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THE INTEREST RATE PASS-THROUGH: AN EMPIRICAL STUDY OF SEVEN ASIAN ECONOMIES

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ABSTRACT

This paper examines the extent of interest rate pass-through in seven Asian economies including Indonesia, Korea, the Philippines, Singapore, Thailand, Hong Kong, and Taiwan. The data selected ranges from after the 1997 Asian financial crisis to right before the 2008 financial turmoil and examines the question of whether these Asian economies' banking systems have recovered and become stronger since the 1997 financial crisis. The Error Correction Model was adopted in the study, and the empirical results suggested that banks adjust the markets to their retail rates with some levels of delay and the extent of the adjustments in intermediate and long-term pass-through vary depending on the nature of financial instruments and the length of their maturities. In general, countries with more highly developed financial markets usually respond to market conditions more actively and fully, while countries with less developed financial markets tend to have a longer adjustment process. Lending rates are usually stickier than deposit rates in the countries studied.

JEL: E42, E44, E52

KEYWORDS: Interest Rate Pass-Through; Error Correction Model; Emerging Markets; Comparable Market Interest Rates

INTRODUCTION

Central banks influence money market rates by implementing policy instruments. The changes in money market rates, in turn, are translated into longer terms for market rates and retail rates of various maturities. In countries in which banking is the dominant source of financing, the consumption and investment decisions that are made by households and firms will be affected by the retail interest rates that are charged to them by banks. Before the 1980s, most financial sectors in developing Asian countries were repressed, taking on the usual forms of interest rate ceilings, credit restrictions, high bank reserve requirements, capital and exchange rate controls, and government-owned banks. The initiative for imposing restrictions on financial sectors was spurred by the desire to preserve financial stability. However, this repression came with severe costs to economies and led to less effective monetary policies and inefficient financial markets. As Caprio et al. (2001) have discussed, economic performance deteriorated progressively under financial repression, and such financial systems eventually led to bank insolvencies. In the wake of the enormous social costs that were brought on by financial repression, developing Asian countries in the 1980s began to relax their control over financial sectors. After the Uruguay Round, most developing Asian countries integrated their financial markets with those in industrialized nations (Chow and Gill, 2000).

With financial liberalization, interest rates were supposed to adjust to fulfill their roles as signals of prices for credit or loanable funds. Monetary authorities in these countries, however, still exercised implicit or explicit influence on bank interest rate-setting decisions. With lax supervision, banks engaged in risk-taking activities without devoting proper efforts toward risk management. The consequent crisis then became inevitable. The outbreak of the 1997 financial crisis in Asia severely impacted its

economic development. Subsequently, a wave of financial reforms swept across Asian countries, and Asian governments imposed various regulations to improve the efficiency of their banking systems. This paper aims to provide a comprehensive examination of the interest rate pass-through in Asia to analyze the efficiency of its banking systems. Specifically, we selected data from seven Asian economies—Indonesia, Korea, the Philippines, Singapore, Thailand, Hong Kong, and Taiwan—ranging from after the 1997 Asian financial crisis to immediately prior to the 2008 US financial tsunami. Because this study will focus on how banking systems in Asian countries recovered from the 1997 financial crisis, we chose data from the period ending right before the 2008 US financial turmoil to avoid disturbances from this crisis. We determine the extent of interest rate pass-through in each country with an error correction model. Our empirical results indicate that countries with more highly developed financial markets experienced greater immediate and long-term pass-through than those with less developed markets. The structure of this article is as follows: the next section briefly reviews the literature; Section 3 explains the data and methodology; Section 4 discusses the empirical results; and Section 5 presents our conclusions.

LITERATURE REVIEW

Interest rate pass-through is an important topic in evaluating the efficiency of a country's banking system. Delays exist when retail rates adjust to market rates. Moreover, various types of financial instruments and several lengths of instrument maturities exist, yielding many degrees of intermediate- and long-term pass-through (e.g., Cottarelli and Kourelis, 1994; Borio and Fritz, 1995; Hefferman, 1996; Hofmann and Mizen, 2004; de Bondt, 2005; Sørensen and Werner, 2006). Possible explanations for this lag adjustment phenomenon include imperfect competition in banking sectors, regulations on interest rate ceilings, costs that are associated with adjustments, bank exposure to interest rate risks, credit risks, default risks, and the long-term relationships between banks and their customers. (Kwapil and Scharler, 2006). Hefferman (1996) opined that imperfect market competition is responsible for the dynamics of retail interest rates. Winker (1999) applied the static Stiglitz-Weiss model and concluded that the disparate adjustment speeds of bank products could be rationalized by the effects of adverse selection. Hofmann and Mizen (2004) suggested that the speed of pass-through depends on the growth of the perceived gap between base and retail rates. Sørensen and Werner (2006) argued that the varying degrees of competition in the banking sector are responsible for limited bank interest rate pass-through.

Since the financial crisis of 2008, literature has switched the interest to compare the pass-through between pre financial crisis and after financial crisis periods, but mix results were reported. Hristo, Hülsewig, and Wollmershäuser (2014) adopted panel vector autoregressive (VAR) models in examining interest rate pass-through. This study focused on the three major shocks: macroeconomics, monetary policy and aggregate demand shocks, and compared the results of the data period from 2003 to 2007 with the data period from 2008 to 2011. The empirical results indicated that the pass-through was obstructed during the second period, indicating that monetary policies were distorted during the after financial crisis period. Borstel, Eickmeier, and Krippner (2016), employed the factor-augmented vector autoregression models evaluated the bank lending rates pass-through in 11 Euro members: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, the Netherlands and Portugal. The empirical results suggested that the interest rates pass-through didn't have significant change during the 2008 financial crisis period. Cifarelli and Paladino (2016) focused on eight Euro members and explored how country specific funding conditions affected the interest rates pass-through and the empirical results revealed that the long-run pass-through was more sensitive and was tend to directly affected by the changes of banks' funding costs than the short-run pass through. Most empirical studies on interest rate pass-through tend to focus on the Euro area, because the function of the bank in bank-based financial systems in this area renders bank interest rate pass-through particularly important to policy decisions by central banks.

Developing Asian countries, which are also characterized by bank-based financial systems in their financial sectors, have attracted little interest with regard to this study trend. Due to the rising importance of developing Asian countries in a global environment, whether bank retail rate pass-through behaviors in developing Asian countries follow the same patterns as those in developed Euro economies and whether developing Asian countries have recovered with stronger banking systems after the 1997 financial crisis merit examination. The consensus is that the Asian financial crisis in 1997 was caused by a combination of poor government policies, weak banking systems, and massive shock (Turner, 2007; Noy, 2005; Chow and Gill, 2000). The enormous social costs that were paid by developing Asian countries during the 1997 financial crisis forced the banking sectors in them to reform, the first step of which was privatization of government-owned banks. Before the crisis, government-owned banks covered a remarkable share of the total banking sector in these countries, acting as the governments' invisible hands in delivering control over financial markets. Consequently, the efficiency of the banking sector suffered, despite retail interest rates being liberalized. Privatization of government-owned banks after the crisis increased competitiveness in the banking industry, which, combined with the low level of government intervention, renders this study of interest rate pass-through in these countries significant.

DATA AND METHODOLOGY

This study examined seven Asian economies: Indonesia, Korea, the Philippines, Singapore, Thailand, Hong Kong, and Taiwan. We used monthly data from two sources: the IMF's International Financial Statistics and the central banks of the respective economies. The data that we selected comprised market interest rates and retail bank savings and lending rates with varying lengths. The sample ran from January 1999 to May 2007. Because all interest rate data were monthly, the number of observations of each type of data series was 101. We adopted the correlation analysis that was proposed by de Bondt (2005) to examine comparable market interest rates for regressions. The correlation analysis aimed to determine whether the market interest rates were related to the cost of funds for banks' retail products. This analysis is especially helpful in capturing the appropriate marginal costs of banks' retail rates when the money markets of these countries were still developing.

Theoretical Backgrounds

Rousseas (1985) proposed the marginal cost pricing model by suggesting the following relationship between banks' retail rates and market interest rates:

$$b_r = \gamma_0 + \gamma_1 mr \quad (1)$$

In equation (1), b_r stands for the retail interest rates assigned by banks. The γ_0 represents a constant markup. The mr acts as the marginal costs resembled by a comparable market interest rate. The comparable market interest rate mr reflects actual costs of funding faced by the banks, and the markup γ_0 compensates banks for their operation risks, credit risk, and interest rate risk. According to de Bondt (2005), the magnitude of γ_1 relies on the demand elasticity of loans and deposits which will be affected by the bank interest rate. In well-developed financial markets where alternative interest rate products are easily to be found and accessed, the demand elasticity of loans and deposits is expected to be more elastic than that in the underdeveloped financial markets where the choice and availability of interest rate products are limited.

Unit Root and Cointegration Tests

Theoretically, most macroeconomic time series are usually non-stationary. The problem with using the non-stationary data in running the standard OLS regression procedures is that this process may lead to

incorrect conclusions (Granger and Newbold, 1974). To cope with this difficulty, we first analyze the unit root properties of variables under investigation. The augmented Dickey-Fuller (ADF) test was employed to test the unit root properties. The ADF test is based on the following regression:

$$y_t = \alpha + \rho y_{t-1} + \sum_{i=1}^p \beta_i \Delta y_{t-i} + u_t \quad (2)$$

The null hypothesis is $\rho = 1$. If the null hypothesis is rejected, it is concluded that the series is stationary. If the null hypothesis is not rejected, the hypothesis of more than a unit root then proceeds using the same procedure.

Empirical Specifications

The standard approach in estimating the speed and degree of bank retail rate adjustment is to employ the error correction model (ECM) with one exogenous variable, the comparable market interest rate. If a true long run relationship exists between the one exogenous variable and the comparable market interest rate, the ECM can be utilized to detect the correction from the disequilibrium of the previous period. To start applying the methodology, Pesaran and Shin (1999) suggested using the autoregressive distributed lag (ARDL) model to serve as the starting point. Thus, the model is defined as follows.

$$r_t = c + \sum_{k=1}^m \alpha_k \gamma_{t-k} + \sum_{q=0}^n \beta_q m_{t-q} + \varepsilon_t \quad (3)$$

$$\varepsilon_t \sim IID(0, \sigma_\varepsilon^2)$$

where c is a constant term. Equation (3) says bank retail rate r at time t depends on its lag values, current market interest rate m_t , and lagged market interest rate. One important assumption of equation (3) is that a stationary long-term relationship exists between r_t and m_t . Given most interest rates are non-stationary processes, this assumption requires r_t and m_t to be cointegrated. According to Weth (2002), the stability of the long run relationship requires the following three conditions: $\sum_{q=0}^n \beta_q$ to be positive, $\sum_{k=1}^m \alpha_k$ to be smaller than one, and the error term ε_t should be independent across time and not be serially correlated. Following the arithmetic derivations by Nehls (2006), equation (3) can be written as

$$\Delta r_t = c + \sum_{k=1}^{m-1} \rho_k \Delta \gamma_{t-k} + \sum_{q=1}^{n-1} \omega_q \Delta m_{t-q} + \omega_0 \Delta m_t + (\gamma + \delta) \left[\gamma_{t-1} - \frac{\gamma}{\delta + \gamma} m_{t-1} \right] + \varepsilon_t \quad (4)$$

with

$$\rho_k = - \sum_{i=k+1}^m \alpha_i$$

$$\omega_0 = \beta_0, \omega_q = - \sum_{i=q+1}^n \beta_i$$

reduced to

$$\Delta r_t = c + \sum_{k=1}^{m-1} \rho_k \Delta \gamma_{t-k} + \sum_{q=1}^{n-1} \omega_q \Delta m_{t-q} + \omega_0 \Delta m_t + \gamma [\gamma_{t-1} - m_{t-1}] + \varepsilon_t \quad (5)$$

$$\gamma = - \sum_{q=0}^n \beta_q$$

and

$$\delta = -\left(1 - \sum_{k=1}^m \alpha_k\right) + \sum_{q=0}^n \beta_q$$

$\frac{\gamma}{\gamma+\delta}$ is the measure of how an exogenous shock, in this case the change of market rate, is transmitted to the endogenous variable after all the adjustments are completed, or the long run pass-through of market interest rate to the retail interest rate. The magnitude and sign of δ determines the difference between r_t and m_t . If δ is insignificant, $\frac{\gamma}{\gamma+\delta} \approx 1$. That is, there is a one-to-one long run relationship between r_t and m_t . $(\delta + \gamma)$ is the adjustment coefficient. $(\delta + \gamma)$ tells how much of the adjustment to equilibrium takes place in each period. If $(\delta + \gamma) = 1$, the adjustment is instantaneous and full. If $(\delta + \gamma) = 0.5$, half of the adjustment takes place each period.

RESULTS

The ADF test results are summarized in Tables (1), (2), and (3). Table (1) reports the ADF test results of the market interest rate series with both level values and their first difference in the data series. The higher P-values for Hong Kong, Singapore, Thailand, Korea, the Philippines, and Taiwan suggest that we failed to reject the null hypothesis that $\rho = 1$, indicating that the level value of the market interest rate series I(0) in these economies were not stationary and that more than one unit root exists. Therefore, addition tests on the first difference series I(1) of market interest rates were conducted. The P-values of the first difference I(1) in the market rate series for the six sample economies were close to 0, demonstrating that the data series were stationary at the first difference level. Unlike the market interest rate time series in the six economies above, that in Indonesia was stationary at level value I(0), obviating the need to test its first difference.

Table 1: ADF Test of Market Interest Rates

	Hong Kong		Indonesia		Philippines	
	t-Statistics	P-Value	t-Statistics	P-Value	t-Statistics	P-Value
Market rate level	-1.438	0.5605	-4.8579	0.0010***	-2.4592	0.1288
First difference	-6.304	0.0000***	n/a	n/a	-9.0510	0.0000***
	Singapore		Korea		Taiwan	
	t-Statistics	P-Value	t-Statistics	P-Value	t-Statistics	P-Value
Market rate level	-0.593	0.86662	-1.3948	0.5819	-1.5851	0.4864
First difference	-9.018	0.0000***	-7.2634	0.0000***	-5.1053	0.0000***
	Thailand					
	t-Statistics	P-Value				
Market rate level	-0.6139	0.8617				
First difference	-8.604	0.0000***				

*ADF Test of market rates in the seven sample economies including Hong Kong, Indonesia, The Philippines, Singapore, Korea, Taiwan and Thailand. The empirical results indicate that except Indonesia, the other six countries all existed first difference I(1) at 99% statistical significance level. * 90% statistical significance, **95% statistical significance, ***99% statistical significance.*

Table (2) reports the ADF test results of retail bank rates with the data’s level values. Like the market interest rate series, the lending and depositing retail bank rate series in Indonesia were stationary at level value I(0). The various types of retail bank rate series, including savings deposits; lending; and 1-month, 3-month, 6-month, and 12-month deposits, in Hong Kong, Singapore, and Taiwan were not stationary at level value I(0). In Korea, the series of loans to small corporations, loans to large corporations, and lending retail bank rates were stationary, whereas the saving deposit rate series was not. Thailand’s lending rate series was stationary at level value I(0), but the deposit rate series was not. In Philippine, only the lending rate series was stationary at the level value; all other series, including savings deposit, short-term deposit, and long deposit, were not stationary.

Table 2: ADF Test of Retail Bank Rates (Level)

	Indonesia		Korea		Thailand	
	T-Statistics	P-Value	T-Statistics	P-Value	T-Statistics	P-Value
Saving deposit	n/a	n/a	-2.143	0.2285	n/a	n/a
Loan to small corp	n/a	n/a	-3.395	0.0134**	n/a	n/a
Loan to large corp	n/a	n/a	-3.395	0.0134**	n/a	n/a
Lending	-3.814	0.0039***	-5.065	0.0000***	-5.115	0.0000***
Deposit	-4.447	0.0005***	n/a	n/a	-1.759	0.3986
	Hong Kong		Singapore		Taiwan	
	t-Statistics	P-Value	t-Statistics	P-Value	t-Statistics	P-Value
Saving deposit	-1.585	0.4867	-1.388	0.5850	n/a	n/a
Lending	-1.517	0.5210	-1.579	0.4893	-0.984	0.7567
Deposit 1M	-1.681	0.4378	n/a	n/a	-1.501	0.5290
Deposit 3M	-2.090	0.2492	-1.183	0.6793	n/a	n/a
Deposit 6M	-1.354	0.6016	-1.113	0.7082	n/a	n/a
Deposit 12M	-1.600	0.4786	-1.172	0.6838	-1.414	0.5723
	Philippines					
	t-Statistics	P-Value				
Saving deposit	-1.828	0.3652				
Lending	-2.592	0.0979*				
Short Term Deposit	-2.373	0.1520				
Long Term Deposit	-2.068	0.2579				

ADF Test of retail bank rates in the seven sample economies with their level values. Due to the differences of the data from the seven sample countries, different types retail bank rates were tested. Among them, Korea classified the lending rates into loan to small cap corporations and large cap corporations. Hong Kong, Singapore, Taiwan and the Philippines offered deposit rates with different length of maturities. 90% statistical significance, **95% statistical significance, ***99% statistical significance

Table (3) reports the ADF test results for the retail bank rates with the data series' first difference values. In this test, we only examined the data series that filled the null hypothesis at level value, as reported in Table (2). For the series that were stationary at the level value, such as Indonesia, and most retail bank rates in Korea and Thailand, tests on their series' first difference were not necessary. According to the P-values in Table 3, all retail bank rate series that were examined at their first difference I(1) were stationary at 99% statistical significance.

Table 3: ADF Test of Retail Bank Rates (First Difference)

	Indonesia		Korea		Thailand	
	t-Statistics	P-Value	t-Statistics	P-Value	t-Statistics	P-Value
Saving deposit	n/a	n/a	-5.829	0.0000***	n/a	n/a
Loan to small corp	n/a	n/a	n/a	n/a	n/a	n/a
Loan to large corp	n/a	n/a	n/a	n/a	n/a	n/a
Lending	n/a	n/a	n/a	n/a	n/a	n/a
Deposit	n/a	n/a	n/a	n/a	-3.995	0.0022***
	Hong Kong		Singapore		Taiwan	
	t-Statistics	P-Value	t-Statistics	P-Value	t-Statistics	P-Value
Saving deposit	-4.051	0.0018***	-6.840	0.0000***	n/a	n/a
Lending	-4.081	0.0016***	-6.498	0.0000***	-9.727	0.0000***
Deposit 1M	-5.567	0.0000***	n/a	n/a	-3.559	0.0048***
Deposit 3M	-4.841	0.0001***	-6.291	0.0000***	n/a	n/a
Deposit 6M	-3.324	0.0164***	-6.908	0.0000***	n/a	n/a
Deposit 12M	-3.055	0.0334***	-6.920	0.0000***	-3.615	0.0071***
	Philippines					
	t-Statistics	P-Value				
Saving deposit	-8.906	0.0000***				
Lending	-16.410	0.0001***				
Short Term Deposit	-8.654	0.0000***				
Long Term Deposit	-13.516	0.0001***				

ADF Test of retail bank rates in the seven sample economies with their first difference values. The empirical results suggest most rates are I (1) at 99% statistical significance. 90% statistical significance, **95% statistical significance, ***99% statistical significance

After the ADF tests, cointegration tests were performed to detect the linear relationship between market interest rates and retail interest rates; the test results are reported in Table (4). The cointegration tests focused on the data series that were not stationary at level values but were stationary at their first difference I(1). Therefore, only the data series in Table 3 were selected. The lower P-values of the test results suggest that most market interest rates and bank retail rates were cointegrated, which is common in actual practice.

Table 4: Cointegration Test

	Philippines t-Statistics	P-Value	South Korea t-Statistics	P-Value	Thailand t-Statistics	P-Value
Saving deposit	-12.051	0.0001***	-7.023	0.0000***	n/a	n/a
Lending	-10.250	0.0000***	n/a	n/a	n/a	n/a
Short Term Deposit	-8.143	0.0000***	n/a	n/a	-4.632	0.0002***
Long Term Deposit	-8.951	0.0000***	n/a	n/a	n/a	n/a
	Hong Kong t-Statistics	P-Value	Singapore t-Statistics	P-Value	Taiwan t-Statistics	P-Value
Saving deposit	-5.988	0.0000***	-8.340	0.0000***	n/a	n/a
Lending	-5.953	0.0000***	-7.185	0.0000***	n/a	n/a
Deposit 1M	-7.456	0.0000***	n/a	n/a	-4.553	0.0003***
Deposit 3M	-6.552	0.0000***	-7.483	0.0000***	n/a	n/a
Deposit 6M	-6.721	0.0000***	-7.991	0.0000***	n/a	n/a
Deposit 12M	-6.795	0.0000***	-8.079	0.0000***	-3.274	0.0188**

The results of cointegration test are reported. Since Indonesia was I(0), the cointegration test was not performed. The results of the other six economies indicated their market interest rates and bank retail rates were cointegrated.

The empirical results are reported in Table (5), revealing that the intermediate effects varied between the seven countries, with values ranging from 0.03 to 0.63. Regarding the long-term effects, these values ranged from 0.02 to 1.006 in these countries. In general, lending rates in these countries were stickier than deposit rates. Deposit rates with longer times to maturity tended to adjust more than those with shorter times to maturity when market rates changed. Retail saving deposit rates, however, had low immediate pass-through compared with other types of deposit rates. Countries with more highly developed financial markets had higher immediate- and long-term pass-through than those with less developed markets. For Korea, Hong Kong, Singapore, and Taiwan, the average retail rate on long-run pass-through was approximately 0.75, versus 0.56 for the Philippines, Thailand, and Indonesia. Thus, the development of financial markets and the activity of financial services have positive effects on bank retail rate adjustments. Compared with previous studies, such as Cottarelli and Kourelis (1994) and de Bondt (2005), the pass-through behaviors in developing Asian countries differ from those in the Euro area. Developing Asian countries tend to have higher intermediate multipliers and incomplete long-run pass-through. In the Euro area, however, the long-run pass-through is perfect, although the intermediate multipliers are low. Notably, the lending rates in Thailand and Korea are I(0) processes despite both market rates, and their deposit rates are I(1). Given the constant change in the corresponding marginal costs of lending rates, one should observe that lending rates change with similar patterns as their costs of funding. The empirical results, however, show the opposite trend. Lending rates remain at similar levels, regardless of what the associated costs might be. Lending rates, therefore, fail to fulfill their role as a signal of real prices for loanable funds. Explanations for this phenomenon include the existence of the intervention of lending rate setting by monetary authorities, the immaturity of banking systems, and the existence of non-bank financial activities.

Table 5: Interest Rate Pass-Through

	Immediate Pass-Through	Long Term Pass-Through	Adjustment Coefficient
Hong Kong			
Saving deposit	0.1551	0.7458	-0.0823
Lending	0.1464	0.7307	-0.0875
Deposit 1M	0.4559	0.8524	-0.1097
Deposit 3M	0.4380	0.8560	-0.0676
Deposit 6M	0.3800	0.8360	-0.0555
Deposit 12M	0.3484	0.7549	-0.0496
Indonesia			
Deposit	0.0598	0.4843	n/a
Lending	0.0333	0.3991	n/a
Philippines			
Saving deposit	0.4558	0.8943	-0.2629
Lending	0.2459	0.5732	-0.4036
Short Term Deposit	0.6326	0.9815	-0.4559
Long Term Deposit	0.3211	0.6206	-0.2742
Singapore			
Saving deposit	0.0524	0.4677	-0.0115
Lending	0.0453	0.0679	-0.0233
Deposit 3M	0.0820	0.7155	-0.0092
Deposit 6M	0.0949	1.0065	-0.0088
Deposit 12M	0.1077	0.8926	-0.0100
South Korea			
Time Deposit	0.3907	0.9967	-0.2338
Taiwan			
Deposit 1M	0.4187	0.8338	-0.1901
Deposit 12M	0.4947	0.8126	-0.0780
Thailand			
Deposit	0.1914	0.0285	-0.0283

The results of interest rate pass-through in the intermediate and long term terms were reported and indicated that the pass-through adjustment speeds were vary among the seven economies

CONCLUDING COMMENTS

This study applied the ECM model to examine the interest pass-through in seven Asian economies. The data that we selected were market interest rates and retail bank savings and lending rates with varying lengths. Because this study focused on how banking systems in Asian economies recovered from the 1997 financial crisis, the sample period comprised January 1999 to May 2007 to avoid disturbances from the 2008 financial turmoil in the US. Nevertheless, how the 2008 financial crisis affected Asian economies will be discussed in a separate study. The primary results indicated that delays exist when banks adjust market rates to bank retail rates. Also, that varying financial instruments and maturities resulted in disparate degrees of intermediate- and long-term pass-through. Countries with more highly developed financial markets usually responded to market conditions more actively and fully, whereas those with less developed markets tended to take longer to adjust. Lending rates are usually stickier than deposit rates in the countries studied. Deposit rates with longer time to maturities are more elastic to market rate changes compared to deposit rates with shorter times to maturity. Logically, the next step is to extend this analysis to a bank-level investigation of bank risk management and its role in deposit and loan pricing. A greater understanding of bank risk management in banking sectors would improve the identification of factors that explain the heterogeneity in interest rate pass-through behaviors between these economies.

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EFFECT OF PACKAGING DESIGN IN THE PURCHASE DECISION PROCESS: A COMPARISON OF GENERATIONS

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ABSTRACT

The tangible aspects of a determined product can be essential to communicating the positioning of the brand, since these aspects are projected as recognized elements of the product. Therefore, the aim of this research is to assess the relationship between the process of consumer purchases at the moment of acquiring personal care products and the tangible aspects of packaging according to their generational cohort. These tangible aspects of packaging are the visual aspects that a product contains, identified as graphic elements and informational elements. The study looks at consumer decision-making of participants from three generational cohorts: Baby Boomers, Generation X, and Generation Y. The research provides evidence about existing relationships between graphic elements and the generational cohorts, as well as statistical differences between these cohorts in terms of informational elements. The article exposes theoretical and empirical evidence, with the objective to support companies' managers to explore and combine elements to achieve and project positioning and equity at the moment of choosing or transforming their package designs according to their target market.

JEL: M3

KEY WORDS: Purchase Decision Process, Package, Tangible Aspects, Graphic Elements, Informational Elements, And Generational Cohort

INTRODUCTION

The twenty-first century has given rise to increasing levels of competitiveness between organizations, where enterprises face the challenge of developing strategies that allow them to surpass their greatest competitors. Throughout history, organizations have understood that their most valuable resource is their brand, which is associated with their identity (Underwood & Klein, 2002). Due to the importance of the brand, the physical image that the brand projects may be a critical factor in the communication of a certain product. Related to the physical image of a determined product, the role of packaging is also important, in that it is often the first impression the consumers have of the company. According to Rettie and Bruwer (2000) 70% of purchase decisions are made while viewing the products. For this reason, product packaging has been identified as the main method of communication and has evolved over time (Orth & Malkewitz, 2008).

Nevertheless, designing aesthetic packaging is not the key to improving positioning in comparison to competitors (Celhay & Trinqucoste, 2015). Thus, it is essential to identify one of the main gaps. The literature in this area focuses on the importance of the total look of the package design. However, the literature has not paid special attention to specific criteria such as graphic and informational elements according to particular consumers. In order to strengthen the literature, this research focuses on consumer behavior segmented by generational cohorts.

Organizations work innovatively to design or customize products according to their target market's wants and needs. When an organization needs to change the image of its product, a disparity can arise, causing doubts about which segments of the target market, will be affected significantly in their decision-making process by the image of the product, and which elements of the product will compel them to make their decision. This problem must be solved in order to attract the selected target market. According to Bland, Laragy, Giles, and Scott (2006) demographic elements tend to differ significantly by consumers' needs, tastes, and preferences. As a result, it is becoming more common to study consumer behavior through segmentation. The generational cohorts of Baby Boomers, Generation X, and Generation Y form the major consumer groups in the United States. Each generational cohort has its own expectations that influence buying behavior before selecting a specific product (Himmel 2008; Williams & Page, 2011).

According to Kotler & Keller (2006), organizations are responsible for product design in order to communicate its benefits, achieve differentiation, and attract the consumer to identify with the need or desire to achieve satisfaction. As a consequence, consumers can be considered spectators and judges of the task done by an organization. Increasing competition, technological advances, and changes in the consumer's lifestyle are only some aspects that have added a level of complexity to organizations. Organizations focus on questions concerning the development of products that can be recognized and accepted in the market through successful tangible images that demonstrate the safety and value of the product purchased.

It could be valuable to conduct research that presents the opportunity to combine theoretical and managerial aspects. With the objective of evaluating the ability to know the effect of the personal care product's image in the buying process of various consumers according to their generation by evaluating two image aspects that have been found to be significant in the decision-making process of purchasing: graphic elements (colors, format of the fonts, and packaging form) and informational elements (ingredients, amount in ounces or other measure established, indications, usage instructions, benefits, identifications of the best products in the market, among other indicators) (Bloch 1995; Silayoi & Speece, 2004). Personal care products form one of the largest industries worldwide because they are necessity goods. According to the Personal Care Council (2016) the industry has worldwide annual revenue of about \$260 billion. In the United States, the industry includes approximately 850 organizations with combined annual revenue of \$42 billion.

The aim of the research is to determine whether there is a statistical difference between the tangible aspects (graphic elements versus informational elements) of personal care products (dependent variable) and the buying decision-making process of various generations of consumers (independent variable). Specifically this investigation can improve the connection between organizations and customers. The results of this research can present two types of contributions: theoretical and managerial. From a theoretical point of view, the research will study the level of impact on consumer decisions related to the process of purchasing behavior, using a demographic segmentation of Baby Boomers, Generation X, and Generation Y. In this way, it is hoped that this study will be able to add to the growing evidence that market segmentation is an essential strategy to attract customers according to their behavior and responses. From a managerial point of view the research will provide positive information and results to those businesses that want to better understand consumer behavior in order to select the best attributes in their package design in order to achieve acceptability of their product. The physical attributes of a product can play an essential role in building brand equity, but at the same time can be a disaster if the image is not appropriate for the selected market (Keller, 2007; Mohebbi, 2014). The investigation may shed light on the topic for marketing professionals by increasing understanding of whether customers' responses are based on product image and to what degree. Results can support organizations in understanding consumer behavior and exploring and combining suitable strategies to attract and keep customers.

