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HOUSEHOLD DEBT AND PRIVATE CONSUMPTION IN MALAYSIA

Yi Qun, Teoh, Labuan Faculty of International Finance, Universiti Malaysia Sabah, Malaysia
Hock-Ann Lee, Labuan Faculty of International Finance, Universiti Malaysia Sabah, Malaysia
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ABSTRACT

Previous studies on the relationship between household debt and private consumption have produced mixed results. Despite the intense debate on the effect of household debt on private consumption, there is no study explicitly takes the disaggregate level of household debt into consideration. Therefore, this study aims to extend beyond the standard investigation on the relationship between household debt and private consumption by taking a more granular view of the effect of property and consumer debt in Malaysia. Using time series econometric approaches and quarterly data of Malaysia from 1997-2016, this study finds that there is a negative relationship between consumption debt and private consumption. More importantly, this study also shows that consumption debt is the major cause for private consumption while, property debt has no significant effect on private consumption.

Keywords: *household debt; consumption debt; property debt; private consumption*

1. INTRODUCTION

Malaysia has seen a relatively steep rise in household debt in recent years, leaving it with high household debt service ratio (Khazanah Research Institute, 2016). This warrants attention, as Malaysia had approximately reached 88.5% household debt to gross domestic product (GDP) ratio in 2016 (Bank Negara Malaysia, 2016). Figure 1 shows the components of household debt in Malaysia from 1997 to 2016. That being said, Endut and Toh (2009) point out that debt is an essential enabler. It can be considered equivalent to GDP borrowed from the future. For most consumers, debt enables them to purchase a home long before they have earned enough money to pay for it. Debt also allows consumers to smooth out their consumption during shocks. Against this backdrop, the present study aims to examine the effect of household debt on private consumption in Malaysia.

Life-cycle theory is one of the common economic theories of consumption that has been identified by empirical literature. Life cycle hypothesis indicates that households go in for large amount of debt to smooth their consumptions and for the possession of durable goods (Ando and Modigliani, 1963). Permanent income hypothesis (PIH) of Friedman (1957) is another consumption theory that justified on consumer behaviour and more or less contemporaneous with Modigliani work on the life-cycle hypothesis. In Friedman theoretical point of view, household consumption should focus not on current income but on the measurement relatives to current and permanent income. This model highlights that household will borrow or use savings to smooth consumption when income is low relative to average income over their life time. However, Friedman's (PIH) is not suitable to test against time-series data (Ando and Modigliani, 1963).

Bacchetta and Gerlach (1997) as well as Ludvigson (1999) found a strong positive relationship between household debt and consumption. They concluded that predictable credit growth had led to the growth of household consumption. Their studies are based on 5 OECD countries (US, UK, Canada, France and Japan) and US respectively and both employ consumption of non-durable goods and services. Furthermore, studies based on the US aggregate data also found that household debt appear to have direct positive effect towards consumer expenditure (Antzoulatos, 1996; Maki, 2002; McCarthy, 1997).

FIGURE 1: Composition of Household Debt

Source: Bank Negara Malaysia

Life-cycle theory is one of the common economic theories of consumption that has been identified by empirical literature. Life cycle hypothesis indicates that households go in for large amount of debt to smooth their consumptions and for the possession of durable goods (Ando and Modigliani, 1963). Permanent income hypothesis (PIH) of Friedman (1957) is another consumption theory that justified on consumer behaviour and more or less contemporaneous with Modigliani work on the life-cycle hypothesis. In Friedman theoretical point of view, household consumption should focus not on current income but on the measurement relatives to current and permanent income. This model highlights that household will borrow or use savings to smooth consumption when income is low relative to average income over their life time. However, Friedman's (PIH) is not suitable to test against time-series data (Ando and Modigliani, 1963).

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However, some previous studies have shown a negative effect of household debt on consumption. Mishkin (1976) showed that for an extra 1 USD of household debt payment, their expenditure on durable goods tend to decrease by 22 cents at the same time. Apart from that, Ogawa and Wan (2007) suggested two different asset ratios to be the household debt; the ratio of outstanding bet to total wealth and the ratio of outstanding debt (land and housing purchase) to the market value of land and housing. They concluded that the debt (asset ratio) has a negative impact on consumption of semi-durables and non-durable goods. Likewise, Dynan (2012) as well as Mian, Rao, and Sufi (2013) found that the high levels of household debt payment could reduce their consumption spending. They indicate that the debt service burden and credit constraints lead to the reduction of household expenditure.

On the other hand, Kim, Setterfield, and Mei (2014) noticed a statistically insignificant relationship between household debt and consumption for the sample period of 1952 to 2011. Nevertheless, they found a strong negative and significant relationship between household debt and consumption for the sub period of 1980 to 2011. Correspondingly, Murugasu, Huei, and Hwa (2015) suggested that an increase in household debt could extract a negative impact on consumption, but the result is insignificant.

