daily customers by fractioning products; in many cases, the smallest manufacturer's SKU exceeds the needs and the cash availability of the nanostores' customers. Hence, it is common for the retailer to unpack the original product and sell portions of it (a couple of cigarettes, glasses of powdered laundry detergent). Nanostores rarely have a formal inventory management policy and reordering mainly follows two strategies: based on experience or by chance. That is when store owners search

16

a product for a customer and they discover a situation of shortage. Finally, the majority of retailers replenish their shortages through wholesalers that offer great flexibility regarding variety, price, and quality.

Pricing

Generally, store owners either follow the price guidelines given by their suppliers or set the price close to the ones of the other nanostores in the same area. Regardless, prices are 5-20% higher in nanostores compared to the modern channel because small retailers lack the scale to earn significant volume discounts or trade allowances granted to large chains [3]. This fact is quite paradoxical since the poorest people are paying prices which are higher than the one paid by households with higher income.

Payments and Informal Economy

In the majority of the developing countries, cash is the only form of currency accepted. By operating on a cash-only basis only, nanostores cause both logistics inefficiencies as will be later presented (2.2.3**Error! Reference source not found.**) and the rise and persistence of the informal economy.

Informality takes two main forms: the selling of stolen merchandise, and the evasion of taxes and labour contributions required by law. Robbers may sell the stolen merchandise to retailers at a price below the market one, who may then sell the good at a lower shelf price or at the original one while gaining higher margins. Even if robbery and the selling of theft merchandise is a reality, the phenomenon still represents a small fraction of the total FMCG sector. Instead, black economy and tax evasion is a more pressing matter for governments seeking to get a better grip over their informal economy. The ownership structure of nanostores, which are mainly family owned and staffed, usually translates into lower employee compensation for which non-cash compensation may represent the bulk of the salary. Yet, completely evasion of taxes is unlikely since FMCG companies, who tend to directly supply the traditional channel, must compile to taxes and this requirement travels along the value chain [3].

Customers

The majority of nanostores' customers are family with kids, followed by men, women, young adults and teens [18]. These customers are mainly transitioning from the low class to the middle one and, during this process, they have gained a little more wealth; each additional dollar of income they are earning is now spent entirely on FMCG goods. Beverages and cigarettes are the most bought products, and in average each shopper buys two items per visit visiting the nanostores at least 28 times per month. Unsurprisingly, due to the high population's density and the resulting congestion, the majority of the customers arrives at the nanostores by walk and spend around five minutes per visit.
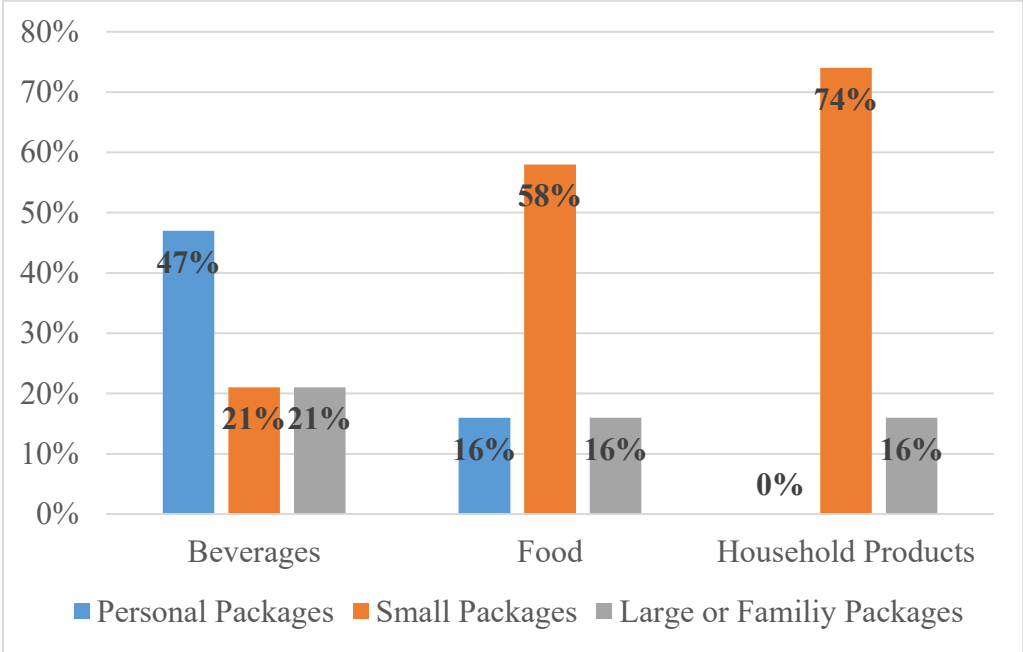
Figure 8. Most Common Product Bought and Sold Size *[18]*

Social Contribution

The social role of small retailers has been widely recognized [19] [20]. Nanostores in Asia have been making an important contribution to the public policy goal of protecting disadvantaged residents from the impact of competitive strategies among the largest modern retailers. Other studies showed how the decline in the retail and service sector in small towns has resulted in a poor shopping environment for the less mobile, aged, and low-income households [21]. Millions of nanostores around the world serve billion of consumers; these

small points provide employment and livelihood to millions of families and link and connect millions of people in their neighbourhood, creating important community connections that are perceived by governments as fundamental to resolve issues of social inclusion.

2.2.2. Competitive Advantage

According to Boone and Bonno [22], the low-middle income class choice to rely on the nanostores channel id dictated by its ability to satisfy three main needs: convenience, emotional proximity, and availability of informal credit.

Convenience

The nanostores' location is one of the main components of its competitive advantage over the modern retail format. Megacities, with their high density and concentration, favour proximity shopping. Supermarkets are usually located on the outskirt of a city and travelling to them can become problematic. Many people do not own a personal mean of transport, the traffic is usually bad, traffic jams are routine, and even if they have their vehicle finding an empty parking spot becomes a new issue. Moreover, the majority of the nanostores' customers live in poverty and thus cannot afford to lose time travelling to the supermarkets when their salaries are hourly based. All of these factors contribute in lowering the total purchasing cost perceived by the customers that prefer to buy in nanostores even if from a pure product standpoint, the price of the good is higher.

Relationships and Emotional Proximity

The store owner is part of the neighbourhood and part of the community and can tailor its business to the specific needs of its clientele. This contributes in adding a personal touch to the consumer' shopping experience: many retailers claim to know the majority of their customers by name [3]. The customers, by engaging with the owner can have news and gossips about the neighbourhood, and this result in a sense of emotional proximity that makes the consumer to feel comfortable. This feeling of intimacy, together with the availability of personalized and small packages are key to the nanostores success compared to the somehow "cold" treatment of the staff of modern retail supermarkets; when

interviewed, consumers expressed the feeling of being ashamed when asking for very small quantities in large chain supermarkets [3].

Credit Availability

Credit availability is almost an extension of the previous point. Each nanostore, by serving just a few hundreds of customers is able to know each one of them and build strong relationships. By knowing the clientele very well, each retailer is able to know who has a stable job and will be able to repay a possible debt. This is very important because providing credit to certain customers act as a sort of loyalty program and becomes almost a necessity when most of the customers are paid by cash on a weekly or biweekly basis.

Nanostores offer credit in two main form: virtual wallet and informal credit. The virtual wallet is used when the customer is in short of a small amount of cash, and it is allowed to pay the next time. Informal credit instead, is given in situations of shortages of cash and to known and to a certain degree trustable clients. Even if a small percentage of debt is lost and never paid back [23], the social cost of bad debt is high since they are made public by the store owner to the community.

2.2.3. Supplying Nanostores

In 2014, more than half of the world population was living in cities with most of them being megacities in developing and emerging countries. With this urbanization trend expected to continue, a significant portion of the world's GDP will be concentrated in these new developing markets: from a company perspective, when a hundred cities are forecasted to represent 38% of the global economy, they have to operate in those realities. In these countries, the market share of consumer packaged goods is important for FMCG companies since they have experienced slow or almost no growth in developed countries: Unilever realizes more than 50% of its global sales in emerging markets and makes 33% of its turnover in Indonesia with products selling for a price lower than 0.20 USD [24]. Finally, to remark the importance of the nanostores' channel, according to a Procter & Gamble manager, the worldwide collective of nanostores is the FMCG second-largest customer just behind the 500 billion Walmart [25].

From a distributor point of view, whether it is the manufacturer itself or a third-party logistics service provider, being able to profitably supply the nanostore channel requires the development of an efficient and smart supply chain. The traditional retail channel is dense, highly fragmented, and with ordering patterns that closely resemble their consumers' behaviour: high order frequency with small drop-sizes. The large number of delivery points, together with the smaller drop sizes per order and the frequent inventory turnovers, make distribution operations to closely resemble B2C and e-commerce rather than modern B2B operations. These characteristics cause substantial logistics inefficiencies and complexities that need to be addressed to build a successful business model in serving the millions of nanostores around the world.

Cash Constraint and Safety

In the majority of developing and emerging countries; Latin America, South Asia, Africa, transactions are on a cash basis, and cash is the only form of currency accepted. This cash requirement is also adopted by manufacturers: orders are delivered only when the nanostore owner has enough cash to cover the shipment. This condition limits the growth of the traditional channel since the owners lack the financial support of credit institutions and must finance the inventory fully by themselves. The lack of cash translates into frequent stockouts and missed deliveries which represent a lost profit opportunity for the manufacturer. Despite this fact, only a few manufacturers are willing to create a system to provide credit and shoulder the risk of nanostore owners defaulting; this subject will be presented and analysed in chapter four.

Another big problem of a cash-based system is safety, and this makes the supply chain subject to robbery. Companies must first address and agree on who is responsible in case of fraud or for the money collected upon delivery, whether it is the manufacturer, the logistics service provider, or the driver itself. Besides the accountability issue, many drivers may feel unsafe in driving with a lot of cash in certain areas of the city, and usually delivery vans are equipped with GPS tracking systems, safe boxes, and delivery routes must be designed to take into consideration stops for bank deposits to minimize the amount of cash carried around.

Limited Storage Space

Nanostores are small, typically less than 100m^2 and the shelf space is usually also all the storage room they have. Owners must allocate the small space available to each type of product, and this means that if a manufacturer is able to sell its product to a store, then it is very much unlikely that any competitors will be able to do the same. If Unilever is in it than Procter and Gamble is not, if Coca-Cola is on the shelves than Pepsi will not be in the same store, and so on. Manufacturers must ensure to remain on the shelves also because nanostore owners are usually not very loyal to any particular brand. These features are just some of the reasons that favour a direct distribution model over an indirect one; more will be presented in section (3.23.2.1**Error! Reference source not found.**).

Frequent Deliveries

The high density of people and the limited storage space of nanostores contribute to creating high inventory turnovers. The frequent deliveries, the smaller drop-sizes, and the multitude of delivery points sometimes a hundred per day, make B2B logistics operation B2C and e-commerce ones. Cities are congested, traffic slows down deliveries, and for each drop per route, the driver needs to find a place where to park whether it is a legal parking spot or an illegal one such as a pedestrian lane, a sidewalk, a double-parked space, contributing in adding even more congestion to the streets. These complexities create challenges in manufacturers' supply chains that need to be fast and agile as never before. For these reasons, a manufacturer that considers only the physical distribution aspect of the route to market may conclude that an indirect model is better to achieve higher economies of scale and opt for a distributor or wholesaler to supply the nanostore channel. In the next chapter, an analysis of all the functions of any route to market will be presented, and reasons on why a direct strategy it is better for an incumbent who wants to achieve better market penetration and growth will be given.

City's Infrastructure and Urban Policies

In the case of a direct distribution strategy, companies must design optimal and efficient last-mile operations. With the use of big data and artificial intelligence, manufacturers must decide where to build and create facilities of varying sizes to cover the whole demand of a

geographical area (regional distribution centres, cross-docking depot, urban hubs), and use dynamic routing algorithms to take into account traffics conditions and other variable to maximize the efficiency in delivery rounds.

Freight distribution creates a series of negative externalities within the city, and companies that decide to adopt a direct delivery model have to face and comply with an evolving set of freight's regulations. The main externalities caused by city distribution are greenhouse emission, noise pollution, infrastructure damage, road safety, and congestion problems. Big cities have a high density of nanostores and manufacturers, wholesalers, and logistics service providers, compete on the same limited road and parking capacity further aggravating the above mentioned problems.

- *Loading and unloading areas*. In many developing cities, infrastructure development is not able to keep up with the demographic growth and people needs. The loading and unloading areas are usually occupied by other vehicles, and there is no real enforcement to prevent the situation from happening. When these parking spots are occupied by illegal vehicles or by other trucks, the courier usually parks on pedestrian sidewalks, on double-lane, and other illegal spots, thus worsening congestion and road safety problems. The situation is also typical of developed countries, but generally, these cities are less densely populated, and the infrastructure and the enforcement from public authorities prevent it from being a common practice.

- *Circulation stops and congestion charges*. These two policies aim at reducing the negative externalities caused by excessive traffic by artificially restrict the demand of travel vehicles, and thus rationing the scarce common good road capacity. Generally, circulation stops are adopted during peak hours and in the case of periods with high levels of pollution. Congestion charges are used in some major roadways and aim to reduce the traffic flow by imposing dynamic pricing tolls depending on the accessing hour. According to Blanco and Fransoo [1], the effect of this type of charge is still unclear because of the asymmetry between the entity paying the price (truck driver) and the entity that generates the demand (shipper) and may ultimately just translate into an increase of the price of the final good without reducing the externality.

- *Vehicles size restrictions*. In central and congested areas, city authorities often limit the size of the vehicles that can access the zone. By limiting the size of the vehicles, the regulation attempt to allocate equally the common good (road infrastructure) among its different users, improve road safety and manoeuvrability, and guarantee homogenous

travel speeds. The effect of this type of rules is again unclear under the perspective of freight distribution. For last-mile operations, the requirements on vehicles sizes mean that in order to deliver the same amount of goods companies must employee smaller vehicles, thus increasing the number of delivery truck dispatched toward central locations with the consequent increase in congestion.

- *Low emission and time window zones*. In big cities, central areas may be subject to low emission zones and time window constraints to improve the quality of lives of citizens. A company that wants to deliver goods in these urban areas has to adopt alternative vehicles that meet certain standards of environmental performance. From a distributor point of view, low emission zones are easier to deal with because these require a simple upgrade in freight vehicles' technology. On the other hand, time window zones represent a strong constraint on route optimization algorithm and may cause a company to follow sub-optimal routes, thus loosing logistics' efficiency.