The article is presented in an approach that seeks to identify whether a statistical difference exists in the relationship between the purchase decision process made by consumers according to their generational cohort and the tangible aspects of packaging of personal care products. At the same time, the study presents a theoretical framework, methodology, results and analysis focused on an established hypothesis.

LITERATURE REVIEW

It is essential to delineate the evolution of visual appearance through the time and their implication in the marketing arena. According to Bloch (1995) the product must be considered one of the “four P’s” of the marketing mixture, considering that the “four P’s” are: product, price, place and promotion. The product is an object whose sole medium of identification is through visual representation and appearance. Throughout history, it has been discovered that individuals find pleasure and, at the same time, profound admiration when using the sense of sight (Csikszentmihalyi & Robinson, 1990). Through the sense of sight, the eyes are the axis of the most renowned images in history.

According to Bloch (1995), individuals of all identified cultures find delight through using their sense of sight. As such, humans find visual beauty in diverse objects. However, since 1930, there has been an increase in the awareness of the importance of product design (Bovee, Thill & Mescon, 2007). Before that time, packages were primarily recognized as a means of protecting the product. Since 1930, however, package design has been used as a creative method to obtain a competitive advantage in a global market (Bruce & Whitehead, 1988; Orth & Malkewitz, 2008). Due to this, there seems to be a significant increase in the role of product design as being a vehicle of communication for the brand’s managers (Underwood & Klein, 2002). It appears that consumers show interest in products that represent pleasing aesthetics, thereby making the buying process of interest (Batra & Homer, 2004; Underwood, 2003).

Package Design in the 21st Century. From the beginning of the 21st century, the tangible aspects of products have evolved, as have the lifestyles of consumers.

In order to launch a product to market, the product must possess all the elements that determine its identity as a means of breaking homogeneous parameters. For this reason, each product must possess unique characteristics to be able to compete in the desired market. Incredibly, the main role of the design of a specific product would be to be used as a means of communication and promotion of the brand (Rettie & Bruwer, 2000). According to various authors, (González, Thorhsbury & Twede, 2007; Silayoi & Speece, 2004; Underwood & Klein, 2002) in order to achieve a higher position, it is important to focus part of the market on the identity of the brand. It is through this mechanism that differentiation is achieved and brand equity is acquired. The key elements to developing brand identity are based on the tangible aspects of the product that enable recognition at first impression. When it comes to marketing, however, there is no differentiation in terms of the tendency of people to admire and evaluate products based on their visual attributes. According to Bloch’s model (1995), the visual attributes of a product may be a key element to its success in the market.

Strategic Role of Package Design. Researchers have found that packaging is the central mechanism to promote a design that is the principal axis of communication (Holmes & Paswan, 2012). However, one of the greatest objectives when designing a package to create a new product is to create a unique personality that would be recognized and to make the product preferred in the target market.

Normally a department store or supermarket offers thousands of products in order to be selected by the client. However, many researchers have stated that the selection process of a product, in many cases, occurs at the moment of buying the product (Bloch, 1995). Rettie and Bruwer (2000), however, confirmed that the consumer selects a product at the moment of purchasing it. They state that decisions about acquiring a specific product occur at the moment of purchasing the product, particularly in regards

to health care products. For this reason, it would be challenging to imagine going to a store and finding products with no identification created from one particular mold. Thus, a product can be successful or not based on its image, this being the first impression the consumer has. In Bloch's (1995) Model, the design or the package of the product determines that the selection of the product is based on a psychological response divided into cognitive responses and affective responses. The cognitive response is based on the visual perception that processes the differentiation of elements, while the affective response evaluates the diverse alternatives that a product may present to satisfy certain needs or desires.

In order to strengthen Bloch's model, Silayoi and Speece (2004) divided the image of the product as contained by the package into two categories, both tangible: visual elements and information elements. Among the visual elements, one can find elements such as: colors, graphics, and the shape of the package, material, and the font used. Among the information elements are: general information about the product, production site, the ingredients of the product, quantity of the product, special indications, and the brand of the product. Silayoi and Speece (2007) stated that the visual aspects transmit information, having an effect on the consumer's emotions. The information elements impact cognitive orientation, that is, the aptitude of knowing or understanding.

Package design for special markets. The study of the buying behavior of the consumer and the knowledge of his/her needs, tastes, and wishes is a starting point in order to be able to implement with validity marketing strategies. According to Kotler and Armstrong (2012, 2014) the buying behavior of the consumer pertains to the specific way in which consumers buy on a more personal level. Currently, the market in the United States includes more than 300 million individuals (The United States Census Bureau population Data for Puerto Rico, 2011). However, consumers vary by age, income, education level, and social status, among other characteristics.

A determinant amount of research has been conducted to show how the design of a product affects the consumer according to his/her individual characteristics (Myers & Lubliner, 1998; Underwood & Ozanne, 2010). However, among the contributions of Butkeviciene, Stravinskiene, and Rutelione (2008) they suggest that this determinant, emphasizing that the individual characteristics of a specific consumer or segment, may affect the selection process of a product. Kotler and Keller (2006) point out that the same product in different presentation formats may address diverse segments, for example: different genders, different social status, and different places, among other factors.

Krishnakumar (1974) conducted the first study of product image in which he analyzed the influence of country of origin on the product images of people from selected countries. This study focused on presenting products with distinctive images of manufactured products in underdeveloped countries and products manufactured in the United States of America. The results showed that, in underdeveloped countries, products manufactured in their own countries did not catch the eye of the consumers, as much as those products manufactured in the United States.

Garber, Burke, and Morgan- Jones (2000), conducted a study in which customers aged 18-65 contributed to the research. First, the consumers responded to general questions about their shopping habits. Later, they made a selection from four product categories. The participants/consumers were requested to select one product from each category. Through the study, it was determined that most participants took around 82 seconds to make their selections. At the same time, the results support that new packages whose colors are very different from the old package will attract customers. Both studies, however, supported that the consumers take more time in the selection process when they observe changes in the design.

Underwood and Klein (2002) studied the impact that food packaging imagery may have. This study attempted to evaluate whether a new brand in the market can achieve a high position by comparing it to a more attractive package of the same product. The study consisted of a sample of university students. The

experimental design created three groups. The subjects from one group were presented with two new products in which the packages presented the consumer with an attractive image and the other presented a less attractive image with opaque colors. The subjects of the second group had two packages of famous brands with the same conditions as the first group. The third group had three packages of famous and not so famous brands and some of the products did not have attractive images and one had no image at all. The study determined that the subjects in all three groups made their shopping decision in a visual manner. As a consequence, the products with attractive images obtained the same acceptance that famous brands have had in the market for years.

Contrary to the study of Krishnakumar (1974) where he conducted a comparison of consumers according to their culture, the study focused only in subjects from a large, unidentified university in the United States. Underwood & Ozonne (1998) conducted an exploratory research about the communication between package and consumer perception. In the research they found a recurring theme of duplicity in customers' interpretation.

Limon, Khale, and Ulrich (2009) researched how packaging may be a communication barrier at the moment of selecting a product and how culture can affect the decision-making process. The subjects of the study were adolescents from Germany and Turkey. The subjects completed a questionnaire in which the products evaluated were chocolate and salt. The results indicated that, besides the packaging representing a key factor at the moment of purchasing the product, there might be variations according to the consumer culture and by the shopping behavior of each particular consumer. Holmes & Paswan (2012) researched the consumer reaction in relation to new packages; the results establish that consumers look for easy-to-use products and high quality.

The literature review suggests that the design of a package has a strategic role at the moment of the purchase decision, deriving from the interface between customers and the tangible elements. The literature and existing models emphasize the importance of consumer behavior in relation to the tangible aspects of the product. On the other hand, the essence of segmentation intensifies at the moment to present a product. But, no author or company studies the effect that the tangible aspect of a product can have on a purchasing decision from the perception of various segments.

DATA AND METHODOLOGY

This research was a quantitative study. The proposed quantitative investigation was designed with the intention to study the statistical differences between the independent and dependent variables. The dependent variables selected for this study included: the final scores of the tangible aspects of the personal care product packaging, including graphic elements score and informational elements score. The dependent variables were the responses that were observed in the study and that could have been influenced by the values of the independent variables (Roberts, 2010). While the independent variables were those that were defined by the researcher to be able to establish study groups and classify the results, the independent variables were the generational cohorts: Baby Boomers (born 1946-1964), Generation X (born 1965-1980), and Generation Y (born 1981-2000) (Kotler & Armstrong, 2012; Levy, 2011).

Population sample and analysis. This research study was limited to the western area of Puerto Rico, specifically, the region of Mayagüez and residents who were born between 1946- 2000. According to the Census Office in Puerto Rico (2010) the area of Mayagüez have 21,449 individuals in the category of Baby Boomers; 14,144 individuals pertaining to Generation X; and 23, 145 individuals pertaining to Generation Y, for a total population of 58,738 individuals in the three identified generational cohorts.

The total sample of 437 individuals was established after the pilot test, including the following stratified categories: 162 Baby Boomers, 105 individuals from Generation X, and 170 individuals from Generation

Y. According to Jiang (2010) stratified categories consisted of a previous division of the population or classes that are assumed to be homogenous in terms of one determined characteristic. After concluding a pilot test with a random sample that would not be part of the final study, an interval confidence of 4.67 was calculated. The interval was obtained using the higher average of all the items and calculating the standard error of the sample average (Aaker, Kumar, & Day, 2001; Churchill & Iacobucci, 2010; Hans, Frances, & Paap, 2001). Subsequently, the researcher adds the higher and the lower standard error multiplying with NORMSINV (0.95) and resulting with a 95% level of confidence and a confidence interval of 4.67.

The sample and collected data of 437 anonymous voluntaries was gathered in one location, which is the public plaza in Mayagüez. The sample period recollection was around one month December to January. Due to the accessibility that this would allow for the researcher to obtain a significant representation of the three generational cohorts defined in the study. In Puerto Rico, public plazas are places without any type of jurisdiction. For this reason, a public place does not belong to any specific entity, where each citizen has the freedom of public expression. Each week, the public plaza can have hundreds of citizens belonging to different generations gathering in it.

In quantitative studies, the goal is to obtain specific data that allows the researcher to measure the variables that have previously been established in the hypotheses outlined in the results and analysis section. With this in mind, the measurement instrument selected for this study was a questionnaire. The questions employed were in a Likert scale was used to measure the established values where 5 means “completely agree,” 4 means “agree,” 3 means “neither agree nor disagree,” 2 means “disagree,” and 1 means “completely disagree. The instrument was developed by the researcher with the goal of obtaining an answer to the following research question: Is there a statistical difference in relationship between the purchase decision process according to generational cohort (independent variable) and the tangible aspects of personal care products of graphic elements versus informational elements (dependent variables).

In order to present a research instrument that is reliable, the questionnaire went through different stages of testing apart to the pilot test with the goal of obtaining reliability and validity. A panel of ten experts related to the area of research was selected. The experts who were part of the process included individuals with doctorates in the following arenas: management, marketing, organizational psychology, and statistics. The mentioned areas were selected with the goal of guaranteeing reliability, relevance and validity between the goals of the research study and the measurement instrument.

RESULTS AND DISCUSSION

The researcher used statistical analysis to assess the process of consumer purchase decision-making based on tangible aspects of personal care product packaging (graphic elements versus informational elements) as dependent variables, in relationship to the generational cohorts of the individual participants (Baby Boomers, Generation X and Generation Y) as independent variables. The scores that the respondents reported in the two types of tangible aspects (graphic elements versus informational elements) were utilized in a Multivariate Analysis of Variance (MANOVA) statistical analysis where the researcher was able to test the hypotheses of the research study. The analysis of MANOVA is a statistical method that produces a linear arrangement of the dependent variables and then test for differences in the new variable operating procedures similar to Analysis of Variance (ANOVA) (Aaker, Kumar, & Day, 2001; Churchill & Iacobucci, 2010). According to Hans, Frances, and Paap (2001) MANOVA uses one or more independents variables as predictors, similar to ANOVA, except there is more than one dependent variable. ANOVA tests the differences between two or more groups of data. MANOVA tests the variances in the centroid or vector of means of the multiple interval dependents, for diverse categories of the independents (Cresswell, 2008; Cresswell & Plano- Clark, 2011).

The scores that the respondents reported in the two types of tangible aspects (graphic elements versus informational elements) were utilized in a Multivariate Analysis of Variance (MANOVA) statistical analysis where the researcher was able to test the hypotheses of the research study. No other research used MANOVA to compare purchase decision process according to segmentation.

Research Hypothesis. Then the hypotheses of this research are presented. The working hypotheses arise from the need to answer the research objectives proposed in the introductory part, which are presented with their corresponding results and analysis.

Ho1: There is no statistical difference between the purchase decision process of Baby Boomers versus Generation X and the tangible aspects (graphic elements) of personal care products.

According to the results of MANOVA between the purchase decision process of Baby Boomers versus Generation X and the tangible aspects, specifically the graphic elements the results were ($p= 0.727 > 0.05$) (see Table 1). Comparing these results with the findings of Bland, Lagary, Giles, and Scott (2006) who found that consumer behavior varies according to age, the present study's findings indicated that Baby Boomer and Generation Xers have similar patterns of behavior at the moment of evaluating products based on graphic elements of packaging. At the same time, these findings contrast with Kotler and Keller (2006) who concluded that the same product could be presented in different forms to attract different segments, as it was found that there were no statistical differences between the Baby Boomers and those from Generation Xers in terms of the graphic elements that they evaluated in selecting personal care products at the moment of making a purchase.

Ho2: There is no statistical difference between the purchase decision process of Baby Boomers versus Generation Y and the tangible aspects (graphic elements) of personal care products.

According to the results of the MANOVA between the purchase decision process of Baby Boomers versus Generation Y and the tangible aspects, specifically the graphic elements, the findings were ($p= 0.379 > 0.05$) (see Table 1). In evaluating this hypothesis in terms of the graphic elements of personal care product packaging, it can be assumed that participants from the Baby Boomer generation and Generation Y might have a similar process in terms of selecting a purchase based on graphic elements of the product. Just as when the Baby Boomers were compared with those from Generation X, the theory of Bland, Lagary, Giles and Scott (2006) applied; this is also the case along with Meyers and Lubliner (1998) who reported that consumer behavior changes according to age. In terms of graphic elements of package design, there were no statistical differences between Baby Boomers and respondents from Generation Y in terms of selecting personal care products. At the same time, however, there was some support in identifying that consumers feel the same degree of attraction for the aesthetics of the graphic elements and that this seems to have an influence in the process of making a purchase selection at the moment of purchase (Batra & Homer, 2004).

Ho3: There is no statistical difference between the purchase decision process of Baby Boomers versus Generation X and the tangible aspects (informational elements) of personal care products.

According to the results of MANOVA conducted between the purchase decision process of Baby Boomers versus Generation X and the tangible aspects, specifically the informational elements, the results were ($p= 0.498 > 0.05$) (see Table 2). Due to this score, the researcher failed to reject the null hypothesis. That means that there is no statistical difference between the purchase decision process of Baby Boomers versus Generation X and the tangible aspects of personal care products (informational elements). Once again it was shown that there was no difference between the purchase decision-making behaviors of personal care products and the tangible aspects of the packaging—in this case, the informational elements—between Baby Boomers and Generation Xers. Due to this reason, this study could not establish that all the

market segments of generational cohorts Generation X and Baby Boomers acted in an unequal manner when making purchase decisions as was described by Bland, Lagary, Giles, and Scott (2006). At the same time, it is still significant to evaluate other findings that reflect a greater punctuation in graphic elements in order to guarantee that the two generational cohorts behave in similar fashion.

Ha₄: There is statistical difference between the purchase decision process of Baby Boomers versus Generation Y and the tangible aspects (informational elements) of personal care products.

According to the results of MANOVA conducted between the purchase decision process of Baby Boomers versus Generation Y and the tangible aspects, specifically the informational elements, the results were ($p= 0.00 < 0.05$) (Table 2). In effect, the null hypothesis four was rejected and the alternative hypothesis was sustained. By rejecting the null hypothesis and lending support to the alternate hypothesis that identifies that there is indeed a statistical difference between the purchasing processes of Baby Boomers versus the purchasing process of Generation Y in terms of informational elements. It can be assumed that consumers with larger ranges of ages between them that are relatively dissimilar focus on different experiences, tastes, and preferences. At the same time, these results support Levy (2011) who assured that Generation Y, a generation that has grown up along with many of the modern technologies, tend to be completely visual in their orientation and less analytical at the moment of making a purchase. Equally, Kotler & Keller (2006) established that the youngest group of buyers in the market, in this case, Generation Y, is not very attracted to focusing on elements that are not of a graphic, visual manner at the moment of making decisions or purchasing certain products.

Ho₅: There is no statistical difference between the purchase decision process of Generation X versus Generation Y and the tangible aspects (graphic elements) of personal care products.

According to the results of MANOVA conducted between the purchase decision process of Generation X versus Generation Y and the tangible aspects, specifically the graphic elements, the results were ($p= 0.913 > .05$) (see Table 1). In analyzing the failure to reject the null hypothesis, it shows that respondents in the Generation X and Generation Y generational cohorts tend to possess a similar behavior in terms of the process of making purchase decisions. Comparing these results it can be assumed that now that both Generation X and Generation Y are composed of two young adult generations within the market, they might have certain homogenous characteristics.

Ha₆: There is statistical difference between the purchase decision process of Generation X versus Generation Y and the tangible aspects (informational elements) of personal care products.

According to the results of Generation Y and the tangible aspects (informational elements) of personal care products, MANOVA conducted between the purchase decision process of Generation X versus Generation Y and the tangible aspects, specifically the informational elements, the results were ($p= 0.00 < 0.05$). This highlights again that consumers from Generation Y tend to present certain challenges to the present market and to organizations that are used to marketing their products to older generations. Consumers from Generation Y tend to have specific tastes and preferences in some aspects that are distinct from older generations, such as Generation X and the Baby Boomers. Silayoi, and Speece (2007) noted that there are some consumers who are able to make purchase decisions based only on visual cues, which might be the case for those from Generation Y, who show some types of buying behavior that is different from the older generational cohorts. That also indicates that Generation Y does not pay significant amounts of attention to verbal elements on packaging for any type of product, since it seems to be sufficient for those from Generation Y to recognize the graphic elements of their favorite brands to make purchase decision.

Tables 1 and 2 represent the scores that the respondents reported in the two types of tangible aspects (graphic versus informational elements). Were utilized in a Multivariate Analysis of Variance (MANOVA) statistical analysis where the researcher was able to test the hypotheses of the research. This analysis was generated through Statistical Package for the Social Sciences (SPSS) version 20. MANOVA tests the variances in the centroid or vector of means of the multiple interval dependents, for diverse categories of the independents (Cresswell, 2008).

Table 1: MANOVA Analysis- Graphic Elements Score

Dependent Variable	(I) Generation Group	(J) Generation Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Graphic elements score	Baby Boomer (1946-1964)	Generation X (1965-1980)	-0.73	0.913	0.727	-2.97	1.51
		Generation Y (1981-2000)	-1.12	0.800	0.379	-3.08	0.85
	Generation X (1965-1980)	Baby Boomer (1946-1964)	0.73	0.913	0.727	-1.51	2.97
		Generation Y (1981-2000)	-0.39	0.904	0.913	-2.61	1.83
	Generation Y (1981-2000)	Baby Boomer (1946-1964)	1.12	0.800	0.379	-0.85	3.08
		Generation X (1965-1980)	0.39	0.904	0.913	-1.83	2.61

*This table shows the results of Multivariate Analysis of Variance (MANOVA) conducted to analyze the relation between the purchase decision process of Baby Boomers, Generation X and Generation Y. Specifically, this table present the purchase decision process in relation to the graphic elements score between the three generational cohorts. The results were used to test hypothesis 1, 2 and 5. Based on observed means. The error term is Mean Square (Error)= 63.555 Significant Level Used 5% [**]*

Other Findings. This research has others interesting findings in relation to most and less considered elements at the moment of the purchase decision process, according to the generational cohorts.

Graphics Elements. The researcher identified that there were certain similarities and differences between each of the participating generational cohorts in terms of the factors that they paid more or less attention to during the process of purchase decision-making of personal care products. These tangible aspects of the packaging design that were considered in the study were classified as graphic elements and informational elements. In terms of the most considered aspects of the three generational cohorts studied, all three generations paid more attention to the recognition of the brand’s logo in terms of graphic elements of the product (Figure 1).

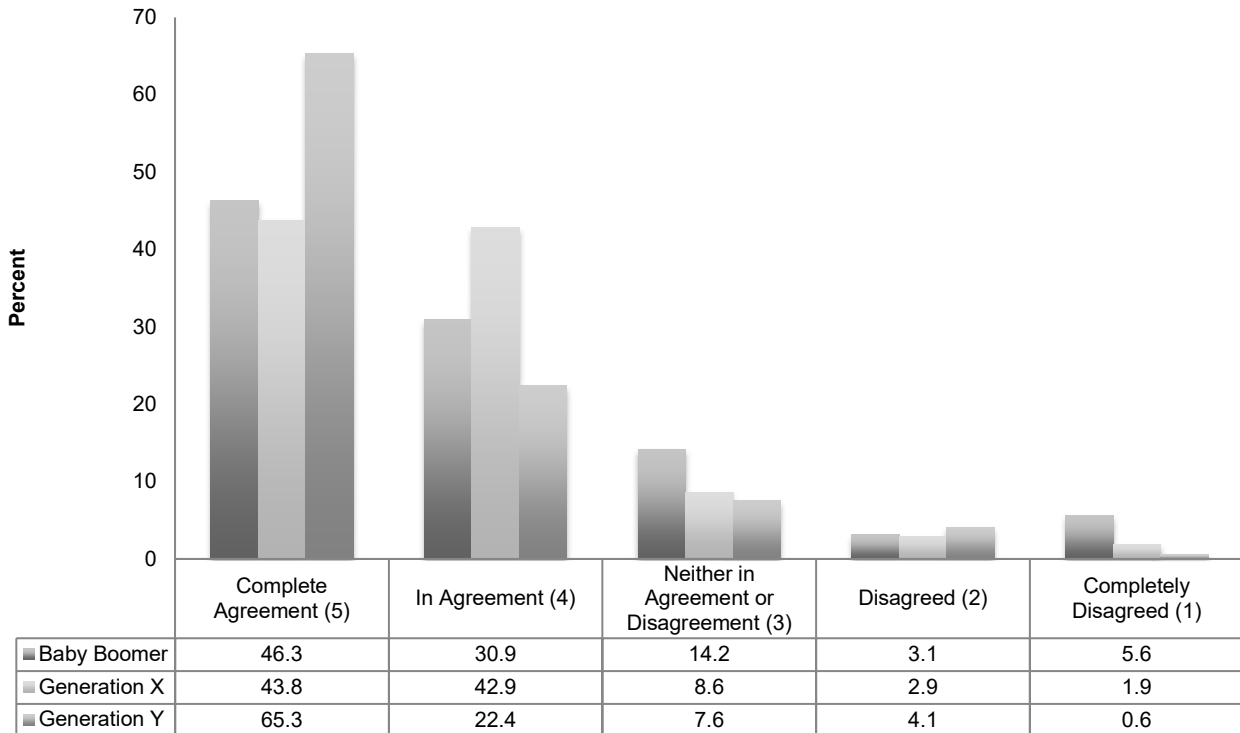
Just as there were some elements that participants paid the most attention to, there were also certain elements that were identified to be less considered than others in the process of purchase decision-making regarding personal care products. In general, all three generational cohorts paid less attention to the colors of the packaging. Baby Boomers and participants from Generation X reflected that they did not pay much attention to neon colors, while Generation Y participants reflected that they did not pay much attention to pastel colors (Figure 2).

Table 2: MANOVA Analysis- Informational Elements Score

Dependent Variable	(I) Generation group	(J) Generation group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Informational elements score	Baby Boomer (1946-1964)	Generation X (1965-1980)	1.18	0.999	0.498	-1.27	3.63
		Generation Y (1977-2000)	9.83*	0.875	0.000	7.68	11.98
	Generation X (1965-1980)	Baby Boomer (1946-1964)	-1.18	0.999	0.498	-3.63	1.27
		Generation Y (1981-2000)	8.65*	0.990	0.000	6.21	11.08
	Generation Y (1981-2000)	Baby Boomer (1946-1964)	-9.83*	0.875	0.000	-11.98	-7.68
		Generation X (1965-1980)	-8.65*	0.990	0.000	-11.08	-6.21

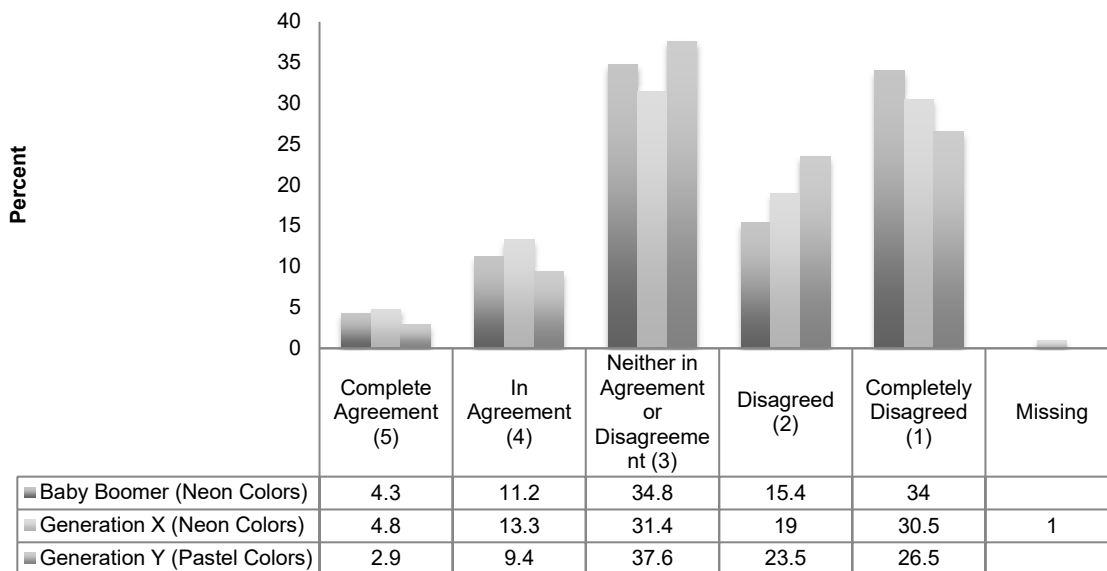
This table shows the results of Multivariate Analysis of Variance (MANOVA) conducted to analyze the relation between the purchase decision process of Baby Boomers, Generation X and Generation Y. Specifically, this table present the purchase decision process in relation to the informational elements score between the three generational cohorts. The results were used to test hypothesis 3, 4 and 5. Based on observed means. The error term is Mean Square (Error) = 63.555. Significant Level Used 5% [**]

Figure 1: The Most Considered Graphic Elements of Generational Cohorts



This figure shows the most considered aspects of the three generational cohorts studied. All three generations paid more attention to the recognition of the brand's logo in terms of graphic elements of the product.

Figure 2: Less Considered Graphic Elements of Generational Cohorts



The Figure shows that baby boomers and participants from generation X reflected that they did not pay much attention to neon colors. While Generation Y participants reflected that they did not pay much attention to pastel colors.

Informational elements. Just like with the graphic elements, the findings from the study regarding the informational elements showed certain similarities and differences. The instrument responses found that there were certain factors of the informational elements that there were different factors of the informational elements to which each generation cohort paid more or less attention. In terms of those aspects that were most paid attention to amongst the informational elements, respondents from both Generation X and the Baby Boomer generational cohorts were found to pay more attention to reading warnings on personal care products at the moment of selecting a product. Respondents from Generation Y identified that they paid more attention to reading the brand name of the product.

In terms of the informational elements, the participants from the three generational cohorts reported that they paid less attention to the country where the personal care product was manufactured. While all three generational cohorts identified this factor as the factor that they paid the least attention to, the proportions of these results differed between the generations. The Baby Boomer generation, expressed that they paid attention to all of the aspects identified as informational elements; reading the brand, recognizing the manufacturing company, identifying the country where the product was manufactured, reading warnings, identifying measurements, reading the instructions, recognizing the ingredients and chemical components, legible wording, and color contrasts that allow wording and promotional messages to be read. At the same time, identifying the country where the product was manufactured was the element with the least scoring in spite of the fact that a majority of the respondents from the Baby Boomer generation identified that the country where the product is manufactured was significant. Due to this, within the Baby Boomer generation, no one element could be considered of least attention. Like the Baby Boomers, those respondents from the Generation X cohort, reported that they paid attention to all of the factors identified as informational elements. At the same time, the recognition of the country where a product was manufactured was identified as the element that the largest group of Generation X respondents indicated not to consider as an important factor, even though there were a significant number of respondents from this generational cohort that did recognize this as an important factor. In terms of the respondent from Generation Y, there were several aspects of the informational elements that were not considered to be of importance at the moment of making a purchase decision. At the same time, however, the country where the product was manufactured was considered even less by individuals from Generation Y than other

factors. From this group, 84.1% were in complete disagreement that the country where a product is manufactured is of importance.

CONCLUSION

Looking at the problem outlined, it has been identified that modern organizations are part of a wild competitiveness, where companies are setting forth their best strategies in the hopes of gaining a competitive advantage. It has been identified that the tangible image of the products has been a very well known topic within the marketplace, where the popular phrase “same product, new image” has been distinguished. The packaging of a product is the primary promoter of communication of the brand in the face of the competition on the shelves at the store. Due to this, it has been found that the physical attributes of product packaging can be the perfect tool to be able to achieve the desired success. That strengthen Bloch (1995) model that emphasize the importance of the image. At the same time, poor planning in the selection of the tangible elements of the packaging can represent an unpredicted failure for the brand. For this reason, companies require more information about consumers and about consumer purchasing behavior in terms of the tangible aspects of product packaging. Naturally, there is not enough research that allows companies to fully appreciate the effect on consumers in their purchase decision-making based on the tangible aspects of product packaging.