Several empirical studies have investigated the relationship between household debt and macroeconomic variables in Malaysia. Rahman and Masih (2015), investigated the relationship among household debt, GDP, interest rate and house price in Malaysia. They stated that house price may affect household debt in the long run, however, there is no effect found between interest rate, GDP and household debt. Wang-li, Hook, Said, and Chin (2015) using house price index as the housing wealth, found a strong negative relationship between housing wealth and private consumption. Covering the period 2002-2013, Murugasu, Huei and Hwa (2015) suggested that disposable income is the major cause of private consumption followed by financial and property wealth. Additionally, they showed that household debt is the key driver of private consumption in Malaysia. That being said, the studies on the effects of household debt on private consumption are still scarce in Malaysia.

As discussed earlier, most studies on the relationship between household debt and private consumption are based on the aggregate level of household debt level and the results are inconsistent. Therefore, this study aims to contribute to the literature by examining the effects of disaggregate level of household debt namely property debt and consumption debt on private consumption in Malaysia.

2. THE METHODS

Assuming private consumption can be described by the following model:

$$LNCONS_t = \alpha_t + \beta_1 LNPROP_t + \beta_2 LNCC_t + \beta_3 LNGDP_t + \beta_4 LNCPI_t + IR_t + \varepsilon_t \quad (1)$$

Equation (1) indicates that private consumption (*LNCONS*) in period t captures the effect of property debt ($LNPROP$) and consumption debt ($LNCC$) holding by household as well as the effect of income ($LNGDP$), inflation rate ($LNCPI$) and interest rate (*IR*).

The Data

The sample period of the present study covers 1997 to 2016. The time series is quarterly and in logarithm, except that the interest rate is already in percentage points. All data are obtained from Bank Negara Malaysia Monthly Statistical Bulletin. Table 1 contains details of the data:

TABLE 1: Description of Variables

Variables	Description
Private Consumption as a ratio of GDP (LNCONS)	Total household expenditure (domestically and abroad)
Property debt as a ratio of GDP (LNPROP)	Loan for properties
Consumer debt as a ratio of GDP (LNCC)	Loan for personal use, credit card, loan for durable goods, motor vehicles loans and loan for securities
Gross Domestic Product (LNGDP)	GDP at constant 2010 prices
Consumer Price Index (LNCPI)	Consumer Price Index at constant 2010 prices
Interest Rate (IR)	Base lending rate

Time Series Econometric Approaches

Unit root test has become a standard pre-test prior to cointegration analysis to identify the order of integration. When the series is stationary in level, it is integrated of order zero *I*(0). If the series is stationary in first difference, it is integrated of order one *I*(1). In general, if the series is stationary in *d* difference, it is integrated of order *I*(d). The use of cointegration test is only permitted when the series to be estimated have the same order of integration. To test the stationarity, this study utilises the Augmented Dickey Fuller (ADF) (Dickey and Fuller, 1979).

The Johansen and Juselius (1990) multivariate cointegration technique is used to measure the long-run relationship among the variables in this study. This technique uses maximum likelihood procedure to determine the number of cointegrating vectors among a vector of time series.

When the variables are cointegrated, VECM will be estimated. However, if the evidence of cointegration is not found, a vector autoregressive (VAR) will be estimated. The VECM has a big advantage over the VAR. It has both short-run dynamics and long-run (cointegrating) relationship in its estimation. The VECM can be written as follows:

$$\Delta LNCONS_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta LNCONS_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNPROP_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNCC_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGDP_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNCPI_{t-1} + \sum_{i=1}^{r} \alpha_6 IR_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_1 \quad (2)$$

$$\Delta LNPROP_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta LNPROP_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNCONS_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNCC_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGDP_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNCPI_{t-1} + \sum_{i=1}^{r} \alpha_6 IR_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_2$$

(3)

$$\Delta LNCC_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta LNCC_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNCONS_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNPROP_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGDP_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNCPI_{t-1} + \sum_{i=1}^{r} \alpha_6 IR_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_3$$

(4)

$$\Delta LNGDP_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta LNGDP_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNCONS_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNPROP_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGCC_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNCPI_{t-1} + \sum_{i=1}^{r} \alpha_6 IR_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_4$$

(5)

$$\Delta LNCPI_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta LNCPI_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNCONS_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNPROP_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGCC_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNGDP_{t-1} + \sum_{i=1}^{r} \alpha_6 IR_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_5$$

(6)

$$\Delta IR_t = \theta_0 + \sum_{i=1}^{m} \alpha_1 \Delta IR_{t-1} + \sum_{i=1}^{n} \alpha_2 \Delta LNCONS_{t-1} + \sum_{i=1}^{o} \alpha_3 \Delta LNPROP_{t-1} + \sum_{i=1}^{p} \alpha_4 \Delta LNGCC_{t-1} + \sum_{i=1}^{q} \alpha_5 \Delta LNGDP_{t-1} + \sum_{i=1}^{r} \alpha_6 LNCPI_{t-1} + \mu_1 ECT_{t-1} + \varepsilon_6$$

(7)

3. RESULTS

Unit Root Test
The results of ADF test suggest that all variables are nonstationary in level and become stationary at first difference at 1% significance level. The results are presented in Table 2.