2.3. Nanostores, Here to Stay

The world's consumers live inside megacities, and this number is constantly rising. Millions of nanostores give a home to hundreds of millions of consumers every day. From a distributor point of view, nanostores are not the most efficient retail operating model: distribution is complex, they are highly fragmented, unorganized, storage constrained, with no IT infrastructure, and their reliance on cash creates security risks and logistics inefficiencies. These disadvantages coupled with the higher prices may suggest that the forces for more efficient markets will push the transition from the traditional to the modern channel and nanostores will not be around for much longer. Nevertheless, nanostores flourish in large and dense cities, where density both affects how people are going to do shopping (very close by, without moving), and the business side of it (a lot of small shops instead of big ones). Nanostores survive as a major market because they serve a few hundred people with relevant basic products in small and ad hoc quantities, they provide relationship-based credit (not limiting the shopping capability by the income), give a feeling of emotional proximity with the shopkeepers, and they are convenient (limited access to transport by a large part of the population). Furthermore, there are low barriers to entry, and there is an interest from Consumer Packaging Good manufacturers to have them to survive (higher margin, growth possibility) [1].

In the battle between traditional and modern retailers, different business models may emerge as winner depending on how balanced or unbalanced will be the difference between wealthy and poor people in the country. Nevertheless, even if the market share of modern retail is expected to grow, nanostores are not going to disappear and will continue to dominate the retail landscape of developing economies for the foreseeable future.

Chapter 3

Distribution Channel Designs

When choosing the right distribution design to serve the nanostore channel, companies must be aligned with their overall corporate strategy and try to achieve market penetration, growth, and competitive advantage, subject to cost, investment and flexibility constraints [26]. In this chapter, principles about channel selection will be discussed (3.1), an analysis of direct and indirect models proposed (3.2), and finally a conclusion on the reasons a direct channel is the most suitable to achieve growth and market penetration presented (3.3).

3.1. Supplying to Nanostores

When choosing the distribution channel to serve a market, a manufacturer needs to rely on design principles that are aligned with its overall corporate strategy.

When considering any route to market as that process in which a product or service is chosen, bought, ordered, and received by a client, a company may decide to opt for a direct service model, an indirect one, or a mixture between the previous two. Distribution channels have different levels, depending on the number of intermediaries between the manufacturer and the end customer. According to Kotler, a "zero-level" channel is the simplest level and it is characterized by no intermediaries: the manufacturer sells directly to the final customer (e.g., manufacturer's e-commerce platform). "One-level" channels refer to one intermediary between the manufacturer and the end consumer (e.g., in the FMCG industry such intermediary is usually a retailer). Finally, in global markets, manufacturers tend to include a "second-level" in the form of a wholesaler or distributor, who then resells to local retailers. In the following discussion, a "one-level" channel will be used to describe a direct service model, while a "second-level" channel will be an indirect service model.

When a manufacturer decides to serve the nanostore channel, five functions must be considered and properly addressed: demand generation, order processing, physical distribution, payment collection, and after-sale service.

In developed countries, where markets are simple and stable and with a few big players, choosing what distribution channel to implement is generally evident and without many complications. In serving big modern retailers, the five functions are split among the different departments of the manufacturer and retailer that closely work together. Each department specializes in one specific task, and the resulting effort of each department satisfies the customer's total needs. On the contrary, if an indirect service model is chosen, the manufacturer works solely on the demand generation function, fostering promotions, product launches, and other marketing aspects. The remaining four functions are just transactional elements of the contract between the company and the third-party distributor or wholesaler and are just valued in pure logistics and efficiency terms: through the control of specific KPIs.
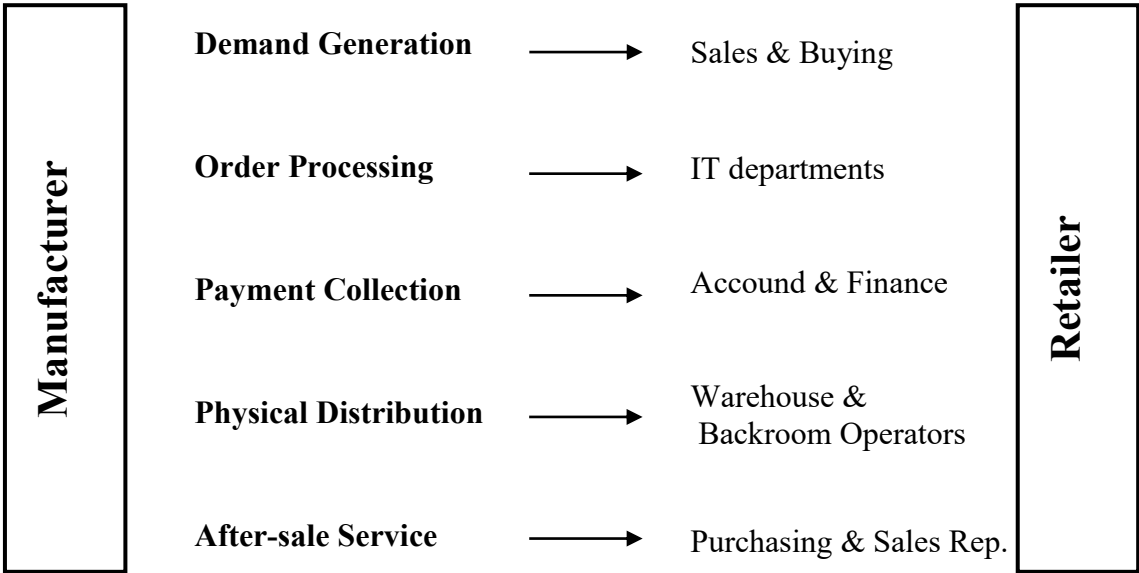

Figure 9. Five functions when supplying modern retailers

In developing and emerging countries, things get more complicated, and the right choice among the two different models of distribution is not always evident. When considering nanostores, the five functions work differently and especially distribution is way more

complex. Generally, when companies consider only this last function, faced with the staggering complexity of distributing to millions of small, unorganized, and cash constrained store, they opt for an indirect model. In doing so, the remaining four functions get completely overlooked or even ignored. Nanostores are not the most efficient market out there: they operate in a mostly informal economy, with limited cash and assets, without credit access from institutions, and this creates many inefficiencies as presented in section (2.2.3)**Error! Reference source not found.**. Besides the disadvantages caused by the proximity between the monetary and physical flows in the supply chain, this characteristic provides the manufacturer with a substantial financial opportunity. From the manufacturer point of view, the possibility to work in a negative cash-to-cash cycle creates an opportunity to invest in other channels or achieve higher profitability due to lower levels of working capital [1]. Hence, if the company just look at distribution and decides to choose an indirect service model, those benefits are transferred to the distributor or wholesaler, and the manufacturer loses the opportunity to leverage the new potential. When the concept of working in a negative circular economy is paired with financial analysis, the manufacturer could choose some specific nanostores to which provide credit, thus increasing shelf space presence with the resulting increase in market share.

3.2. Distribution Strategies to Supply Nanostores

Deciding whether to opt for a direct service model or an indirect one to serve a region is just the first step in designing the distribution channel strategy. In the next subsections, five different strategies with their relative trade-offs will be presented, and suggestions on the strengths and weakness of each method presented.

3.2.1. Direct Service Strategy

In a B2B environment, a direct channel of distribution describes a situation in which a manufacturer sells its products directly to the store owner without relying on other intermediaries: wholesalers and distributors.

Developing a direct service strategy allows the company to keep close contact with the nanostore dynamics, thus controlling growth and market penetration at the cost of managing complex distribution operations, client and stock management activities. Three types of

direct distribution strategies are possible, with the last being a mixture between direct and indirect models: on-board sales, pre-sales with direct delivery, and pre-sales with a third-party distributor.

- *On-board Sales.* In this strategy, the manufacturer chooses to merge all the five functions into one operation. During a single visit to the nanostore, the delivery vehicle performs demand generation activities, order processing, instantaneous delivery and payment collection, and after-sale service. Merging the five functions into a single visit allows the company to have full control of all functions, the physical and monetary flows are instantaneous, and the cash-to-cash cycle is improved by the possibility of working in a negative circular economy. Another advantage of the on-board sales model is the single point of contact between the manufacturer and the nanostore, that also helps in avoiding misalignments between sales representatives and delivery operators. The downsides of this strategy are related to the merging of the five functions in one. Having a single operator performing all the activities makes the manufacturer visit fewer customers per driver, the logistics cost is increased due to the idle time spent in dealing with the other activities, and assortment and SKUs are limited to the vehicle's capacity. Finally, as all direct strategy are concerned, on-board sales carry some cash management risk and safety issues. According to Argueta and Blanco [1], in countries where a manufacturer has a high market share, the on-board sales strategy translates into a higher number of purchases per visit and larger invoices.

- *Pre-sales with Direct Delivery.* This strategy presents a double point of contact with the nanostore: the pre-sales representative first and the delivery operator after. The pre-sales representatives visit the nanostores usually the day before delivery; they perform demand generation and order processing functions, activities on the store to guarantee shelf visibility and to support product merchandising. After the order is collected and processed, delivery to the store is made by the manufacturer distribution team who performs distribution and payment collection operations. Employing this strategy allows the manufacturer to visit more customers per day, gives the opportunity to separately specialize employees in sales and logistics, provide the company with close control over demand generation activities and monetary flows, thus improving the cash-to-cash cycle. The cons of the pre-sales strategy with owned delivery workforce are medium-high logistics costs, the complexity in managing distribution operations that closely resemble

e-commerce, the adherence to ever-evolving city regulation rules, and cash management risks. Another downside of the model is due to the decoupling of the point of contact with the nanostore. The double point of contact requires close collaboration between sales and logistics departments that now may share joint responsibilities (merchandising and after-sale service) and need to work together to resolve discrepancies between the quantity ordered by the nanostore and the one accepted. The moment in time in which the retailer receives the order is different from the one in which the order was placed (24 - 48 h before) and is not uncommon for the nanostore to not have enough cash for the quantity ordered the days before.

- *Pre-sales with a third-party Distributor.* The strategy is a mix between a direct and an indirect service model. The manufacturer sales force interacts with the nanostore and collects the orders that are then sent to a distributor to execute distribution and payment collection activities. The solution is a good alternative to retain proximity to the nanostore dynamics (shelf visibility and market growth) while leveraging the existing coverage and capabilities of a distributor. The problem with the strategy is the complexity in the coordination among the different departments of the two organization and the loss of the opportunity of working in a negative cash-to-cash cycle. Especially with strong distributors, the model is a complex because the competitive advantage of these companies derive from their direct connection and interaction with the nanostore channel.

3.2.2.   Indirect Service Strategy

In an indirect service strategy, a manufacturer relies on a third-party logistics provider to distribute its product in the market. Choosing an indirect model of distribution allows the company to rely on capabilities that are already present in the market and to focus just on a few core areas, without having to build and develop large sales and logistics organizations required to serve the traditional retail channel.

When a manufacturer opts for an indirect service model, he can decide whether to rely on a distributor or a wholesaler.

- *Wholesaler.* A wholesaler is an intermediary entity between the manufacturer and the nanostore that buys products in bulk and then resell them to consumers. The advantage

to rely on a wholesaler comes from its low cost and complexity, the velocity in setting the contract, the quick ramp-up, its economies of scale and scope, and the outsourcing of distribution which is very fragmented and hard to manage. The cons of the method are the loss of control and visibility over the nanostore dynamics, which translates in a loss of control over growth, penetration, and market share. From a manufacturer point of view, another downside of relying on a wholesaler is that it is difficult to disintermediate in the future because of its control over the route-to-market.

- *Distributor.* A distributor is an intermediary entity in the supply chain between the manufacturer of a product and another entity. A distributor performs the same activities as a wholesaler but generally takes a more active role and provide more service, acting as a sales representative for the producers [27]. Distributors generally have a wider scope than wholesaler and are actively involved in the promotion and selling in the overall market. The strategy shares the same advantages and disadvantages of the wholesaler one but allows the manufacturer to have operational influence over the distributor: by setting specific KPIs in the contract, the company can monitor the work of the distributor and be sure that certain levels of SLAs are met.
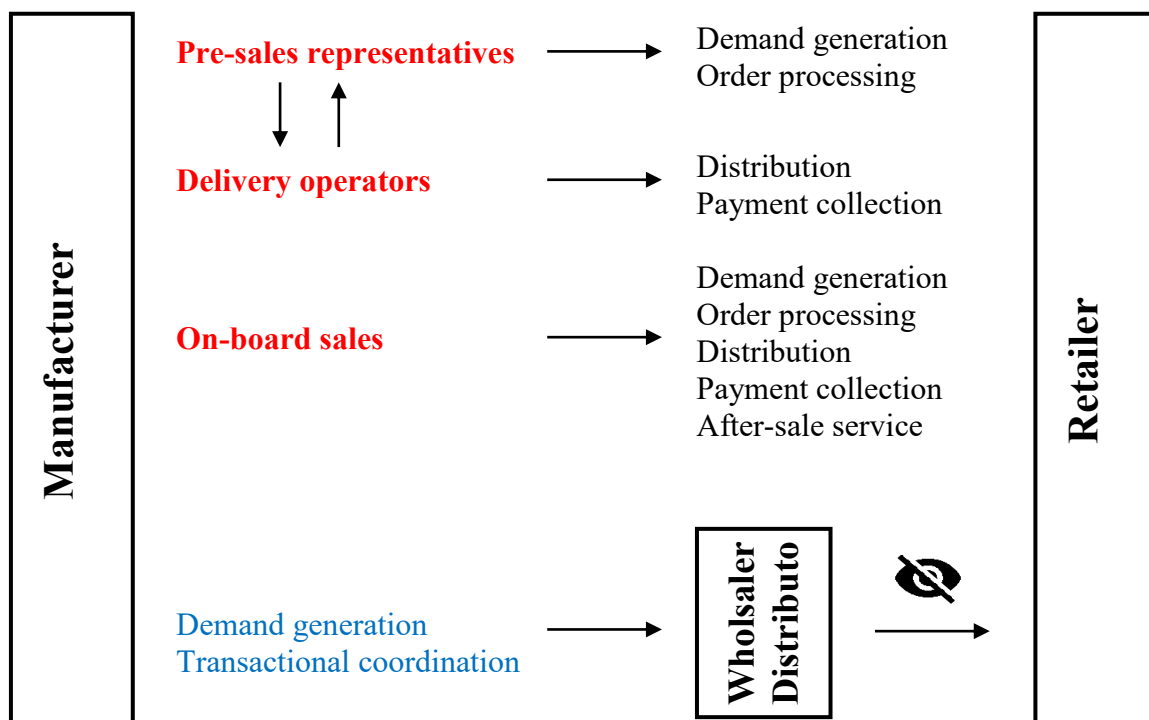