According to Keller, Marino, Wallace (2016); Kotler (1999) organizations should create strategies that allow their brand to stand out from the growing competition and to fit in with the particular lifestyles of their consumers. For this reason, the presented research identifies the statistical difference between the individual purchase decisions and the tangible aspects of personal care products (graphic elements versus informational elements), segmenting the consumers according to three generational cohorts. The findings and results of this study are based on the perceptions of a stratified sample that was gathered in Mayagüez, Puerto Rico. The size of the sample was determined in a proportional mode according to generational cohorts and for this reason, the instrument was administered in a voluntary and confidential fashion to 162 individuals from the Baby Boomer generation, 105 from Generation X, and 170 from Generation Y, with a total of 437 individuals who responded to the survey instrument.

After obtaining the results of the present study that was conducted it was determined theoretical and managerial implications. It is an old-fashioned idea to believe that the sole purpose of packaging is for the protection of the product. It is important to note that the findings show that the segmentations of markets can be a strategy to attract consumers according to their behavior and their responses to diverse stimuli. Through the evaluation of the results as seen through the responses of each generational cohort, it is noted that there is a narrow relationship between the preferences of the consumers at the moment of evaluating personal care products between graphic elements and informational elements. By establishing a comparison between the generational cohort groups, the researcher was able to establish that as consumers increase in age, their behavior does tend to incline towards different perspectives. This was seen in the study findings that between Baby Boomers and Generation Xers in the area of evaluating almost all of the informational elements on packages of personal care products, compared to those respondents from Generation Y, the youngest generational cohort in the study, who showed that they did not pay the same type of attention at evaluating the informational aspects of personal care products. Therefore, the results discussed urge organizations to educate themselves about the preferences of consumers in terms of the tangible aspects of products before making the decision to change the packaging of their products. In particular, it was noted that this is true for organizations that manufacture personal care products, where there is a vast and growing competitiveness. It is of note to point out that the global personal care product industry has revenue of about \$260 billion per year (Personal Care Products Council, 2016).

Because of these findings, the present study can shed some light for organizations regarding the purchase behavior of consumers in terms of the process of purchasing personal care products. Taking these findings into account, it is noted that organizations that work with personal care products could better visualize the process that their consumers go through when making personal care product purchase decisions. Organizations can concentrate their strategies in projecting an attractive image in front of the eyes of consumers in terms of both graphic elements and informational elements. In a parallel fashion, it was established that there are similar purchasing behaviors between Baby Boomers and consumers from Generation X, in that both cohorts seem to base their purchasing decisions as much based on graphic elements as on informational elements, based on recognizing the brand and paying attention to the verbal and informational sections of the packaging. Based on this finding, companies should create marketing committees that are charged with promoting the products and making an emphasis focused on providing educational information, such as the benefits of the product, warnings, and other elements that inform the consumer at the moment of making a purchase decision.

However, the findings from this present study related to Generation Y show the challenges and implications for companies. This generation, which is the youngest with major buying power in the market and who have shown a considerable increase in their buying power, seems to be different than the older generations. In comparison with the other generations, consumers from Generation Y do not pay a great deal of attention to the informational elements on product packages at the moment of selecting a product. It is not known at this time, however, if once this generation begins to age and share some of the same life experiences that the older generational cohorts have already gone through if this generation will begin to exhibit a behavior that is more analytical at the moment of making purchase decisions. Due to these findings, organizations need to be sensitive and careful at the moment of selecting the information that they exhibit on their products and they might consider placing a major emphasis in projecting the brand name and logo which seemed to be the factor that Generation Y most took into consideration both in terms of graphic elements and informational elements, at the moment of making a purchase decision.

Each study presents limitations that refer to restrictions that go along with the type of investigation chosen, and generally these are of an external character and usually cannot be controlled by the researcher (Fowler, 2002). The scope of the study presents some limitations that can be classified as being directly derived from the objectives of the study and the research methodology employed. Amongst the limitations identified includes restricting the study to Puerto Rico, in particular to the area of Mayagüez, Puerto Rico. The sample was randomly selected and the study was completely voluntary to people who belonged to the three generational cohorts: Baby Boomers (1946-1964), Generation X (1965-1976), y Generation Y (1977- 2000).

Due to the finding, it is hoped that this present study can become a starting point for new research in this area. It would also be recommended to increase the type of research comparing cultural factors and to include regions not only within Puerto Rico, but also in other regions of the United States and other countries. Culture is the most basic origin of the desires and behaviors in individuals (Kotler & Armstrong, 2014). Identifying the cultural factors that contribute to consumer purchase decisions through increased research in this area would make a contribution specifically for those managers of international organizations, especially those who develop personal care products. Limon, Kahle and Orth (2009) referred to cultural aspects as a variable that directly affects marketing strategies from the development of new products to the way in which these are marketed and published. Further research in this area would specifically contribute to better understanding the particular characteristics that impact the final consumer buying behavior of consumers at the point of sale, consumers who should be the primary target of all modern organizations.

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BIOGRAPHY

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AN EXPLANATION OF FINANCIAL MARKET ANOMALIES: RISK-BASED OR BEHAVIORAL VIEW? A NEW PERSPECTIVE ON FINANCIAL CONSTRAINTS

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ABSTRACT

At present, there are two main explanations for market anomalies, namely, risk-based and behavioral. While the risk-based perspective states that abnormal returns arise owing to investors undertaking financial risks, the behavioral perspective states that abnormal returns arise owing to investor psychology. However, we believe that the source of abnormal returns originates from financing constraints. Viewed from a different perspective, financial constraints arise from information asymmetry, which in turn leads to an incorrect assessment of behavior. Moreover, the risk of financial distress also has a correlation with financial constraint. The link between the two provides another common explanation for market anomalies. This study utilizes publicly disclosed stock data of the Taiwan stock exchange in order to prove the above argument. Furthermore, apart from the commonly observed explanations of under- and overreaction, cash dividends can also logically explain the extent of under- and overreaction, which plays a critical role in determining the expected returns of an asset portfolio.

JEL: G12, G14, G31

KEYWORDS: Underreaction, Overreaction, Three-Factor Model, Financial Constraint

INTRODUCTION

The capital asset pricing model by Sharpe (1964), Lintner (1965), and Mossin (1966), which has taken the financial world by storm, has generated much debate. Most empirical studies believe that the market risk factors of the capital asset pricing model (CAPM) cannot fully explain market anomalies such as the momentum effect proposed by Jegadeesh and Titman (1993), the reversal effect postulated by DeBondt and Thaler (1985), and the size effect postulated by Banz (1981) and Basu (1983). In order to resolve the inadequacy of the CAPM and after having realized that market risk factors alone cannot explain abnormal returns of an asset portfolio, Fama and French (1993) introduced the renowned three-factor model. Extending the basic perspective of the CAPM, the three-factor model proposes that apart from market risk factors, size and book-to-market factors are also important in explaining excess returns. Similar to the CAPM, the three-factor model of Fama and French (1993) also generated much interest and debate in the academic world. The debate centers on two main points. First to determine whether or not the three-factor model is capable of successfully capturing all market anomalies. Fama and French (1996) believe that with the exception of the momentum effect, the three-factor model is capable of capturing the market anomalies omitted by CAPM. Fama and French (2015) further enhance the three-factor model by including profit and investment factors. With the exception of not being able to capture high investments and low profits of the low average return of small shares, this five-factor model can adequately explain excess returns of an asset portfolio. Another argument states that the factor models can be explained in terms of either risk or behavior. For both the three-factor and five-factor models, Fama and French advocate that explanatory factors arise from the premium for taking risk. However, opposing researchers believe that market anomalies occur as a result of investor behavior; Shefrin and Statman's (1997) empirical evidence supports this point of view and backs the explanation of multiple-factor models that market anomalies arise from the cognitive bias of the investor. This study

does not discuss either the three-factor or the five-factor model, but instead attempts to explain whether the factors are a result of risk or behavior, from a financing constraint perspective.

With regard to both the risk and behavioral perspectives, the difference in views centers on the causes of the book-to-market effect (overreaction) and the momentum effect (underreaction). From the risk perspective, the core of the factor model being size, book-to-market ratio and stock return share common risk factors, which can also be explained by risk compensation of financial distress. The behavioral perspective believes that incorrect pricing originates from the psychological bias of the investor; one example is that of an investor's incorrect perception of company profit leading to under- or overreaction in stock prices. Company profit is a controversial topic from the risk and behavioral perspective, and is at the same time is related to financial distress and financial constraints.

Financial constraint is a precondition to financial distress. The risk of financial distress also has a correlation with financial constraint. Financial constraint is caused by information asymmetry; the more severe the latter is, the more difficult it is for external investors to assess the value of the company, which would most likely lead to company stock misprice. Therefore, we believe that the financial constraint perspective can provide a more logical explanation in the debate on the risk and behavioral perspective. This study consults proxy variables commonly adopted by prior literature and utilizes the following: cash dividends brought forward by Fazzari, Hubbardand, and Petersen (1988) as well as Almeida and Campello (2007); debt-to-total capital ratio proposed by Hovakimian and Titman (2006); cash flow-to-total capital ratio proposed by Kaplan and Zingales (1997); and finally, the Kaplan-Zingales Index (KZ-Index) put forth by Lamont, Polk, and Saaá-Requejo (2001). These variables are adopted for measuring financial constraints and for subsequent grouping analysis.

The term "attention" is described by behavioral finance as follows: with no change in the internal and external environment, and owing to a change in investor psychology, there arises a variation in investment behavior leading to a subsequent abnormal fluctuation in asset price and trade volume. Based on their research on anchoring and limited attention, Li and Yu (2012) prove that a 52-week high in stock prices can proxy for an investor's underreaction to news events. A stock price approaching historical highs can be utilized to proxy for investor overreaction to news events. This research uses the shares publicly traded on the Taiwan stock exchange as the main subject of study, and uses the reasoning of Li and Yu (2012) to discuss the under- and overreaction position of groupings under stock size, value and growth stocks, and financing constraint as proxies. If underreaction is apparent in small stocks, but not in large stocks, we can be certain that such a phenomenon has already been captured by the size effect; or if overreaction exists in value stocks, but not in growth stocks, then overreaction can be represented by a book-to-market ratio effect. By employing such a method, we can confidently assess whether or not other characteristics would exert an effect on the expected returns of an asset portfolio in the momentum and reversal effect groups. Through the presentation of under- and overreaction, we will continue with the three-factor model analysis on pre-group and post-group scenarios.

First, we initiate grouping on the basis of whether there has been cash dividend issuance to clarify the under- and overreaction phenomenon. The analysis reveals that such grouping not only makes the under- and overreaction phenomena more apparent, but also increases the explanatory ability of the model. This result indicates that whether or not there is an issuance of cash dividends, we can exclude book-to-market ratio and size effect anomalies. Chan, Chang, and Hsu (2016) state that the issuance of cash dividends can effectively show the extent of financing constraints, thereby implying that financing constraints could likely be the interfering factor in book-to-market ratio and size effect. Owing to this, we continue with the analysis of various groups to determine whether or not the intercept of the three-factor regression is significant and not zero. The result shows that even though various variables have significant explanatory capabilities before being grouped, the intercepts are significant and not zero, indicating that there are other factors that are not being captured by the model. Further, post grouping by cash dividend issuance indicates that factors being significant and intercept no longer carries any meaning. This fit is in line with our expectations that the three-factor model completely explains the change in returns. Furthermore,

in the grouping by cash flow-to-total capital ratio, debt-to-total capital ratio, and KZ-Index, the robustness analyses show that in the three-factor model, firms with financing constraints perform better than those without. This study makes three major contributions to the financial domain. First, we group shares by their size, value, growth, and financing constraint proxies forming the relevant asset portfolio indices to measure the under- and overreaction of investors. We also clarify the debate between multiple factor models of the risk and behavioral perspectives. The result clarifies whether financing constraint is key to explaining market anomalies. Second, the results indicate the three-factor model has a complete explanatory capability for firms that have no dividend issuance, suggesting that in the Taiwan stock market, the issuance of dividends is an important factor in effecting the expected return of shares. Finally, this study finds an association between financial distress and firms' difficulty in obtain financing. The source of financing constraints arises from information asymmetry, which would also cause incorrect assessment. The financing constraint perspective provides another common explanation in the debate on whether a market anomaly arises from risk or behavior. This study is organized as follows: section 1 provides an introduction, section 2 provides a literature review on market under- and overreaction as well as the three-factor pricing model, section 3 introduces the limited attention and anchoring psychology of the investor, section 4 explains the results of the empirical analysis, and section 5 concludes the paper.

LITERATURE REVIEW

Fama and French (1993) believe that apart from market factors effecting excess returns of the asset portfolio, the risk factor can also be explained in terms of SMB and HML, proving it to be the essence of multiple affecting factors. Fama and French (1996) further prove the abnormality of the return momentum of the three-factor model by Fama and French (1993). Regrettably, the model cannot completely address the existence of short-term return momentum, and at the same time, gives rise to considerable doubts about attributing size and book-to-market factors as risk factors. Lakonishok, Shleifer, and Vishny (1994) believe that a high book-to-market ratio is a result of investors' ability to determine mispriced stocks. Kothari, Shanken, and Sloan (1995) perceive that a high book-to-market ratio occurs as a result of not incorporating data of those firms under distress and that have collapsed, causing a distortion in the weighting of those firms in distress, which is the result of survivorship bias. Daniel and Titman (1997) observe that stock returns should be determined by the characteristics of such stock. High book-to-market ratios originate from stocks' own similar characteristics, which is the preference of the investor, and not a result of risk. However, explaining under- and overreaction from the risk-return perspective is not convincing enough for those that consider various perspectives on the issue.

Daniel, Hirshleifer, and Subrahmanyam (1998) believe that publicly disclosed information causes the overreaction of private information. Continuous overreaction leads to price momentum, thereby regressing the price to its fundamentals; price reversal is the result of investor overconfidence and self-attributing bias. Barberis, Shleifer, and Vishny (1998), on the other hand, believe that investors' information processing is too slow, which causes short-term underreaction; they believe that history repeats itself, hence leading to subsequent overreaction, and that in the long run the stock price reverses to correct itself. Through the explanation of effects among various type of investors, Hong and Stein (1999) believe that the private information of the observer spreads to other observers. The under- and overreaction of those stocks with slow information spread outpaces those with relatively faster information spread. Regardless of whether it from a rationalist or behaviorist perspective, the primary difference centers on the causes of the book-to-market effect and momentum effect. Li and Yu (2012) utilize anchoring and limited attention as proxies for overreaction and underreaction, respectively, and prove that these two are not affected by macroeconomic variables. We will use this method to analyze the components of the three-factor model, namely, size and the book-to-market ratio, and to discuss the variation in momentum and the reversal effect. Finally, through three-factor cross-section regression analysis, we will confirm whether our hypothesis provides the extended explanatory capability for asset portfolio returns. The essence of the three-factor model is the explanation of the common risk factors pertaining to size, book-to-market ratio, and stock return, which can also be determined by firm earnings.

Firm earnings not only reflect on stock returns, but also imply operating risks, corresponding returns, and risks. At the same time, abnormalities in stock returns have the most correlation with size and book-to-market factors, further stressing the importance of firm earnings. Fama and French (1993) accept the relative distress perspective of Chan and Chen (1991) to explain the anomalies in stock returns and believe that the performance of expected earnings affects an investor's perception of a firm's future prospects. Firms with negatively perceived future prospects are reflected with low stock prices by the market, leading to reduced market value, and a higher book-to-market ratio, implying that the firm is facing financial distress. In contrast, a low book-to-market ratio suggests that the firm has sound future prospects, and hence value premium represents a certain type of risk compensation for relative distress.

Lakonishok, Shleifer, and Vishny (1994) believe that value premium is the result of mispricing by the market. This issue originates from investors' irrational overreaction to a firm's profit information which, in turn, leads to a high book-to-market ratio. This results in the underestimation of the stock price and, conversely, the overestimation of stock price with a low book-to-market ratio. When markets restore rationality, stock prices return to their fundamentals, making those with high book-to-market ratios exhibit higher average returns and vice versa for those with low book-to-market ratios, thereby leading to the subsequent formation of value premium. Despite the differing opinions of the relative dilemma hypothesis by the rational school of thought and the misprice hypothesis of the behaviorist school, both actually utilize common agenda for their discussion of the topic, thus proving the importance of firm profit. Apart from describing the cause of value premium, another important implication of the misprice hypothesis is highlighting the effect of firm profit on investor behavior, and pointing out that the overreaction phenomenon is the reason for the incorrect estimation of risk factors. Coincidentally, Barberis, Shleifer, and Vishny (1998) also supplement the underreaction phenomenon through the investor behavior perspective. Believing that firm profit is a form of a random walk, they explain the expectation mentality of the investor through continuous variation in signs and then further explore the under- and overreaction phenomena. When variation in firm profit with the same sign continues to hold, it leads to the investor's belief that firm profit would continue to increase or decrease subsequently, causing incorrect judgment of the trend, and hence the overreaction to the stock prices. Profit with opposing sign variation leads the investor to believe that profit reversal is of a short-term nature, thereby causing underreaction. Therefore, when explaining the financial theory from a behavioral perspective, firm profit still plays an important role and is worth deep exploration.

The relative distress hypothesis derives its formation from the explanation of value premium from the rational market perspective. However, the more important implication of the hypothesis lies in the basis of size premium. The theory postulates that operating difficulty varies with firm size; operating difficulty ranks higher for small firms relative to large ones and the former face larger risks, and hence, provide higher stock returns owing to risk compensation. This point of view leads back to the fundamentals of the firm and to the question – what is the ultimate cause of financial distress? Is it owing to inadequate profits, an excessive level of debt, or a lack of cash flow? If the firm holds an abundant amount of cash or possesses unimpeded channels for financing, would it still face financial distress?

Financing constraint is a precondition to financial distress. Even though financing constraint does not necessarily equate to financial distress, from the risk perspective, we suspect that the risk of financial distress could be related to a firm's inability to obtain capital owing to a financing constraint. From the behavior perspective, a financing constraint is a result of asymmetric information. The more severe the asymmetry, the more difficult it is for a firm to obtain external capital, which, in turn, would make it more difficult for external investors to assess the value of a firm, thereby resulting in the mispricing of the firm's stock. Therefore, we assume that, from the financing constraint perspective, this should be able to provide an adequate common explanation for the debate on market anomalies from the risk and behavioral perspectives. Firms faced with financing constraints are commonly affected by factors such as agent cost according to Jensen and Meckling (1976), information asymmetry according to Myers and Majluf (1984), and free cash flow according to Jensen (1986). Such constraints lead to higher costs of external capital, resulting in difficulty in obtaining external financing. Commonly utilized measuring

indicators for financing constraints include the rate of dividend issuance, the concentration of ownership, the KZ-Index, among others. According to Section 241 of the Taiwan Companies Act, cash dividends can only be issued on the condition that a firm is not making a loss. Therefore, we utilize cash dividend as the proxy for firm profit in order to examine the hypothesis. At the same time, cash dividend is also set as the standard for measuring a firm's financial constraint, following the method suggested by Almeida and Campello (2007) and Fazzari, Hubbardand, and Petersen (1988). Generally, firms that issue higher cash dividends or higher amounts of cash relative to the total capital correspond to holding an abundant amount of cash and are less likely to be financially constrained. Chan, Chang, and Hsu (2016) discover that dividend issuance can effectively show the extent of financing constraint. Furthermore, firms with a higher debt-to-equity ratio face a higher challenge of obtaining funding, suggesting a higher possibility of financing constraint. Therefore, we initiate grouping based on whether or not cash dividends are issued to clarify the under- and overreaction phenomenon. This is followed by debt-to-total capital ratio suggested by Hovakimian and Titman (2006), cash flow-to-total capital ratio suggested by Kaplan and Zingales (1997), and KZ-index put forth by Lamont, Polk, and Saaá-Requejo (2001). The three proxies of financing constraint are utilized for the robustness test.

DATA AND METHODOLOGY

This study utilizes data from the databases of Taiwan Economic Journals (TEJ). The sample incorporates publicly traded ordinary shares in the Taiwan Stock Exchange. The data include financial shares and full-cash delivery stocks, but excludes stocks that have been delisted. Considering that under- and overreaction phenomena can end in a short timeframe, this study adopts weekly data for empirical analysis. Through an increase in data intensity, it is possible to capture these particular events, mirroring the actual nature of the market and avoiding the possibility of low data frequency affecting the results. On the basis of limited attention and anchoring psychology, Li and Yu (2012) find the two important variables to proxy for under- and overreaction of investors. They use the Dow Jones industrial index's proximity to the 52-week high to proxy for underreaction, and the equation is represented as follows:

$$X_{52,t} = \frac{p_t}{p_{52,t}} \quad (1)$$

The investor overreaction is proxied by the Dow Jones industrial index approaching a historic high, and is represented as follows:

$$X_{max,t} = \frac{p_t}{p_{max,t}} \quad (2)$$

The first variable has positive relations with the future stock return, whereas the second has negative relations. Li and Yu (2012) also prove that the explanatory capability of these two proxy variables is not susceptible to the effects of macroeconomic variables. This finding is contrary to the conventional methodology of analysis by grouping through factor dimensions. This method can more intuitively compare the extent of variations in investor under- and overreactions. In addition, the debate on market anomalies can be examined and through the apparent differences, we can conduct the reversal analysis of various assumed factors, thus identifying the source of the causes.

Li and Yu (2012) utilize data of stock traded in the US market to conduct monthly overlapping regression. Yang, Li, and Hsu (2016) adopt this method, proving that the model can be adapted to the Taiwan stock market. This study uses the Taiwan Weighted Index (TWII) to proxy the Dow Jones industrial index. The five explanatory variables in the model incorporate the actual returns of the TWII deducted by the $R_{pass,t}$, derived from the risk-free rate to represent the past excess returns (including 1, 3, 6, and 12 months). From this, the risk-free rate is derived from the one-year fixed-term deposit rate of the First Bank of Taiwan. $X_{52,t}$ represents the extent to which the TWII approaches its 52-week high, which

proxies for investor underreaction; $X_{max,t}$ represents the extent to which the TWII approaches its 52-week high, which proxies for investor overreaction; D_t is our dummy variable that takes on the value of 1, which represents the TWII reaching its historical high, and 0 otherwise; I_t is another dummy variable, which represents the TWII reaching a new high, implying underreaction of the investor. I_t takes on the value of 1 when the 52-week high of the TWII is equal to its historically high value, and 0 otherwise. The regression to examine under- and overreaction is represented as follows:

$$R_{future,t} = \alpha_0 + \beta_1 R_{pass,t} + \beta_2 X_{52,t} + \beta_3 X_{max,t} + \beta_4 D_t + \beta_5 I_t + \varepsilon_t \quad (3)$$

The dependent variable, which represents future excess returns (for 1, 3, 6, and 12 months) corresponds with $R_{pass,t}$. Daniel and Titman (1997) propose another model that proves that the determination of stock return is a result of the stock's own characteristic, and it is not determined by Fama and French's (1993) risk model. The characteristic model assumes that the cross-section expected returns can be determined by the stock's own characteristic, and is not caused by the loading of the common risk factors. Even though Rouwenhorst (1998) discovered that the stock price determining factors of emerging markets are quite similar to that of industrialized ones, the question of what is the deciding factor in the Taiwan stock market cross-section returns is yet to be resolved. Regardless of which model is suitable for the Taiwan stock market, we endeavor to seek the possibility of a common factor between the two models.

According to Section 170 of the Taiwan Companies Act, the annual general meeting of shareholders should be held within six months of the end of financial year, and financial reports should be recognized during such a meeting. Therefore, most of the financial reports are published before the end of June every year. Based on this, we follow Fama and French's (1993) study, which adopts the annual change in weight method on the first transaction day of every June, conducts grouping according to firm size and the BM ratio of the previous month, and defines the size premium SMB and the value premium HML. There are numerous small stocks in the Taiwan stock market that are substantially different from large stocks. The market value of the top 20 firms is around 50% of the entire share market. Given this inherent problem, the value-weight method is not able to capture the effects of small stocks. In order to avoid distortion in our results, this study adopts the equal-weight method for weight calculations. Here, $RMF = R_m - R_f$ represents market risk premium, R_m is the rate of return for the TWII; R_f is the risk-free rate, derived from the one-year fixed-term deposit rate of the First Banks of Taiwan; $RPF = R_p - R_f$ represents the abnormal return of the asset portfolio, of which R_p is the weighted return of the six combined groups SL, SM, SH, BL, BM, and BH. The intercept (Jensen's alpha) is the indicator of the measure for abnormal return if α is significant and not zero, suggesting that the asset portfolio contains abnormal returns that cannot be explained by the three-factor model. The accumulated abnormal return calculation for a holding period of 1, 3, 6 and 12 months is derived by DeBondt and Thaler's (1985) method. From the above description, the three-factor model is, therefore, described as follows:

$$RPF_t = \alpha + \beta_1 RMF_t + \beta_2 SMB_t + \beta_3 HML_t + \varepsilon_t \quad (4)$$

After consulting the composition guidelines of the Taiwan Weighted Index (TWII), we formulate another grouping method, whereby the stock price-weighted index of the group is as follows:

$$INDEX = \sum_{t=1}^n \frac{P_t Q_t}{BV} \times 100 \quad (5)$$

$INDEX$ is derived from the total market value of the firm stock ($P_t Q_t$) divided by the base value (BV), multiplied by 100. The base value is the total stock value on the first transaction day of the sample period; the base value is adjusted on the first transaction day of every June, and displays a new value. The adjustment is done by multiplying the old base value by the ratio between the old and new total market value of the stock. In terms of financing constraint, Chan and Wang (2005) adopt the categorization

standard of Maestro, De Miguel, and Pindado (2001) and consult that of Lamont, Polk, and Saaá-Requejo (2001) to formulate the KZ-Index method. This is formulated so that a suitable method can be adopted for the financing constraint of the Taiwan stock market and is expressed as follows:

$$FC = -1.17 \times \frac{Cash\ Flow}{K} - 1.75 \times Q + 0.71 \times \frac{Debt}{Total\ Capital} - 38.83 \times \frac{Dividends}{K} - 1.51 \times \frac{Cash}{K} \quad (6)$$

In this expression, K represents the cost of fixed asset in the current period; *Cash Flow* is derived from profit after tax in the current period – extraordinary items + depreciation; the formula for Tobin’s Q is defined as (market value of firm equity + book value of debt) / book value of total asset; *Debt* is the total debt of the firm; *Total Capital* is the total capital held by the firm; *Dividends* represent the total cash dividends issued by the firm; *Cash* represent the cash and cash equivalents held by the firm.

EMPIRICAL RESULTS

This study conducts empirical analysis on publicly traded firms listed on the Taiwan stock exchange for the period 1995–2015. The study is categorized into two parts. The first section of the research conducts a comparison on the price reaction difference between value stocks and growth stocks via a book-to-market grouping; this comparison also extends to grouping by firm size. Next, we further explore the explanation on differences due to whether there has been cash dividend issuance. The second section makes a comparison on value stocks and growth stocks as well as large stocks and small stocks from the risk perspective. By employing Fama and French’s (1993) three-factor method, variations in abnormal returns can be explained and the effect of the issuance of cash dividends determined. Our comparison further extends to the abnormal return of value stocks versus growth stocks and large stocks versus small stocks impacted by financing constraints. By employing a two-part empirical test, we can provide an adequate explanation of the financing constraint. Table 1 lists the descriptive statistics of the relative variables. *SIZE* is the market value of equity that represents firm size. There is a very significant difference between the extreme values. Its median is 5,179, which is significantly lower than the average of 24,108, suggesting a significant difference between large and small stocks. This is representative of Taiwan’s stock market, which has a significantly large number of small stocks. *BM* represents the book-to-market ratio and has a median value of 0.72, indicating that growth stocks account for much of the share in Taiwan’s stock market. *CR* is the cash dividend ratio and has a median value of 1.32, indicating that most firms do in fact issue cash dividends. *KZ*, *DC*, and *CC* represent the KZ-Index (-0.25), debt-to-total capital ratio (79.79) and cash flow-to-total capital ratio (11.06), respectively.

Table 1: Descriptive Statistics

Variables	Mean	Median	Max.	Min.	S.D.
<i>SIZE</i>	24,018	5,179	3,630,253	45	97,794
<i>BM</i>	0.84	0.72	9.09	0.02	0.56
<i>CR</i>	2.26	1.32	32.35	0.00	2.67
<i>KZ</i>	-6.08	-0.25	52.12	-239.98	20.24
<i>DC</i>	143.50	79.79	3,903.48	1.15	285.54
<i>CC</i>	11.37	11.06	674.14	-365.01	27.72

This table presents the mean, median, maximum value, minimum value, and standard deviation for the variables of the groups. SIZE is the size of the firms by market value and the units are in millions of New Taiwan dollars. BM represents the book-to-market ratio; CR represents the cash dividend ratio; KZ represents the KZ-Index; DC represents the debt-to-total capital ratio; CC represents the cash flow-to-total capital ratio. The sample period 1995–2015 covers publicly traded companies listed on the Taiwan stock exchange.

Book-to-Market Ratio Group

Table 2 presents the monthly overlapping regression results under the book-to-market grouping. Analysis of the full sample analysis of value stock in Panel A shows an expanding trend through time for X_{52} and X_{max} , the proxies for underreaction and overreaction, respectively. There is also a significant forecasting capability for future excess returns. In the analysis of growth stocks, on the other hand, all the holding periods display significant relations with future excess returns, except for the holding period of six

months for X_{52} and three months for X_{max} . This result indicates that under- and overreaction phenomena generally exist in the Taiwan stock market. One factor worth noting is that in the case of growth stocks the variable X_{52} changes signs, not as expected, from positive to negative for the 6- and 12-month groups. Similarly, the X_{max} variable also undergoes a change in sign, but from negative to positive. We have discussed in the literature review with regards to the assumption that the abnormal phenomena could be owing to firm profit. Therefore, we utilize cash dividend as the proxy for firm profit, group the book-to-market ratio samples, and then further them into subgroups during dividend issuance.

Panels B and C of Table 2 further divide the samples into subgroups for repeat period regression analysis and display the results. Panel B of Table 2 indicates that firms that do not issue cash dividends consistently show under- and overreaction phenomena for both growth and value stocks, which increases in extent with time. The fit of the model also increases, and there is no abnormality with the signs. On the other hand, Panel C of Table 2 shows that firms with dividend issuance, apart from certain minor differences, generally exhibit similar results as that of Panel B.