TABLE 2: Result of ADF Unit Root Test

Variables	**Augmented Dickey-Fuller**			
	Level		**1st Difference**	
	Intercept	**Trend & Intercept**	**Intercept**	**Trend & Intercept**
LNCONS	-2.4915(4)	-1.9591(8)	-6.7176(4)*	-6.8652(4)*
LNPROP	-1.1487(0)	-1.9645(0)	-8.4325(0)*	-8.4185(0)*
LNCC	-2.0053(0)	-2.4977(2)	-8.9990(0)*	-9.0261(0)*
LNGDP	-1.2924(0)	-2.5788(3)	-8.5042(0)*	-8.4985(0)*
LNCPI	-0.5769(2)	-2.5657(0)	-6.9369(1)*	-6.9032(1)*
IR	-2.3784(0)	-2.174(0)	-6.8329(0)*	-6.8734(0)*

Note: Lag length was selected using the Akaike Info Criterion (AIC); * denotes significant at 5% significance level.

Cointegration Test
Table 3 shows that the null hypothesis of no cointegration is rejected from both the Trace and Maximum Eigenvalue at 5% significance level. As reported in Table 3, both results show the existence of three cointegrated equation (r=0), (r=1) and (r=3), which imply that there are three long run relationships among the variables.

TABLE 3: Result of Johansen Cointegration Test

Rank	**Eigenvalue**	**Trace**		**Maximum Eigenvalue**	
		Statistic	**Critical value (5%)**	**Statistic**	**Critical value (5%)**
r = 0	0.8070	229.8845*	95.7537	128.3040*	40.0776
r = 1	0.4249	101.5805*	69.8189	43.14983*	33.8769
r = 2	0.3090	58.43067*	47.8561	28.83026*	27.5843
r = 3	0.2600	29.6004	29.7971	23.48249	21.1316
r = 4	0.0629	6.1179	15.4947	5.067949	14.2646
r = 5	0.0134	1.0500	3.8415	1.049972	3.8415

Note: Lag length of 1 was selected; * denotes significant at 5% significance level.

Granger Causality Results
Table 4 presents the causal relationship among the variables. The coefficients of one period lag residual in LNCONS, LNCC and IR equations are negative and significant at 5% level representing long run relationships among the variables, namely private consumption, property debt, consumption debt, consumer price index, gross domestic product and interest rate. The adjustment speeds are 20.26%, 17.24% and 133.17% quarterly for LNCONS, LNCC and IR equations, respectively.

A summary of the short-run causal relationship is shown in Figure 2. There is bilateral relationship between consumer credit and private consumption in the short run (LNCPI↔LNCONS). Private consumption does cause property debt and gross domestic product (LNCONS→LNPROP and LNCONS→LNGDP). Gross domestic product, consumer price index and consumption debt cause private consumption through interest rate (LNGDP→IR; LNCPI→IR and CC→IR) while there is bilateral relationship between interest rate and private consumption (IR↔LNCONS). Additionally, consumption debt and gross domestic product do affect private consumption through consumer price index (LNCC→LNCPI and LNGDP→LNCPI); (LNCPI→LNCONS). Furthermore, it is evident from the result that consumer debt affect property debt through four causing variables: interest rate, gross domestic product, consumer price index and private consumption (LNCC→IR→LNGDP→LNCPI→LNCONS→ LNPROP). These findings indicate that these six variables are inter-connected to each other in the system.