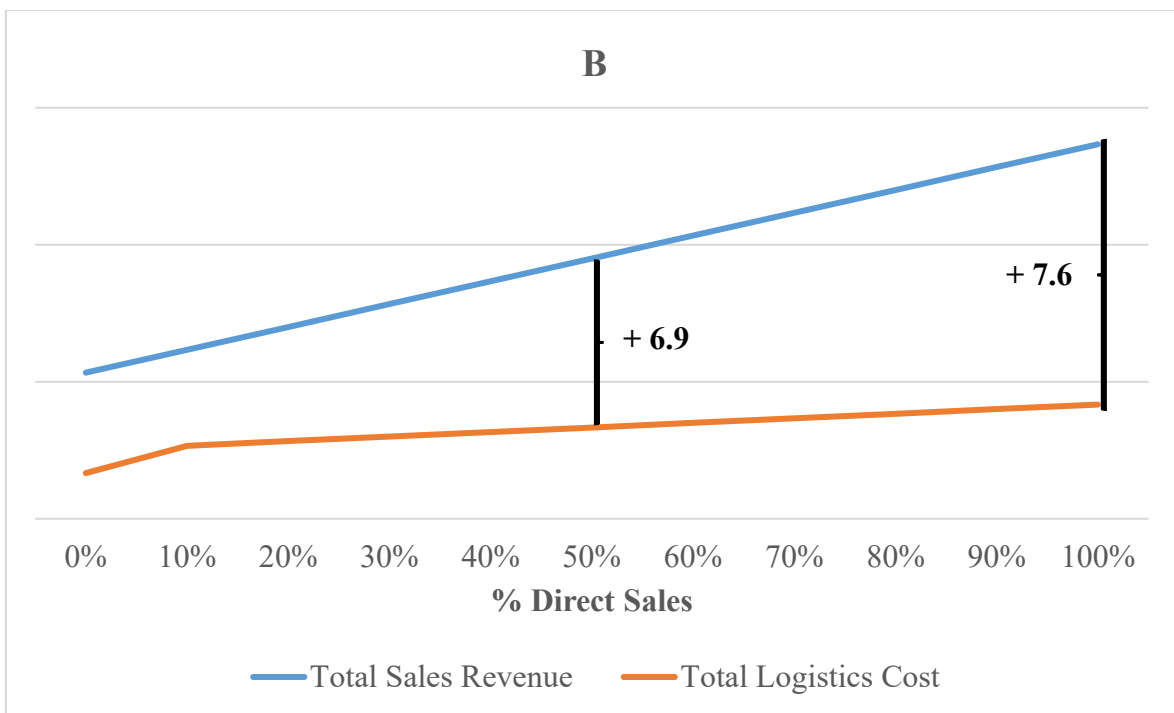**Figure 10.** Direct and Indirect Distribution Service Strategies

3.3. Direct Service Model: Higher Growth & Market Share

In developing countries, many international FMCG companies rely on distributors or wholesalers to serve the traditional retail sector, and this choice is mainly dictated by their risk-adverse behavior. In these countries, where complexities are high, manufacturers preferer to safely develop the business by outsourcing distribution, and this is particularly true when the company is subject to capital and size constraints, and in markets where local brands are strong. Indeed, direct delivery requires a deep understanding of the culture and the market, the development of large sales organizations and the management of tens of thousands of relationships with clients, and building new capabilities in fields of distribution, inventory and SKUs management, cash flow management, and city regulation adherence. From a manufacturer perspective, relying on a wholesaler or distributor offers a simpler strategy that allows the company to focus just on few core functions, demand generation, and brand development, without spending time and effort in building the other necessary capabilities internally.

Besides the advantages of outsourcing distribution, according to Blanco [28], leading companies in emerging markets have been adopting a direct service model to serve the nanostore channel (Coca-Cola, Unilever, Nestle, and others). The problem of relying on wholesalers and distributors is that, by doing so, a manufacturer loses the visibility on the nanostore dynamics, and especially of their shelf availability, thus hindering the market penetration of the brand in the new market. Nanostores have low shelf availability, and usually, if a brand is present, the competitor is likely to miss; securing shelf space is strongly correlated with market share control and growth. The face to face interactions between the manufacturer, through its presale workforce, and the store owner, build trust among the parties and offer the opportunity to engage in promotional activities [29]. During these presale activities, products and offers are promoted, orders facilitated, and product merchandising and visibility on the shelves guaranteed; in many cases, this presents an opportunity to remove products from competition that may illegally have occupied the company's owned infrastructure (e.g., freezers). After the presale representative has visited the store and collected the order, this is transmitted to the manufacturer for the delivery. At the time of the delivery, the payment is collected, and this creates an additional opportunity to interact with the store owner, offering additional products and taking care of after-sale service activities. In the long run, this ever-going interactions between the company and the nanostore owner strengthen the relationship among the parties, building trust and

strengthening the brand presence on the shelves, thus sustaining market presence and growth in the country.

Developing a direct distribution strategy to serve the traditional retail channel requires a substantial amount of investments, but the margins that can be realized are greater than the ones coming from a distributor or wholesaler. When a manufacturer considers only a cost perspective, the channel selection will favour an indirect service model through a wholesaler, which is the most efficient strategy (**Figure 11 A**). The problem with this approach is that opportunities of demand growth and higher prices, driven by a direct strategy, are overlooked. When sales are taken into account, logistics cost increases, but at a lower rate compared to sales revenue, since the prices offered by a direct strategy are higher than in an indirect model (**Figure 11 B**). Indeed, most of the businesses that reach their markets indirectly are subject to the intermediaries' gains in power and control. Especially in the retailing industry, the consolidation among vendors reduces the number of direct competitors, and the emergence of buying groups allows small stores to improve their buying power. These increased concentrations hurt manufacturers' profitability: when there are only a few customers making large-volume purchases, the company's ability to withstand pressures for discounts and price concessions erodes quickly. Moreover, these groups of buyers are getting more and more knowledgeable and by using information system are able to better capture their suppliers' costs, their own operations, and their customers' needs, thus enhancing their bargaining power. From a manufacturer perspective, the situation gets even worse when retailers or distributors face slim profit margins relative to them. By relying on a direct strategy, the FMCG company avoids this pressure since small and unorganized nanostore owners do not have the power to bargain on price and ask for discounts. When considering a longer planning horizon, a direct strategy provides the highest return: as more and more volume is sold directly, market penetration increases, more customers are added to the routes, more loaded vehicles are deployed, and logistics cost benefit from economies of scale (**Figure 11 C**).

A

Unit Profit ■ Unit Logistics Cost

$

Wholesale Strategy   Direct Strategy

+19%

B

+ 7.6

+ 6.9

0% 10% 20% 30% 40% 50% 60% 70% 80% 90% 100%

% Direct Sales

—— Total Sales Revenue   —— Total Logistics Cost
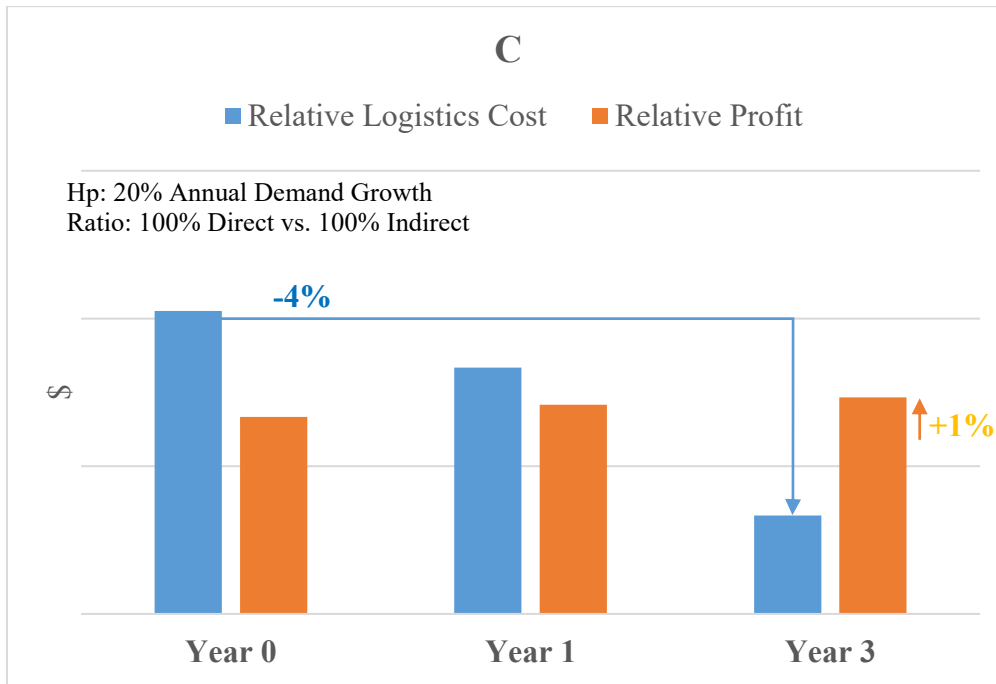
Figure 11. Direct Strategy When Sales Are Considered

To conclude, when deciding whether to opt for a direct model or an indirect one, the main drivers that tilt the balance between the two are: market knowledge, capital, and brand strength. If a manufacturer enters in a new market, where it lacks the knowledge of the culture and the nanostore dynamics, it is a risky proposition to develop from zero the capabilities required to serve the new channel: developing the infrastructure, the capabilities, and the relationships with customers is a long process and require time. In this situation, it is fine on the short-medium time horizon to rely on a third-party logistics provider and focus on some marketing and demand generation activity to push the new brand into the market. A possibility is to acquire an existing distributor, but this is proposition is expensive and feasible only for big companies without financial pressure.

Brand strength is another important factor that can favour a direct model over an indirect one: if in a region, the brand is such that it produces a benefit to the nanostore owner by having it on its assortment, then it is acceptable to enter the market with an indirect model in the short-medium period. On the long run, a manufacturer should look to shift toward a direct distribution strategy, because as more and more competitors enter the market, the brand strength will decline with the corresponding shelf space erosion and market growth decline.

Chapter 4

Cash-to-cash Cycle to Achieve a Sustainable Competitive Advantage

In the previous chapter, benefits and disadvantages of each distribution strategy have been proposed, and reasons on why a direct service model is the one adopted by most leading companies in the FMCG industry provided. Besides the advantages gained by maintaining close visibility of the nanostores' dynamics, which give a manufacturer a better grip over demand generation activities, growth, market share and market penetration, the opportunity to work in a negative cash-to-cash cycle is also an appealing proposition. When working in a negative CCC, a manufacturer has the opportunity to invest in other channels and achieve higher profitability due to lower levels of working capital.

In this chapter, first a description of the cash-to-cash cycle and its components is given (4.1), then the evolution of the indicator since its creation and across industries is provided with the specific case of the FMCG industry in a developing country: the Indian market will be presented (4.3). Finally, the benefits of achieving a negative CCC and pairing it with a financial analysis will be discussed (4.4).

4.1. CCC Definition

The cash-to-cash cycle, or cash conversion cycle, is defined as "the average days required to turn a dollar invested in raw material into a dollar collected from a customer" [30]. Hence, the CCC is a metric, expressed in days, that describes the length of time it takes for a manufacturer to convert its investment in inventory into cash flows from sales.

Generally, during its operation, a manufacturer acquires inventory and raw materials on credit, which results in accounts payable (AP), and sells its products on credit, which in turn results in accounts receivable (AR). The cash conversion cycle measure specifically cash, and not income: in accounting, a company earns income as soon as it sells something, even

if the payment term is in the future, while it earns and spends cash only when it has a real inflow and outflow of money. Therefore, cash is considered when a company pays the accounts payable and collects the accounts receivable, and the timing of this activity becomes a crucial aspect of the business from a cash management perspective. A company may be profitable and with much income, but if customers delay their payments, increasing the length of the cash conversion cycle, the manufacturer may not have enough cash for its immediate needs, with the risk of getting out of business. The CCC traces the time-based lifecycle of cash used for a business activity by following it as it is first converted into inventory and accounts payable, then into expenses for production and inventory, through sales and accounts receivable, and then back into cash in hand. Essentially, CCC represents how fast a company can convert the invested cash from start to end [31].

4.1.1.   CCC Formula

The length of a company's cash conversion cycle is a function of three main variables: the length of the manufacturing process and the number of days that finished products remain in inventory before being sold, the average length of the payment collection period from the company's customers, and the number of credit days it gets from its suppliers.

$$CCC = \text{DIO} + \text{DSO} - \text{DPO}$$

From the formula, a company's cash-to-cash cycle moves through three distinct phases:

- In the first phase, the company manufactures the product and stores it for sale. The Days Inventory Outstanding (DIO) represents how long it will take for the business to sell its inventory and a lower value is preferred as it indicates a company that is fast in making sales, implying more turnover for the business.

$$DIO = \frac{\text{Average Inventory}}{\text{COGS per day}}$$

- In the second phase, the company sells its products. The Days Sales Outstanding (DSO) represents the duration of time it takes to collect the cash generated from the sales and a

lower value is preferred since it indicates a company able to collect capital in a short period, thus enhancing its cash position.

$$DSO = \frac{\text{Average AR}}{\text{Revenue per day}}$$

- In the third and final stage, the company must pay the amount of money it owes to its suppliers for the raw materials and inventory purchased for the manufacturing process. The Days Payable Outstanding (DPO) represents the negative term of the formula, and it is the time horizon when the company is required to pay off its obligations. Since the DPO represents the outflow of cash from the business, a higher value is preferred: by maximizing this number the company can hold on its cash for a longer period, thus increasing its investment potential.

$$DPO = \frac{\text{Average AP}}{COGS\ per\ day}$$

The cash-to-cash cycle involves calculating the net aggregate time involved across the above three phases of the cash conversion lifecycle and can result in either a positive or negative number. In the former, a manufacturer must pay its account payable to its suppliers before it gets its money from its customer. Instead, in the latter, the firm receives its account receivable before paying to its suppliers; this is possible when a company manages to postpone the payments to its suppliers after it has collected the cash from the sale of its goods, thus achieving a negative CCC.

4.2. Relevance of CCC

The cash conversion cycle indicates how efficient a company is in using its short-term assets and liabilities to generate and redeploy the cash used in the business. From the outside, the cash-to-cash cycle helps in assessing the liquidity risk linked to a company's operations and provides evidence on the firm's financial health concerning cash management. Internally, it is used by the company's management to adjust their payment terms both regarding account

payable and account receivables, and in evaluating the efficiency of its operations and management.

The cash conversion cycle can be easily computed from the data available in the balance sheet of the company, but as a stand-alone number, the CCC does not provide meaningful inferences. The cash-to-cash cycle should be used to monitor the company over multiple time horizons, and over its competition. Comparing the cash conversion cycle over different periods indicates if the company is improving or worsening its operational efficiency: a decreasing trend of CCC values is a good sign, while a rising one should be subject to concerns and lead to investigations on the causes.