Table 2: Monthly Overlapping Regression – Book-to-Market Ratio

	Panel A: Full Sample			Panel B: Without Cash Dividend Issuance			Panel C: With Cash Dividend Issuance		
	X_{52}	X_{max}	R^2	X_{52}	X_{max}	R^2	X_{52}	X_{max}	R^2
Value									
1-Month	0.11*** (3.44)	-0.11*** (-3.16)	0.04	0.12*** (4.52)	-0.14*** (-4.24)	0.04	0.13*** (3.93)	-0.14*** (-3.66)	0.04
3-Month	0.35*** (6.26)	-0.35*** (-5.51)	0.09	0.40*** (8.08)	-0.46*** (-7.34)	0.08	0.38*** (6.65)	-0.39*** (-6.01)	0.08
6-Month	0.63*** (9.49)	-0.60*** (-7.93)	0.21	0.63*** (9.34)	-0.67*** (-7.89)	0.16	0.63*** (9.69)	-0.61*** (-8.26)	0.18
12-Month	1.15*** (15.30)	-1.14*** (-12.93)	0.31	0.96*** (12.52)	-1.02*** (-9.89)	0.23	1.1*** (15.90)	-1.08*** (-13.21)	0.29
Growth									
1-Month	0.05*** (2.69)	-0.05** (-2.18)	0.02	0.07*** (3.23)	-0.08*** (-2.67)	0.02	0.06*** (4.16)	-0.07*** (-3.93)	0.03
3-Month	0.07* (1.65)	-0.04 (-0.73)	0.05	0.19*** (4.67)	-0.19*** (-3.56)	0.03	0.16*** (5.76)	-0.19*** (-5.30)	0.06
6-Month	-0.08 (-1.5)	0.21*** (3.28)	0.18	0.21*** (3.53)	-0.13* (-1.67)	0.06	0.26*** (7.54)	-0.28*** (-6.22)	0.14
12-Month	-0.09* (-1.65)	0.32*** (4.67)	0.34	0.44*** (5.53)	-0.31*** (-2.84)	0.16	0.31*** (8.55)	-0.31*** (-6.27)	0.30

*This table presents the results for the monthly overlapping regression, with the regression shown below: $R_{future,t} = \alpha_0 + \beta_1 R_{pass,t} + \beta_2 X_{52,t} + \beta_3 X_{max,t} + \beta_4 D_t + \beta_5 I_t + \varepsilon_t$. $R_{future,t}$ represents the future excess returns (1, 3, 6, and 12 months); $R_{pass,t}$ represents the past excess returns (1, 3, 6, and 12 months) and the corresponding future excess returns; $X_{52,t}$ represents the extent of the Taiwan Weighted Index approaching its 52-week high; $X_{max,t}$ represents the extent of the Taiwan Weighted Index approaching its historic high; D_t represent the Taiwan Weighted Index at its historic high; I_t represents the Taiwan Weighted Index setting the new high. The risk-free rate is the one-year fixed-term deposit rate of the First Bank of Taiwan. The sample period covers the period 1995–2015. Repeated sampling is conducted on a monthly basis. The Newey-West method is adopted to control heterogeneity and autocorrelation. The values in the brackets are t-values. The asterisks, *, **, and *** represent 10%, 5%, and 1% levels of significance, respectively.*

In general, under the book-to-market grouping, when the comparison is made on dividend issuance, both value and growth stocks display significant under- and overreaction. More significantly, the model experiences an increase in its explanatory capability. This result indicates that value stocks are not affected by the issuance of the cash dividend. More importantly, we find that the possible interfering factor for book-to-market ratio should be the proxy for firm profit and financing constraint. The question posed at this juncture is whether cash dividends have been issued.

Grouping by Firm Size

Table 3 presents the monthly overlapping regression result or grouping under firm size. In the full sample of small stocks of Panel A, we find that the proxies for underreaction X_{52} and overreaction X_{max} expand with time and show consistent forecasting capability for future excess returns. As such, there is indication that in the Taiwan stock market small stocks display significant under- and overreaction phenomena. On the other hand, for large stocks, the variable X_{52} only displays significant underreaction phenomena for the holding periods of 1 and 12 months. Whereas X_{max} is consistently insignificant, it indicates that overreaction does not exist in large stocks. In addition, for both large and small stocks, the explanatory capability of the model increases with time. Panels B and C of Table 3 present the results for the regression of firm size grouping and subsequently those of further subgrouping in the event of cash dividend issuance. Panel B of Table 3 shows that firms that do not issue cash dividends under the small stock group have significant under- and overreaction phenomena. Under the large stock group, apart from the six-month holding period, there is a significant effect on future excess returns.

On the other hand, Panel C of Table 3 shows that all the firms of the group that issues cash dividends, apart from the underreaction of small stock with a one-month holding period, display significant under- and overreaction phenomena. Generally speaking, under firm size grouping, subsequent to comparisons being made on whether cash dividends have been issued, we find explanatory capability for future excess returns. Small stocks without cash dividend issuance experience a significant increase. However, small stocks that issue cash dividends actually experience a decrease in explanatory capability. This suggests that the under- and overreaction phenomenon of small stocks originate from those firms that do not issue cash dividends. On the other hand, the explanatory capability significantly increases with large stocks, for those that both issue and do not issue cash dividends. This is especially the case for those that do issue cash dividends and is also true for long-term holdings. Moreover, we also find that in large stocks of Panel A, the six-month holding period was originally not significant for variables X_{52} and X_{max} . However, with further subgrouping, we find that those that issue cash dividends become significant, and the signs for those firms that do not issue cash dividends revert to normal. The empirical results show that the presence of cash dividend issuance for the explanation of the size effect has a similar result as the book-to-market ratio effect.

In previous sections, we explained the importance of firm profit through both the rational and irrational perspectives in order to discuss the formation of the value premium. Section 241 of the Taiwan Companies Act, which lists the rules for profit and distribution, states that cash dividends should be issued only when the firm is not returning a loss. Therefore, apart from being a proxy for firm profit, cash dividends can also serve as a benchmark for measuring a firm's financing constraint. If it is helpful in explaining the relation between abnormal phenomenon and firm profit using cash dividend grouping, then logically, it would also imply that financing constraint is related to a firm's operational difficulty. In order to address this issue, we adopt three other proxy variables that measure financing constraint. These variables include debt-to-total capital ratio, cash flow-to-total capital ratio, and the KZ-Index, which allow the researchers to further examine subgroups and robustness.

Table 3: Monthly Overlapping Regression – Firm Size

	Panel A: Full Sample			Panel B: Without Cash Dividend Issuance			Panel C: With Cash Dividend Issuance		
	X_{52}	X_{max}	R^2	X_{52}	X_{max}	R^2	X_{52}	X_{max}	R^2
Small									
1-Month	0.18*** (5.82)	-0.20*** (-5.53)	0.08	0.23*** (6.60)	-0.26*** (-6.25)	0.08	0.04** (2.01)	-0.04 (-1.49)	0.03
3-Month	0.54*** (8.71)	-0.58*** (-7.83)	0.10	0.7*** (10.35)	-0.77*** (-9.33)	0.12	0.13*** (3.46)	-0.11** (-2.31)	0.04
6-Month	0.73*** (7.88)	-0.69*** (-6.19)	0.17	1.01*** (9.10)	-1.03*** (-7.52)	0.20	0.22*** (4.94)	-0.15*** (-2.58)	0.11
12-Month	0.53*** (5.36)	-0.34*** (-2.73)	0.22	1.02*** (8.61)	-0.90*** (-6.13)	0.28	0.4*** (7.75)	-0.26*** (-3.69)	0.21
Big									
1-Month	0.04** (2.00)	-0.04 (-1.44)	0.04	0.06*** (2.87)	-0.07** (-2.45)	0.03	0.05*** (2.92)	-0.05** (-2.55)	0.03
3-Month	0.05 (1.20)	-0.01 (-0.15)	0.11	0.11*** (2.67)	-0.11** (-1.99)	0.03	0.14*** (4.10)	-0.14*** (-3.44)	0.07
6-Month	0.04 (0.73)	0.08 (1.31)	0.26	0.09 (1.49)	-0.02 (-0.23)	0.11	0.29*** (7.07)	-0.27*** (-5.50)	0.15
12-Month	0.18*** (3.18)	-0.01 (-0.13)	0.40	0.32*** (5.02)	-0.26*** (-2.93)	0.22	0.49*** (10.83)	-0.48*** (-8.36)	0.25

This table presents the results for the monthly overlapping regression, with the regression shown below: $R_{future,t} = \alpha_0 + \beta_1 R_{pass,t} + \beta_2 X_{52,t} + \beta_3 X_{max,t} + \beta_4 D_t + \beta_5 I_t + \varepsilon_t$. $R_{future,t}$ represents the future excess return (1, 3, 6, and 12 months); $R_{pass,t}$ represents the past excess return (1, 3, 6, and 12 months) and the corresponding future excess return; $X_{52,t}$ represents the extent to which the Taiwan Weighted Index approaches its 52-week high; $X_{max,t}$ represents the extent to which the Taiwan Weighted Index approaches its historic high; D_t represents the Taiwan Weighted Index at its historic high; I_t represent the Taiwan Weighted Index set to the new high. The risk-free rate is the one-year fixed-term deposit rate of the First Bank of Taiwan. The sample period covers the period 1995–2015. Repeated sampling is conducted on a monthly basis. The Newey-West method is adopted to control heterogeneity and autocorrelation. The values in the brackets are t-values. The asterisks *, **, and *** represent 10%, 5%, and 1% levels of significance, respectively.

Explanatory Capability of the Three-Factor Model

Subsequent to confirming that the presence of cash dividend issuance is helpful in clarifying under- and overreaction phenomena, it is worth further exploring whether financing constraint is an important characteristic in determining asset portfolio pricing. Theoretically, when the three-factor model has explained three variables, the intercept α no longer carries any meaning. To test this hypothesis, we continue to examine the presence of cash dividend issuance in Panels B and C of Tables 2 and 3. Concerning the coefficients of regression for the various holding periods, we want to observe if they can be captured by the HML and SMB factors. The result shows that the group with a holding period of six months fits our expectation, and hence, we use this group to conduct the three-factor regression analysis. The results are presented in Table 4. Panel A of Table 4 shows that without grouping, SMB and HML do exhibit significant explanatory capability: 0.9063 and 0.2355, respectively. However, the intercept α is significant and not zero, suggesting that there are still other factors that cannot be captured by the model. The samples grouped by the presence of dividend issuance are displayed in Panels B and C.

In Panel B, the RMF coefficient for firms that do not issue cash dividend increases to 1.1584; *SMB* and *HML* decrease to 0.5735 and 0.1791, respectively, and all three are significant. The intercept α fits our expectations and no longer carries meaning. This result implies that for firms that do not issue cash

dividends, these three factors can completely explain the variation in returns. Moreover, it is apparent that in Panel C, the RMF and SMB for firms that issue cash dividends decrease to 0.9714 and 0.7860, respectively, whereas *HML* increases to 0.2980. All three factors are significant, and yet the intercept α is not zero, which remains the same as before grouping is done, suggesting that it cannot completely explain the variation in returns. In general, the results in Table 4 indicate that the Fama-French three-factor model can only explain the excess returns for those firms that do not issue cash dividends (with a financing constraint), but as such, cannot completely explain the excess returns for those that do issue cash dividends (without a financing constraint)

Table 4: Three-Factor Regression Analysis

	Panel A: Full Sample	Panel B: Without Cash Dividend Issuance	Panel C: With Cash Dividend Issuance
α	0.0044*** (2.8092)	-0.0002 (-0.0923)	0.0075*** (3.6026)
<i>RMF</i>	1.0592*** (135.9235)	1.1584*** (93.6937)	0.9714*** (92.5167)
<i>SMB</i>	0.9063*** (42.3430)	0.5735*** (19.9452)	0.7860*** (37.1317)
<i>HML</i>	0.2355*** (21.8586)	0.1791*** (11.3323)	0.2980*** (19.5870)
R^2	0.9526	0.8969	0.9081

The regression for the three-factor model is described as follows: $RPF = \alpha + \beta_1 RMF + \beta_2 SMB + \beta_3 HML + \epsilon_i$. *RPF* represents the abnormal returns of the asset portfolio; *RMF* represents the market risk premium; *SMB* represents size premium; *HML* represents book-to-market ratio premium. The risk-free rate is the one-year fixed-term deposit rate of the First Bank of Taiwan. The sample period covers 1995 to 2015. Repeated sampling is conducted on a monthly basis. The values in the brackets are *t*-values. The asterisks*, **, and *** represent 10%, 5%, and 1% levels of significance, respectively.

To be prudent with our results, it is necessary to test the reaction prior to grouping the data. Looking back at the reaction of various holding periods prior to the grouping in Panel A of Table 2, we find that in the three-month holding period, X_{max} in the value stocks is highly significant, whereas in the growth stocks, such a variable appears to be insignificant. Theoretically, overreaction phenomena can be captured through the calculation of the *HML* factor. The reaction of various holding periods prior to the grouping in Panel A of Table 3 is similar to that of the three-month group. X_{52} and X_{max} appear significant in small stocks but this is not the case for large stocks. Therefore, in theory, through the calculation of *HML* and *SMB* factors for the three-month holding period, the group should be able to completely capture under- and overreaction phenomena. Owing to this, we speculate that the explanatory capability of the three-factor model in the presence of dividend issuance for the three-month holding period would be better than that of the six-month holding period. By the same token, we also extend the examination to the subsamples of various holding periods. As there appears to be a ten-year cycle in the stock market of Taiwan, we segment the data into three subsamples with a ten-year period for each. The subsamples include the 1997 global financial crisis, the bursting of the 2000 technology bubble, the subprime mortgage crisis of 2007, and the subsequent global crisis in 2008. Through the frequency and length of the systemic risks, we examine whether our findings are robust. The results are shown in Table 5.

Owing to the fact that every factor has a significant explanatory capability and the emphasis of this research lies in the discussion of the significance of the intercept α , Table 5 only presents such significance. It is apparent in Panel A of Table 5 that the intercept α of Sample A (without being segmented) is significant, implying that there are still other anomalies in the returns that cannot be explained by the three-factor model. However, after grouping, we find in Panel C that the intercept α is even more significant for those firms that issue cash dividends. The intercept α for those that do not issue cash dividends in Panel B no longer carries meaning. This finding further strengthens our speculation. We further examine the subsamples of various periods and find that the intercept α in Samples C and D of Panel C appears to be significant and not zero; only Sample B is not significant. On the other hand, the intercept α for those firms that do not issue cash dividends in Panel B is not significant for all subsamples. This result confirms that our finding is, in fact, robust: under the circumstances where a cash dividend is not issued, through the calculation of the *HML* and *SMB* factors, under- and overreaction phenomena can be captured, resulting complete explanatory capability of the three-factor model.

Table 5: Three-Factor Model Regression Analysis – Cash Dividend

	Panel: A Full Sample	Panel B: Without Cash Dividend Issuance	Panel C: With Cash Dividend Issuance
<i>Sample A: 1995.6~2015.5</i>			
<i>α</i>	0.0020* (1.6839)	-0.0009 (-0.4874)	0.0047*** (3.1856)
<i>Sample B: 1995.6~2005.5</i>			
<i>α</i>	-0.0028 (-1.601)	-0.0026 (-1.2139)	-0.0016 (-0.6976)
<i>Sample C: 2000.6~2010.5</i>			
<i>α</i>	0.0007 (1.2747)	0.0012 (1.4271)	0.0010* (1.7092)
<i>Sample D: 2005.6~2015.5</i>			
<i>α</i>	0.0084** * (5.6846)	0.0035 (1.2599)	0.0114*** (7.5182)

The regression for the three-factor model is described as follows: $RPF = \alpha + \beta_1 RMF + \beta_2 SMB + \beta_3 HML + \epsilon_i$
RPF represents the abnormal returns of the asset portfolio; *RMF* represents the market risk premium; *SMB* represents size premium; *HML* represents the book-to-market ratio premium. The risk-free rate is the one-year fixed-term deposit rate of the First Bank of Taiwan. The sample period is 1995–2015. The holding period of the asset portfolio is three months. Grouping is determined by the presence of cash dividend issuance. The values in the brackets are *t*-values. The asterisks *, **, and *** represent 10%, 5%, and 1% levels of significance, respectively.

Assuming that firms that do not issue cash dividends are significant to the three-factor model, we ask whether this implies that firms facing financing constraints are capable of capturing the returns of the common factor through the market, size, and book-to-market effects. Apart from the proxy for firm profit, cash dividend is also a sound measuring tool for financing constraint. Therefore, we speculate that financing constraint is also the interfering factor for size and book-to-market effects. Debt-to-total capital ratio, cash flow-to-total capital ratio, and the KZ-Index are then adopted as proxies for financing constraint, through which a robustness test can be applied to the groups of financially constrained and non-financially constrained firms. At the same time, the examination can also be applied to determine whether financing constraint is the critical aspect in improving the explanatory capability of the three-factor model. Table 6 presents the result for the three-factor regression with grouping under financing constraint. First, after conducting a subsample, the intercept α of low debt-to-total capital ratio (*LDC*) firms is consistently significant and not zero. In the case of firms with high debt-to-total capital ratio (*HDC*), apart from the intercept α for the subsample of Sample B not being significant, the three-factor model is fully capable of explaining future returns. In addition, the intercept α for firms with high cash flow-to-total capital ratio (*HCC*) is consistently significant and not zero. As for firms with low cash flow-to-total capital ratio (*LCC*), the intercept α is only significant in Samples A and B, and yet, carry no meaning in Samples C and D. Finally, the intercept α for firms with a low KZ-Index (*LKZ*) is consistently significant and not zero. For firms with high KZ-Index (*HKZ*), apart from the intercept α in Sample B not being significant, the remaining subsamples of the three-factor model cannot explain future returns.

Table 6: Three-Factor Model Regression Analysis – Financing Constraint

	Firms Without Financing Constraint			Firms With Financing Constraint		
	LDC	HCC	LKZ	HDC	LCC	HKZ
Sample A: 1995.6~2015.5						
α	0.0054*** (4.2025)	0.0138*** (11.8097)	0.0424*** (2.7577)	0.0054*** (3.6333)	-0.0127*** (-7.1149)	0.0484*** (3.1547)
Sample B: 1995.6~2005.5						
α	0.0041* (1.9016)	0.0135*** (7.3682)	-0.0655*** (-2.7451)	0.0012 (0.5090)	-0.0247*** (-9.2670)	0.0288 (1.4133)
Sample C: 2000.6~2010.5						
α	0.0103*** (5.6234)	0.0224*** (12.636)	0.212*** (10.1146)	0.0172*** (7.8756)	0.00148 (0.5749)	0.2017*** (9.4190)
Sample D: 2005.6~2015.5						
α	0.0077*** (5.6168)	0.0153*** (10.9785)	0.1643*** (10.4739)	0.0104*** (6.1415)	-0.0028 (-1.3007)	0.0724*** (3.3454)

The regression for the three-factor model is described as follows: $RPF = \alpha + \beta_1RMF + \beta_2SMB + \beta_3HML + \epsilon$
RPF represents the abnormal returns of the asset portfolio; *RMF* represents the market risk premium; *SMB* represents size premium; *HML* represents book-to-market ratio premium. The risk-free rate is the one-year fixed-term deposit rate of the First Bank of Taiwan. The sample period covers from the period 1995–2015. The KZ-Index is set on the first day of June; grouping is ranked from large to small, with the sample being divided equally into three subgroups. The top and bottom groups are set as the subgrouping standard (the same grouping method as the debt-to-total capital ratio and cash flow-to-total capital ratio). The values in the brackets are t-values. The asterisks *, **, and *** represent 10%, 5%, and 1% levels of significance respectively.

Combining the results in Table 6, the intercept α for firms without a financing constraint (*LDC*, *HCC*, and *LKZ*) is consistently significant and not zero. The future returns for firms with financing constraints (*HDC*, *LCC*, and *HKZ*) for specific time periods can be completely explained by the three-factor model. The result explains that under the three-factor model, the performance of firms with financing constraints is better than those without financing constraints, i.e., the Fama-French three-factor model can only provide logical explanations on financing constraint from the risk perspective, but is not capable of providing adequate explanations for firms with low risk and low financing constraint. This result proves our speculation that financing constraint is the critical factor in raising the explanatory power of the three-factor model.

CONCLUSION

Financing constraint is a precondition to financial distress. Even though financing constraint does not translate to financial distress, from the risk perspective the core of the factor model being size, book-to-market ratio and stock return share common risk factors. This can be explained through the risk compensation of financial distress. We logically suspect that this is related to a firm’s inability to obtain the needed funds due owing to a financing constraint. From the behavioral perspective, a financing constraint is the result of asymmetric information. The higher the level of information asymmetry, the more difficult it is for a firm to obtain external funds. Such a situation makes it harder for external investors to assess actual firm value; consequently, this brings about psychological bias and the eventual mispricing of firm stock. Therefore, we believe that from the financing constraint perspective, it should be possible to bring about a common explanation for the debate on the risk and behavioral perspectives on market anomalies. This study conducts empirical analysis on the weekly stock price data of companies listed on the Taiwan Stock Exchange between 1995 and 2015. First, from the behavioral perspective and on the basis of investors’ limited attention and anchoring psychology, the grouping of the asset portfolio index is by individual characteristics including value stocks, growth stocks, large stocks, and small stocks (Yang, Li, and Hsu, 2016). Utilizing such an index and the 52-week high as well as historic high ratios, we measure the extent of under- and overreactions of the investor (Li and Yu, 2012). Subsequently, we use the nature of the three-factor model to capture whether under- and overreaction phenomena are prevalent in different holding periods for these two proxy variables. Under further subgrouping by the financing constraint characteristic, the analysis explains the difference resulting from the book-to-market ratio and the scale effect. Finally, from the risk perspective, we examine the inference through the explanatory capability of the three-factor model.

Empirical evidence shows that under- and overreaction generally exists in the Taiwan stock market. The cash dividend characteristic is the primary cause of the sign abnormality for the book-to-market ratio and size effect. The three-factor model only has the complete explanatory capability for firms that do not issue cash dividends, proving that cash dividend is capable of explaining the extent of the under- and overreaction phenomena, and hence is an important factor in bringing about the expected return of the capital asset. This coincides with the critical link between the risk perspective of firm profit as the relative distress hypothesis and mispricing hypothesis of the behavioral perspective. Apart from being the proxy for firm profit, cash dividend is also a sound measure for the financing constraint of the firm. We use the KZ indicator and other proxies for financing constraint to conduct the robustness test and evidence shows that financing constraint is the critical factor in the improvement of the explanatory capability of the three-factor model. Our evidence also proves that the difference of market abnormality can be more logically explained from the financing constraint perspective. Financing constraint provides a common explanation for the risk perspective and behavioral perspective literature.

Examining explanations in discussions of market anomalies from the risk and behavioral perspectives, we find firm profit to be the critical link between the two. According to Section 241 of the Taiwan Companies Act, cash dividends can be issued only in the case where a firm is not making a loss. Therefore, we adopt cash dividend as the proxy for firm profit in order to conduct the empirical examination and consequently obtain cogent results. Since cash dividends derive special meaning in the context of the Taiwan stock market, our results also prove that cash dividends are the most important factors that affect the expected returns on stock. Therefore, we recommend that future research can further examine whether the inclination of the issuance of cash dividend by firm managements is aimed at meeting special requirements of the investors. Alternately, is it possible that investor sentiments alter a firm's dividend policy? However, owing to limited data, we are unable to further discuss the effect of investor category on the results. As to the measure of investor reaction from the behavioral finance perspective, the extent of research seems to be slightly inadequate. In the event of future research obtaining these data, we recommend that it be incorporated in the investor category variable in the discussion of the other characteristics of the firm; such a step would clarify the factors that drive such phenomena in order to achieve a more precise result. On the other hand, investor composition varies from nation to nation and can be affected by internal factors such as personality, preference, emotion, and so on, as well as external factors such as social environment, economic performance, government policy, and so on. Therefore, we would recommend future researchers to utilize the data from different nations in order to examine the results put forth by this study. International evidence could make our results more complete and help in making them more objective.

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SUCCESS CHARACTERISTICS OF FOREIGN DIRECT INVESTMENT IN CUBA

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ABSTRACT

FDI in the Cuban tourism industry has grown rapidly under the leadership of Cuban President Raul Castro. However, because of the US embargo, the Helms Burton (1966) Act, and competitive business strategies, little scholarly information exists on company experiences in Cuba market entry. This qualitative case study examined the market entry strategies, challenges, opportunities, and actions of 20% of the tourism businesses operating in Cuba. Key results revealed the US embargo constrained Cuba market entry on multiple levels including legal, financial, resources, and supply chain. Cuban decision-making practices were challenging as was the establishment of a business relationship. Relationships, adaptability, and developing unique, Cuba-centric business strategies were crucial to success. Tax strategy, human resources legislation, safety, and security were not factors.

JEL: F1, F2

KEYWORDS: Cuba, Foreign Direct Investment, Trade, International, Tourism

INTRODUCTION

Cuba is an emerging market with 11 million people, a growing demand for products and services, and a government open to foreign direct investment (FDI) from multiple countries (Economist Intelligence Unit, 2014; Feinberg, 2013; Solorza, 2016). To acquire hard currency to pay global bills and strengthen the Cuban economy, FDI in the tourism industry has grown quickly under the leadership of Cuban President Raul Castro (Smith & Walter, 2016), and represents a critical aspect of economic development (Carty, 2009). Businesses can access the call for investment by the Cuban government (CEPEC, 2015), but they do not have studies or data about the performance of Cuban market entry strategies. Detailed case study information describing the specific steps taken by successful Cuba market entry companies is not found in the literature as companies working in Cuba are reluctant to reveal their competitive business strategies, violate the US Embargo, or the Helms-Burton Act (1966) (DeGeorge, Tweed, & Donville, 2014; Frank, 2013; Lamrani, 2012; Price, 2016; Spadoni & Sagebien, 2013). As a result, little information exists to guide businesses interested in foreign direct investment in the Cuban tourism industry. To close the information gap this qualitative case study examined market entry strategies, challenges, opportunities, and organizational actions of 18 tourism businesses operating in Cuba as of January 31, 2015. The 18 tourism businesses were a subset of 91, non-Cuban businesses operating in the tourism industry in Cuba for at least 2 years. From the master list of 91, businesses were contacted until a representative sample of 20% (18) was achieved. To further develop the reliability and validity of the study, additional, in-depth interviews were conducted in June and July of 2015 with the presidents or company leaders of 10 of the representative 18 tourism companies.

By illustrating how successful tourism industry companies entered the Cuban market and achieved sustainability, potential investors can learn from these experiences to build and/or fine tune their own market entry strategy (Matysiak & Bausch, 2012). This study may narrow the gap between Cuba as a potential location for FDI and the specific actions taken by companies to establish business operations in

Cuba. Specific actions may include how companies adapt to the political and economic challenges, establish legal entities, attract customers, manage financing challenges, and manage human resources. This information may be of interest to businesses, as relationships with Cuba continue to evolve and improve (DeGeorge et al., 2014; Rainsford, 2014). Following is a review of the literature, a detailed explanation of the data and methodology used, key study results, references, and author biography.

LITERATURE REVIEW

The literature review provided the basic framework for the research on success characteristics of foreign direct investment. The broad, theoretical underpinnings of FDI showed first mover advantage (McMillan, 2015; Murray et al., 2012), foreign direct investment theory (Blonigen & Piger, 2011; Hymer, 1976; Trapczynski 2013), internationalization theory (Brida, Driha, Rodriguez, & Scuderi, 2015; Mura, Grublova, Gecikova, & Kozelova, 2011), and the behavioral theory of FDI were prominent in new market entry (Cyert & March, 1963; Harlan, 2014). The literature noted FDI in Cuba was challenged by Cuban political and economic infrastructure (Burbach, 2013). The US embargo was noted as affecting supply chains, infrastructure services, banking, and finance (Martinez, 2015). The tourism industry was promoted by the Cuban government (CEPEC, 2015) but little research existed that provided a descriptive analysis of success characteristics of FDI in the Cuban tourism industry. Collectively the literature review contextualized FDI in Cuba and provided the rationale for the study.

DATA AND METHODOLOGY

In this study, market entry was defined as the individual steps taken by businesses to register, license, operate, and manage an organization in a foreign location (UNCTAD, 2015). The tourist industry was defined as, organizations whose purpose is to accommodate, entertain, and/or operate tours for individuals or groups who are outside of their normal environment (Smith, 2015; The Tourism Society, 2016; UNWTO, 2015). Using this definition an in-depth search of tourism companies was compiled from public sources. A total population of 91 firms were identified as operating in Cuba for at least two years as of January 30, 2015. From this list a representative sample of 18 were studied. From the representative sample of 18, a total of 10 executives were selected to be interviewed in-depth (see Table 1).

Table 1: Phase 1 Study Population

Name	Country of Origin	Primary Activity	Size*
Academic Arrangements Abroad	US	Educational Activities	Small
Auburn Travel	US	Educational Activities	Medium
Axis Hospitality	Canada	Hotels	Small
Cross Cultural Journeys	US	Tours	Small
Cuba Educational Travel	US	Tours	Small
Cuba Group Tours	Australia	Tours	Small
Cuba Travel Network	BVI	Aggregated services	Small
Cuba Ventures	Canada	Aggregated Services	Small
Distant Horizons	US	Tours	Small
GoNext	US	Tours	Small
Iberostar Hotels	Spain	Hotels	Large
Insight Cuba	US	Tours	Small
Melia Hotels	Spain	Hotels	Large
Paragon	US	Tours	Small
Road Scholar	US	Tours	Small
Sunwing	Canada	Aggregated services	Medium
Vox	Canada	Hotels	Medium
Y'alla	US	Tours	Small

Note. Small = < 20 people; medium = 20-100 people; large = > 100 people. Note. Small = < 20 employees; medium = 20-100 employees; large = > 100 employees. This table shows the tourism companies, their home country, the type of tourism industry in which they engage, and the size of the company. This set of 18 companies is a representative subset of the tourism companies operating in Cuba as of January 30, 2015.