Table 4: Result of Granger Causality

Dependent Variables	∆ LNCONS	∆ LNPROP	∆ LNCC	∆ LNCPI	∆ LNGDP	∆ IR	ECT t-1
	Chi-square statistics						Coefficient (t-statistics)
∆ LNCONS	-	2.53	11.41*	22.66*	5.37	287.21*	-0.20* (-2.82)
∆ LNPROP	33.51*	-	0.94	1.50	1.99	8.56	-0.01 (-0.9)
∆ LNCC	37.61*	3.72	-	2.74	3.15	6.93	-0.17* (-3.22)
∆ LNCPI	3.62	1.66	15.08*	-	9.67*	2.84	-0.01 (0.23)
∆ LNGDP	42.01*	3.07	1.07	2.46	-	9.65*	0.0508 (0.93)
∆ IR	32.64*	1.50	11.28*	21.76*	10.32*	-	-1.33* (-4.56)

Note: ∆ indicate the first difference; * denotes significant at 5% significance level

Variance Decompositions and Impulse Responses

Although the cointegration test has shown that there are cointegration relationships among the variables, it does not provide the dynamic interactions and strength of causal relations between those variables. Therefore, this study employs variance decomposition and impulse response analyses to examine the effect of household debt on private consumption.

Variance decomposition analyses in Table 5 report the estimates of the fluctuations in private consumption caused by a shock in household debt. It shows that the total shocks in consumer debt account for almost 20% in private consumption fluctuations, while the total shocks in property debt only account for about 2.6% in private consumption shocks. The shocks in interest rate, consumer price index and gross domestic product account for about 30%, 3% and 5% respectively in private consumption fluctuations.

The estimates of the responses of private consumption to a shock in household debt are summarised in Figure 3. Private consumption responds positively to a shock in property debt before the third quarter and stays negative after that. Conversely, private consumption responds negatively to a shock in consumer debt shock, indicating a negative correlation between consumption debt and private consumption.