As can be seen from the CCC formula, it may be possible for a company to have a negative cash-to-cash cycle when the number of days in which the debtors must pay the company is less than the number of days in which the company must pay its creditors. The advantage of working in such a negative cash-to-cash cycle is an increase in the manufacturer's liquidity and profitability. The company can use other people's money for its own business and operations, with the corresponding improvement in operating profits as it does not have to take short-term loans to finance its current assets and to pay interest. On the contrary, a manufacturer that operates in positive cash-to-cash cycle may be subject shortages of cash and blockages of working capital in its supply chain: the longer a company has to wait to be paid, the longer that money is unavailable for investment elsewhere. Hence, as cash conversion cycle lengthens, cash remains tied up in the firm's core operations, leaving little flexibility for other uses of its cash flow. Therefore, it is important to know and try to improve the company's cash conversion cycle: the smaller the CCC, the more the company is able to invest cash elsewhere and face liabilities without having to undergo short-term loans. Finally, although the proposition to work in a negative cash-to-cash cycle is appealing to every firm in the supply chain, only the company with the higher bargaining power usually gets it.

4.2.1.   Cash Conversion Cycle: General Trend

According to a statistical study on the evolution of the CCC, conducted on a large sample of public firms since 1975, the cash conversion cycle has been subject to a significant reduction over the time horizon: from a median of 101.66 days in 1975 to 49.98 days in 2016 [32]. Given the significant 51% decrease of this indicator, close to an annualized reduction of -

1.8% per year, the drivers influencing this KPI are of interest. The DIO experienced a 43% reduction that can be attributed to the improvements in inventory and supply chain management techniques that have reduced inefficiencies in the fulfilment of orders. On the other hand, the DSO median experienced only a slight decrease of 1.03 days, consistent with the increased efficiency in corporate collection made during the sample period: e.g., regulatory changes and the development and implementation of new payment technologies. Finally, unlike the above drivers, the DPO increased substantially reaching 49 days from an initial value of 31 in 1975.

The net result is an obvious shorter cash conversion cycle that is primarily attributable to the improvements in inventory and supply management techniques and better lenient payment terms, while the gains in the efficiency of payment collection are only modest. Another interesting point is that most of the improvements in the cash conversion cycle can be traced in the period between 1975 and 2001, while from 2001 to 2016, other than a slight spike occurred probably due to the financial crisis, the CCC experienced only a minor variability. Overall, this result may suggest that there are left only a few inefficiencies to be spotted in the supply chain able to further reduce the cash conversion cycle, even if it is likely that inefficiencies still persists in certain industries.

$$DCH = \frac{\text{Cash} + \text{Cash equivalents}}{\text{avg. daily expenses}}$$

The obvious implication of an overall decreasing trend of the cash conversion cycle is cash accumulation, due to the decrease in working capital and the improvement in companies' liquidity. Considering the median of the firms' days' cash held (DCH) in the period from 1975 to 2016, the DCH almost doubled reaching 198 days and suggesting that nowadays, companies carry enough cash to cover almost 200 days of operating expenses. This new retained proportion of operating cash flow in the form of cash and cash equivalents has been deployed by the management of companies for other uses rather than simple accumulation: dividends' distributions, share repurchases, repayment of debt, and merging and acquisition activities.

4.2.2.   Achieving a negative CCC

For small and medium companies, having a small or negative cash-to-cash cycle is not automatically a good thing because of some unhealthy circumstances that may lie beneath it. When a company has tight finances and low liquidity, it may negotiate to pay suppliers only after it has received cash from its customers. On the other hand, the same firm may decide to force the decrease in the cash conversion cycle length by insisting on being paid by its customers on cash sales only. In the former case, the company is able to effectively increase the DPO while in the latter to reduce the DSO. Even if in both cases the result is a decrease in the cash-to-cash cycle, in the first case the company is ruining its reputation and compromising the relationships with the supplier, while in the second case, by insisting on cash sales only it affects its ability to grow and attract new customers. Thus, the result obtained by the company is a negative or small CCC, but both customers and suppliers may be more inclined to be business partners with a higher or positive cash conversion cycle.

A company may act on the three main variables to improve and shorten its cash-to-cash cycle: the DIO, DSO, and DPO.

- **Days of inventory outstanding.** The DIO represents the length in time, expressed in number of days, that it takes for a company to sell its inventory. To reduce the cash conversion cycle by acting on the DIO alone, a manufacturer may decide to adopt time and resource management tools such as SCM, ERP, and JIT to minimize the size of its current assets by effectively managing its inventory and resources. Another possibility would be to foster the company's demand and attract new customers by providing sales on credit. Sales on credit could be specifically useful in the nanostore channel of developing countries. Nanostores' demand is constrained by their cash availability, and because of this characteristic, orders do not get delivered when the owner lacks the amount of cash required at delivery. The company, by providing credit to some of its customers, may increase the demand for its product in the market, improving its turnover and its logistics' efficiency, while also reducing its cash conversion cycle.

- **Days of sales outstanding.** The DSO represents the length in time, expressed in number of days, that it takes for a company to collect the cash generated from the sale of its goods. If the manufacturer is a key player in the supply chain, with a lot of bargaining power, he can negotiate better payment terms from its creditors, thus reducing the DSO and shortening the cash-to-cash cycle. Another possibility to improve the DSO and lower

the level of working capital is to induce the buyer to anticipate its payments by introducing discounts. Examples of these discounts are the 2/10 net 30, and 4/10 net 30 clauses. These common clauses offer a 2% or 4% discount on the order if the payment is paid in full within ten days of the invoice date. Finally, regarding the nanostore channel, when the manufacturer opts for a direct service model, it avoids the negotiation with powerful distributors or wholesalers, and by interacting with millions of unorganized and small entities, it is able to get instantaneous payments (**Figure 12**).

- **Days of payment outstanding.** The DPO represents the length in time, expressed in number of days, that it is required for a company to pay off its obligations. The longer a manufacturer can delay the payments to its suppliers, the longer it can hold on to its cash and invest it in other channels and activities. The most powerful company in the supply chain and the irreplaceable one are the best candidates to sign advantageous and longer payments terms, leaving little room for the suppliers to negotiate with. Another way to increase the days of payment outstanding is to make larger orders to suppliers, thus getting better payments terms. Despite this last solution effectively increase the DPO, it also has a negative effect on the DIO, so the overall effect on the cash conversion cycle is not that clear.
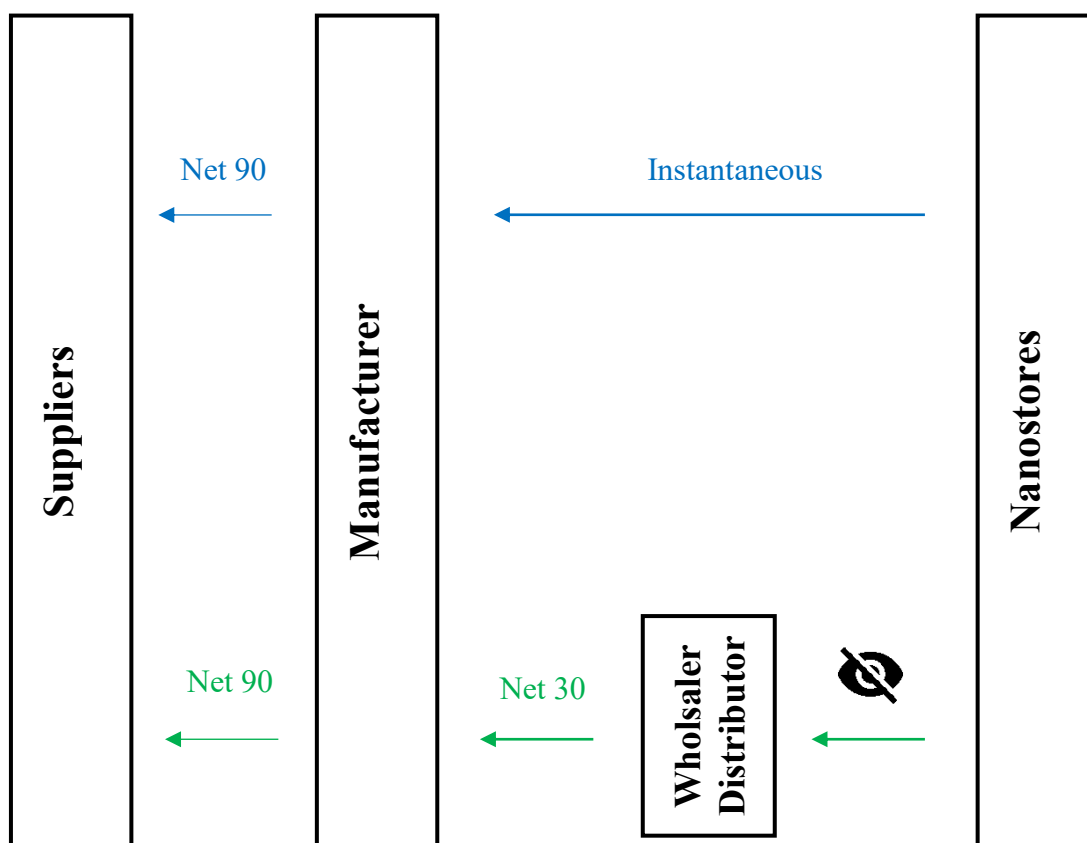
Figure 12. Changes in The Cash Conversion Cycle Direct vs. Indirect Service Model

4.2.3.   Cash Conversion Cycle Across Industry Leaders

When considering the cash-to-cash cycle of some large companies, and across different sectors, the first thing to remember is that the CCC is industry specific: for example, CCC has a meaning only in sectors that have a high dependence on inventory management and related operations.

When considering Amazon, its DIO is 14% less than the median average in the industry, the DSO 34% less, and the DPO 76% greater, with the resulting cash-to-cash cycle being negative and 70 days less than the sector's median [33]. Amazon runs a negative CCC because of its bargaining power and its irreplaceable role in the supply chain, which makes it a retail powerhouse to which suppliers have a hard time negotiating better payment terms. Besides its bargaining power, other characteristics of the industry contribute to Amazon's

negative cash conversion cycle. Usually, online retailers receive almost instantaneous funds in their account for the sale of goods that actually belong to and are distributed by third-party sellers: the users of the online platform. However, despite this almost instantaneous cash inflow, online retailers pay sellers only after a specified payment period that amount, in the case of Amazon to 70-90 days. Additionally, when the goods are directly supplied to customers by third-party sellers, the online retailer does not need to hold any inventory in-house, thus allowing these companies to hold onto the cash for a longer period of time, and generally resulting in a negative CCC.
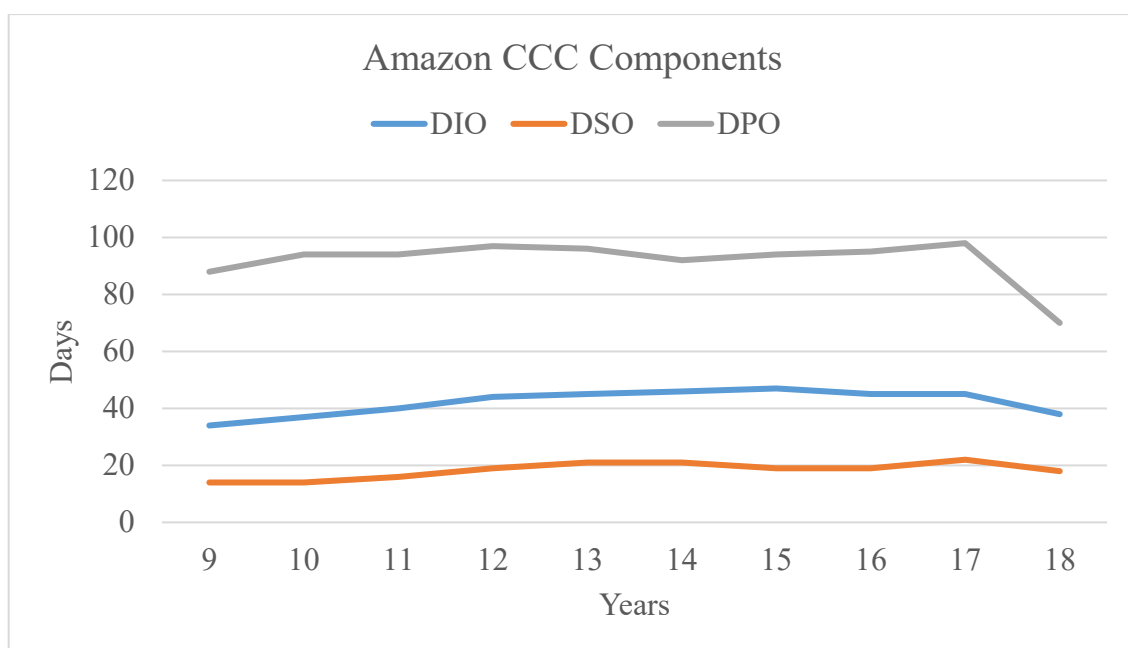
Figure 13. Amazon Cash Conversion Cycle Components *[33]*

When considering the IT and electronic sector, Apple operates with a DIO 32% less than the industry median, a DSO 42% less, and a DPO 70% greater, thus resulting in an overall negative cash conversion cycle and 83 days shorter than the sector's median [34]. Because of big orders to the suppliers, and its bargaining power, Apple is able to negotiate better payment terms, thus paying its suppliers only after 82 days. Other two reasons on Apple' ability to achieve a negative CCC are an incredibly low DIO due to its streamlined product portfolio and its efficient contract manufacturers that deliver products quickly, and a relatively low DSO due to its owned network of retail stores where payments are mostly made by Cash or Credit Card.