The definition of success in market entry in this study was based on market longevity. Longevity was selected as best representing the ability of a firm to enter and remain in the Cuban market rather than a specific financial metric. Longevity as a metric is often used as a measure of market entry success, particularly for smaller business (under 500 employees). For example, the United States Small Business Association (SBA), measures longevity as a success metric (Small Business Association Office of Advocacy, 2015). Critical components of market entry were identified from the literature and the World Bank's doing business database (World Bank, 2014). The interview questions were constructed and validated by subject matter experts (SMEs) and academic professors experienced in interview data collection. Informed consent and confidentiality documents were signed by all interview participants, and permissions sought from applicable country ethics boards. Interviews were conducted by phone, recorded, and transcribed by a professional transcription service. Participants were provided with a copy of the interview transcript and asked to validate the transcript accuracy. If required, corrections were made until the participants confirmed the accuracy of their statements.

Five types of data were collected during this research: interviews, discussions, public data, government data, and non-governmental organization (NGO) data. The data analysis processes followed Creswell's (1998) established methods for collecting and analyzing data from participants in a case study. Creswell's emphasis on chronological order and the treatment of patterns in the data provided a good fit for this case study (Creswell, 1998). The internal and external validity of the study was enhanced by multiple reviews of the study, two data collection databases, data triangulation, and keeping an audit trail.

A constant comparative analysis process was conducted using a customized computer program (Glaser & Strauss, 2007) to compare information from the 10 interview participants and publicly available documents from the 18 representative sample companies. The combined research from all sources revealed rich, contextualized information that described organizational market entry actions. Comparing information from multiple sources revealed similarities and differences in approaches to market entry with emerging ideas and points of emphasis showing similarities among participants, particularly in terms of patterns of success characteristics for Cuban tourism market entry. From the analysis, five themes emerged, which are discussed in the following section.

RESULTS AND DISCUSSION

Research results showed the primary underlying theoretical motivation for existing tourist companies in Cuba was first mover advantage (44.44%), theory of FDI (27.77%), internationalization theory (22.22%), and the behavioral theory of the firm (5.55%). Interviewed participants and public data provided by the participants described the US embargo as a primary constraint in market entry. The embargo hampered capital acquisition, banking, supply chain movement of goods and services, internet interface, and negatively affected investment in property, plants, and equipment. Understanding the way in which the Cuban government and agencies conducted business was also challenging. All participants commented on the length of time it took for the Cuban government to render a decision on investment, and the practice of collective decision-making as challenges.

Companies overcame these challenges by developing relationships with the Cuban government, their home government, service, and supply chain providers. For US companies, obtaining a license to do business in Cuba was required, but little support for market entry was provided by the US government. Private management companies provided some market entry support. Non-US companies worked with their bilateral chambers or government agencies, Cuban and home country, which they found helpful. Results showed organizations adapted to market entry challenges by developing new relationships, adapting to the environment, focusing on product differentiation, as well as giving back to the Cuban people and country. Table 2 summarizes the organizational responses to market entry challenges and opportunities.

Table 2: Primary Organizational Response to Market Entry and Challenges

Responding to Challenges	Responding to Opportunities
Established relationships	Partnered with government and hotels, developed new relationships
Adapted	Worked to provide better booking arrangements
Worked directly with management companies	Used vertical integration strategies
Set up operations in different countries	Incorporated sustainability
Used product differentiation	Curated experiences for tourists
Provided multiple experiences	
Deepened relationships by giving back	
Market positioning	
Changed pricing strategy	
Promoted understanding	
Changed booking strategy	
Gave back to the communities	

This table shows what the study participants did to respond to Cuba market entry challenges and opportunities. To respond to the challenges companies established relationships including working with management companies, Cuban officials, and developing relationships with Cuban communities. Companies adapted by differentiating products and services, market positioning, and booking strategies. Study participants responded to opportunities by partnering with government, hotels, and organizations to develop better service delivery methods, including curating unique tourism experiences. Participants used vertical integration strategies to better control the customer experience.

Adaptability was found to be a core capability that allowed Cuba market entry companies to succeed in doing business in Cuba. This need for adaptability could be seen in the increasing demand for Cuba travel experiences and a limited supply of hotel rooms and guides, which put pressure on the cost of market entry and Cuba as a destination. Study participants found tipping and training facilitated the performance of staff. Challenges aside, Cuba was found to be a safe location in which to do business and travel, with corruption and ethics not major concerns to market entry. Five themes emerged from the research which were common across all participants and provided insights into Cuba market entry.

Theme 1: Limitations for entry. A review of the literature indicated the opportunity to invest in Cuba was described in attractive investment terms (CEPEC, 2015), but US companies faced limitations (Feinberg, 2012; Guerra, 2015; Laitamaki, et al., 2016; Price 2016; Sheldon, 2008; Sullivan, 2014; Villaverde, 2010; Wylie, 2012). This study found US embargo constraints for all companies included obtaining financing, dual currency, ownership of property, and operating costs (Sullivan, 2014; US DoT, 2016; Wylie, 2012). This did not stop market entry, particularly if infrastructure investment in Cuba was limited. Participants noted overcoming these challenges resulted in competitive advantage.

Theme 2: Relationships are critical. All companies in this study mentioned the development of relationships with Cuban government, service, and supply chain providers as critical to market entry success. Maintaining and enhancing relationships with officials responsible for these services was noted as important for the mutual exchange of information, ideas, and education, and to enable access to resources. Relationships with service providers was critical in developing secure supply chains. Relationships, it was noted, were not established quickly. It took time to develop a trusting relationship with Cuban officials and supply chain providers. Relationships with Cuban social and environmental organizations was mentioned as helpful.

Theme 3: Consider the customer. As Smith and Walter (2016) noted, the Cuban government has financial challenges and the Cuban people have the lowest disposable income in the world (World Bank, 2016). A key finding of this study was the financial importance of identifying the “paying customer.” Participants identified foreign tourists, US tourists, and some Cuban government projects as viable customer targets. Tourism businesses were considered attractive in Cuba because the paying customers were generally outsiders as Cuban people as tourists were not consumers.

Theme 4: Crafting a unique business strategy. This study found creating a business strategy that works in Cuba required a unique business model. Feinberg (2014) noted the Cuban government is constrained financially and operationally, while owning all the means of production (Wilson, 2014). The Cuban political system and property ownership are unique and most market entry companies did not have specific, reproducible, strategy experience in this environment. Market entry strategies that worked in other countries did not work when directly applied to Cuba market entry. Thus, crafting a business strategy that worked in Cuba required a new approach, one which required building better interpersonal relationships.

Theme 5: Adaptability is a necessity. Because there is little information about Cuba market entry (Feinberg, 2012; Laitamaki, et al., 2016; Sheldon, 2008; Villaverde, 2010) study participants all concurred that adaptability is a core competency. Study participants mentioned being patient, solving supply chain problems, market shortages, connectivity, changing government strategy, modifying offerings, and adaptability to changes in the Cuban environment as key market entry competencies, required to provide a consistent customer experience. Activities noted by participants as secondary in importance help illuminate the differences in Cuba market entry as compared to other countries. Table 3 shows the secondary Cuba market entry activities that businesses did not find to be of critical importance.

Table 3: Cuba Market Entry Activities of Secondary Importance

Activity	Rationale
Corporate tax strategy	Doing business in or with Cuba did not result in favorable tax benefits or a reduction in taxes overall
Corporate legal structure	Legal structure of business in Cuba not a factor for most study participants
Lack of Internet/technology systems	Not a factor for most companies, companies managed around the lack of service
Employer/employee legal relationship	Not a factor for most companies, Cuban labor at this time, primarily owned by the state (somewhat similar to union relationships)
Ability to hire/fire employees	No safety concerns reported with Cuban tourist travel, other than general travel safety applicable to all countries
Safety concerns	No safety concerns reported with Cuban tourist travel, other than general travel safety applicable to all countries
Differences in ethical perspectives	No concerns relative to bribery, unethical behavior, unethical culture

This table shows the Cuba market entry activities which were of secondary importance in Cuba market entry. Typical market entry considerations as described in literature (World Bank, 2016) were not described as critical considerations in market entry. These results were somewhat unexpected based on anecdotal information.

Although market entry in foreign countries includes legal, tax, and human resources infrastructure issues (World Bank, 2016), only one participant reported Cuba market entry was constrained by corporate tax strategy, nor were tax benefits for doing business in Cuba a factor in market entry. Similarly, the legal structure was not a factor in market entry for most study participants (as they did not own property in Cuba), although some reported minor difficulty with home country or Cuban market entry legal paperwork. Normal travel precautions were mentioned as Cuba lacks good roads and has some food safety issues, but Cuba was considered a very safe country in which to work or visit. Ownership of private property was mentioned as a possible impediment to in-country investment as a result of property ownership disputes from pre-1960 (Martinez, 2015; Price, 2016). Companies investing in a building or property were conscious of potential pre-revolution property ownership disputes.

The employer/employee relationship in Cuba was not considered an impediment to improving the performance of employees. Companies generally worked around this challenge by offering non-statutory benefits such as tips, education, or travel opportunities. The well-educated Cuban workforce was considered a strong benefit of working in Cuba. All study participants considered Cuba safe for travelers. While the Cuban government may constrain free speech and protest policies, study participants reported no concerns of safety for guests or businesses in Cuba. However, this does not mean the threat of deportation, fines, and property appropriation does not exist in the tourism industry (The Economist, 2012; Freeman, 2013; Vasilak, 2015). The Cuban government has not always positively interacted with tourism companies (The Economist, 2012; Freeman, 2013; Vasilak, 2015). Similarly, the ethics of doing business in and with Cuba was not considered an impediment to market entry. Organizations entering the Cuban market found

there to be few issues with unethical behavior. One company executive reported an expectation of “consideration,” but this was the exception.

CONCLUDING COMMENTS

The objective of this research was to add to the scholarly body of information on Cuba market entry by examining the market entry strategies, challenges, opportunities, and actions of tourism businesses operating in Cuba. From a total population of 91, 18 representative companies were studied, with in-depth interviews conducted with 10 company leaders. A constant comparative analysis process was conducted using a customized computer program (Glaser & Strauss, 2007) to compare information from 18 representative companies and 10 interview participants. The combined research revealed rich, contextualized information that described organizational market entry actions. The constant comparison method enabled by a customized computer program allowed for triangulation of information from 10 company leadership interviews, 18 companies, and public information.

The study found the theoretical underpinnings of market entry were less important than the relationships developed between inbound companies and Cuban officials. Whether to facilitate better relations with Cuban officials or a commitment to philanthropy, study participants noted positive results arising from organizational leaders who developed a personal interest in Cuba, and in response, provided support to Cuban organizations and causes. Market entry was constrained by the US embargo on multiple levels, including obtaining a license (for US organizations), difficulty attracting financing, banking, access to markets, advertising, transportation, and technology platforms. These constraints, however, were not sufficient to limit organizations from achieving market entry. In fact, overcoming these challenges gave market entry companies a competitive advantage. Similarly, a lack of Internet access, the state driven employee/employer relationship, tax strategies, and legal infrastructure did not constrain market entry. Adaptability was found to be a core capability that allowed Cuba market entry companies to succeed in doing business in Cuba. This need for adaptability could be seen in the increasing demand for Cuba travel experiences and a limited supply of hotel rooms and guides that put pressure on the cost of market entry, and the not inexpensive nature of Cuba as a destination. Study participants found tipping and training facilitated the performance of staff. Challenges aside, Cuba was found to be a safe location in which to do business and travel, with corruption and ethics not a concern in market entry.

The Cuba market entry literature indicates an increase in investment opportunities in Cuba (Holmes, 2010; Price, 2016). Investment opportunities are increasing for United States companies (Pickrell, 2014). This study may add to the literature by illuminating the challenges and opportunities experienced by Cuba market entry organizations, and their responses. Li et al. (2006) noted that collaboration was an efficient way to obtain services, gain support, and understand the market. This study found a similar understanding in that collaborating or entering business relationships with Cuban-based or destination management businesses was a common step taken by study participants. Adaptability was also a key step used by organizations entering the Cuban market, with changing pricing strategies to offer a range from very low cost to higher cost experiences a strategy pursued by some of the smaller organizations. Some organizations adapted their strategies to better relate to their Cuban partner organizations, while adapting booking strategies helped companies find new customers and work around the restrictions of the US embargo.

A limitation of case study design is that the approach may make it more difficult for researchers to make reproducible predictions from their data (Hesse-Biber & Leavy, 2011). One way to overcome this limitation is to use companies that accurately reflect the phenomena under study, as this study attempted to do through the selection of diverse FDI companies that were major providers of tourism services in Cuba. Bias is another limitation to case study design, particularly with the selection of participants and interpretation of the results (Chenail, 2011). To minimize bias the researcher used independent peer review and oversight, two structures for data analysis and review, and interview transcript review. As a communist controlled

country, strict controls are placed on information provided by the Cuban government (Feinberg, 2013). Finding reliable, unbiased, and verifiable data is challenging (Feinberg, 2013; Price, 2016). These challenges made the use of data triangulation as used in this research (Homburg, et al., 2012) critical to data verification and results reliability.

This study only considered FDI with respect to the Cuban tourism industry and only considered those companies that had been involved in this enterprise as of January 2015. While it is felt that this study has done a thorough investigation of this topic, recommendations for future research include broadening the type of businesses studied and considering Cuban FDI market entry that has taken place since the relaxation of US-Cuban regulations in January 2015 (US DoT, 2016). For example, additional industries to consider for research might be agricultural companies, extraction businesses (mining, minerals, and oil), medical related industries, and retail. Companies in different markets may have different experiences with market entry than those found in this study regarding tourism. These opportunities could greatly expand if the currently approved U.S. travel to Cuba (US DoT, 2015) expands further and if U.S. Cuban embargo constraints are lessened or eliminated (Smith & Walter, 2016). Further, the conclusion of this dissertation in November 2016 coincided with the death of Fidel Castro and the election of Donald Trump as United States president. These two events will have a significant affect on the development of future relations between the U.S. and Cuba for some time. Researchers may find in these changes an opportunity to consider additional research.

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ENTREPRENEUR WOMEN AND LOCAL DEVELOPMENT IN RURAL MEXICO AREAS

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ABSTRACT

This paper provides an analysis of local development, to deepen understanding of characteristics and behavior of women in rural areas in the municipality of Los Cabos, Baja California Sur. Specifically in the local delegations of Santiago, Miraflores, and La Ribera. We also identify investment opportunities that promote the entrepreneurial activity of women in that area. We wish to determine the business opportunities available in the area. We also identify market demands, available and potential resources, and analyze the possible impact of local areas through potential economic activities. The methodology involved examining documentary sources. In addition, we utilize direct observation, and planning workshops. Later, we administer a questionnaire to a representative sample of women from the study area. The results allow us to diagnose the woman's situation and her development opportunities.

JEL: J16, R11, R58

KEYWORDS: Entrepreneurialism, Gender Focus, Territorial Development, Rural Area

INTRODUCTION

There exists little research related to rural regions which focuses on women, promoting entrepreneurship and local development particularly. This research incorporates a diagnostic and contextual territorial analysis of the rural areas north of the Los Cabos municipality. We found businesses with potential. Parallel market necessities and resources available are identified for promoting projects and micro-entrepreneurship actions of women. This is done within the methodological model of local development and social capital. The study area includes rural delegations of Miraflores, Santiago, and La Ribera, which form the northern region of Los Cabos.

We begin with a conceptual premise which states that endogenous resources of a region, city or location trigger their economic development possibilities (Llamazares & Berumen, 2011). By exploiting their competitive advantages, it is possible to propose strategies and goals that promote local economic development. The municipality of Los Cabos, and particularly women residents in the area, constitute the study's subject. Furthermore, this document focusses on promoting the entrepreneurial attitude, with the aim of facilitating women's economic empowerment. We identify factors that, from our point of view, are essential requisites for real gender equity. These factors are closely related to the introduction of women in the working field and productive activities. This new productivity of women raises their self-esteem.

In this research, we define "ability or entrepreneurship attitude" as the capacity of a person to identify and take advantage of opportunities. This capability allows them to take initiative to start a business or enterprise, using their knowledge, experiences, contacts, economic resources and other resource requirements (Rodríguez, M., & Santos, 2008). Frequently, entrepreneur women (particularly of mid-lower income), start business activities because they aspire to practice a business idea covering a market niche.

They do it for the knowledge and experience in the field. Mostly they engage in entrepreneurial activity because of the necessity to generate income and contribute to family expenses. In this context, the research questions that guide this article are:

1. Which social-economic characteristics, productive vocations and diverse cooperation and collaboration modalities are present in women from the northern rural areas of Los Cabos?
2. From local development and social capital, is it feasible to generate strategies that boost and promote entrepreneurial capacity? Can we create micro-businesses to benefit the women of rural areas?

Considering these questions, and based on a sustained analysis in the local economic development, this work has two goals: First, we seek to improve the knowledge, characteristics, and behavior of women in the northern rural area of Los Cabos. Second, we wish to identify opportunities for investment (or local modalities of establishing businesses) that promote the entrepreneurial activity of women in this field.

Our methodology uses documented sources in the form of statistical, socioeconomic, demographic data analysis and development plans related to the study area. We also examine results of previous studies made in other regions of the country. Next, we select a representative sample of women from the area. We administer a questionnaire. Some key actors in the area answered a very detailed interview.

The paper is organized as follows. In the next section, we provide a review of the literature. The following section provides a discussion of the methodology. The next section presents results from the study. Finally, the paper closes with some concluding comments and suggestions for future research.

LITERATURE REVIEW

Theorist-Conceptual Fundaments of the Local Development

There is no common definition for local development. Regardless of the conceptual differences in the field, local development is a process intended to create new institutions, boost alternative economic activities and promote new enterprises that propitiate domestic economic development. Hence, the diagnostic of each territory requires information including goals. Therefore, a diagnostic requires a long-term scenario to efficiently use available resources in the location (Arenas, 2007).

More recent theories (Pike, Marlow, McCarthy, O'Brien, & Tomaney, 2015) recognize the role that institutions have played in economic development in the last decade. These institutions have influenced the behavior of economic actors and their relationships. They favor an integral economy in the processes of production, commercialization, exchange, consumption, and regulation. As informal institutions, they represent traditions and cooperative work between the public and private sector. The combination of both allows an influence platform which determines attitudes, behavior, and decision-making in a stable and predictable way, thereby providing a sense of certainty.

The Organization for Cooperation and Local Development (OCDE) considers three elements that influence decisively the creation of new businesses and the innovating growth of the PYMES. These are human capital, research development, and institutional capability. The development of these three capabilities contributes to the efficient integration of a sustainable economic development (OCDE, 2011). This new local development approach aims to redirect the participation of government and the planning of their public politics. Currently, municipal authorities face the challenge of developing political capabilities to relate to women. They need to do this not as mothers, poor ladies or women beneficiaries, but as citizens. This situation does not imply that the municipal government should ignore social assistance. Rather they should combine it with local economic development policies with a gender perception. In a local economic

development model, it is important to recognize the necessity of identifying, formulating, and managing development programs to encourage entrepreneurial initiatives among women. The model should stop considering them as "social workers" or a "free public service," always available for every problem or social emergency. For this, the OCDE recommends promoting programs designed to facilitate women self-employment and establish women as active elements of the local economy. However, it is necessary to recognize the existence of some issues that interfere with the development of women entrepreneurial initiatives such as: 1.) Women that are heads of household and live in extreme poverty conditions, 2.) When their domestic role is projected on public space, but gender inequality is not decreased or eradicated, and 3.) In general, women have limited access to financing or entrepreneur credit programs (an obvious example of this are the difficulties they faced to show credit guarantees).

Social Capital and Women

Three types of resources are important from an entrepreneurial scope including physical capital which is composed of tools, machines, production equipment, and installation, amongst other. This constitutes the real inputs of enterprises and allows them to perform their economic activities and develop with them. Another form of capital is human. We consider the capabilities and abilities of the people that operate machinery and thereby create more capital. The third type is social capital, which shows how the relationships between people allow these actions to happen (Coleman, 1988). From an economic viewpoint, we define this as the capability of mobilizing resources in a specific area for the benefit of all the actors.

There are three aspects which determine social capital: relations based on trust, reciprocity, and cooperation (Delgado, Lobo, & Garcia, 2010). These factors determine the establishing of long lasting relationships, that allow the development of social capital. They are directly related to compromises made by the community to achieve the objectives. They are not benefiting themselves, but are part of the engine from which people depend. Therefore, it is important to build effective networks in those sectors where there exists inequality.

The World Bank defines social capital as formal institutions, values, and beliefs that allow the interaction of government with citizens and facilitates social and economic development. Social Capital shapes a multicultural and social phenomenon that includes the predisposition of people to cooperate, based on reciprocity and trust, with institutions, organizations, associations. Ways to strengthen these networks include increasing the network size and social, cultural, and economic capital volume that the members of it possess (De La Peña, 2014).

Social capital has various inadequacies and inefficacy when promoting local development of rural regions. One of the most important is gender inequality. Women in this environment face unfavorable conditions, and that they are discriminated on based on three ideologies: belonging to a rural area, living in poverty or vulnerability, and being women. The economic relations formed inside the communities modifies the composition of work distribution in a radical form. Because of this, the woman is affected even at their home. They are expected to continue with their social "free" work (child raising, caretaker of the elderly, and domestic labor). Moreover, their integration, voluntarily or not, to the work field is to supply necessities at home.

For these reasons, social capital is important for the local development in rural areas. It provides integration, sense of belonging and collective synergy that allows the network association of economic agents to promote local economic development. Recent innovation in social capital theory integrated to counteracting factors: overlay and autonomy. The former concerns the network of mutual obligations that generates trust and altruist behavior between communities with strong links. The second, allows individuals belonging to these regions to create and keep social relations with persons and institutions outside their community

(Narotzky, 2016). Both factors allow for building more trust in communities and, at the same time, keeping individual rights, thereby avoiding power impositions or social injustices.

We must consider rural areas in the entrepreneurial field to denote local development of the regions. Social capital plays an important role in entrepreneurial behavior. Social capital allows economic agents to acquire opportunities, knowledge, and support for the creation of new enterprises, as well as to reach the stability or development of those already established. It is necessary that this sense of "development" considers women to be an active part. Many studies show that the participation of women has been increasing through time. Even in Mexico, there are only a few studies focused on how women entrepreneurship has boosted the economic development in some areas. Women are considered an engine of growth for the economy, development in the professional field and as earning personal realization (Escamilla, Caldera, & Cruz, 2015).

METHODOLOGY

The analysis here is quantitative, cross-sectional, analytical and descriptive. The universe was obtained from the National Directory of Economics Units of Mexico (INEGI,2015). We selected women-owned companies for the sample located in the rural northern zone of the municipality of Los Cabos. The sample considers 125 companies that met these criteria.

The applied methodology consisted of two phases. The first phase of the qualitative approach was completed through direct observation and three participatory planning workshops. These techniques allowed the generation of socioeconomic and demographic information to characterize and contextualize the area and population subject of study. The second phase is based on descriptive-deductive research, through the application of customized structured surveys. Some 35% of the sample was from the delegation of Santiago, 30% the delegation of Miraflores and the remaining 35% the delegation of La Ribera.

The survey is composed of six sections, incorporating 54 items. The first section includes six questions regarding information and general characteristics of the company, which is measured using the nominal scale. The following five sections incorporate reactants aimed to locate and value the respondent's perception of some relevant variables for research, such as training, financing, cooperation and institutional management between companies. These variables are evaluated with a Likert's scale.

For the implementation of the survey, direct communication with the female entrepreneurs of the rural northern zone of the municipality of Los Cabos was established. Research was conducted in a personal way for the period between March and November 2016. The information was recorded, analyzed and validated by the statistical program SSPS version 21. Reliability analysis was performed using the Cronbach's alpha coefficient, whose results fluctuate between 0.72 and 0.91 for the five factors (constructs). The validity of the constructs was based on confirmatory factor analysis obtaining results with factorial loads higher than 0.60 which indicates a correlation of the subject variables of study.

RESULTS

Contextual Analysis

Baja California Sur is composed of five municipalities: Mulegé, Comondú, Loreto, La Paz, and Los Cabos which is located at southern tip of the peninsula and has the most intense touristic activity. From a planning developing viewpoint, Los Cabos consists of five small areas: Cabo San Lucas, Golfo Sur, North of Cabo San Lucas and north of Los Cabos which includes the rural area and rural population of San Jose del Cabo. According to INEGI (2015), Los Cabos includes 287,671 inhabitants, representing the 40% of the total population of the state making it the most populated municipality. The local head, San Jose del Cabo, is

located 190 kilometers from La Paz, the state capital, and 33 kilometers from Cabo San Lucas. In the administration, the municipality counts four local delegations: Cabo San Lucas, Miraflores, Santiago, and La Ribera which are considered rural.

The growth in touristic activity, trading, and associated services (to which a strong boost to the construction sector must be added) have favored a strong immigration process of people looking for jobs and a better quality of life. Due to the touristic specialization of the municipality, 78% of the working population concentrates in the tertiary sector. The tertiary sector resolves around commerce, services (in particular the ones related to what is there on offering the tourist) and communications (Montaño, 2014). Tourism development and population growth, have triggered an explosive demand for housing, generating pressure for public ground, public services and infrastructure, which has caused some social disequilibrium.

General Characteristics of the Towns in the Rural Area of Los Cabos

Santiago Delegation: It is located north of the headboard municipality. Administratively, it is composed of the sub-delegations of Buena Vista, Agua Caliente, El Zacatal II, San Jorge, Las Cuevas, San Dionisio, Rosarito II, and El Hepazote. They add up to almost 6,500 inhabitants (INEGI,2015).

The delegation's territory is located in the foothills of the Sierra de La Laguna. For this reason, it covers a significant part of the Protected Natural Area (ANP) of the Sierra de la Laguna. Therefore, Santiago is an oasis in Baja California Sur. Santiago has one of the most important hydrologic basins in the state, which provides water to the touristic development in Los Cabos. This region and BCS, in general, has a shortage of water.

The local economy of the region is focused mainly in the tertiary (48% of the enterprises) and primary sectors (32% of the total in agriculture and livestock). According to information from SAGARPA (2015), the delegation of Santiago includes 512 hectares of irrigation open to the cultivation of vegetables, fruits, as well as organic horticultural products that are exported to the United States market. The agriculture and livestock industries are operated by family owned farms, over generations, in orchards and properties where water is available. Women participate in these farms. Natural resources recognized by its inhabitants include cultivation land, livestock land, the lagoon, the mountain's springs, landscape, and wild fauna and flora.

La Ribera Delegation is located on the coast of the California Gulf. This community also has great touristic potential, both in sport fishing and the maintenance and services of holiday homes of foreigners. This population belongs to Cabo Del Este development. From a domestic economic development perspective, this area is considered a potential extension of the present touristic corridor Cabo San Lucas-San Jose del Cabo. For this reason, in the last few years, it has been developed a service infrastructure for tourism. Because this is a growing touristic destination, and its proximity to the ANP of Cabo Pulmo (under protection for 20 years), it has kept a remarkable rate of immigration population growth (about 15% between 2010 and 2015) especially construction workers. According to INEGI (2015), the urban area of La Ribera had 2,351 inhabitants in 2015. The distribution by gender has stayed at 52% and 48% of men and women respectively. Also, in 2015, 45% of the population participated in economic activities, from which 70% were men and 30% were female.

The economic activities concentrate mainly in the tertiary sector focusing on conservation and careful exploitation of the natural resources in the area, attracting tourism with the national park of Cabo Pulmo. Nonetheless, activities such as commercial fishing and agriculture have some representation. The exportation of organic vegetables is a significant activity, for which 655 hectares are used. Natural resources recognized by women from La Ribera are the coast, cultivation land, botanic gardens, fishing resources, reefs, the regions' flora, fresh water, marine fauna, and landscapes.

Miraflores Delegation is part of the so-called (northern corridor) of Los Cabos and an important part of its rural zones. This delegation represents the native *Ranchero*, which still endures despite the social and cultural transformations that happen. This area has especially been impacted by foreign tourism in the area of San Jose-Cabo San Lucas. This foreign tourism motivates the young population to emigrate to cities looking for more job opportunities.

Miraflores is a town that shows a trend of population diminishing. Between 2010 and 2015 the resident population diminished from 1,389 to 1,370 inhabitants, with a 52% to 48% male to female mix. The economically active population included 74% men, and only 26% women.

The primary sector has a notorious superiority in the local economy, including 60% of the registered commercial units (most of them common land or small properties). The population historically has been dedicated to orchard cultivation and bovine livestock for sale on a small scale and for personal consumption. Culturally, Miraflores has always been related to animal skin works and saddling, as well as making traditional native sweets. Economic activities represented are livestock, agriculture, woodworking, eco-tourism, commerce, fruit farming, native traditional sweets making, bread making, and transformation of dairy products. Due to its abundant vegetation, and because it is one of the accesses to the ANP of the Sierra de La Laguna, it is frequently visited by foreign tourists. Nevertheless, to this day, the area does not have enough infrastructure to fully dedicate to touristic activity.

Social-Economic Characteristics of Women in the Rural Area of Los Cabos

Miraflores, Santiago and La Ribera are research subjects. They are rural because of their demographic conditions. According to INEGI, communities with less than 2,500 inhabitants are rural, even when they have the services and infrastructure of urban areas such as potable water, drainage systems, electricity and phone services. Based on the Municipality Development Plan 2015-2018 of Los Cabos, 80% of the population have these services available.

Information required to do this analysis was obtained at planning participation workshops that were performed in 2015 within the research project "Local Development and Promoting for the Creating of Microbusinesses for Women in Poverty Condition" (Montaña, A; Perez, 2015). At the framework of these workshops, a questionnaire was applied which allowed us to collect social-economic information and understand the situation and condition of participating women from the areas of study. The workshop announcement was made by the municipality's DIF system, as well as the local delegates and sub-delegates and citizens representing their communities.

From the participative planning exercise, the following information was obtained: 1.) The age of the female economically active population ranges between 20 and 55 years old, 2.) The level of education is elementary 54%, secondary school finished or unfinished 29% and secretary or nursing degree 12%. Only 5% has a high school level studies or degree, 3.) Perception viewed their preparation to be minimal when talking about promoting productive employment and self-generating enterprises, 4.) Most of them lack sufficient knowledge about creating a project, business planning, marketing, accountability, and adequate credit management, 5.) Their experience and participation in organizations is limited to community committees, parent's associations, neighborhood meetings and health committees. But, they recognize that they do not always act in an articulate way, and 6.) 51% of the surveyed women were heads of their household (either by being separated, or single mothers), 37% are married or in cohabitation, and 12% are either widows or single.