FIGURE 2: Summary Results of Granger Causality

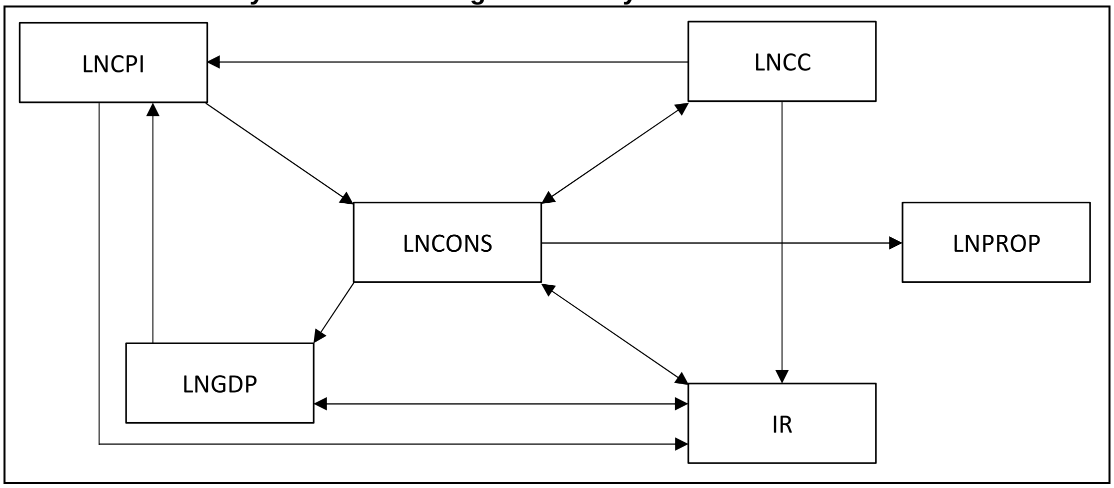

FIGURE 3: Impulse Responses of Private Consumption

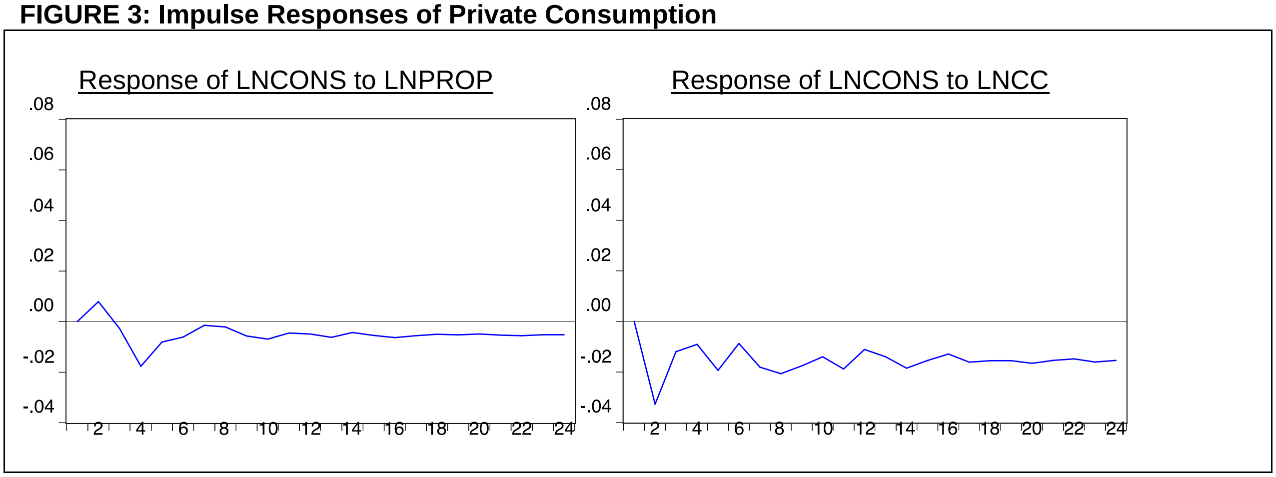

TABLE 5: Variance Decompositions

Horizon (Quarters)	LNCONS	LNPROP	LNCC	LNCPI	LNGDP	IR
1	100.0000	0.0000	0.0000	0.0000	0.0000	0.0000
4	43.7610	2.4471	8.3108	4.6703	1.0471	39.7638
8	45.3213	2.3565	11.9792	4.6854	4.0405	31.6170
12	47.1856	2.4502	13.8315	4.5172	5.4781	26.5375
16	49.0016	2.5715	15.2898	3.9532	5.9283	23.2557
20	49.9765	2.5930	16.5628	3.5407	6.6039	20.7232
24	50.9818	2.6311	17.4294	3.2105	7.0155	18.7318

4. CONCLUSION

This study extends beyond the standard investigation on the relationship between household debt and private consumption by taking a more granular view of the effects of property and consumer debt in Malaysia.

The finding indicated that household debt significantly affects private consumption. In contrast, property debt has no significant impact on private consumption.

This finding implies that the sustainability of household indebtedness has been improved by several measures taken by government in recent years such as the implementation of the minimum loan-to-value (LTV) ratio, the rise in property gain tax and the introduction of the Guidelines for Responsible Financing.

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IMPACT OF INTERNATIONALIZATION ON THE PROCESS OF SAUDI STARTUP BUSINESS: AN EXPLORATORY STUDY

Megbel Aleidan, King Faisal University, Hofuf, Saudi Arabia
dx.doi.org/10.18374/JIBE-18-4.2

ABSTRACT

This study aimed to explore the impact of internationalization on the process of Saudi startup business. Three startup companies have been selected to explore the objective of this study concerning the internationalization motives, paths and obstacles of Saudi startups. Thematic analysis has been performed by establishing themes based on the objectives of the study. The digital media & marketing, the education and the payment processing startups in this study were found to be internationally incentivized by domestic market stability, prior contractual arm-length relationships with international counterparts, competitiveness of foreign markets, existence of untapped niche international markets, vision realization and other factors. Motives, paths and obstacles based implications were discussed and avenues for future research were suggested in this study.

Keywords: *Internationalization, Enterprises, Startups, Saudi Arabia, Obstacles*

1. INTRODUCTION

The advancement of the business environment, the shift into an information and knowledge-based era, the liberalization of and the sociocultural convergence between markets, have spurred companies with different sizes and history to penetrate the international market. The pace and the way of how companies, including startups implement their activities have been adjusted by the emergence of information and knowledge-based era. The leveraging of technology is enabling startups to internationalize their activities with velocity, connectivity and interchange of information (Moodley, 2002; Javalgi & Ramsey, 2001). The internationalization of startups in such information and knowledge-based era is not restricted by location; it is instead determined by their ingenuity of generating ideas and capitalizing on technology (Aggarwal, 1999). Moreover, the liberalization of international markets provides new avenues to growth for companies, notably, starts-ups (Hoskisson et al, 2000). Brezinski and Fritsch (1995) acknowledged the role of market liberalization in establishing the presence of startups in foreign countries, especially, the emerging ones. Bartlett (2001) claimed that startups are internationally enticed to seize growth opportunities in liberalized markets. From a sociocultural perspective, several studies argued that culture have no association with the internationalization strategic decision-making processes as firms started to not highly consider differences of national cultures while involving in such processes (Carr, 2010; Elbanna & Child, 2007; Lu, 2008). This implies that firms including startups are increasingly adopting a geocentric orientation or a world-oriented mindset in international markets driven by the sociocultural homogeneity of markets (Perlmutter, 1969).

With the recognition on the internationalization of startups, this literature is still immature and needs further reinforcement (Johnson, 2004). In addition, a plethora of studies have investigating the phenomena of startups' internationalization (Oviatt and McDougall, 1994; Johnson, 2004; Cieslik & Kaciak, 2009; Zou, Liu & Ghauri, 2010; Evers, 2011; Pinkwart & Proksch, 2014). Although these contributions have added new vigor to the literature, they have not adequately strengthened it with the need of future empirical research. These contributions were also mostly concentrated on the western companies, notably, US-based companies (Holtbrügge & Enßlinger, 2005). Such western orientation stimulates researchers to turn their focus into the internationalization of startups from other parts of the world, with a special focus on emerging countries' startups.