Figure 14. Apple Cash Conversion Cycle Components *[34]*
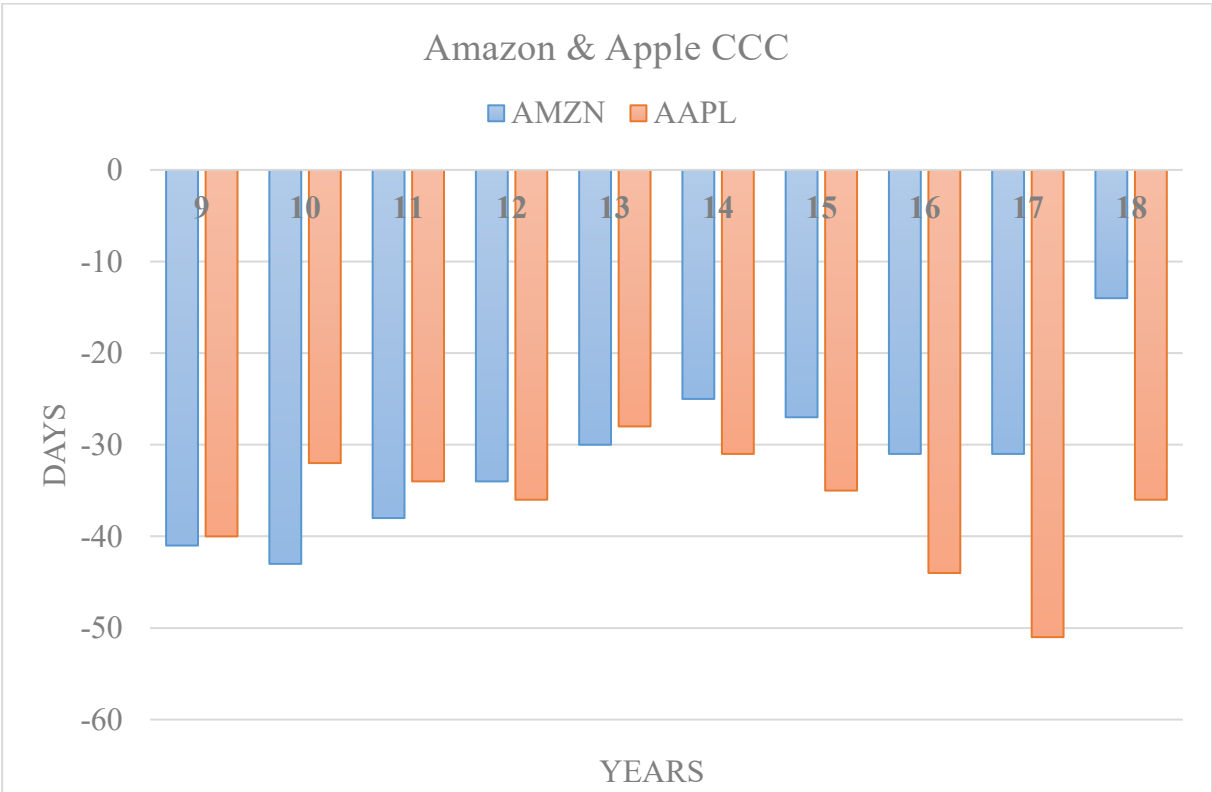
Figure 15. Amazon and Apple Cash-to-cash Cycles *[33] [34]*

4.3. Cash Conversion Cycle in The Indian FMCG Industry

Located in South Asia, India is the seventh largest country by area, and with a population of 1.3 billion people the second most populous country in the world. The region is composed of 29 states and 7 union territories, with 53 million-plus urban agglomerations [35]. Despite these highly populated cities, almost doubling 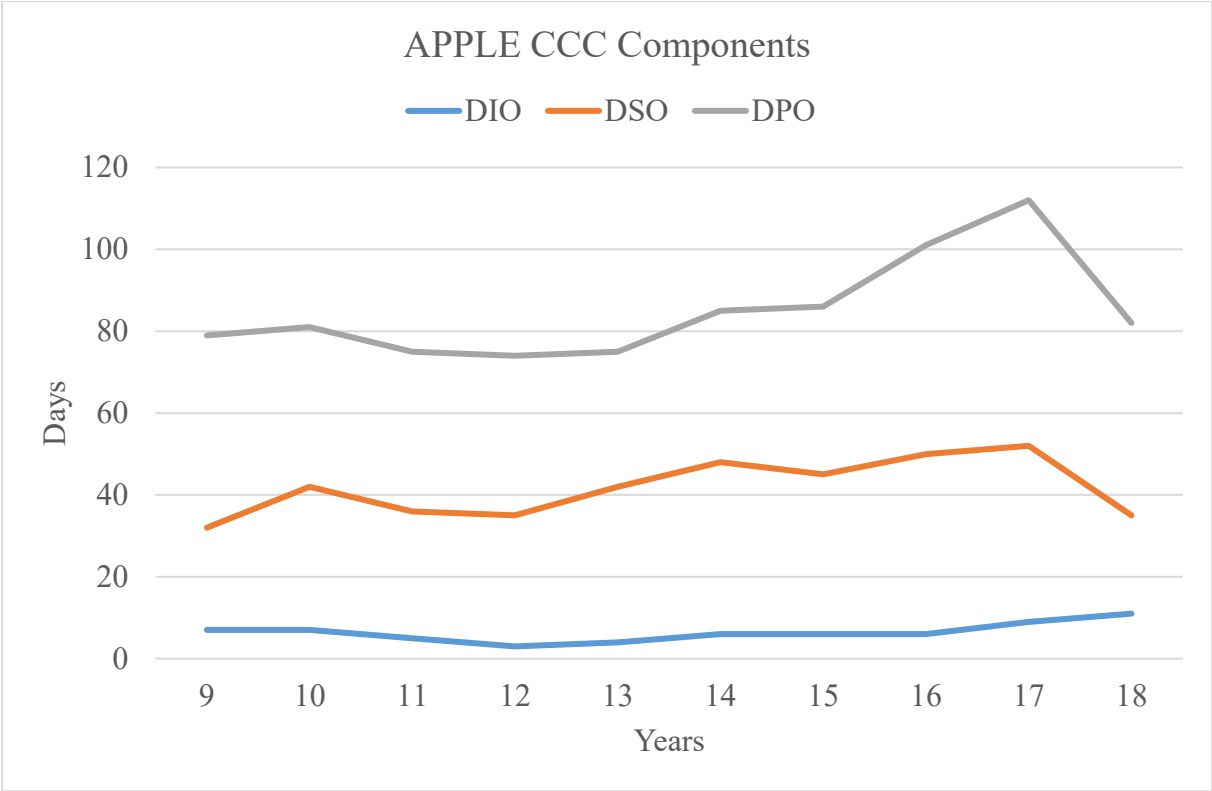in number their European counterparts, the country features a still relatively low level of urbanization (31%), but with some cities being the densest city in the world: in 430 km^2, the Mumbai area gives home to more than 12 million people.

The fast-moving consumer goods industry is the 4th largest sector in the Indian economy, and it is expected to advance from USD 52.75 billion in FY 2018 to 103,7 billion in 2020 [36]. It has a strong presence of multinational companies and is characterized by a well-established distribution network, low operational costs, and intense competition between the unorganized and organized segment. Household and personal care account for 50% of FMCG sales, while healthcare (31%) and food and beverages (19%) come next in term of market share. The food and beverages market share is expected to grow in the near future due to the growing youth population: this broad base of young consumers forms the majority of the Indian workforce and, because of time constraints, barely have time for cooking.
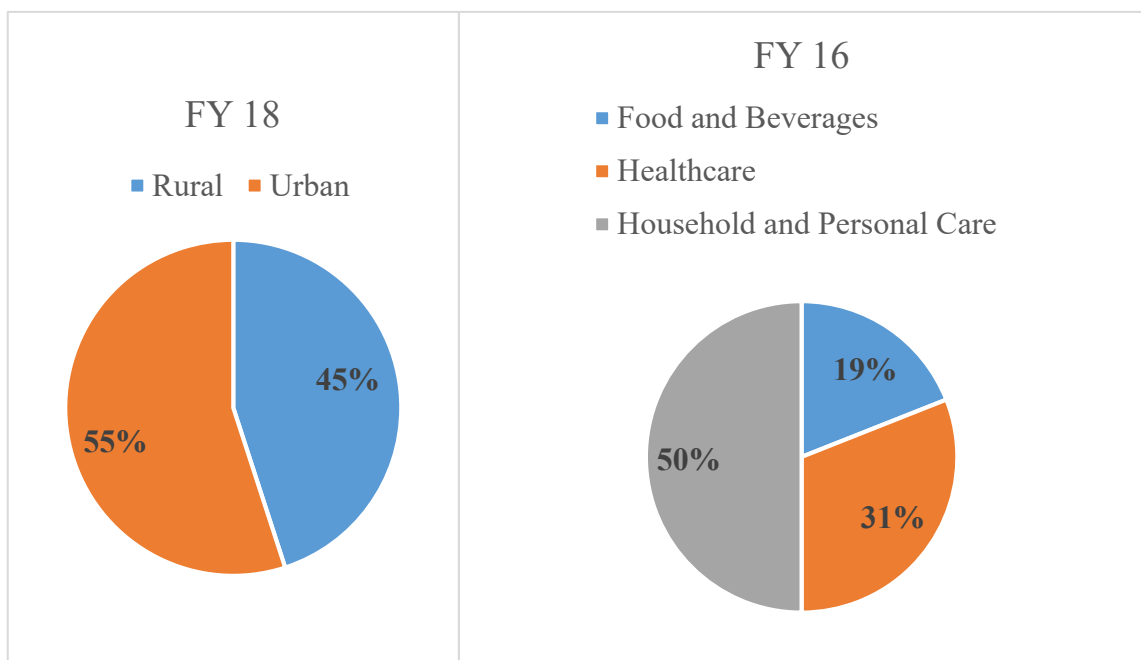
Figure 16. Market Share of FMCG Companies in India by Area and Product Type

Total Consumption Expenditure [USD bn]

■ Total Consumption Expenditure [USD bn]

	2016	2020
	1595	3600

Rural FMCG Market [USD bn]

■ Rural FMCG Market [USD bn]

2009	2010	2011	2012	2013	2015	2016	2018	2025
9	10,4	12,3	12,1	14,8	18,9	29,4	23,6	220
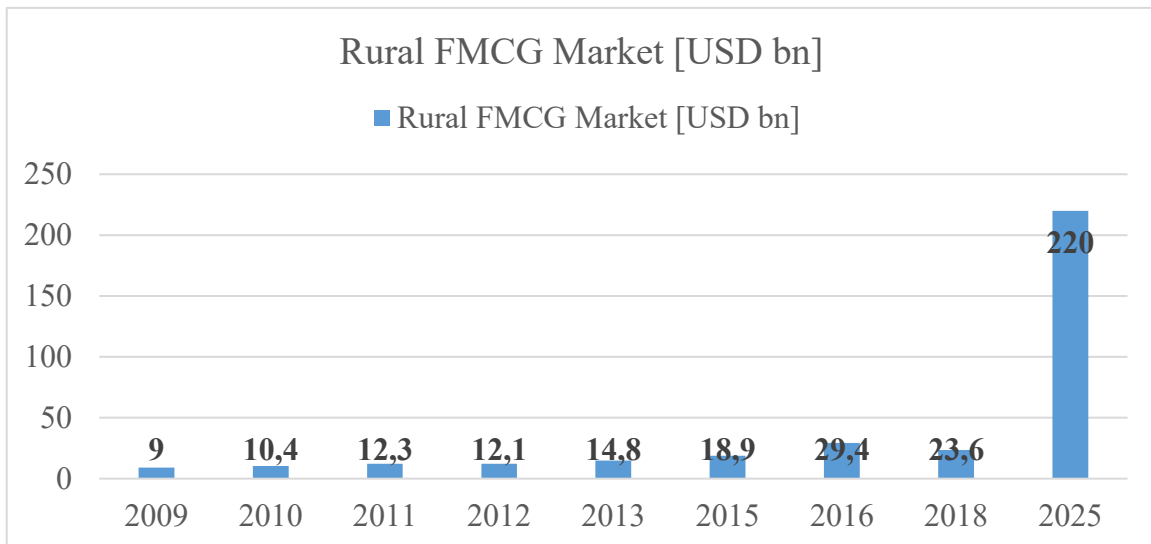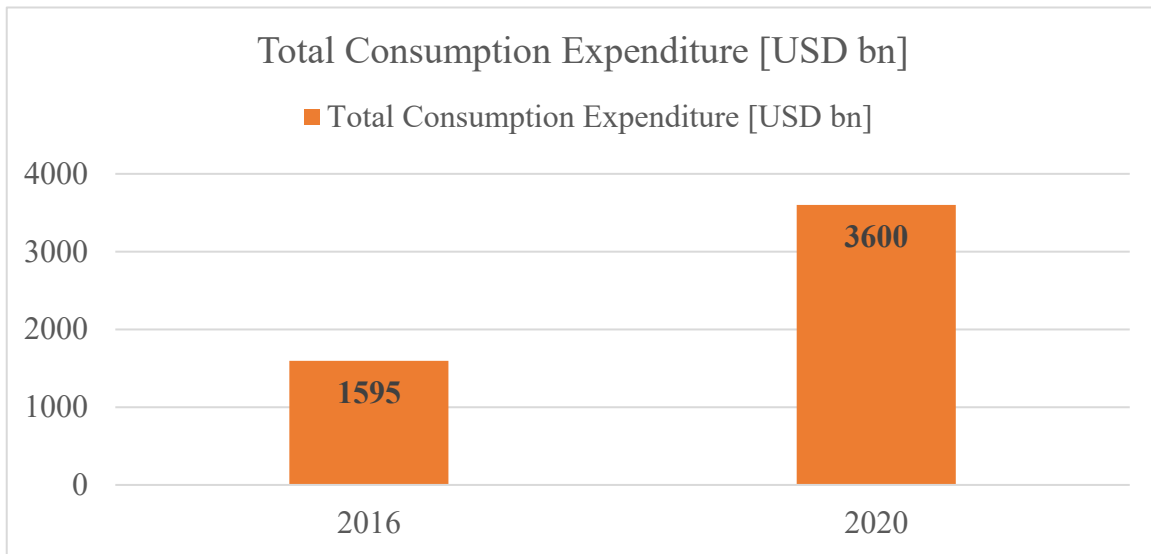
Figure 17. Household Consumption Expenditure and Rural Growth

The urban segment accounts for a revenue share of around 55%, and it is the largest contributor to the overall FMCG revenues in the country. However, in the most recent years, rural areas have experienced a higher growth rate than urban India and are expected to be the major driver to the FMCG growth: in the rural areas of the country, FMCG spending accounts for 50% of total rural spending. This trend, together with increasing incomes, growing awareness, and higher aspiration levels, will boost the demand for branded products and will be the main driving factor behind the growth of the industry.

From a public perspective, the Indian government has allowed 100% FDI investments in food processing and single-brand retail and 51% in multi-brand retail. These public policies will support employment and supply chains, while also increasing FMCG brand visibility, encouraging new product lunches and boosting consumption: since FDI first approval, the country witnessed healthy FDI inflows of around USD 17 billion. Finally, the recent adoption of the Goods and Service Tax (GST) is expected to drive demand, economic growth, and in the long term improve the performance of companies within the FMCG sector while also producing for the Indian government estimations of USD 15 billion a year.