The women's micro enterprises in the rural zone that have potential for success are: commerce, sewing shops, tourism related services (mostly nature type), transforming dairy products, elaboration of crafts and

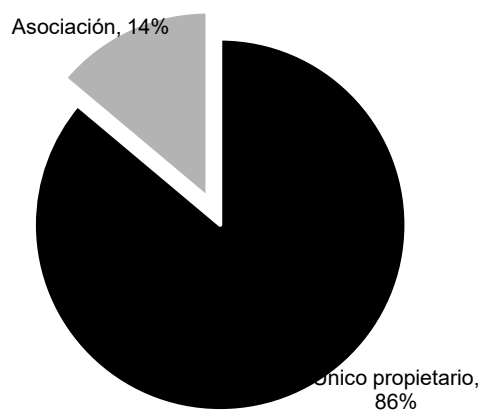
food selling. Some also indicated activities related to livestock and agriculture, since they contribute with some cultivation labor (especially vegetables in Miraflores and Santiago) or in the maintenance of bovine cattle and cheese by doing chores. In the case of Santiago and La Ribera, participants also reported their participation in some eco-tourism activities such as touristic guides, food preparation and cabin rental.

Local Productive Structure of Women in the Rural Areas

Formalization and size of enterprises : In this section, we report results obtained from the questionnaires applied to a sample of entrepreneurial women. These women own businesses in the communities included in the study. The goal of the poll was to identify characteristics, problems, organization manners, cooperation and collaboration modes. We also wish to identify the role or function of government as an investment promoter and government’s role in directing women entrepreneurship in the rural areas. We also hope to identify investment opportunities that promote entrepreneurial activity of women in the area.

The data gathered from the questionnaires, was stratified with the preliminary correlation information that exists between legal organization type and the size of the enterprises of women in the rural areas. In general, 86% had only one owner, whereas the 14% left use entrepreneurial association modality for operation (mainly in common land, producer's associations and sport fishing). Some 87% are registered as micro businesses (according to the sale levels and number of employees).

Figure 1: Legal Organization Type

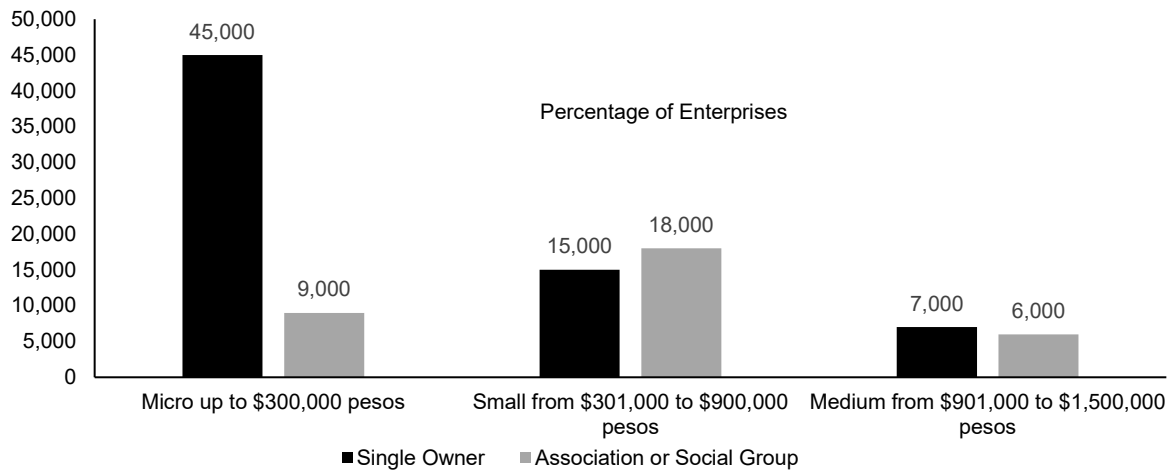


This figure refers to the legal organization of the enterprise. The data indicates that 86% out of the 125 enterprises directly surveyed are property owners, and the majority, with a certain degree of informality. Only 18 enterprises or 14% are registered by some kind of producers association such as ejidos and cooperative system. Source: Own elaboration enterprise questionnaire 2016.

Apart from the organic products enterprises from Miraflores, tourism services reflect the highest degree of formalization. Due to its sale levels, they belong to small companies that tend to the nature tourism demand located in the ANP of the Sierra de La Laguna (Santiago) and Cabo Pulmo (La Ribera).

Another factor that affects the local productive infrastructure of this enterprises concerns the training modalities. There are no medium-high education or training centers available in the area (except Santiago, which has CECYT). On occasion, thanks to some government institutions, courses for the development of handicrafts or traditional professions are taught. In practice, the training form that it is primarily registered is t training with a 58% of the companies surveyed. Courses taught by governmental institutions such as the work ministry at a federal or municipal level are reported by 22 percent of companies. The remaining 20% operate their businesses without ever have received any training.

Figure 2: Legal Organization and by Enterprises Size



The figure 2 Indicates that out of the total of 125 enterprises 54% of them are micro-enterprises due to their range of sales, 33% are small enterprises and only 13% medium size enterprises. There is no record of large enterprises. Services providers such as hosting and nature tourism gastronomy and horticultural enterprises have graters leves of sales and formality. Source: Own elaboration enterprise questionnaire 2016.

Financing and Productive Activity

External financing programs have some major barriers. Some programs are at high-interest rates while others have excessive bureaucracy and some entrepreneurs lack awareness about financing plans. On average 66% of the companies do not know about existing programs and the procedures to follow. They indicate a shortage of promotion for federal financing programs targeted towards women. There is currently a wider view of programs and opportunities that provide economic support to new businesses. However women have taken the least advantage of them because they do not even know, nor have not heard of the existence of such programs.

Local rural development requires enough capital to get investments, infrastructure, employment and public revenues. The presence of necessary capital resources is fundamental to propitiate this development and to transform it into efficient growth. It is vital that in a local economic development model, that enterprises have access to different sources of capital. In this sense, the role of financing government programs for productive activities turns out to be a fundamental support tool for local economic development.

Personal or family savings primarily fund businesses started by area women. They appeal in a limited way to external financing. This occurs primarily in the building and start-up stage of the firm. In the start-up state, the main sources of funding are financing with self-resources (89.3%) and utility re-investment (70.7%). Likewise, we observed that there is not an efficient use of financing programs at the federal level or from the development bank. Only a 22.0% and a 13.3% of businesses report having used these as sources of funding respectively.

Next, we consider the main barriers to external financing programs. External financing is defined as capital that comes from outside the company, to which it accepts a previous deal, with the understanding that they have certain cost (expressed as an interest rate), demand the fulfillment of legal requirements and are registered as passive. This is the case of resources stemming from banking institutions, development banks, and federal financing programs. Even when federal programs have better interest rates, they still imply some interest and repayment of capital. Internal financing is those capital sources that have no cost for companies since they develop from negotiations, alliances, deals or decision making from within the enterprise. Examples include partner contributions, utility re-investment, and negotiations that imply the

securing of capital through strategic alliances and agreements with foreign investors. As noted earlier women have taken least advantage of these programs due to a lack of knowledge regarding their existence.

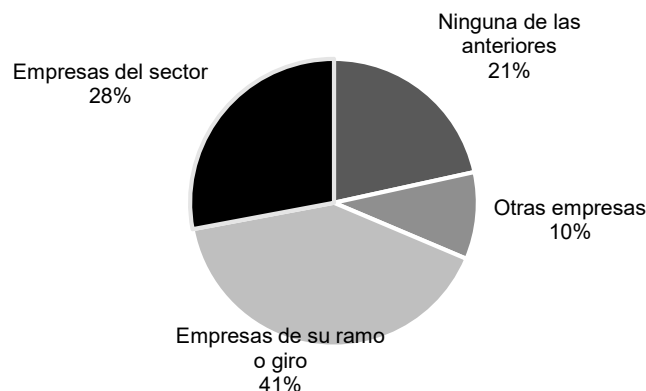
Association and Entrepreneurial Collaboration

The business network organization, linking small and medium companies involved in long-term productive projects, as well as institutional cooperation for productive development, determine local development strategies and economic models. These variables are fundamentally related to the linkage that must exist between the local development actors.

Economic linkages among companies led by women in the rural areas of Los Cabos is evaluated based on two variables: informal cooperation among businesses and participation in associations and corporate bodies. Some of those interviewed express some cooperation or collaboration with other firms in the area (83.4% of the total). As shown on Figure 3, these relationships are sought with businesses of the same type (36%). Some 16.6% express that they don't make any level of collaboration and that they like working individually. Only 11% work with companies of the same sector that they perform at. This last segment represents the best situation for creating social capital in the area, but it is noted to be a very limited percentage. This situation happens despite them operating (generally) in a limited geographical sector. Almost always their market is confined to the local market. It produces more to a local and/or regional demand. It serves necessities of basic consumption for the majority of the population. As an example, some companies from women of La Ribera and others linked to the ANP of the Sierra de La Laguna, whose main activity relates to nature tourism.

Sometimes some level of collaboration is shown. This happens in areas such as group commercialization (48.8% of the companies), cost reduction (25.9%) and access to new markets (18.2%). Therefore, the possible collaboration among entrepreneurial women is framed under aspects related to the commercialization of products or services. In most cases, collaboration surges from relationships and family links or social relations. Some productive collaboration emanates from meetings or invitations from government bodies or from entrepreneurs. This approach works only for entrepreneurial women that belong to common lands or some producers association, such as the ones linked to agricultural, livestock, and nature tourism services production.

Figure 3: Collaboration Relationships Amongst Enterprises



This figure provides information referred to the type of association and cooperation presented among the owners of the companies. Some 83.4% indicate that they have a form of cooperation even if is informal. It is mostly among companies with the same business activity. Sixteen percent do not register any form of collaboration. Source: Own elaboration enterprise questionnaire 2016.

An additional characteristic in the businesses or enterprises of women from the rural area of Los Cabos is the little interest expressed for participating in organizations and entrepreneurial associations. Only 36% of

the total interviewed women participate in a regular way in these activities. The rest dismiss them stating that they prefer to work in an individual way and that they consider it too difficult to work in the producers groups.

Productive Activities

The productive economic activities of the micro and small enterprises of women from the rural area of Los Cabos are located primarily in commerce, craft elaboration, gastronomy, organic agriculture, livestock on a small scale and activities directly related to nature tourism.

Entrepreneurial women from the Miraflores delegation, aimed their productive activities towards businesses that are very traditional to the area. Woodwork crafts elaboration, saddlery, local meal preparation, as well as transforming fruit into traditional regional candy. Women also have small commerce businesses and sewing shops. In livestock, women participate in the elaboration of cheese. In agriculture, the production of herbs and organic vegetables is emphasized. Unlike the Santiago delegation, in Miraflores the business of women is lower. Here it is limited to support labor in family businesses. In the work fields, women expressed their interest in having their own business. However, they have not had financial support, training or counseling for the creation of their businesses and their respective operations.

Women from the Santiago delegation participate in productive activities. Specifically they work to turn fruit into regional candy (activity only performed by women), agriculture (in some cultivation labors), livestock (milking cows and elaborating cheese) and in ecotourism micro-enterprises or nature tourism. Our findings indicate that women have a leadership role in nature tourism. They participate actively in the administration and organization of their companies. Their fields include businesses that provide recreation, hospice, and food in the area of the ANP of the Sierra de La Laguna. Even though there is potential for nature touristic development in the area, entrepreneurial women register a set of necessities and requirements to accomplish the activity. These necessities and requirements include labor capital, time for taking care of their business, training for improving their services and products, as well as learning to commercialize and manage their business.

The La Ribera delegation is characterized by its economic dynamism around tourism. Thus, the productive activities of women are directly linked with touristic activities mainly with those derive from the ANP of Cabo Pulmo. These activities include eco-touristic services micro-enterprises, adventure tourism, restaurant services, hospice and small-scale commerce.

CONCLUSIONS

The outcome of this research, particularly the diagnosis and the socioeconomic profile, allowed us to characterize and assess the entrepreneurial capacity of women in the rural area of Los Cabos. We conclude that social capital plays a significant role in women's entrepreneurial performance. Aspects that contribute to the achievement of the initial objectives are questions assessed in this research.

We detected that business training of the interviewed woman is minimal or limited to carrying out productive activities that generate entrepreneurship actions. The micro-enterprises of rural women operated in a limited geographical area. Women are the owners, producers, and managers of their small business, while at the same time the majority operate in the informal economy. The financing of their micro-enterprises is made from personal and family savings, or from reinvestment of profit. Only a small group of businesses have benefited from federal funding programs and none from banking institutions.

The information provided allows for identifying future lines of research mainly around the development and creation of social capital. Future research might also examine the latent demand for greater institutional

management of the government that promotes local economic development among women in the rural area of Los Cabos. We conclude that future research should be taken into account that women's enterprises can be linked directly to the development of nature tourism in the Natural Protected Areas of Cabo Pulmo and the Sierra de la Laguna. The example of the entrepreneurs of Santiago delegation indicates that it is possible to begin to promote the transition of entrepreneurial women through this route to local economic development.

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CROWDSERVING: A LAST MILE DELIVERY METHOD FOR BRICK-AND-MORTAR RETAILERS

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ABSTRACT

The retail industry increasingly is shifting to online sales. According to Forrester Researchers, ecommerce has seen an increase of over 10% per year. To be able to compete, brick-and-mortar retailers have begun offering customers free online order pickup options at their retail stores. However, customer demands are shifting to a same-day home delivery model. This home delivery model has companies such as Amazon searching for new technologies to deliver faster. For brick-and-mortar stores to compete, they must try to match this same-day home delivery model to meet customer demands. Last mile delivery (LMD) is an option for brick-and-mortar stores given that they store products at multiple retail facilities and distribution centers. Some brick-and-mortar stores now are incorporating third party carriers to provide same-day delivery. The drawback to LMD is the increased transportation cost, which includes vehicle, fuel, and driver costs. This article explores the option of a variation of crowdsourcing along with current technologies in the way of cell phone apps utilizing GPS technology and real-time notifications to explore a viable customer delivery method for LMD. This new method will provide a way to reduce transportation costs and to make LMD more feasible at many brick-and-mortar retailers.

JEL: M110

KEYWORDS: Crowdsourcing, Crowdserving, Last Mile Delivery, Ecommerce, Brick-And-Mortar

INTRODUCTION

Brick-and-mortar stores began with a basic idea—centrally locate stores in optimal locations to minimize customer travel distance to the stores. The challenge to retailers is that this model of delivery is changing. Ecommerce has entered the picture and has changed the structure of goods delivery. In the past, delivery has been primarily business-to-business (B2B). B2B was accomplished primarily through manufacturers shipping their goods to larger distribution centers. Then these goods would be shipped later to large retail stores. The new structure of delivery is business-to-customer (B2C)—skipping the retail store and shipping products directly to the customer (Joerss, Schroder, Neuhaus, Klink, and Mann, 2016). This new model of goods delivery changes final destination from the retail store to the customer’s home. Many brick-and-mortar stores are trying to compete with this new model of home delivery with in-store pick up of online items to eliminate customer delivery charges. At the same time, online companies such as Amazon now are offering same-day delivery. Some online retailers are looking for even faster ways to get products to a customer’s home with instant delivery options (Joerss et al., 2016). Similar to pizza delivery, goods are delivered quickly from a facility using drones as the carrier. This new system of delivery in which the carrier is autonomous and not a physical person is referred to as X2C (Joerss et al., 2016). However, this drone method faces several challenges including, but not limited to, the following: atmospheric conditions, load limits, and privacy issues of flying over houses at close range. Because of these challenges, drones may not be as feasible for long distance as some people believe. One short-term method to overcome these challenges would be using an autonomous vehicle with delivery drones as the package handlers. The autonomous vehicle could be

parked in front of a customer's home while the drone retrieves packages from the vehicle and delivers the packages to the customer's doorstep. Because this option would decrease flying distance, there would be fewer problems dealing with atmospheric conditions. In addition, multiple trips could be used when more than one package has to be delivered to overcome load limits (carrying capacity) of the drone, and privacy would no longer be an issue because drones would not need to fly over houses. It is estimated that by the year 2025 up to 25% of the retail market will be made up of either instant or same-day deliveries (Joerss et al., 2016). This figure will cause more of a necessity for brick-and-mortar stores to create new methods to compete in the near future. However, the costs of facilities and last mile delivery will create challenges for brick-and-mortar retailers. Specifically, brick-and-mortar retailers must be able to drive down cost enough to compete with their online competitors.

The remainder of this paper is organized as follows. The next section reviews the literature on three topics related to the model presented later in this paper—ecommerce, last mile delivery, and crowdsourcing. The next section presents the methodology used to develop the last mile delivery model. After that, results and discussions are presented. The last section includes the conclusions with limitation and future research.

LITERATURE REVIEW

Ecommerce

It is very common for customers to look online for purchases of goods that they traditionally would have purchased through a brick-and-mortar store (Esper, Jensen, Turnipseed, & Burton, 2003; Song, Cherrett, McLeod, & Guan, 2009). Forrester Researchers show ecommerce to be increasing at a rate of nearly 10% per year (Forrester Research eCommerce Forecast, 2014-2019 (US) Online Retailing Tops \$300 Billion in 2015). With this type of growth, ecommerce has shifted the structure of the current retail market from B2B to B2C (Joerss et al., 2016). Because of this shift, ecommerce has become a prerequisite for success in retailing. Today ecommerce requires more than selling online—it also requires delivering a product to a customer's home in a reasonable time. Brick-and-mortar stores increasingly are using in-store pick up of items sold online to create a faster option compared to normal online delivery to a customer's home. Ecommerce companies such as Amazon now are offering same-day, or sometimes instant delivery (within 30 minutes), to compete with in-store pickup. Even more recently, brick-and-mortar stores have started using third party carriers such as Google Express and Shipt to deliver items to the customer's home. Shipt also has created a separate business in delivering items from stores that do not offer same-day delivery (Shieber, 2017). Shipt has employees who will shop for the order placed and deliver it to the buyer's home. This creates the option for same-day delivery even when the brick-and-mortar store does not offer this delivery. However, these delivery options can be expensive to the customer ordering the items with yearly membership fees of \$99, \$7 extra costs if a \$35 minimum amount is not ordered, and a cost of over 13% more per item (How Are Your Prices Determined?). Online retailers dealing with some of the issues of last mile delivery discussed in the next section are searching for new and less expensive methods of transportation to reduce the cost of last mile delivery. Many new methods of transportation such as autonomous vehicles and drones have joined the conversation as ways to make last mile delivery cost less. These types of deliveries have been named X2C in which a human carrier is not present (Joerss et al., 2016). X2C is expected to be the future of delivery and will put a significant strain on brick-and-mortar stores as X2C delivery is expected to cost much less than traditional LMD. As the push for home delivery increases, the need for LMD in the transportation field continues to increase.

Last Mile Delivery Challenges

Home delivery is becoming an important part of retail. In the transportation industry home delivery is referred to as last mile delivery (Gevaers, Van de Voorde, & Vanellander, 2011; Lee & Whang, 2001; Song et al., 2009). The term LMD was created to reflect that many stores were located centrally within

their delivery areas such that the distance between most customers and the store was approximately one mile. Pizza and sub-sandwich restaurants that deliver have made a business out of this last mile type of service delivery. There are many challenges when it comes to last mile delivery for ecommerce. Those challenges include transparency/technology, delivery charges, environmental issues, speed of delivery, and perishable items (Gevaers et al., 2011; Joerrs et al., 2016; Lee & Whang, 2001; Song et al., 2009; 4 Challenges of Last Mile Delivery for eCommerce). Because of these challenges, many businesses have failed when trying to create a last mile delivery system (Punakivi, Yrjölä, and Holmstrom, 2001). We discuss each of these problems and provide a summary of this information in Table 1 below.

Delivery accuracy or transparency is very important to online shoppers—89% of online shoppers rate on-time delivery as high importance (Esper et al., 2003). Research has shown that tracking delivery dates alone is not enough; instead, real-time information with full visibility is now the key for delivery success (4 Challenges of Last Mile Delivery for eCommerce). Customers also demand to be able to offer input on their orders such as specifics about the product and how it is delivered (4 Challenges of Last Mile Delivery for eCommerce).

Last mile delivery costs more due to the cost of the vehicle, maintenance to the vehicle, delivery driver pay, and fuel. As much as 28% of the total delivery cost to a business comes from the last mile (4 Challenges of Last Mile Delivery for eCommerce). According to Joerrs et al. (2016), last mile delivery costs more than \$87.3 billion and has a growth rate near 10% annually worldwide. Last mile delivery in the United States, China, and Germany cost \$35 billion annually (Joerrs et al., 2016). These costs get pushed along to customers through shipping charges or many times in the product costs themselves (Gevaers et al., 2011; Joerrs et al., 2016). This increased cost is exacerbated by the security issue of the customer not being home for a delivery, which can lead to lost or stolen packages if packages are left at the door or, alternatively, issues with drivers having to re-deliver packages when the customer is not home, which increases fuel cost and environmental issues.

Last mile delivery has been cited as a serious issue causing harm to the environment (Gevaers et al., 2011). Given the expected rate of increase in LMD of close to 10% per year, this problem will grow (Joerrs et al., 2016). Less-than-truckload shipments, size and efficiency of vehicle, repeat deliveries when the customer is not home, and inefficient travel routes can lead to higher emissions and are the driving force behind environmental issues (Gevaers et al., 2011).

According to Joerrs et al. (2016), 23% of customers would pay more for same-day delivery, only 2% would pay more for instant delivery (within a half hour), and 5% would pay more for timed delivery. With timed delivery, a customer is notified of a narrow delivery window on a given day (Joerrs et al., 2016). This means that retail customers would like to see their items delivered same-day within a specified narrow time window and would pay a premium for that service, but they do not at this point care as much about instant delivery. When retailers offer same-day delivery; however, the delivery cost increases due to less-than-truckload shipments and fuel consumption due to inefficiencies in routes.

Preservation temperature regulations are a severe issue in last mile delivery (Brooksher, 1999; Witt, 1999). Certain foods must be kept cold or refrigerated during transport and require shipping in refrigerated or frozen trucks. At the same time, these orders of perishable items usually are small and thus drive up the cost of delivery substantially (Brooksher, 1999; Witt, 1999). Table 1 below summarizes the problems associated with last mile delivery discussed above.

Table 1: Current Challenges Associated with Last Mile Delivery

Current Challenge	Explanation of the Challenge	Reference
Transparency/Technology	On-time delivery Lack of ability for customer to input specifics on the item	Esper et al., 2003; 4 Challenges of Last Mile Delivery for eCommerce
Delivery Charges	Last mile delivery costs more than \$87.3 billion due to cost of the vehicle, maintenance to the vehicle, delivery driver pay, and fuel	Joerss et al., 2016; 4 Challenges of Last Mile Delivery for eCommerce
Environmental	Less-than-truckload shipments, type of vehicle, repeat deliveries when customer is not home, and inefficient travel routes can lead to higher emissions.	Gevaers et al., 2011
Speed of delivery	Significant demand for same-day delivery with timed delivery	Joerss et al., 2016
Perishable items	Preservation temperature regulations	Brooksher, 1999; Witt, 1999

This table shows the current problems associated with last mile delivery and references cited for those problems.

Crowdsourcing

Howe (2006a) coined the term “crowdsourcing” in *Wired* magazine. The idea of crowdsourcing was used primarily by companies for creativity or an intellectual task for which a company posted a problem that normally would have been solved by employees, but instead opened that problem up to be solved by anyone willing to solve the problem (Brabham, 2008; Howe, 2006a). The winner, or problem solver, would receive some type of award (usually a monetary prize). Howe (2006b) later expanded on the definition of crowdsourcing by stating, “It’s only crowdsourcing once a company takes that design, fabricates it in mass quantity and sells it” (Para. 1). The design that Howe (2006b) was referring to was a creative design that an individual in the crowd created. Many examples of crowdsourcing include creating computer programs, developing a design for a product, or creating a slogan. Crowdsourcing refers to the search for the creative or intellectual solution to a problem (Brabham, 2008; Howe, 2006a; Howe, 2006b). This search is achieved by an open call to the population (Brabham, 2008; Howe, 2006a; Howe, 2006b). The concept of utilizing the creativity of a crowd to solve a problem has shifted to crowds performing other labor-intensive tasks in the service industry. For example, companies such as Uber have been touted as users of crowdsourcing even though their business model does not fit the scope of the definitions described above. Because there is no design idea generated by the crowd or fabrication of that design as Howe (2006b) defined crowdsourcing, then Uber is not using crowdsourcing. For this reason, we refer to the approach used by Uber as crowdserving, as, “a business or individual who places an open call to perform a defined service that originally would have been performed by an employee, or contractor.” Crowdsourcing utilizes creativity while crowdserving requires a service from someone to complete a specified task. Crowdserving has been an efficient way for Uber to provide a cheaper option for transportation of customers. However, the Uber model does not have brick-and-mortar stores in which customers shop. Due to the lack of physical retail stores, Uber cannot utilize assets that are at their disposal (i.e., customers who are in the retail store and will drive home after shopping). This is because Uber notifies customers based on their willingness to drive and not based on the routes they will be traveling, which decreases efficiency in the network scheme. In the following section, the methodology is discussed in the context of systems theory.

METHODOLOGY

Systems Theory

In organizations, systems consist of people, structures, and processes that work together to make an organization healthy or unhealthy (Ackoff, 1978; Bailey, 1994; Bánáthy, 1996; Bausch, 2001; Buckley,

1967; Capra, 1997). Systems thinking has been defined as an approach to problem solving by viewing problems as parts of an overall system (Davidson, 1983; François, 1999; Gorelik, 1975). Companies are not judged solely by being in a given market; instead, they are judged by what they achieve in that market in terms of outcomes to their shareholders and stakeholders (François, 1999). Due to cost and the other issues presented in the previous section, one firm alone cannot handle the complexity of last mile delivery. A retailer needs the help and collaboration of an entire system in the delivery of a product; therefore, system resources (employees, customers, and suppliers) are needed to create the most successful outcomes (Davidson, 1983; Gorelik, 1975). Systems thinking is not one simple concept, but rather a set of habits or mechanisms within a framework that is based on the belief that the parts of a system can be understood best in the context of relationships with each other and with other systems, rather than in isolation (Checkland, 1981, 1997; Churchman, 1968, 1971).

The current study uses systems theory to explain that the retail store alone is not capable of providing the most cost efficient method of last mile delivery. However, a retail store has customers who potentially could deliver goods to other customers' homes. Given that customers leaving a store might be driving past the residence of another customer requesting home delivery, the marginal cost of that delivery should be low. When the retailer and customers partner for home delivery, both can profit. On a day-to-day basis, customers are driving to brick-and-mortar stores to shop for products anyway. Systems theory can be used to explain that the most cost-effective means for home delivery would be to have customers who are driving past the residence of a customer requesting home delivery drop off products at that customer's home. To make this model beneficial to all system members, there would need to be a monetary reward for the customers providing the home delivery service for the brick-and-mortar stores. Customers delivering products would receive payment from the retailer, and the customer receiving the delivery would pay the retailer a very small nominal fee (much less than a traditional delivery fee).

Model

Using systems theory, we created the new LMD design shown in Figure 1 below. Figure 1 shows the information and product flow in for a retail store for which customers are third party deliverers. First, a customer places an order online for home delivery. Second, that order information is transmitted to the store. Third, store personnel prepare the order and at the same time, the store places an open call for a customer in the store headed in the area of the delivery. Fourth, a customer in the store accepts the agreement to deliver, and the customer who placed the order is notified of a small delivery window. Fifth, information on the sale is sent to the factory so that the factory can replenish the inventory of the item. Sixth, the customer making the delivery picks up the products and delivers those products to the home of the receiving customer who placed the order.

RESULTS AND DISCUSSIONS

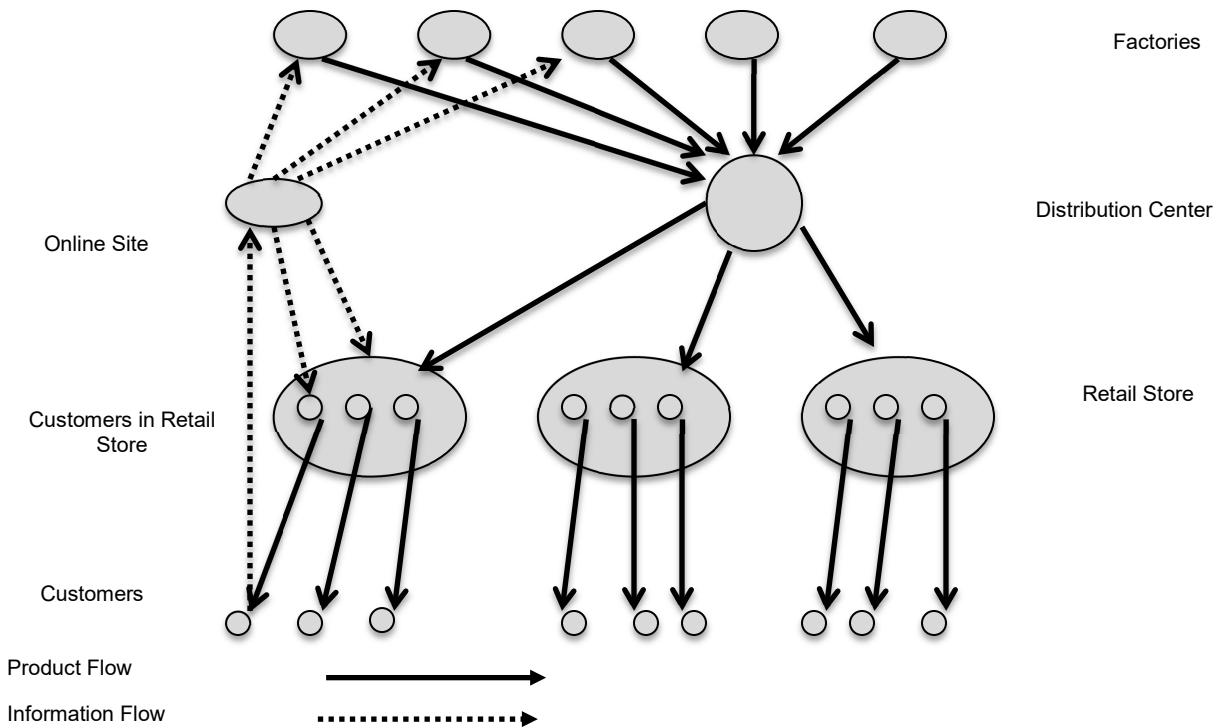
Next, we address how this new last mile delivery system utilizes crowdserving. We examine how crowdserving would enable a retail store to operate efficiently and how using in-store customers to make deliveries would help the store overcome the previously identified problems associated with last mile delivery. An analysis of how the proposed LMD system would address the different challenges associated with traditional LMD follows.