The focus of this paper is to delve into the specific details of the Saudi startups' internationalization. This will include close investigation of the motives, paths, obstacles and experiences associated with such internationalization. In this regard, the paper will provide answers for calls that urge researches to concentrate their research efforts on internationalization activities of emerging countries' startups and stuff the literature with more related empirical evidences.

2. LITERATURE REVIEW

Before the period of 1990s, vast majority of startups' activities worldwide was limited to the national boundaries (Debrulle & Maes, 2015). The international presence of startups has been explicitly witnessed during the post-1990s period (Yli-Renko et al, 2002; Rialp et al, 2005; Presutti et al, 2007). For instance, Jolly, et al. (1992) focus on the international chronological evolution of four US and UK based startup companies. Oviatt and McDougall (1994) used a scorecard to assess the international activities of 12 American, British and European startups. With a specific concentration on firms founded in Zhejiang province, China, Zhang (2009) also witnessed the startups internationalization. Thurner, et al. (2015) examined the opportunities available to 10 international Russian startups is a recent example.

The aforementioned studies have listed a number of factors behind such internationalization. The most prevalent driver is the orientations and the attributes of those who engage in the strategic decision-making process in the startups (Aaby & Slater, 1989; McDougall et al, 1994; Loane et al, 2004). McDougall, et al. (1994) found that the founders of startups born with an international attitude are likely to be armed with prior international experience. Similarly, Oviatt and McDougall (1994) claimed that the startups' founders' global vision is the critical factor behind their early international presence. Another driver is the cost associated with the internationalization process of startups (Eriksson & Johanson, 2015). The availability of venture capital assists startups, mostly, technology-based in easing the financial burden of going international (Colombo & Grilli, 2005). Startups are also encouraged to internationalize their activities with the objective of accessing into competitive and easy financial sources (Oviatt et al, 1991, 2005). The competitiveness of a specific industry at the international level is also a catalyst for an early internalization of startups. Studies undertaken by Coviello and Munro (1995) and Rasmussen, et al. (2001) revealed that the highly competitive nature of the startups' industry internationally was the triggering factor behind the decision of some New Zealander, Danish and Australian startups to penetrate the international market. The internationalization of startup can be explained as well as an attempt of Knowledge acquisition and possession (Autio et al, 2000; Ganotakis & Love, 2012). These drivers include but are not limited to the need for rapidly developing an advanced product in a sophisticated knowledge based market, the short life cycle of a specific product within the local industry (Johnson, 2004), targeting an international niche market and exploitation of international market opportunities with the assistance social networks (Evers, 2012).

The modes of entering a foreign market by a startup and the behaviors each startup might express while going international are diverse. One possible way to do so is to be "a new international market maker", which is a sort of classical export/import startup with the tendency to cater the needs of clients within a small number of familiar countries to the startup (Oviatt & McDougall, 1994). Other modes include the form of a "geographically-focused startup", which customizes its resources to meet special demands in a particular geographical territory. The form of a "global startup", which is the most complicated form since it entails the implantation of diverse supply chain activities within a wide geographical scope (Oviatt & McDougall, 1994). A newer mode is represented in the so-called "e-residency", which enables a foreign startup to establish an entirely online presence in another country. A prominent example of such mode can be found in Estonia (e-Estonia, 2017).

The obstacles pertaining to the internalization of startups vary in nature, with each one is linked to a distinguished organizational domain. Operationally, the issue of engaging in a business network within the foreign market and accessing to the sources of quality tangible and intangible resources is common (Adler & Kwon, 2002; De Carolis., 2009). In the same vein, the issue of internationalization speed (Oviatt & McDougall, 1994; Jones & Coviello 2005; Acedo & Jones, 2007) is affecting the growth pace of startups in the foreign markets since it connects with multiple operational dimensions such as the capacity of startups to diversify their markets internationally, their ability to respond rapidly to the requirements of international markets and to adjust their international forms according to the singularity of each market. Managerially, a large portion of startups, especially, the ones that concentrate their business on technology are forced to internationalize their activities at an early stage for survival and growth purposes, which increases the uncertainty associated with the internationalization decision (Coviello & Munro, 1995). From another managerial dimension, the inappropriate estimation of the cost of going international, which results in backing the international activities of a startup insufficiently (Eriksson & Johanson, 1997; Colombo & Grilli, 2005). Culturally, a startup with no IEC culture (a corporate culture that fosters the entrepreneurial behavior of the startup while performing its overseas operations is likely to encounter difficulties with its learning, its innovativeness and its networking (Zahra, 2005; Dimitratos et al, 2012).