In 2018, India is ranked seventh in the list of countries by GDP, third in PPP terms [37], and according to an OECD paper, the country has reached a tipping point where a large number of people will enter the middle class and drive consumption [13]. This large share of the population, with daily income between 10 USD and 100 USD, will begin to spend each of the newly accumulated wealth in consumer goods boosting the retail sector and making the ground even more attractive for FMCG companies. This growth will be mainly captured by the nanostores' channel which offers the best shopping environment for the new emerging middle-class: for the poorest people, nanostores provide assortments and products' sizes that they can afford, and in densely populated cities proximity shopping becomes a key competitive advantage of the traditional retail channel. In India, the retail landscape is dominated by 9-12 million nanostores, or kiranas, which account for 98% of the national grocery sales and 96% of the total retail market size.
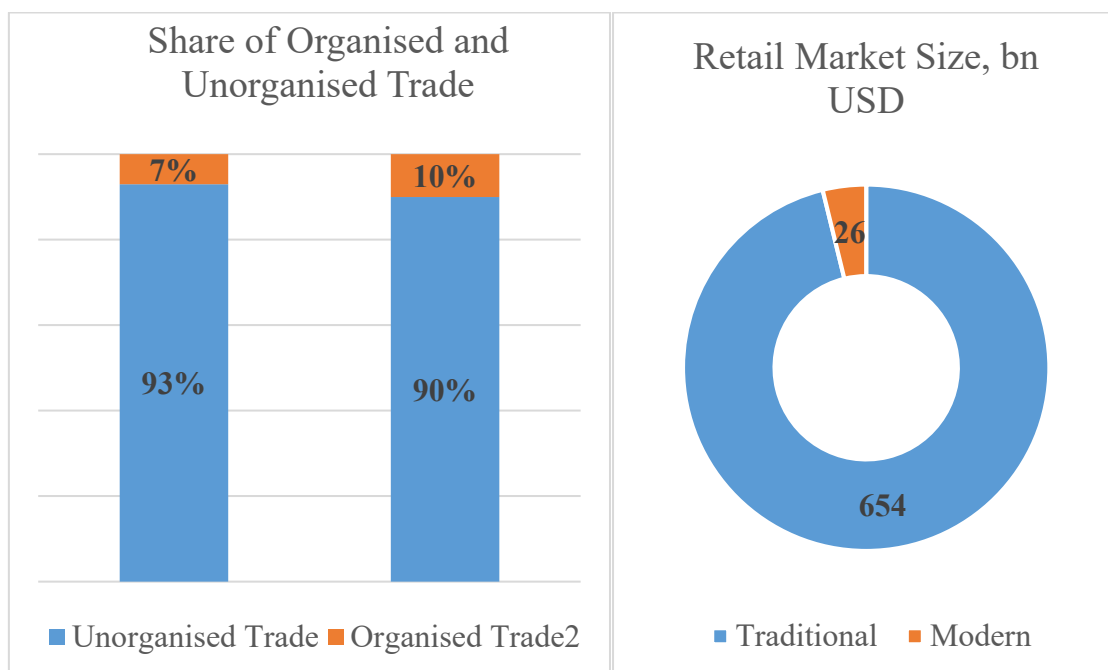

Figure 18. India Retail Market Size and Composition

4.3.1. Major Companies in The Market

Competition in the consumer goods industry has increased substantially in recent years, and many big players in the market are now facing the disruption caused by new entrants that along with the pressure to cut prices, makes it difficult for the original incumbents to expand in the market.

In the following analysis, five main players in the Indian FMCG sector are analyzed: Hindustan Unilever Limited, Nestlé India, ITC Limited, Godrej Consumer Product Limited, and Dabur India. For each one of them, a brief description is provided, and ratios taken from the balance sheets and income statements from the years 2014-2018 calculated and analyzed.

Hindustan Unilever Limited

Hindustan Unilever Limited, owned by the Anglo-Dutch company Unilever, was established in 1933 in Mumbai and is currently the largest consumers good company in India. The company's product portfolio widely ranges across 20 different consumer categories with over 35 brands: mainly food and drink, personal and home care, water purifiers, serving over 700 million customers across the country. The company, with its exhaustive product range and extensive distribution network, provides products fulfilling the demands and needs of all the customer segments. As for FY 18, the company has about 18,000 employees with sales revenue of INR 34,619 crores.

Table 4. HUL Financial Ratios 2014-18

HINDUSTAN UNILEVER LIMITED	DIO	DSO	DPO	CCC	CURRENT RATIO	ROCE	P/E
2017-18	25	11	85	-49	1,29	102,00%	55,58
2016-17	28	11,4	77	-37,6	1,30	91,40%	43,94
2015-16	30,1	10,9	72	-31	1,03	113,00%	45,99
2014-15	31,7	9,48	68	-26,82	1,05	148,00%	44,29
AVERAGE	**28,7**	**10,695**	**75,5**	**- 36,11**	**1,17**	**113,60%**	**47,45**

Nestlé India

Nestlé India Limited is a subsidiary of NESTLÉ S.A. of Switzerland. With eight factories, four branch offices, many co-packers, and a presence across more than 3.5 million outlets, it provides consumers a wide range of products across categories such as milk and nutrition, chocolates and confectionary, beverages and prepared dishes and cooking aids. The company has also given a major push to the dairy sector of the country and has helped to develop the milk economy. Nestle is the market leader in various categories such as Infant Cereals (96.5%), Instant Pasta (65.2%), Instant Noodles (59.5%), White Chocolates and wafers (62.6%). As for FY18, the company has about 7,000 employees with sales revenue of INR 10,135 crores.

Table 5. Nestlé India Financial Ratios 2014-18

NESTLÉ	DIO	DSO	DPO	CCC	CURRENT RATIO	ROCE	P/E
2017	33,6	3,41	45	-7,99	2,64	52,60%	61,94
2016	35,2	3,52	42	-3,28	2,40	48,90%	58,04
2015	37,2	3,96	43	-1,84	1,97	41,80%	99,03
2014	29,3	3,4	35	-2,3	1,45	50,50%	51,53
AVERAGE	**33,82**	**3,57**	**41,25**	**-3,85**	**2,11**	**48,45%**	**67,64**

ITC Limited

ITC Limited was incorporated in 1910 under the name of Imperial Tobacco Company of India Limited (later changed to ITC Limited in 1974). It is an Indian conglomerate that was initially in the cigarette and tobacco business and later diversified into multiple businesses including hotels, paperboards and specialty papers, packaging, agri-business, packaged foods and confectionery, branded apparel, greeting cards, and other FMCG products. Nowadays, ITC has built 25 mother brands and is currently the market leader in cigarettes in India. Given the tough competition in the FMCG segment, the company has faced a decline in its ranking in the brand trust report in the last few years. As for FY18, the company has about 26,159 employees with sales revenue of INR 67,082 crores.

Table 6. ITC Limited Financial Ratios 2014-18

ITC LIMITED	DIO	DSO	DPO	CCC	CURRENT RATIO	ROCE	P/E
2017-18	67,8	20,5	43	45,3	2,77	32,60%	27,71
2016-17	74,6	17,7	34	58,3	3,59	33,80%	33,25
2015-16	81,6	17	35	63,6	1,65	37,60%	18,27
2014-15	76	19,4	35	60,4	2,05	46,10%	18,39
AVERAGE	**75**	**18,6**	**36,75**	**56,9**	**2,52**	**37,53%**	**24,41**

Godrej Consumer Products Limited

Godrej Consumer Products Limited, subsidiary of the Godrej Group, is an Indian consumer goods company established in 2001 in Mumbai. The company operates several manufacturing facilities in India spread over seven locations and grouped into four operating clusters. Its offer includes a vast range of products such as soaps, hair colour, liquid detergents, room fresheners, hand wash, mosquito, and pest repellent products. Nowadays, GCPL is the number one leader in the hair colour, household insecticides, and liquid detergents segment, and the second company in soaps sales. As for FY18, the company has more than 1,200 employees with sales of INR 5428,6 crores.

Table 7. GCPL Limited Financial Ratios 2014-18

GCPL	DIO	DSO	DPO	CCC	CURRENT RATIO	ROCE	P/E
2017-18	39,5	15,9	122	-66,6	1,26	27,60%	49,67
2016-17	43	18,7	101	-39,3	1,17	26,00%	44,75
2015-16	41,9	16,8	85	-26,3	1,01	26,10%	21,26
2014-15	40,5	11,6	82	-29,9	0,89	24,50%	18,71
AVERAGE	**41,225**	**15,75**	**97,5**	**-40,53**	**1,08**	**26,05%**	**33,60**

Dabur India

Dabur India Limited was founded in 1884 in Ghaziabad. The company is the world's largest Ayurvedic medicine and natural health care company, with a portfolio of over 250 products. Dabur has over 12 manufacturing facilities in the country and offers consumer products in the field of oral care, hair and skin care, home care, health supplements, and medicines and digestives. As for FY18, the company has more than 7,400 employees with sales of INR 7748,3 crores.

Table 8. Dabur India Limited Financial Ratios 2014-18

DABUR INDIA	DIO	DSO	DPO	CCC	CURRENT RATIO	ROCE	P/E
2017-18	42,6	21,4	80	-16	1,59	32,50%	53,92
2016-17	41,9	26	75	-7,1	1,13	35,80%	48,92
2015-16	39,2	25,6	60	4,8	1,32	42,00%	46,91
2014-15	37,3	22,2	50	9,5	1,26	44,40%	61,28
AVERAGE	**40,25**	**23,8**	**66,25**	**-2,2**	**1,33**	**38,68%**	**52,76**

4.3.2. Conclusions

The structure of the fast-moving industry allowed the leading companies in the sector to bargain favorable payments cycle with suppliers and debtors that resulted in a lot of cash generation which is reinvested in the business. These companies, by leveraging their supply chain, their strong distribution network, and their dominant position in the industry have been able to keep their creditors' days close to or less than their debtors and inventory days. Having these negative cash conversion cycles means that companies first sell their goods and later on pay for their raw material supplies, and all the additional cash generated can be invested and utilized for other purposes. Generally, this situation is possible only with large FMCG companies that account for the bulk of turnover of their suppliers, so that they have a stronger grip on contracts' negotiation and are able to gain better payment terms.

Efficient supply management is another reason behind the negative cash conversion cycles achieved by some major companies in the FMCG industry. The strong brand loyalty typical of the FMCG sector helps these companies in maintaining a low inventory together with sales

generated at a high rate. Similarly, the development and adoption of demand and inventory management system, such as SCM, ERP, and JIT, resulted in a more effective management of inventory and resources, which contribute in reducing the days of inventory outstanding. Due to these managerial techniques, the level of inventory in the FMCG sector can be significantly lower level as compared to other industries.

Another situational gain for the FMCG industry is that its turnover is not constrained by its production, but it depends on its capability to effectively sell the goods in the market. Therefore, companies tend to utilize maximum resources on marketing and demand generation activities rather than on manufacturing operations.

Finally, a negative cash-to-cash cycle usually arises in cash-based businesses because of two main factors: the efficient utilization of resources and the good inventory management techniques that leads to a minimum level of stock of inventory, and the fast payments from customers, which contribute to low levels of days of sale outstanding: Nestlé India is able to collect cash from its customers in less than four days.

Table 9. FMCG Companies Data Aggregation

Companies	CCC	Current Ratio	ROCE	P/E
Hindustan Unilever Limited	-36,1	1,17	113,60%	47,45
Nestlé	-3,8	2,11	48,45%	67,64
ITC Limited	56,9	2,52	37,52%	24,41
Godrej Consumer Product Limited	-40,5	1,08	26,05%	33,60
Dabur India	-2,2	1,33	38,67%	52,76
Average	**-5,157**	**1,64**	**52,86%**	**45,17**

From **Table 9**, the five major players in the Indian FMCG industry have an average cash conversion cycle which is negative and amounting to minus five days. ITC Limited is the only company having a positive CCC, which is extremely high compared to the sector aggregated. This can be partially explained due to the higher days of inventory outstanding as ITC aggregates the supply of annual wheat requirements in late March, right after the harvest period and when prices are low.

Cash-to-cash cycle expresses a negative trend in the period considered, and it is in line with the efforts made by the companies to extend their share of direct distribution in the market. FMCG companies are reducing their reliance on indirect distribution channels to bypass wholesalers who are yet to adopt the GST norms or are reluctant to adopt non-cash methods of payment [38]. By reaching the consumers directly, companies get close to the nanostores dynamics which are essential to foster growth and can collect data from customers which will produce the highest competitive advantage in the industry in the long term.

The negative conversion cycle proves to be a sign of managerial efficiency in a business that operates almost strictly on a cash basis: the ROCE of the companies with negative CCC tends to be higher on average.

The P/E ratio is on average higher on the companies with a negative cash-to-cash cycle, suggesting that investors are expecting a higher earnings growth in the future compared to companies with a positive CCC. The negative cash conversion cycle directly influences the earning capacity of the company as profitability is higher, shareholders are getting more dividend and capital appreciation, and in the long run, this maximizes the shareholders' value. Investors prefer such companies as they reward shareholders relatively better.

After the analysis of the negative trend in the cash conversion cycle and the various profitability and appreciation ratios, it becomes clear that:

- Larger FMCG companies who are leading the market are able to dictate their terms when it comes to deciding the time for payables or receivables.
- By using customers money to pay for their expenses, FMCG companies minimize if not eliminate the cost of borrowing for working capital.
- Because of the lower cost of interest and borrowings from banks, profitability is always higher.
- FMCG companies can leverage their brand image and their strong influence to lower the operating cost of their products.

- Intangible assets such as brand, internal processes and routines, strong supply chain network, strong customer base, are the key areas responsible for a lower requirement of working capital.

- The efforts toward direct distribution are increasing and these result in a negative trend in the cash conversion cycle. Companies are trying to get closer to the customer to collect data and avoid wholesalers who are yet to adopt the GST norms.

- Companies operating in the FMCG industry and achieving negative cash-to-cash days, prove their managerial and operational efficiency, thus creating shareholder value by way of higher EPS and higher market capitalization.
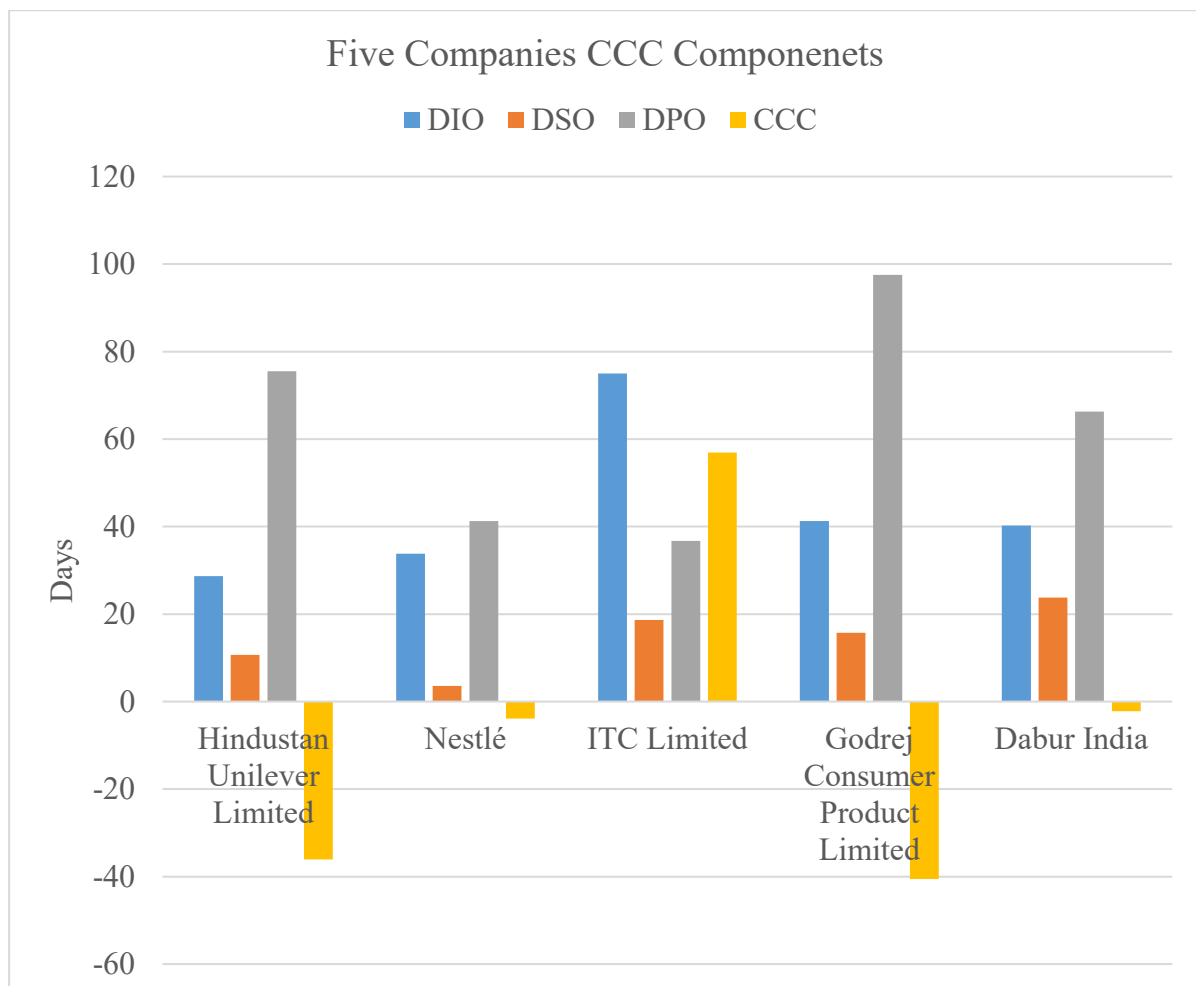

Figure 19. FMCG Companies CCC Components

4.4. Direct Distribution with Supplier's Credit Provision

Besides the advantages of working in a negative cash-to-cash cycle, direct distribution offers the opportunity to be close to the customer dynamics, and the ability to collect data that can be used to provide credit to specific nanostores, creating a win-win situation for both the manufacturer and the retailer.