Crowdserving Last Mile Delivery Opportunities

The key to the functionality of the new LMD system will be the technology used. The customer delivering the order must have a cell phone with an app that allows GPS location. Their cell phone would notify them when they are in the store that a delivery is needed on their route back home if the delivery would fit in their vehicle. The customer delivering the product would need to subscribe to the free app

and enter their home address and vehicle information. If the in-store customer is headed somewhere other than their home, they would need to enter that address in the app when walking into the store. The app should allow for an easy change of destination for this reason. The app would have to default to the delivering customer’s home address the next time that person walks into the store. The customer placing an order online should be able to do so using an online portal or app to select and purchase products. This portal or app should allow for some customization, e.g., in terms of produce. For example, a customer placing an order should be able to specify the desired ripeness of bananas. Allowing customization creates a frictionless transaction, which can be an issue with traditional last mile delivery. The app should send notification of a pending order when the customer (potential deliverer) enters the store, allow that customer to accept or reject the delivery, and provide that customer with information on order status and the delivery location. If an order is in process at the store, the app should provide an estimated pickup time. Once the customer agrees to make the delivery, that customer should pick up the items at the designated time in the designated pickup area in the store. Then, the app should notify the customer who placed the order of the estimated delivery window. Specifying a delivery window should eliminate the problem of second and third deliveries associated with traditional last mile delivery. At pickup, store personnel should help the customer making the delivery load their vehicle. After the packages are in the vehicle, the customer who placed the order should be notified that the package is being shipped and provided an exact time of delivery. GPS on the delivering customer’s phone will direct that customer to the ordering customer’s home. Similar to the transparency of Uber to its customers, the customer waiting for a delivery could view location and delivery status of their order in real-time (timed delivery). Providing this delivery status information will eliminate transparency problems of traditional last mile delivery. At delivery, the customer receiving the delivery will inspect the packages and sign on the delivering customer’s cell phone to verify that the items were delivered and intact.

Figure 1: Retail Storage with Customer Last Mile Delivery



This figure shows the basic details of the crowdserving model. It is a shift from the current online ordering model as it adds the availability of the shopping customer as a last mile delivery option.

Security would be a newly introduced issue for which the store would have to account. Store personnel could provide security by installing and using a camera to record the scanning of items and the placement of those items into a box that hides its contents. Note: To reduce the probability of theft, the customer making the delivery should not have any knowledge regarding the items being delivered. Item placement would occur on a weighted scale, much like what occurs at self-checkout lanes in retail stores today. Store personnel would need to secure boxes with tamper proof tape. The customer making the delivery would need to sign for the shipment and verify that all tape was secure. The online customer would need to inspect the tape, the boxes, and the items within boxes upon arrival and sign as well.

We view the proposed LMD method as a way to increase sales; therefore, any amount paid by the customer placing the order should be passed through and given to the customer making the delivery. This would provide a higher cost incentive to make more in-store customers willing to make deliveries. The brick-and-mortar store probably would have to subsidize this payment initially—this is no different than an online retailer paying for free shipping, which is becoming common due to increased competitive pressure. The retailer would need to specify a flat delivery fee plus a variable fee based on size and weight for the items delivered. Vehicles would need to have sufficient capacity to transport any items in an order.

When the new LMD system is rolled out, speed would be slow. Initially, it might take several hours to locate a customer in the store with the app installed who is traveling in the correct direction. This would most likely be a same-day delivery service. Current customers desire same-day delivery that provides timed delivery (as described above), as 28% of online shoppers are willing to pay more for this option (Joeress et al., 2016). Same-day delivery with timed delivery is possible with this system. As more customers enroll in the system to make deliveries and install the app, delivery speed would improve. Once enough customers have enrolled in the delivery system, total delivery time could be reduced to the amount of time it takes to box the items, load the items into the delivery customer's vehicle, and drive to the receiving customer's home. The delivery could be tracked in real-time using the same online service through which the ordering customer placed the order (online portal or cell phone app). This would work by linking the delivery customer's directional GPS on his app to the online ordering server to allow this tracking. This real-time tracking data of the delivery matches the definition of timed delivery by providing customers an exact delivery time. We assume that once same-day delivery becomes normal operation, customers would push for instant delivery (within 30 minutes), a requirement that this model should be capable of handling in the near future.

Environmental issues associated with traditional LMD were discussed earlier as stemming from less-than-truckload shipments, the type of delivery vehicle, and inefficient travel routes (Gevaers et al., 2011). The new LMD system automatically optimizes routes by selecting customers who are traveling in the direction of the delivery. If the customer making a delivery needs to drive that route anyway, then the additional environmental effects should be negligible. Also, the receiving customer will be aware of the pending delivery time, thereby eliminating re-deliveries due to the customer not being home.

Because brick-and-mortar stores are located centrally and customers already transport frozen and refrigerated foods to their own homes, the issues associated above with perishable foods in last mile delivery should no longer occur. Any perishable items would need to be stored in a refrigerated/frozen section until packed in the vehicle. These perishable items could be pre-packed in a separate sealed, insulated box to speed up the loading process. Fruits and vegetables should be picked out by experienced store staff to ensure quality and accuracy of the customer's order.

As mentioned above, the retail store would need to subsidize shipping cost initially. The retail store must have a security camera dedicated to the shipping area, which most stores already have. The retail store

also would need to add some personnel to select and stage customer orders for pickup. These personnel could be cashiers who are no longer needed due to decreased volume from in-store shoppers. Employees will need to help customers carry large packages to their vehicle—this already occurs at brick-and-mortar retail stores. The retail store would need to purchase additional packaging containers and materials also. The increased sales and slight reduction of cashiers should cover all of these costs.

When we compare our system to traditional last mile delivery, we find that many of the obstacles are removed as shown in Table 2 below. Customers will be able to purchase large quantities of products and have them delivered at a reasonable price. As more customers sign up to make deliveries for a store, the faster the delivery speed will become in the system. Real-time visibility in the form of transparency becomes greater and delivery becomes faster, as is the case with the Uber system. GPS technology of the app will provide real-time data and thus lead to efficiencies in delivery, thereby reducing extra gas or mileage. One potential problem could occur if/when the delivery service becomes too popular such that a store has insufficient delivery capacity. One option could be for the retail store to charge customers more for home delivery. A second option could be for the retail store to invest in autonomous delivery vehicles and drone technology. Now, the second option is not feasible due to the technology of the vehicle and drone. The market also is not ready for this option, as not enough customers would order product, creating the same problems as traditional last mile delivery, i.e., less-than-truckload shipments and routes that are less efficient. However, if the model that we suggest became too popular and continuous orders were placed, then the stores could be used as the preparer of the order, the routes could be planned to maximize delivery efficiency, full trucks could be utilized, and real-time delivery status would be provided to all parties.

CONCLUSIONS

The model displayed in Figure 1 as well as the methods that we have explained would alleviate the problems associated in the literature with last mile delivery for brick-and-mortar stores. The model does not need to be just for large companies, but also could be used by any business including restaurants that deliver to customers. Anywhere that there are customers and goods, this system could be used to create a last mile delivery system at a fraction of the cost.

Table 2: Current Challenges Associated with Last Mile Delivery and Opportunities with a New Crowdserving Model

Last mile delivery current Challenge	Explanation of the challenge	Reference	Crowdserving model opportunities
Transparency	1. On-time delivery 2. Lack of ability to input specifics on the item	Esper et al., 2003; 4 Challenges of Last Mile Delivery for eCommerce	Allows for real-time visibility of deliveries with down to the minute accuracy
Delivery Charges	Last mile delivery costs more than \$87.3 billion due to cost of the vehicle, maintenance to the vehicle, delivery driver pay, and fuel	Joerss et al., 2016; 4 Challenges of Last Mile Delivery for eCommerce	Drastically reduced cost given that cost would be based primarily on the size and weight of the delivery.
Environmental	Less than truckload shipments, type of vehicle, repeat deliveries when a customer is not home, and inefficient travel routes can lead to higher emissions	Gevaers et al., 2011	1. Minimal environmental impact as a customer will be driving a route anyway 2. Minimal repeat deliveries
Speed of delivery	Significant demand for same-day delivery with timed delivery	Joerss et al., 2016	Allows same-day or faster delivery
Perishable items	Preservation temperature regulations	Brooksher, 1999; Witt, 1999	No need for a separate refrigeration vehicle due to short distances

This table shows the current problems associated with last mile delivery, the references associated with those problems, and how the proposed crowdserving model could alleviate those problems.

This new model would include several limitations-- the first being the possibility of a slow start up process. Finding customers could be a challenge at first for some companies because not everybody would know about the new delivery option. To counter the initial shortage of customers willing to make deliveries during the startup, the brick-an-mortar could utilize a third party carrier in conjunction with the crowdserving model. This would guarantee delivery in the window provided to the purchasing customer by having a staff on-hand ready to deliver. Once enough customers enrolled in the system, this third party would no longer be necessary. Other limitations include distance between houses in extremely rural communities. Whereas there still might be some benefits to this model, the cost savings and logistics of the length of travel would have to be examined further to see if the customers would be willing to make the delivery. Also in rural areas privacy is an issue so some customers may not want their items delivered to their homes.

Future research is needed in the area to discover exactly what customers are willing to spend for home delivery in different markets and how much delivery customers would want to deliver those items. We proposed that the delivery charge cover a fixed fee and include a variable charge based on size and weight carried. However, we would need to conduct additional cost analysis to determine a feasible fixed charge along with a variable delivery charge per size and weight. Other areas of further research would include the cost to transition from a crowdserving model to a drone carrying autonomous vehicles to see if their would be cost savings once autonomous technology would be 100% effective in the near future.

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INFORMATION RESEARCH BY INDIVIDUAL INVESTORS: EVIDENCE FROM BELGIUM

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ABSTRACT

This research examines how individual investors use the internet and traditional media to identify information and formulate their investment decisions. Before this study we developed several research papers concerning financial information disclosure on the internet (Pozniak, 2010; Pozniak & Croquet, 2011; Pozniak, 2013). We also met managers of listed small and medium-sized firms (SME) to understand their point of view about internet financial communication (Pozniak & Guillemette, 2013). In this study, we report our first findings with the other side of financial communication. Our goal is to pinpoint the communication's target. To reach our research goals and understand the point of view of individual investors, we use a qualitative approach. We met 17 individual investors and used QSR Nvivo 10 to analyze the interviews. We identified the nature and source of information they search. Investment clubs as a source of information was discussed. We pay special attention to their internet profile in general and how they use the internet to search information.

JEL: M15, G10, C50, 032

KEYWORDS: Financial Communication, Internet, Individual Investors, Qualitative Approach, Interviews

INTRODUCTION

This research follows a wider study in the framework of financial communication. We previously completed several research projects to study internet financial communication of small and medium-sized (SME) firms quoted on unregulated markets. First, we made a content analysis of their website and evaluated their level of financial disclosure (Arnone et al., 2010). We find that despite the lack of reporting obligations, the SMEs studied made a voluntary effort of disclosure on their website. Then we highlighted determinants of this level of internet financial communication (Pozniak, 2010; Pozniak & Croquet, 2011; Pozniak, 2013). The linear regression shows the impact of size, sector and performance on internet financial communication score. Managers have a special role to play in their SME. We wanted to meet them and understand how they viewed the financial communication of their company (Pozniak & Guillemette, 2013). Thanks to a qualitative approach we discovered that managers of listed SMEs wanted to respect their investors by disclosing information on the company's website and also to improve the firm's visibility and image. At the same time, they fear disclosing information to their competitors and they complain about the stock market reaction when they communicate.

To complete our research, we to look at the financial communication's target. Indeed, at the first stage of our studies (Arnone et al., 2010), we used an analysis grid to analyze firm websites. This grid was built based on a literature review about what we should find on a listed firm's website. We used the communicator side in this previous study. We did not ask for investors' opinion to build our grid. In the present paper, the goal is to pinpoint the communication's target, namely individual investors. By meeting them, we hope to discover which information they look for and how they use the internet and traditional media to identify information and build their investment decisions. We wish to know how and why they

invest on the stock market. To achieve our research goals and understand the point of view of individual investors, we use a qualitative approach (Miles & Huberman, 2003). This paper is organized as follow. First, we present sensitizing concepts such as financial communication and the internet as a tool of financial disclosure. Then, we explain why the qualitative approach is indicated in this study and how we collected our data. Finally, we present the results and discuss them. The paper closes with some concluding comments.

LITERATURE REVIEW

Financial Communication

Financial communication first aims to meet a legal obligation for listed companies. More recently, financial communication took on a role in the company's global strategy and goes much further than simple financial information disclosure (Westphalen & Libaert, 2009). Supply and demand rules are applicable on the stock market and the products that the company wants to sell. Collectively information to be disclosed requires a communication plan (Heldenbergh & Scoubeau, 2005). « *For the listed companies, it is not any more a question of contenting itself with the compulsory financial information... a real plan of financial communication must be developed according to the financial objectives that settled the company*» (Malaval, Décaudin & Benaroya, 2009: 496). So there is a distinction between financial information, which stems from legal obligations governing the publication of the annual accounts of companies and optional information. Financial communication which is "*any activity of financial information and promotion of the financial image of the company*" (De Bruin, 1999: 16). Financial communication allows companies to present a strategic element which becomes inseparable with any approach of financial and stock-exchange marketing (Léger, 2008).

The company needs its stakeholders and the interaction with them creates wealth in many ways: Consumers generate product demand, workers supply their skills and investors bring capital. To ensure its development, in a reliable atmosphere with these various stakeholders, communication is the key. There are several arguments in favor of financial communication: to reduce agency cost, to show the good health of the company and to improve financial market transactions. Several arguments are forwarded in favor of financial information disclosure. First, the disclosure of financial information allows the firm to limit agency conflicts and to reduce the agency costs (Jensen & Meckling 1976). The goal of transparency is to reduce information asymmetry and prevent the opportunist behavior (Chaher & Gnichi, 2007). Fasse & Schapiro-Neil (2011: 57) note that "*financial communication aims at limiting the risks attached to the company and at managing the uncertainties of the market*". A signal, such as debt level or paying dividends, demonstrates the company's good health. In the context of information asymmetry, the signal theory allows the company to introduce additional information in the market (Leland & Pyle, 1977). Finally, the investors want a risk premium to balance information asymmetry. By disclosing voluntary information, risk associated with share ownership can be reduced and thereby decreasing the cost of the capital (Merton, 1987).

Internet as a Tool of Financial Communication

More than three billion persons were users of the Internet on the 30 of November 2015. Internet use has experienced 832% growth since 2000 (www.internetworldstats.com/stats.htm). The Internet offers many tools and ways to help investors search for information. This new communication tool appears include other traditional support such as annual reports, press releases and shareholder assembly. The Internet gives to individual investors access, at low cost, to the same information as other investors (Brissy, Guigou & Mourot, 2008 As Westphalen & Libaert (2009: 337) say, "*The Internet participated in the democratization of the stock-exchange life: it offers to the shareholders the real equality of access to the information*". Companies can use their website, e-mail, advertising banners and other means of communication such as

blogs, social networks, forums, virtual worlds, online videos, and wikies (Westphalen & Libaert, 2009). These internet communication tools presents several advantages for companies (Geerlings et al. 2003; Branco & Rodrigues, 2006; Léger, 2008; Jahdi & Acikdilli, 2009).

Using internet communications, firms can spread more information, at a lower cost and at reduced time. They can reach several targets at the same time and send them specific information. They can archive the information, update it, and make it available at any time and accessible at a low-cost. By including a financial space on its traditional website, the company can show financial information and presentation of its activities (Malaval, Décaudin, Benaroya, 2009: 481). Léger (2008: 92) argues that the website is a «space created by the company to inform and to introduce a relation...its goal is «to inform and to seduce, to explain and to convince, to attract and to develop loyalty ». A good website must anticipate investors 'questions and give answers in a clear and complete way. It should supply the financial community necessary information to estimate the company's value and nurse a relation with the investors (Barredy and Darras, on 2008: 3)

Some possibilities are exclusively offered by the Internet. Examples include the distribution of videos of shareholder assembly, of roadshows, a document storage space, archiving documents over several years, subscriptions to newsletters, a space of dialogue via a forum of shareholders and the possibility of raising questions (Andrikopoulos & Diakidis; 2007). A company can choose to favor transparency and disclose financial information to all internet users. Alternatively, it might select particular information for specific targets, such as institutional investors and particular investors Heldenbergh & Scoubeau, 2005: 196). By interviewing investors, we discover what tools they prefer and what they think about companies' websites.

DATA AND METHODOLOGY

We use a qualitative approach by means of interviews. To understand a phenomenon, the qualitative approach is appropriate (Miles & Huberman, 2003; Paillé, 2007; Evrard, et al., 2009). The best way to study a human phenomenon is to meet people living the phenomenon (Dilthey, 1942; Weber, 1949; Blumer, 1969; Husserl, 1977; Schutz, 1987). The qualitative approach promotes collection of speech data to gain access to peoples' feeling and the sense they give to an event (Blanchet & Gotman, 2007). To access the real-life experience of people, you must listen to what they say (as defined by Kaufmann, 1996; Gavard-Perret et al., 2008; Savoie-Zajc, 2009). We analyzed our interviews referring to the principle of thematic analysis (Paillé & Mucchielli, 2008; Corbin & Strauss, 2008). Collecting the data was quite difficult.

While it is easy to identify companies listed on a stock market, it is difficult to identify individual investors. We contacted several investor clubs, brokerage firms and Investment Companies to explain our research and ask for interviews with individual investors. When an investor agreed to meet us, we asked him/her to introduce us to his/her investor friends. We met 17 individual investors between June and December 2015. Interviews lasted, on average ninety minutes. Those 17 individual investors live in the French speaking part of Belgium. The number of interviews needed was unknown at the start. The sample was built along the study, depending on the understanding of the phenomenon (Glaser & Strauss, 1967). This approach is called theoretical sampling (Glaser & Strauss, 1967; Glaser, 1978 ; Starrin et al., 1997 ; Glaser, 2001 ; Charmaz, 2002 ; Corbin & Strauss, 2008; Plouffe & Guillemette, 2012). This approach contrasts with statistical sampling, whereby the sample is determined before starting the study and based on representative criteria of the population (Plouffe & Guillemette, 2012).

“The goal of statistical sampling is to generalize results, while theoretical sampling aims to theorize...Theoretical sampling implies that the persons, places and situations sought by the researcher when collecting empirical data are chosen on the basis of their ability to promote the emergence and construction of the theory” (Luckerhoff & Guillemette, 2011 :408).

We do not wish to generalize our results to the whole population of individual investors. For this reason, our sample does not have to be representative (Luckerhoff & Guillemette, 2012). Our goal is to better understand individual investor's point of view. We asked them questions as shown in Table 1.

Tabla 1: Questions Asked to Individual Investors

Stock exchange experience	Since when have they held shares? What was their goal for investing? Were their family members also investors? Do they invest alone or through intermediaries? Did they train themselves how to invest?
Information research	How do they choose the company in which they invest? How much time do they spend looking for information? In which information are they interested?
Sources of information	How do they find the information they need? Through financial websites, written press, general shareholders meeting... What are their main sources of information?
Investor club	Are they members of an investor club? Is there any advantage being a club member?
Internet	For what do they use the internet? How much time to they spend on the internet?

Our interview data improved through the study. After five interviews, we made preliminary analysis and enriched our interviews guide. For example, the first investors inspired us to ask new questions such as: Do you use your smartphone to follow your portfolio? Would you like to visit the company of which you are shareholders? One investors mentioned the new Belgian tax and how it will change his habit of investment. So, we asked the question to the next investors that we met. After 17 interviews, we made a complete analysis and compiled our results and discussion. The interviews analyses were made with the help of QSR NVivo 10.

RESULTS

In this section, we present the nature of information individual investors are looking for. We also identify the main source of information they use and the way they see the company's website.

Nature of Interesting Information

We identify different types of information investors are looking for before making their investment decisions in Table 2.

Table 2: Information Investors Review

Information about the company	Investors research information about products, future projects, strategy, the present situation and projections in the future (market share) and brand awareness. Some are also interested in information regarding sustainability
Information about the managers	Their skills, personality and professional evolution. Do they own shares of the company they manage and what they do with governance?
Information about the general context of the firm	Geopolitical situation, economic situation, consequences of the firm's projects on the economic environment.
Financial information	Volume of exchanges, liquidity, share prices, dividends, price earnings ratio, debt ratio, financial highlights with graphs and comments, profit, reactions of big investors.

Main Sources of Information

The next step is of course to identify the various sources of information used by investors. We analyze two main groups of information. The first consists of information coming directly from the company. The second are information found outside the company. *Information from the company* Regarding the first group, we identify different methods used by the company to transfer information (Table 3).

Table 3: Company Ways to Transfer Information

General shareholders' meeting	The perception of the investors is positive at one level. It allows us to better understand the projects of the company. But lot of negatives comments appear also: small investors have no influence, they consider it a "show", participation takes lot of time and they have more important things to do, it is often far, they don't dare ask a question.
Newsletters	Investors sometimes use it to compare the reality with what was said in the past. They pinpointed an interest in receiving it in their own language. They also note that because it comes from the company, they are quite sceptic about the objectivity of the information. They also consider that with all those newsletters they have too much to read and suffer from a lack of time to do it.
Company visits	In a general way, they appreciate it and think not enough is done by the companies. It allows them to meet the manager of the company, to appreciate the atmosphere, to better know the firm and its products. It seems that it can create an emotional attachment to the firm which could allow to limit share price variation. It creates a trust atmosphere between the firm and the investor. But it is also mentioned that a majority of investors who visit the firm can be identified as retired people who attend an event to increase general knowledge
Annual report	Very interesting but time consuming.
Road shows	Interesting but it takes a lot of time
Investors events	We can make a link between relational contacts and investors meetings.

Investors are often suspicious about information coming from the company. They often think that bad information will not be delivered with objectivity. They compare these pieces of information with those coming from other sources. *Information coming from outside the company*: Lot of sources are used to validate and complete information coming from the company. Those external sources can be divided into different categories: Relational sources and the others. Relational concern investors meetings, conferences, some chats, investors clubs, social media, the press, Belgian central bank database, financial sites, television and some special publications. We first analyze the relational sources. Results appear in Table 4.

Table 4: Relational Sources

Investors meetings	It seems that these type of meetings, which allow investors to directly meet the company and its managers are appreciated by the investors. But, they often regret the fact that it is more present in the north of the country compared to the south. It seems the lack of a real federation of investors could explain the lack of dynamism in the south. The positive arguments to develop these meetings are directs contacts, the possibility to ask direct questions and the discussion with others investors.
Conferences	Those conferences are organized by investor clubs or during special events for example "finance avenue" organized in Brussels. Conferences provide the opportunity to hear the analyses of specialists not always directly linked to a company or a bank, thereby having more neutral credibility. This is really appreciated by investors.
Chats	Chats are not often used but sometimes cited by our investors. It seems confidential data is not available here. It stays more general
Social media	In a general way, social media are not often considered by our investors. Facebook is considered uninteresting by nearly all investors. They consider it too general, with a too limited a target and are afraid of a loss of control of their information. Linked In is sometimes used to analyze the profile of a manager. Twitter was mentioned for their short tweets. Twitter provides clear and direct information, at the right moment, but is not often used by our investors.

After this first description of the relational sources (Table 4), we will now identify the more general sources. Those can be divided into different categories as shown in Table 5.

Table 5: General Sources

The press	The press is sometimes used to obtain general information but some critics appear. Some contacted investors point out that there is always a deadline before the reception of the information (it can be improved by the Internet version). Many articles are considered as “filling”, the title of the article and are developed to be sensational. As such, they increase the feeling of panic in the event of problems and the information is not complete. It appears it is considered a reminder of more general information. Some investors consider that it is their role to be suspicious and to analyze the information. Some also mentioned that mass of information is so high that even if they have some subscription to such reports, they have no time to read it all. They also note that even if the internet allows them to have a more up to date information, it is more comfortable to read the paper version. Some are mainly interested in a specific supplement specialized about financial content. The rest is more linked to general culture.
Belgian Central Bank database	It can be used to obtain specific financial information about the company analyzed by the investor.
The financial sites	Yahoo finance, Boursorama, Keytrade and Zonebourse. Investors see many advantage in these sites. They note complete information that is easy to use. Several companies and several kind of information are available on the same sites. They appreciate information on share prices and shareholder structure. In addition, advice is provided. Some investors indicate that American tools are even more complete (Seeking alpha, Barons).
The television	Television was not often cited as a source of specific information. Only one of our investors indicated that he followed some special programs to understand specific situations.

Figure 1: Nature and Sources of Information

Nature of the researched information	Sources of the information	
	Company	Outside the company
About the company	General shareholders 'meetings Newsletters Company visits Website of the company Annual report Roadshow Investor events	<i>Relational sources</i> Investors meetings Conferences Chats Investors clubs Social media
About the managers		<i>General sources</i> Press Financial sites television Belgian Central Bank
About the general context		

Figure 1 shows that individual investors search information of different types. Information about the company, the managers and about the general context are all sought. This figure highlights the main sources of information used by individual investors. We see information from the company itself (website, newsletter, annual report, general shareholders 'meetings, roadshows, investor events and company visits), information from relations and networks (conferences, social media, chats...) and general sources of information (press, financial websites, television, Belgian Central Bank.)

In any case, the investors we met confront each information source. They know they can't take information for granted. They have to search for several information sources and compare the information.

Website of the Company

To analyze the use of company's websites, it is interesting to describe the Internet profile of various investors. Table 6 and Figure 2 show four different categories of users (Table 6).

Table 6: User Categories

Limited user	Only uses Internet to realize basic operations such as sending a mail or making some pc-banking operations. Never uses other sites such as social media.
Basic user	All the activities of the limited user but also some shopping on the Internet (it concerns products which can be bought without surprise such as books). This user sometimes reserves a holiday night, reads the press and looks for some limited information.
Diligent user	All activities of the basic user but sometimes also uses the « cloud ». They buy more products and use the Internet to find and compare new services suppliers. They sometimes use social media.
Addict user	Does all what can be done on Internet. They user of mobile systems.

Figure 2: Internet Profile

Addict users	Everything	
Diligent users	+	Cloud, frequent shopping, research of services suppliers, social media
Basic users	+	Basic shopping (books), some holidays reservations, press
Limited users		Mail, Pc banking

Figure 2 shows the internet profile of individual investors we met during our research. There are limited users who use internet only for email and pc banking. On the second level, we found basic users who also make do shopping online, read online press and book some holidays. On the third level, there diligent users who make frequent online purchases, save their data in the cloud, go on the internet to find a service supplier anytime they need it and use social media sites. The last level is addicted users who say they do everything on the internet.

One or another group is linked to different elements. They are of course all at least limited users because it is no longer possible to live without using some basic functions of the Internet. What can limit some other activities is the lack of interest, the lack of time and the problem of trust. Respondents are often convinced that it is an important trend for the future and some of them regret their own situation saying that they should use it more. Some respondents also believe the internet is only appropriate for certain functions such as looking for information.

After analyzing the Internet Profile of the interviewed people, next, we look at their perception of the Internet site of the company. The first point of interest is to know if they use that site to obtain information about the company. Most investors indicated that it is not an important source of information for them because they prefer external sources. They argue that the company cannot (or does not want) to be objective regarding the given information. The Company uses the site as a marketing tool so it often forgets the negative information. Our respondents argue the company should have more transparency. Nevertheless, they also argue the site must be complete and allow a better understanding of the various activities and products of the company.

A second point of interest is the design and content of the site. At this level, even if they mentioned the marketing approach of the company, some admit to appreciating the beautiful pictures and the adapted color. The global esthetic of the site is thus important. They also appreciate the fact that the site is developed in their own language. An investor page is considered to be important and shows the appreciation for the investors. They appreciate direct information, graphs, figures, evolutions, and key data. They need a quick access to the information. The site could also be a way to conciliate all the stakeholders of the company in the same place.

Investor Club

In our interview guide, we only wanted to know if the people we met were (now or in the past) investor club members and if they found it useful to handle their investments. But the discussions were more interesting than we thought and we learned unexpected things about their experience in those clubs and the way they see them. We first describe the various ways to participate to such a club. Two different situations appear. The first is the creation of a virtual portfolio with the advantage that it reduces the eventual conflicts. In the virtual portfolio, no real money is involved. The club analyzes some possible investments. Each member is free, after the meeting, to invest or not in the studied shares.

The other one approach consists of a real portfolio. To enter the club, you must invest an amount in the club which is invested after discussion with other members. In some cases, after this first investment, you are invited to increase your participation regularly. Some positive and negative aspects can be identified from participation in investor clubs.

A first positive thing is the different profiles of people are present in the club. They have various skills, formations and experiences which allow them to together better analyze the shares. Some consider the work completed by members is as good as the work of professional analysts. The club also provides the opportunity to join complementary targeted formations, or special investors meetings. It allows members to better understand the market. The club provides the opportunity to divide research work and thus to gain time. The club helps thus also for the personal investments. The club is a social activity which creates the possibility for developing, outside the club, personal relations with some members. But of course, some critics appear. Some leaders can control the club. Their advice takes on a greater importance than those of less visible members. They are sometimes disappointed by the decisions taken. Another situation which is sometimes described is the fact that people are often brag that they gained a lot of money from some investments, but they often forget to pinpoint the fact that they lose sometimes also. Despite these limitations, in a general way, it appears that the club is particularly useful when someone begins to invest. It can create some feelings of trust regarding a complicated investment environment. Over time, it remains interesting but less essential. We also note that the interviewed people regret the lack of clubs in the south of the country (compared to the situation in the north). We note a lack of communication between the clubs, the old image of such clubs, and the average of age of the members. It would be interesting to develop a general structure which could allow us to reduce these negative perceptions

CONCLUDING COMMENTS

The aim of this study was to understand the investment process of individual investors, and particularly how they use internet and traditional media to identify information and arrive at their investment decisions. To reach this goal, we met 17 individual investors from the French speaking part of Belgium between June and December 2015. Interviews lasted on average for ninety minutes. We contacted several investor clubs, brokerage houses and Investment Companies. By means of interviews we get a better understanding of the phenomenon we studied.