The experiences acquired and lessons learned by startups during their internalization are diverse. These experiences as Barkema and Vermeulen (1998) explained are mainly practical-based and related to the volume of overseas activities they engaged in. For instance, one possible experience to be acquired is enhancing the degree of familiarity with different cultural contexts and different ecosystems (Luo & Tung, 2007). During the internationalization experience, startups can learn how to avoid the processes and decisions that might bring high transactions costs and influence its competitiveness (Barkema & Vermeulen, 1998). Startups can also learn how to overcome the liability of foreignness (North, 1990; Olson, 1996), which usually results from information deprivation in international markets, particularly, the emerging ones (Capron & Shen, 2007; Reuer & Ragozzino, 2008), individual and institutional discrimination within the international market’s business network and the ineffective exchange of information (Hymer, 1960, 1976). Such liability can be overcome by reinforcing the startup’s ability to diversify its structures, resources, operations, strategies and cultures (Holmqvist, 2004; Colman & Grogaard, 2013). Additionally, being an international startup with high exposure to international market is an asset as the know-how and knowledge acquired through this experience significantly boost the startup’s capacity to appraise international investment opportunities and their associated risks worldwide as well as execute organizational processes within foreign markets (Cui et al, 2015). The return of those who engage in startups’ overseas operations is seen as a source of managerial knowledge, commercial know-how and innovation (Wright et al, 2008; Dai & Liu 2009; Filatotchev et al, 2011; Kenney et al, 2013). With taking into consideration the fact that the internationalization is a learning process, startup can leverage the internationalization experience in developing advanced knowledge of their location choices in the foreign markets (Gazaniol, 2015).

3. MATERIAL AND METHODS

The investigation of multiple cases is commonly recognized as “an investigation strategy directed to understand the present dynamics in singular contexts” (Yin, 2003). Such investigation is adopted in this study to explore the phenomena of Saudi startup’ internationalization. With taking into consideration this study’s unit of analysis (Saudi startups), the internationalization behaviors of three startups originated from Saudi Arabia were investigated. The selection of the cases was determined according to two primary criteria: first, they must have at least two years’ experience of internationalization, and second, they must adopt a non-exporting entry mode while internationalizing their activities. These criteria were identified to ensure that the selected cases possess mature international experience, in which they can be consistent with the current study’s aim.

According to the above criteria, three Saudi startups were selected as cases, in which primary and secondary data were used for analysis purposes (Table 1). While the secondary data were mainly collected through corporate websites and industry reports, the primary data were generated via interviews. Three in-depth interviews were conducted with participants from each sampling company from Dec 2017 to Mar 2018, with 12 interviews, where each interview lasted for 40-60 minutes. Participants were selected according to their involvement in the decision making process of internationalization and their involvement in running their companies’ activities abroad.

TABLE 1: MAPPING THE INTERNATIONALIZATION MOTIVES, PATHS AND OBSTACLES OF SAUDI STARTUPS WITH EXPERIENCE

Dimension		Experience
Motive		
	Stability in domestic market	Does not necessarily reflect internationalization readiness
	Prior indirect engagement	Source of abstract host market knowledge
	Vision-driven internationalization	Institutional backing for internationalization
	Industry competitiveness	International market improvisation as learning driver
Path		
	Internalization-based entry mode	Maintenance of infancy-based knowledge
	Cross-border national expansion	Future commitments within previously entered host markets
	Quality international experience	Filling institutional voids in home markets
Obstacles		
	Choice of first international market	Overseas positioning is affected by first international market
	Selection of overseas employees	Internationally experienced & oriented and risk perceiver
	Home-country embeddedness	Appointment of “cross-border brokers” as country managers
	Early internationalization	Possibility of better localization and greater market power

The common protocol associated with analyzing case study is used through describing the cases under development, theoretically coding them and identifying the related patterns (Ghauri, 2004; Pauwels & Matthyssens, 2004). Such thematic analysis was implemented in compliance with the meritorious standards identified by (Strauss & Corbin 2007).

Accordingly, the description process started by forming a detailed case study to narrate the internationalization of each sampling company. The coding process conducted through segmenting the internationalization of each startup into the following categories: motives, paths and obstacles. This was followed by detailing the key events of each category to compare their related patterns to the theory.

4. RESULTS

The investigation of this study’s sampling companies is detailed in the following subsections:

The Cloud case

The first case is anonymously called as “The Cloud”, is a digital media and marketing company. The company was founded by three Saudi entrepreneurs in 2011 to cater the increasing need for generating digital marketing and media solutions across different private and governmental bodies within Saudi Arabia.