When the supplier visits the nanostore, he requires an instantaneous payment for the goods delivered, but when the cash availability of the nanostore is not enough to pay in full the order, the delivery is cancelled, and the effort spent in the distribution activities lost. This means that the nanostore can replenish products only when it has enough on-hand cash to pay the supplier in full, but this is often not the case. Indeed, the nanostore's availability of cash depends on the result of its operation in previous periods: usually, the amount of sales of the day before, minus the credit offered to its customers. Furthermore, the timing on which the supplier visits the store becomes crucial since the nanostore could have already received supplies from other manufacturers and used most of its cash to pay for those products. Hence, when the shopkeeper lacks the cash required by the supplier, the manufacturer incurs in an empty delivery. These situations are costly to the supplier since a presale visit has been made, products have been picked and delivered in a very dense and congested city, and then the full order is returned. An estimation of the opportunity cost for each empty delivery is the gross margin of the unsold products plus the additional handling costs of the returned goods.

Because nanostores are vast in number in emerging markets, and they represent the largest customer base of FMCG companies, they have a huge potential to influence margins. By offering credit to some nanostores for their replenishment activities, a supplier can improve its logistics efficiency while boosting its sales' volume and provide to its customer base a better chance of economic survival. The manufacturer gives the nanostore owner a small loan to replenish its stock at the desired level while paying for it later, and this, in turn, creates a win-win situation for both the supplier and the retailer. By using the manufacturer's money, the availability of the products in the nanostore will be higher, with the corresponding increase in sales and, therefore, the manufacturer's sales to the retailer. Despite the potential benefits, suppliers are often reluctant to provide credit to the nanostore channel, and credit provisioning is not currently a common practice. What makes manufacturers reluctant to provide credit to nanostores, besides the inherent risk that the nanostores will not pay back their loan, is the fact that the nanostore's operations might not be profitable in the first place, putting it at relatively high risk of bankruptcy.

Furthermore, the retailer might suddenly decide to close its activity for other reasons that have a relatively high probability of happening, especially when the barriers to exit are very low due to the small investments needed to start the activity in the first place. According to a study on the Latin America nanostore, these discontinuations are frequent, and most of the small stores survive for less than a year [39]. Hence, when considering credit provisioning, bankruptcy and the discontinuation of the nanostore operation are the risks that the supplier is facing [40]. Since financial institutions do not generally reserve credit to the nanostore channel, or even when they do, the conditions are extremely adverse with high interest rates, the manufacturer becomes the only option for the nanostore owner to get credit. In order to protect itself from the defaulting and discontinuation of service risks, the supplier have two possibilities: charge a small amount of interest on the credits offered, or make sure that the benefits gained, summed over all the nanostores the credit is offered, is such that it can bear the risk of one or a small number of retailers not paying back the loans in the long run [4].

According to a 2018 study on consumer loans and supplier credits to nanostores in emerging markets [4], credit provision is beneficial for both the manufacturer and the retailer, provided that credit is offered to customers that are running an already profitable business. When this is the case, the supplier's credit provision improves the cash position of the nanstore owner and results in a higher service level for both parties. In the long run, the loans offered by the supplier are able to improve the nanostore's cash availability sufficiently enough that credit is not needed anymore. Eventually, the nanostore generates enough cash through its sales activities alone, that does not need the supplier's credits to replenish the needed amount of stocks.

The important point when considering credit provisioning is that supplier's credits should only be offered when the nanostore's operations are profitable in the first place, even if the profits are minor. Indeed, the study found out the supplier's credit has an amplifying effect depending on whether the nanostore was already profitable or not, without the supplier's credits: credit provisioning either further raise or reduce the nanostore's wealth.

Finally, the research discovered that the interest rate charged on the outstanding loans has only a minor effect on the decision to provide credit and that the risk of the nanostore discontinuing its operations has a negative expected benefit for the supplier only in the short term. In the long run, the benefits coming from higher sales and improved logistics efficiency, outweigh the risk of the nanostore going bankrupt, especially when the unit profit of the manufacturer is sufficiently high.

4.4.1. Nanostores Classification

Manufacturers are the only entities that have a personal interest and the financial means to provide support to the nanostore channel for their replenishment activities. Even if the defaulting risk of nanostores is high, if their operations are profitable in the first place, then it is still beneficial for the supplier to provide them with financial credit in the form of small loans. The objective of credit provision should be helping nanostores' owners to improve their cash position, thus increasing their chance of economic survival in a highly competitive the market and, ultimately, due to their higher sales, increase the manufacturer's demand.

It has been discussed how credit provision provides value to the company only when nanostores are already profitable, but developing a credit rating model can be difficult, especially in the nanostore channel where transactions are cash-based, and accounting practice are not in place. In an informal economy, it becomes hard assessing when a nanostore is successful or not, especially when barriers to entry are so low that a shopkeeper can close and open a new store almost overnight. China, in an attempt to include the nanostore channel into its formal economy, begun charging taxes to nanostores based not on their revenue or profits, which becomes hard to asses in an environment dominated by cash transactions where no proper accounting practice are in place, but on their floor space. A nominal tax per square meter of store space is easy to implement, does not require much control, and it is a step toward the inclusion of nanostores in the formal economy.

For a manufacturer that is looking to implement some forms of credit provisioning to the nanostores segment, the Chinese idea on the regulation of the nanostore channel could be exploited to spot profitable nanostore to which credit provision is financially advantageous. By accessing the public registry, or simply during the salesperson visit to the nanostore, the dimension of the store could be easily detected and reported. After having obtained the data on the size of the nanostore, its operating life should be gathered. Finally, after having gathered all the data and computed the average life of the sector, each of the nanostores can be classified in the matrix below.
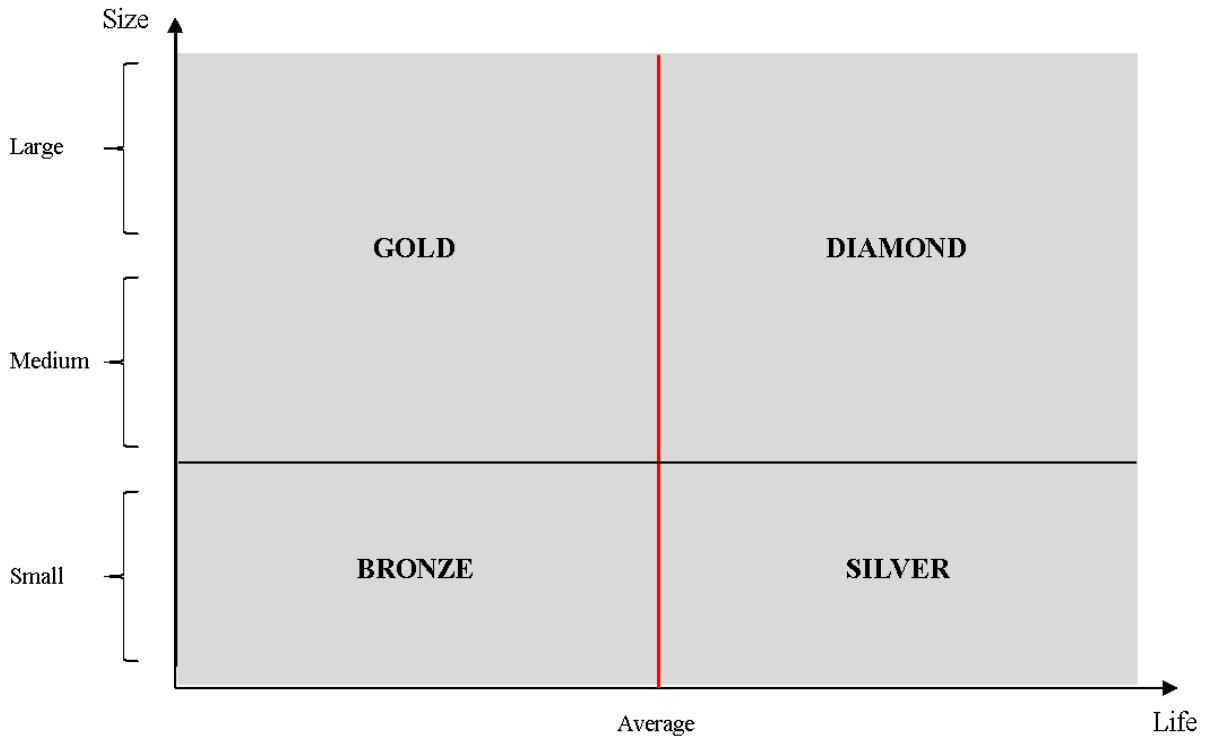
Figure 20. Nanostores Classification Matrix

The matrix classifies nanostores into four different categories: bronze, silver, gold, and diamond.

- **Diamond.** Diamonds are nanostores of medium-large size that have been operating for many years, generally above the sector average. These nanostores are profitable, they can replenish their stock and fund their daily operations using solely the cash generated by their sale activities. From a manufacturer point of view, these nanostores are the clients providing the higher sales and demand in the traditional retail format. Providing credit to this segment would not add much value to the supplier, since these nanostores have proved to be profitable and to generate enough cash to fuel their activity on their own.

- **Gold.** Gold are nanostores of medium-large size that have been operating under the sector average, and they can be considered as the new customers in the traditional retail format. These nanostores have the size to be profitable and represent an opportunity to increase the manufacturer's demand. The problem with nanostores belonging to this segment is that they are relatively new to the market and their cash position might suffer

from it, resulting in shortages of cash that may translate into empty deliveries. Providing credit to these nanostores would be a great opportunity for the supplier, since the loans will improve the cash position of these stores, with the resulting increase in sales and demand, and the improved chances of economic survival. Providing credit and helping this segment to stay alive in a highly competitive market, will result into the transition from gold to diamond nanostores with the consequent benefits.

- **Silver.** Silver are nanostores of small size that have been operating for many years, generally above the sector average. Because of the many years in the business, these nanostores have proved to be profitable and to be able to replenish their stock and fund their daily operations using solely the cash generated by their sale activities. From a manufacturer point of view, providing credit to this segment would not add much value, since sales growth is mainly constrained by their small size and storage space, instead of by their cash availability.

- **Bronze.** Bronze are nanostores of small size that have been operating under the sector average, and they can be considered the new customers in the traditional retail format. Their cash position might suffer from being relatively new to the market, threatening their chances of survival in the market. From a manufacturer perspective, providing credit to this segment would have only a marginal effect: it will help these nanostores to survive and become silvers, but would not result into a noticeable increase in the demand since sales are mainly constrained by their small storage capacity, rather than by their future cash availability.

The matrix suggests that credit provision should be given to nanostores belonging to the gold segment to increase sales and boost demand growth, and to the bronze ones to not lose customers. In many developing countries, the vast majority of nanostores are small in size and can be classified as bronze customers, so they have overall a huge potential to influence margins and every shrewdness to keep them alive should be considered.

Finally, according to the data collected on a month of operations of an Indian distributor hired by a CPG company in Mumbai and operating through a pre-sale method, if the average monthly sales per store remain constant, then providing credit will not produce much added

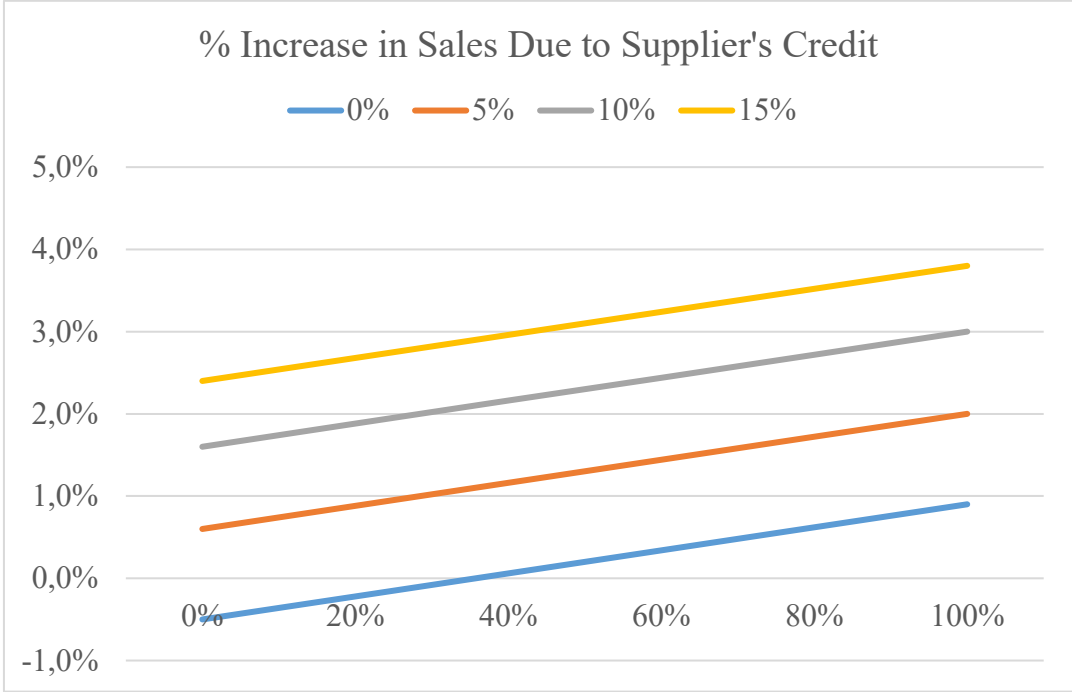value to the manufacturer: the credit cost gets deducted from the gross margin only for return invoices [41].