We identified the nature and the source of information that investors search. They search for information about the company, the managers and the general context. They like to compare several sources of information from the company and outside the company (general sources and relational sources). We also highlighted the way they see investor club and how being a member can help them handle their portfolio.

The added value of this research was to focus on an important stakeholder of the company and the financial communication's target: the individual investors. Every research suffers from some limitations. In our case, the biggest difficulty was to identify the individual investors. We met the people who agreed to answer our questions. We propose follow-ups studies as follows. We plan to make new enquiry among several investor

clubs and networks so we can generalize our results with a quantitative approach. In the meantime, we could pursue our qualitative approach and the understanding of the phenomenon by meeting financial experts such as auditors, analysts and traders.

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MODELLING CIRCULAR MATERIAL FLOW AND THE CONSEQUENCES FOR SCM AND PPC

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ABSTRACT

This paper discusses the consequences of product return and circular material flow on a supply chain as well as on production planning and control. Furthermore, this paper presents an approach to incorporate the ideas of product return and circular material flow into the Hanoverian Supply Chain Model. To reach this goal a reverse supply chain is added to the existing framework. First of all, the flows of material in the reverse supply chain are defined in an abstract way. Secondly, the reverse supply chain is divided into core processes. The connections between these core processes of the forward and the reverse supply chain are depicted. Subsequently, systems of KPIs are set up for the core processes of the reverse supply chain. In a last step, the consequences of the integration of a reverse supply chain on planning, controlling and monitoring production are discussed.

JEL: L2, L6

KEYWORDS: Logistics, Modelling, Circular Material Flow, Product Return

INTRODUCTION

Energy and material efficiency become more and more important for producing companies. On the one hand, companies use these leverages to reduce costs in order to stay competitive or to reach a competitive advantage. On the other hand, the environmental awareness of people is changing. A rising number of customers claim "green" products and a "green" production of these products as buying criteria. To some extent purchase decisions are based on these criteria. Governments and public authorities respond to the change of mind in society and, moreover, to scientific proven developments like global warming and decreasing natural resources with new laws and standards. As an example the "Directive on Waste Electrical and Electronic Equipment - WEEE" passed by the European Union can be stated. The developments described, especially new laws and standards, do have a strong impact on the supply chains and on production processes of industrial companies. Existing logistics and supply chain models do not cover all aspects of these developments. The Hanoverian Supply Chain Model is an integrative logistics model and a framework for production planning and control (PPC) as well as supply chain management (SCM). It links the tasks of PPC with logistic actuating variables, control variables and objectives alongside a company's internal supply chain. The model depicts cause-effect-relationships. It supports companies to design processes and to position within fields of tensions created by opposing logistical objectives. This paper presents an approach to incorporate the ideas of product return and circular material flow into the Hanoverian Supply Chain Model. By that, the existing body of literature is extended. The consequences of product return and circular material flow on a supply chain and on PPC are shown.

After this introduction the current state of literature regarding logistic models and reverse supply chain management is presented. Then the methodology of research is introduced. Afterwards the results are

presented. The investigation shows that product return and circular material flow do have a strong impact on the setting of a company's internal supply chain and on PPC. The paper will close with a conclusion.

LITERATURE REVIEW

Supply Chain Management (SCM) and Production Planning and Control (PPC)

The goal of supply chain management (SCM) is to plan and control the flow of material and information in supply chains or production networks with the aim to satisfy the customer and to minimize costs (Wiendahl, 2014). In contrast the goal of production planning and control (PPC) is to plan the production concerning volumes and dates on a regular basis and to realize the plan despite unavoidable disruptions like delayed deliveries or the lack of staff as economically as possible (Wiendahl, 2014).

Logistic Models

Mathematical models are simplified depictions of real-life situations. They possess a reducing function (due to dispensing with unimportant factors present in the real world) and an idealizing function (due to simplifying indispensable factors found in the real world) (Stachowiak, 1973). Quantitative logistic models result from mathematically modelling logistic processes. They are excellent tools for procuring information and support decision-making (Nyhuis and Wiendahl, 2009). Digitalization and the concept of Industry 4.0 lead to more and better production feedback data. This development intensifies the need for easy but meaningful tools like quantitative logistic models (Nyhuis et al., 2014).

One can distinguish different categories of logistic models. The first category comprises task and process models. They describe processes and interactions between processes. This is why they can be used as a reference for designing tasks and processes in various areas. The Supply Chain Operations Reference Model (SCOR Model) works as an example (Supply Chain Council, 2010). Focusing PPC the Material Requirements Planning (MRP) concept (Orlicky, 1975), the MRP II concept (Wight, 1984) and the advanced Aachen PPC model (Schuh, 2006) can be named. The second category of logistic models covers quantitative descriptive, impact and decision-making models. These models are oriented towards quantitative interactions of concrete variables (e. g. logistic objectives). An example of a quantitative descriptive model is the throughput diagram (Heinemeyer, 1974). It is a visualization of the input, the output, the Work-In-Process (WIP), the range and other values of a workstation or a production area. An example of a quantitative impact model is the Logistic Operating Curve Theory (Nyhuis, 2006) (Nyhuis, 2007). Using approximation equations, the Logistic Operating Curves make it possible to position a production within the field of tension created by the opposing logistic objectives WIP, throughput time and utilization. A positioning is necessary because a minimization of WIP, a minimization of throughput time and a maximization of utilization cannot be reached at the same time. An example of a quantitative decision-making model is the lot size calculation model presented in (Münzberg, 2013) and (Schmidt et al., 2015). There are numerous, rich in detail, quantitative logistic models. They are applied in science and industry successfully. Nevertheless, since the individual models are not linked, holistically analysing and designing planning and control processes remains a challenge.

Integrative Logistic Models join both of the perspectives mentioned before. An established example is the manufacturing control model presented in (Lödding, 2013). Universally defined manufacturing control tasks are linked with logistic objectives via actuating and control variables. Like that, single elements of the task and process models are connected with single objectives from the quantitative descriptive, impact and decision-making models. But, it has to be emphasized that since the manufacturing control model has a clear focus, the object being considered is limited. The tasks of production control are depicted, however, the tasks of production planning are, mostly, not. Furthermore, the core processes of a

company's internal supply chain aside from production are not addressed. Examples for other core processes are procurement and dispatch.

Another integrative logistic model is the Hanoverian Supply Chain Model developed at the Institute of Production Systems and Logistics (IFA) at Leibniz Universität Hannover in Germany (Schäfers and Schmidt, 2016) (Schmidt and Schäfers, 2017). It is not limited to production control and covers PPC completely. The approach of Lödding was extended in two ways: On the one hand vertically to additional PPC tasks and on the other hand horizontally to additional processes in a company's internal supply chain. The Hanoverian Supply Chain Model will be introduced in detail in the next section.

The Hanoverian Supply Chain Model

The Hanoverian Supply Chain Model is a framework for PPC and SCM (Schmidt and Schäfers, 2017). As you can see in figure 1, the framework consists of two parts: The PPC part (top) and the supply chain part (bottom). There are several connections between both parts. The PPC part (top) brings the tasks of production planning and control into an approximate chronological and logical sequence. For each main task there is an individual representation with further details. These representations contain the sub-tasks allocated to the main tasks, incoming information, resulting information and iteration loops. These process descriptions can be used by companies to design or improve processes. The supply chain part (bottom) depicts a company's internal supply chain and features the most important logistic objectives. The structuring of the supply chain part is based on the structuring of the SCOR model (Supply Chain Council, 2010) - but it was refined. Now five core processes represent a company's internal supply chain: procurement, preliminary production stage, interim storage, end production stage and dispatch. In the supply chain part the focus is on the relation between the target, planned and actual variables in the material flow within a supply chain and consequently the impact on the core process specific logistic objectives. Hence, for each core process a system of logistic objectives, control variables and actuating variables was arranged following the approach of (Lödding, 2013). The influence of the PPC tasks on the systems is illustrated. The resulting systems show the relevant relations at a glance. Summing up, the Hanoverian Supply Chain Model pictures the impact of PPC on a supply chain's logistic objectives.

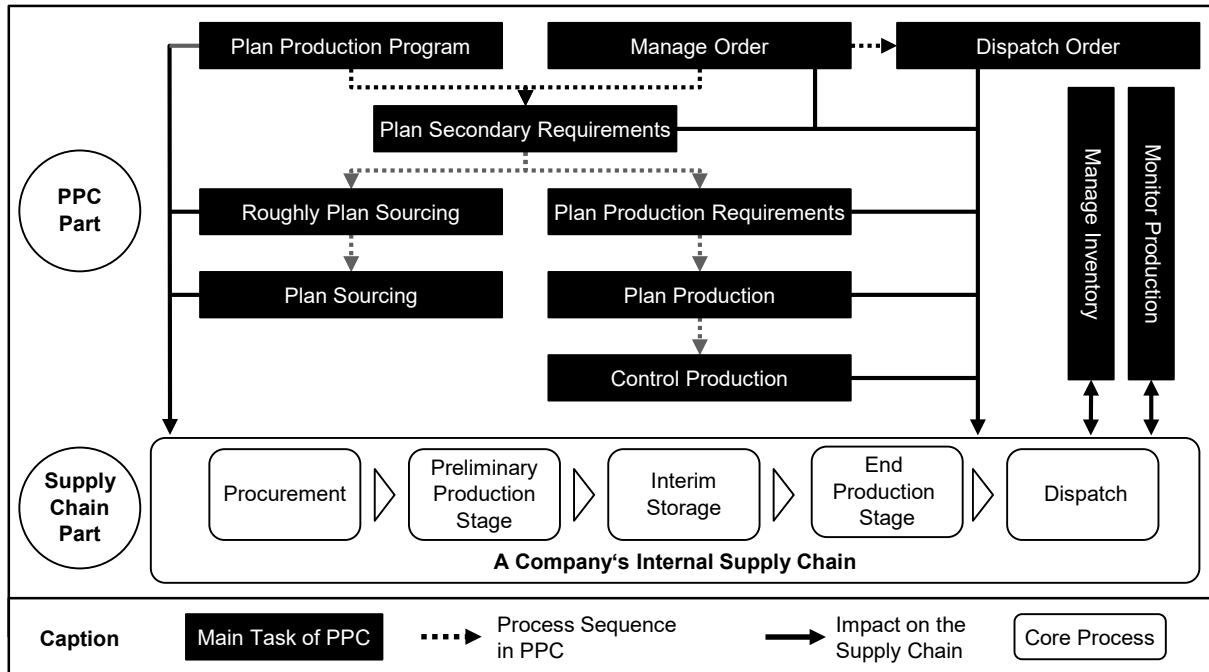
An interactive web page has been developed for presenting the Hanoverian Supply Chain Model. It can be reached at www.hasupmo.education (English) or www.halimo.education (German). The web page is freely accessible on the internet. Scientists, students and companies can use the web page as a reference work for production planning and control.

Product Return and Reverse Supply Chain Management

The term of return is connected with activities that include a material flow from the customer to the supplier (Supply Chain Council, 2010) (Werner, 2013) (Pittman and Atwater, 2016). A reverse supply chain (RSC) deals with all activities that are linked to the product return and value addition or material recovery (Prahinski and Kocabasoglu, 2006). A reverse supply chain requires the part of reverse logistics and the part of product recovery management. The terms reverse logistics and reverse supply chain are used as synonyms, sometimes (Agrawal et al., 2015) (Pittman and Atwater, 2016). Reverse logistics includes all activities of collecting and transporting a product from a customer back to the producing company. It also includes the planning, execution and controlling of the flow (Fleischmann et al., 1997) (Rogers and Tibben-Lembke, 1999). Product recovery management stands for these process flows, which occur during value addition or material recovery. These activities lead to a long-term maintenance of value or an addition of value as well as a multiple usage of natural resources (Thierry et al., 1995) (Fleischmann et al., 1997) (Novoszel, 2012). In addition to the terms defined so far, reverse supply chain management deals with designing the flows of material and information with the aim to use the resources and information as efficiently as possible (Novoszel, 2012). There are several other terms and concepts

like closed-loop supply chain, rebound logistics, and recycling economy that all deal with the connection of forward and reverse supply chains (Novoszel, 2012)

Figure 1: Structure of the Hanoverian Supply Chain Model (Schmidt and Schäfers, 2017)



This figure shows the structure of the Hanoverian Supply Chain Model. It is divided into two parts: the PPC part (top) and the supply chain part (bottom). Both parts are connected. The fulfilment of the PPC tasks impacts the supply chain's logistic objectives.

The integrative reverse supply chain reference model extends the existing approach of the SCOR model and its forward supply chain (FSC) (Novoszel, 2012). It defines five core processes of a reverse supply chain: plan, collecting, selecting, reprocessing and reintegration. In the core process plan the reverse supply chain actions are defined and the execution is prepared. The starting point of the reverse supply chain is the customer with its end-of-life-product, which is transferred to the producing company. Afterwards the product will be inspected and classified according to its condition. The product can be classified for the reprocessing and direct reuse, for the reprocessing and value adding recovery or for the reprocessing and material recovery. It is always possible to dispose a product based on its condition. Subject to the reprocessing capabilities within a company, the product can also be returned to the supplier. The last core process describes the multiple ways of reintegration.

METHODOLOGY

The goal of the research presented in this paper is to picture the concept of circular material flow, for example triggered by product return, and to show the consequences for SCM and PPC. To reach this goal, the Hanoverian Supply Chain Model was used as a basis and the idea of circular material flow was integrated into this framework.

The concept of the Hanoverian Supply Chain Model was introduced in the section before. More information about the development of the model and the methodology used during the development can be found in (Schmidt and Schäfers, 2017).

The start of the research presented in this paper was a collection of terms used in the context of recycling and product return. These terms were defined and distinguished from each other to reach a clear and consistent understanding of the terms. After that, an extensive literature review was performed. Existing work was gathered and assigned to the terms defined before. This summary of the state of the art was used for the conceptual work.

Following the definition of terms and the literature review the conceptual work started. As outlined above the Hanoverian Supply Chain Model and the summary of the state of the art were used as a basis. In the first step the supply chain part of the Hanoverian Supply Chain Model was focused. The possible flows of material of a reverse supply chain were defined in an abstract way. Based on this consideration the reverse supply chain was specified by defining core processes. Then the connections between the reverse supply chain and the forward supply chain were discussed. Finally relevant key figures were identified respectively defined for the new core processes of the reverse supply chain. In the second step, the PPC part of the Hanoverian Supply Chain Model was examined. The consequences for the PPC tasks resulting from circular material flow were depicted. Moreover, new tasks required for realizing a reverse supply chain were outlined.

RESULTS

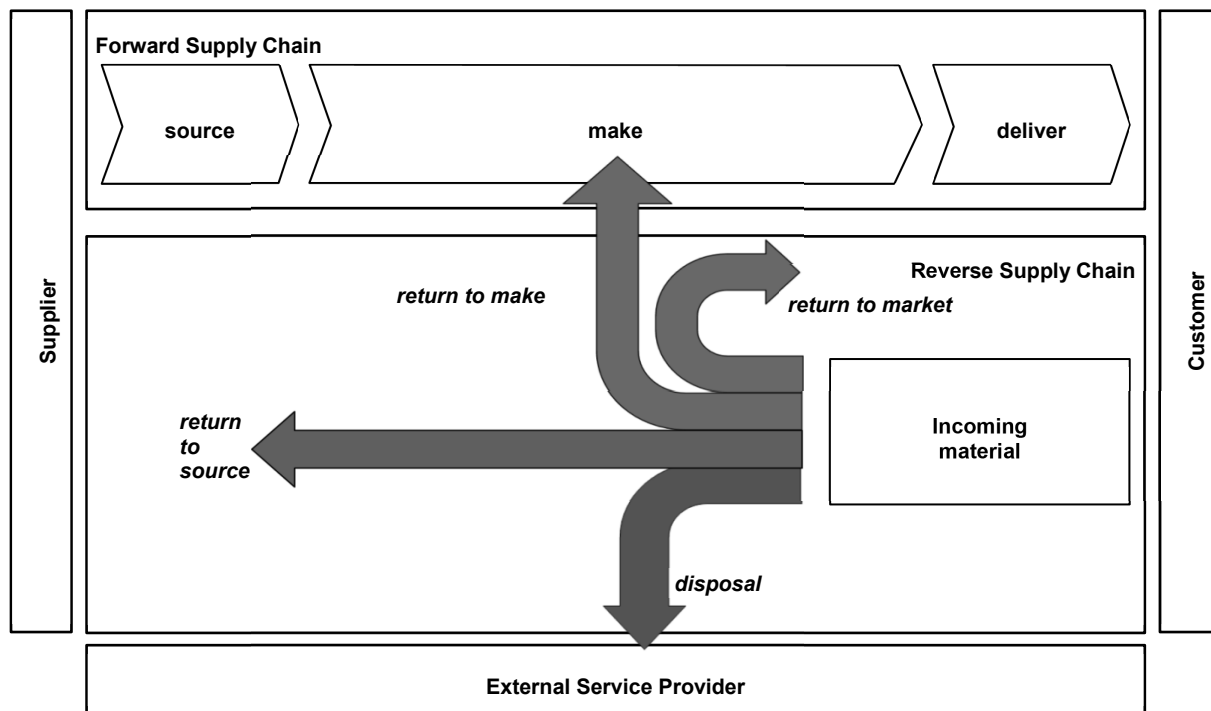
Figure 2 depicts the possible material flows in the reverse supply chain in an abstract way. The incoming material stream can have four different directions in the outcome. In the first direction the incoming goods are cleaned or updated or recovered, so that a reuse is possible (“return to market”). Another flow direction is to the company’s make process (“return to make”). That means that complete products or subassemblies or raw materials are used in the forward supply chain. Another possibility is the reuse at the supplier (“return to source”). If it is not possible to use the old products or subassemblies or materials, they are disposed (“disposal”). A disposal of the whole products or only parts of the product can be triggered at different stages in the process – e. g. straight after the inspection or if recovery failed. After clarifying the possible flows of material in the reverse supply chain, a partition of the reverse supply chain into core processes can take place.

As shown in figure 3, five core processes have been defined for the reverse supply chain based on the work of (Novoszel, 2012). The first core process is the *collection*. A company can collect old products in two ways. On the one hand, a customer can bring his used products to a particular place (e.g. point of sale). On the other hand, the company can pick up used products at the customer in a defined time-slot. The second core process is the *selection*. There is an incoming inspection, cleaning and disassembling to a certain degree of breakdown. This core process is very important, because - based on their condition - the products are classified for further proceeding. Further proceeding can be divided into *direct reuse*, *value adding recovery* or *material recovery*. Products with only little marks of usage could be sorted for *direct reuse*. The products with greater damage could be sorted for *material recovery* or *disposal*. All other products could be sorted for *value adding recovery*. Before the further treatment is performed, an *interim storage* can be placed in the reverse supply chain. This can be reasonable depending on the organization of the following steps in the reverse supply chain, for example, if the capacities for product recovery are limited or if product recovery is only performed on demand. Subsequently, the *product recovery* is placed in the reverse supply chain. The last core process *return* deals with the reintegration of the earned results of the reprocessing.

It is important to emphasize that these core processes stand for functions of the reverse supply chain, but can be physical identical with elements of the forward supply chain. For example, the product recovery can be performed using workstations of the production stages of the forward supply chain. Or the interim storage of the reverse supply chain can be identical with storages of the forward supply chain. Or the tasks of the return process are executed physically in the same area like the dispatch process of the

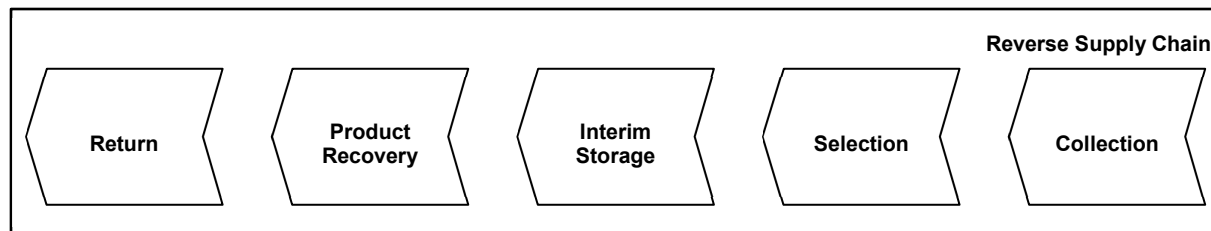
forward supply chain. The more the forward and the reverse supply chain use the same facilities, the more the complexity of planning and control rises, which will be discussed at the end of this paper. In the next step, the links between the functions of the forward and the reverse supply chain are discussed and the abstract flows of material in the reverse supply chain introduced before are detailed (see figure 4). All products coming in go through the processes of *collection* and *selection*. After this – based on the result of the selection process – not all parts pass the processes of *interim storage* and *product recovery*. This concerns, for example, products being returned to the supplier for a further usage or treatment or – in case the damage of the products is too high – being disposed directly after *selection*. After *product recovery* there are different possibilities. Of course, products or parts can be disposed as well.

Figure 2: Abstract Material Flows in the Reverse Supply Chain (on the basis of Novoszel, 2012)



This figure shows the four possible material flows in a reverse supply chain in an abstract way: Return to market, return to make, return to source and disposal.

Figure 3: Core Processes of a Reverse Supply Chain (on the Basis of Novoszel, 2012)

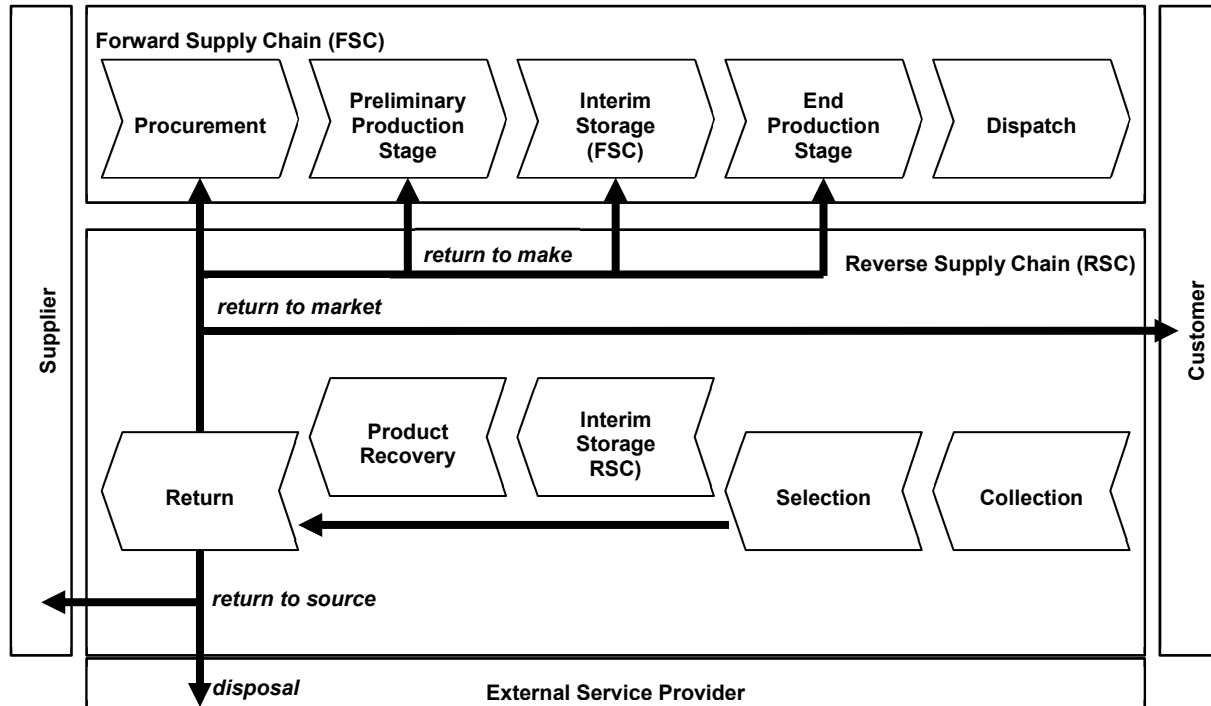


This figure shows the five core processes of a reverse supply chain: collection, selection, interim storage, product recovery and return.

If *product recovery* was successful, products can be returned to market. The last option is that parts of the products flow into the *make* process of the forward supply chain. They can flow into the procurement storage or the interim storage (FSC) depending on whether they are used in the *preliminary* or the *end production stage*. Or they do flow into the *preliminary* or the *end production stage* directly, if such a system is implemented. Beside the flows described so far, it is also possible that material is flowing from

the forward to the reverse supply chain. It could be an option that defective parts from preliminary or end production stage flow to the collection process to be reconditioned in the reverse supply chain. It is also possible that materials needed in the reverse supply chain for reconditioning products are provided by the source process of the forward supply chain.

Figure 4: Material Flows Between the Reverse and the Forward Supply Chain



This figure shows the flows of material between the reverse and the forward supply chain. The abstract flows shown in figure 2 are specified. Depending on the condition of the incoming products and, hence, on the result of the selection process the products take different ways.

As mentioned in the literature review, the Hanoverian Supply Chain Model contains a system of logistic actuating variables, control variables and objectives for all core processes of a company's forward supply chain (Schmidt and Schäfers, 2017). To complete the picture, in the following section important objectives of the core processes of the reverse supply chain will be presented. Table 1 shows the objectives of the forward supply chain and the objectives of the reverse supply chain. From the logistic point of view, the same objectives are relevant for similar core processes in the forward and the reverse supply chain. But there are new objectives concerning the material flow in and out of the reverse supply chain. In the core process *collection* there are two new objectives. The *collection capability* depicts the ability to gather products from the customer at the point of time the customer wishes. The definition is based on the definition of the objective *delivery capability* of the core process *dispatch* in the forward supply chain. This objective underlines that in contrast to the forward supply chain, the starting point of the reverse supply chain is the customer and not a supplier. The second new objective is the *backflow rate*. This figure reflects the proportion of sold products, which come back from the customer to the producing company. In the core process *selection* there is only one new objective. The *selection distribution* shows the share of each reprocessing procedure chosen for the incoming material. The core process *interim storage* does not have a new objective. In contrast, there are two new objectives in the core process *product recovery*. The *added value* indicates the deepness of product recovery compared to the value creation in the forward supply chain. The *new part rate* shows how many parts cannot be provided by the internal recovery processes. In the core process *return* there is one new objective. The

return distribution reveals the shares of the destinations of material flow out of the reverse supply chain (return to market, return to make, return to source, disposal).

Table 1: (Logistic) Objectives of the Forward and The Reverse Supply Chain

Forward Supply Chain >>>>					
Core Process	Procurement	Preliminary Production Stage	Interim Storage (FSC)	End Production Stage	Dispatch
Logistic Objectives	- Due Date - Compliance - Service Level - Stores	- Schedule Reliability - Throughput Time - Utilization - Work-In-Process	- Due Date - Compliance - Service Level - Stores	- Schedule Reliability - Throughput Time - Utilization - Work-In-Process	- Delivery - Capability - Due Date - Compliance - Delivery Time - Service Level - Stores
<<<< Reverse Supply Chain					
Core Process	Return	Product Recovery	Interim Storage (RSC)	Selection	Collection
New Objectives focussing material flow in RSC	- Return distribution	- Added value - New part rate	-	- Selection distribution	- Collection capability - Backflow rate
Logistic Objectives	- Delivery - Capability - Due Date - Compliance - Delivery Time - Service Level - Stores	- Schedule Reliability - Throughput Time - Utilization - Work-In-Process	- Due Date - Compliance - Service Level - Stores	- Schedule Reliability - Throughput Time - Utilization - Work-In-Process	- Due Date - Compliance - Service Level - Stores

This table shows the (logistic) objectives of the forward and the reverse supply chain. A KPI quantifying the different possible flows of material in the reverse supply chain seems to be very important. It was named return distribution.

Setting up a reverse supply chain does also generate consequences for planning, controlling and monitoring the activities in production and the whole supply chain. Nearly all tasks of PPC are affected, because it is necessary to plan, to control and to monitor both supply chains. On the one hand, the production of products and on the other hand, the reprocessing of used products need to be considered simultaneously. It is necessary to harmonize both activities. As stated before, the more the forward and the reverse supply chain use the same facilities, the more the complexity rises. More processes and more parts in a different status have to be operated. To sum up, in most cases more effort will be necessary to fulfill the PPC activities when there is an additional reverse supply chain. On the contrary, the use of the same facilities can be of great potential. Companies can use the workload resulting from the reverse supply chain to fully load their capacities. If the boundary conditions allow, the workload from the reverse supply chain could be released into production very flexible to balance fluctuations. Another big advantage is that producing companies gain more independency from suppliers, because they return products and materials for production. The roles of supplier, producing company and customer do change because of the circular material flow.

CONCLUDING COMMENTS

This paper presents research to portray the concept of circular material flow caused by product return and to show the consequences for SCM and PPC. To reach this goal, a reverse supply chain was added to the Hanoverian Supply Chain Model. First of all, the flows of material in the reverse supply chain were defined abstractly: return to market, return to make, return to source and disposal. Secondly, the reverse supply chain was divided into five core processes: collection, selection, interim storage, product recovery and return. The connections between the core processes of the forward and the reverse supply chain were shown. Subsequently, systems of KPIs were defined for the core processes of the reverse supply chain. A KPI quantifying the different possible flows of material in the reverse supply chain seems to be very important. In the last step, the consequences of the integration of a reverse supply chain on planning,

controlling and monitoring production was discussed. Potentials were identified, but realizing these potentials is connected to an increase in complexity. There are some limitations of the research presented in this paper and resulting from these, some ideas for further research. First of all, there could be a more profound description of the new process steps. More process levels could be added. Additionally, the developed concept has got a universal character. The model could be specified for certain use cases (e. g. different industries). In addition the presented research ended with a theoretical concept. This concept should be applied and thus validated in industry. The operating experience should be used to further improve and detail the concept.

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