Figure 21. Percentage Change in Margins Due to An Increase in The Demand

4.4.2. Managerial Implications of Credit Provision

Decision makers acting at the supplier and nanostore levels should consider the following managerial implications when deciding whether to offer credit to nanostores or not.

First, the main finding of credit provisioning to the nanostore channel is that, even if there is a high risk of the retailer going bankrupt or discontinuing his operations, it is still beneficial for the manufacturer to provide credit under the hypothesis that the nanostore is profitable in the first place. This requirement is fundamental since the supplier's credit has an amplifying effect on the net wealth of the nanostore: if the nanostore was initially profiting, then the credit provision will boost its performance positively, but also the opposite holds. When the requirement of profitability is met, offering credit creates a win-win situation for both parties: the nanostore can replenish the desired quantities and make larger orders, its sales will increase and this, in turn, leads into higher demand growth and improved

logistics efficiency for the supplier. According to Blanco and Fransoo, a manufacturer in Sao Paolo developed a credit rating system internally and then implemented postal payments to successfully grant credit to its top 35% clients.

Second, the supplier's credit is only needed for a short period. In the long run, the improved cash position of the nanostore owner allows him to replenish the desired stocks alone. The supplier's credit will only be occasionally needed, but overall the nanostore can replenish products on its own.

Third, the interest rate charged on the outstanding loans has only a minor effect on credit provisioning, and the risk of the nanostore discontinuing its operations has a negative expected benefit only in the short term. In the long run, the benefits of higher sales and improved logistics efficiency outweigh the risk of the nanostore going bankrupt, especially when the supplier's unit profit is sufficiently large.

Fourth, credit provision should be given to nanostores belonging to the gold and bronze segment. The former to increase the nansotore' sales and boost manufacturer's demand, the latter to improve their chance of economic survival: keeping alive small customers that in many developing countries are the majority and, as such, have a huge potential to influence margins.

Finally, providing credit will create value only when the average monthly sales per store will not remain constant, but will increase. When this is not the case, the credit cost gets simply deducted from the gross margin only for return invoices.

Chapter 5

Conclusion

Around the world, millions of nanostores give a home to hundreds of millions of consumers every day. These nanostores flourish in large and dense cities, where density both affects how people are going to do shopping and the business side of it. Nanostores survive as a major market because they serve a few hundred people with relevant basic products in small and ad hoc quantities, they provide relationship-based credit, they give a feeling of emotional proximity with the shopkeepers, and they are convenient due to the limited access to transportation by most of the population. Furthermore, nanostores have low barriers to entry, and Consumer Packaging Good manufacturers have an interest to keep them alive because of the higher margins they can achieve.

From a distributor point of view, nanostores are not the most efficient retail operating model: distribution is complex, they are highly fragmented, unorganized, storage constrained, with no IT infrastructure, and their reliance on cash creates security risks and logistics inefficiencies. Nevertheless, for a FMCG company aiming to generate close and profitable relationships with the nanostore channel, direct distribution is a primary strategy even though it is the most complex and costly to undertake. Developing a direct distribution strategy to serve the traditional retail channel requires a substantial amount of investments, but the margins that can be realized are greater than the ones coming from a third-party distributor or wholesaler. When a manufacturer is considering direct distribution strategies, market knowledge, capital, and brand strength play a key role in the decision. If the manufacturer is entering in a new market, where it lacks the knowledge of the culture and the nanostore dynamics, it is a risky proposition to develop from zero the capabilities required to serve the new channel. In this situation, it is reasonable in the short-medium time horizon to rely on a third-party logistics provider and focus on marketing and demand generation activities to push the new brand into the market. Finally, if in a region, the brand is such that it produces a benefit to the nanostore owner by having it on its assortment, then it is acceptable to enter

the market with an indirect model in the short-medium period. On the long run, a manufacturer should look to shift toward a direct distribution strategy, because as more and more competitors enter the market, the brand strength will decline with the corresponding shelf space erosion and market growth decline.

Opting for a direct distribution strategy also allows the manufacturer to achieve a negative cash conversion cycle, which is a sign of managerial efficiency. The cash conversion cycle of five of the major players in the Indian FMCG industry have been analysed and resulted in an average cash-to-cash cycle of minus five days, with the leading company Hindustan Unilever Limited having a cash conversion cycle of minus thirty-six days. Cash-to-cash cycle expresses a negative trend in the period considered, and it is in line with the efforts made by the companies to extend their share of direct distribution in the market. FMCG companies are reducing their reliance on indirect distribution channels to bypass wholesalers who are yet to adopt the GST norms or are reluctant to adopt non-cash methods of payment. By reaching the consumers directly, companies get close to the nanostores dynamics which are essential to foster growth and are able to collect data from customers which will produce the highest competitive advantage in the industry in the long term. The negative conversion cycle proves to be a sign of managerial efficiency in a business that operates almost strictly on a cash basis: the ROCE of the companies with negative CCC tends to be higher on average. The P/E ratio is on average higher on the companies with a negative cash-to-cash cycle, suggesting that investors are expecting a higher earnings growth in the future compared to companies with a positive CCC.

Finally, direct distribution enables manufacturers to collect data directly from the nanostore channel and gives them the possibility to offer credit to some of its most profitable clients. Under the hypothesis that the nanostore is profitable in the first place, providing credit to the nanostore channel is beneficial for both the manufacturer and the retailer, and could mitigate the financial stress suffered by nanostores when out of cash. Offering credit is advantageous for both parties since the nanostore will be able to replenish the desired quantities and make larger orders, its sales will increase, and this will translate into higher demand growth and improved logistics efficiency for the supplier.

The world's consumers live inside megacities, and this number is constantly rising: 70% of the world's population will leave in cities by 2050, and developing countries are projected

to experience the highest urbanization rates. Nanostores represent an average of 90% of the retailing activities that take place in such economies and according to a Procter & Gamble manager, the worldwide collective of nanostores is the FMCG second-largest customer just behind the 500 billion Walmart. In the long run, nanostores will have to embrace new technologies and payments methods to remain competitive. Nanostore owners are likely to adapt rapidly to these changes by leveraging the huge opportunities offered by a niche of emerging start-ups that seek to support the nanostores' evolution, and by increasingly cheaper technology. The next generation of nanostores will employ point-of-sale system that can capture real-time information, connecting customers and stakeholder, and enabling the creation of smarter and faster supply chains. This new generation of nanostores will probably change their business model, and by relying on platform-based businesses, leverage its economies of density rather than the economies of scale.

In the battle between the traditional and modern format, different business models may emerge as winner depending on how balanced or unbalanced will be the difference between wealthy and poor people in the country. Nevertheless, even if economics theory might suggest that forces for more efficient markets will push the traditional channel away, the social aspect of the nanostore environment cannot be ignored. Nanostores are not just a channel for products, but they also act as community hubs, where millions of consumers with low income can acquire basic goods while providing a source of employment for people with less marketable skills and people that need to work close to their homes.

Companies seeking to gain market share need to remain competitive in this channel because nanostores are not going to disappear and will continue to dominate the retail landscape of developing economies for the foreseeable future.

Abbreviations

CCC – Cash-to-cash Cycle

CPG – Consumer Packaging Goods

DIO – Days of Inventory Outstanding

DPO – Days of Payable Outstanding

DSO – Days of Sales Outstanding

FDI – Foreign Domestic Investments

FMCG – Fast Moving Consumer Goods

GDP – Gross Domestic Product

KPI – Key Performance Indictor

PPP – Purchasing Power Parity

SKU – Stock Keeping Units

SLA – Service Level Agreement

References

[1] J. C. Fransoo, E. E. Blanco and C. Mejìa-Argueta, Reaching 50 Milion Nanostores, Retail Distribution in Emetging Megacities, Independent Publishing Platform, 2017.

[2] A. Kalsie and A. Arora, "Impact of Workin Capital Management on Stock Prices of FMCG Companies in India," *CKPIM Business review*, vol. 3, no. 5, pp. 19-27, 2015.

[3] G. D'Andrea and B. Lopez-Aleman, "Why small retailers endure in Latin America," *International Journal of Retail & Distribution Management*, vol. 34, no. 9, 2006.

[4] Y. Boulaksil and A. C. C. van Wijk, "A cash-constrained stochastic inventory model with consumer loans and supplier credits: the case of nanostores in emerging markets," *International Journal of Production Research*, vol. 56, no. 15, 2018.

[5] Oxford Dictionary, Definition of megacity in English, Oxford Dictionaries, Retrieved 6 August 2018.

[6] DESA, "World Urbanization Prospects, the 2014 Revision," United Natios, Retrieved 6 August 2018, p. 16, 2014.

[7] United Nations, Depatament of Economic and Social Affairs, "World Population Prospect: The 2018 Revision," United Nations, New York, 2018.

[8] UN, Department of Public Information Press Release, United Nations - Department of Public Information, Retireved 6 August 2018, 2018.

[9] "Urbanization and the Megacity," [Online]. Available: www.worldpopulationhistory.org. [Accessed 8 August 2018].

[10] UNDP, "Human Development Report," United Nations, Retrieved 8 August 2018, 2008.

[11] "Gini of Wealth in India in 2017 is at 0.83 which Puts India Among Countries With High Inequality," 2018. [Online]. Available: www.counterview.org. [Accessed 8 August 2018].

[12] H. Kharas, "The Unprecedented Expansion of the Global Middle Class - an Update," Brookings institution, 2015.

[13] H. Kharas, "The Emerging Middle Class in Developing Countries," Brookings institution, 2011.

[14] W. Easterley, "The Middle Class Consensus and Economic Development," *Journal of Economic Growth,* pp. 317-35, 2001.

[15] S. Sriraman, A. Venkatesh, M. Karne and V. Mohite, "Competition Issues in the Road Goods Transport Indsutry in India with special reference to The Mumbai Metropolitan Region," Universisty of Mumbai, 2007.

[16] Z. Yusop and C. C. Keong, in *Foreign Direct Investment in the Malaysian Manufacturing Sector*, Universiti Putra, Malaysia, Serdang, APBEC Proceedings, 2002, pp. 356-364.

[17] R. Hariyard, Assortment strategies and customer evaluation of small stores in Beijing, Beijing: Tsinghua University, 2013.

[18] P. Manosalva, "Successful Strategies in Traditional Trade Around the Globe," Nielsen, 2016.

[19] J. A. Dawson and D. A. Kirby, Small-Scale Retailing in theUnited Kinkdom, Farnborough: Saxon House, 1979.

[20] A. P. Smith and L. Sparks, "The role and functions of independent small shops: the situation in Scotland," in *The Internation Review of Retail, Distribution & Consumer Research* , 2000, pp. 205-26.

[21] L. L. Sim, "Restructuring the small-scale retail sector in Singapore," *International Journal of Retail & Distribution Management ,* vol. 27, pp. 83-92, 1999.

[22] L. Bonne and J. Bonno, "Food buying habits of the urban poor," *Journal of Retailing,* vol. 47, pp. 79-85, 1971.

[23] Y. Boulaksil, "The operational performance of small retailers in developing countries: the case of Morocco," in *4th P&OM Word Conference*, 2012.

[24] The Economist, "Fighting for the next billion shoppers - The eternal battle between Procter & Gambòe and Unilever is intensifying in the developing world," 30 June 2012. [Online]. Available: https://www.economist.com/business/2012/06/30/fighting-for-the-next-billion-shoppers. [Accessed 13 September 2018].

[25] E. Byron, "P&G's global target: shelves of tiny stores," *Wall Street Journal,* 2007.

[26] G. Anderson, G. S. Day and V. K. Rangan, "Strategic Channel Design," in *MIT Sloan Management Review*, University of Pennsylvania, 1997, pp. 59-69.

[27] Definition of Ditributor, "whatis.techtarget.com," [Online]. Available: https://whatis.techtarget.com/definition/distributor. [Accessed 15 October 2018].

[28] E. E. Blanco and J. Garza, "Distribution Strategies in Emerging Markets: Case Studies in Latin America," in *4th P&OM World Conference*.

[29] M. Cantamessa and F. Montagna, "Chapter 10," in *Management of Innovation and Product Development, Integrating Business and Technological Perspectives*, Springer, 2016, p. 204.

[30] G. Stewart, "Supply chain performance benchmarking study reveals keys to supply chain excellence," *Logistics InformationManagement,* vol. 8, no. 2, pp. 38-45.

[31] "Cash Conversion Cycle - CCC," [Online]. Available: https://www.investopedia.com/terms/c/cashconversioncycle.asp. [Accessed 29 10 2018].

[32] M. Hill and J. Washam, "Cash Conversion Cycles Are Sharply Shrinking. Here's Why.," 1 9 2018. [Online]. Available: https://www.afponline.org/trends-topics/topics/articles/Details/cash-conversion-cycles-are-sharply-shrinking.-here-s-why/. [Accessed 6 11 2018].

[33] "finbox.io," [Online]. Available: https://finbox.io/AMZN/explorer/cash_conversion_cycle. [Accessed 31 10 2019].

[34] "finbox.io," [Online]. Available: https://finbox.io/AAPL/explorer/cash_conversion_cycle. [Accessed 31 10 2018].

[35] I. Census, "2011 Indian Census," India, 2011.

[36] IBEF, "FMCG industry in India," 11 2018. [Online]. Available: https://www.ibef.org/industry/fmcg.aspx. [Accessed 13 11 2018].

[37] International Monetary Fund, "Projected GDP Ranking (2018-2023)," April 2018. [Online]. Available: http://statisticstimes.com/economy/projected-world-gdp-ranking.php. [Accessed 13 September 2019].

[38] "FMCG companies go for direct distribution in a move away from wholesaler traders," 1 9 2017. [Online]. Available: https://www.thehindubusinessline.com/companies/fmcg-companies-go-for-direct-distribution-in-a-move-away-from-wholesaler-traders/article9838150.ece. [Accessed 16 11 2018].

[39] J. V. Martinez, "Small Firm Supply Chains in Latin America the Focus of New SCALE Study," 2016.

[40] Ho, William, T. Zheng, H. Yildiz and S. Talluri, "Supply Chain Risk Management: A Literature Review," *International Journal of Production Research 53,* pp. 5031-5069, 2015.

[41] S. J. M. Plasman, "Improving distribution of consumer packaged goods to nanostores in emerging," Eindhoven University of Technology, Eindhoven, 2013.