The company was not highly keen to explore opportunities of internationalization at its early years of operation, as their domestic market is large enough and fragmented. This orientation has changed since the end of 2015 as The Cloud started to realize the inevitability of internationalization. Such internationalization was driven by four main factors. Firstly, the company found itself engaging in some contractual agreements with in international companies that exist in the region's markets. Second, it was imperative for the company to establish its own presence in different regional markets to acquire the right to represent some international digital media and marketing companies within that region.

Third, the high degree of stabilization allows the company to enjoy the Saudi market. Fourth, the company's decision to amend its vision in which it seeks to be an influential digital media and marketing company in the Middle East. These were the key forces that paved the way for the company to begin its international companies during January 2017 in the cities of Dubai and Cairo simultaneously.

The entry mode used by The Cloud to enter the Emirati and Egyptian market was a Greenfield. The purpose of adopting such entry mode is to internalize its values and culture cross borders rather than to export them to an outsider. The tight control requires to manage the business activities of the company is another rationale behind its decision to adopt a Greenfield entry mode while existing in Dubai and Cairo.

The obstacles faced by The Cloud encountered as a new comer to the Emirates and Egyptian markets are multi dimensions. Legally, the compliance with foreign laws and the host countries' constant issuance of new laws made it difficult for the company to process such massive information, given that the company entered two different foreign countries at the same time.

This forced the company to deal with high transactions costs at the beginning of its internationalization journey. From a human resources perspective, the company's insufficient acquaintance of its foreign markets led to irrational decisions when it comes to staff recruitment, which ultimately result in increasing the recruitment cost.

From knowledge share perspective, the company decision to occupy its Dubai and Cairo offices by new bloods complicated the transfer of knowledge process from the country of origin. From a market point of view, the company exerted a great deal of efforts to complement in local networks within the host countries, as it has no proper relational contacts in these markets. In the same vein, being a new entrant hindered the Cloud from rightly positing itself at the beginning of its entry to the Emirates and Egyptian markets.

The Sky case

The Sky, is an education based company offering a series of advisory and development services. The company was founded by three Saudi entrepreneurs in 2014 with the objective of designing customized solutions for public and private educational institutions. The company services include the development of new schools, modernizing the curricular and content capabilities of existing schools and training.

Since its establishment, The Sky has oriented its focus into its domestic market with no intention for internationalization. However, after approximately two years of operations domestically, the company started to study its internationalization options with a strong tendency towards the UAE market, especially, Dubai. This led to the establishment of its Dubai office at the beginning of 2017. This move was incentivized by the existence of a niche market that is not adequately serviced which is the local content.

The company sensed this needs as it discovered the struggle of private schools in the UAE market in developing curriculums with local flavors and national identity. Another incentive for entering the UAE market is the competitiveness and maturity of such market with the presence of international players in the education industry. Taking into account the fact, such presence facilitates the mutual learning process. The value of this learning was felt by the company when it engaged in joint projects with highly experienced international companies based in Dubai before it decided to go international.

Similar to The Cloud, The Sky chose the Greenfield entry mode to penetrate the UAE market. One reason for such choice is the non-discrimination policy adopted by the UAE authorities in which investors from the Arabian Gulf countries can enjoy some privileges that are similar to the privileges offered to their national counterparts. Moreover, the company’s decision to self-manage its international operations was rationalized by its over-confidence of controlling this shift independently with the utmost exploration of its internal capabilities and expertise. To ensure the success of their entry mode choice, the company recruited some of its UAE staff from domestic sources so that it can complement its product/service experience with the newly recruited staff's market experience.

Entering the Emirates market has forced The Sky to deal with some burdens, most of them are operational and market-based. One of these burdens is the lengthy process executed by the company to localize its products. Education products in specific are not standardized regionally; there is always a need to add a local flavor to them.

This makes the company in constant need to adapt to the local context. Another challenge is related to the work distribution in accordance with the company's portfolio of clients. In Saudi Arabia, The Sky used to fulfill the needs of a relatively large number of clients simultaneously through small-scope projects. However, in the UAE, the company found itself working with only 3 to 4 clients but through prolonged large-scale projects. This change had an influence on the company's way of doing things.

The Star case

The Star is a payment processing and fraud prevention company. The company was established at the beginning of 2014 by a Saudi e-commerce innovator with the purpose of serving small, medium, and large firms through a series of convenient and secure services. These services include but are not limited to adaptive payments, recurring payments, invoicing and anti-fraud systems.

A year and a half after its emergence, the company found itself in an appropriate position to enter the foreign market. Its first choices were limited to the Gulf Cooperation Council countries, specifically, Bahrain and UAE. The company then extended its international presence through the entire Middle East, Eastern Europe and India respectively.

The internationalization decision was supported by two drivers; the vision of the company and the nature of its products and services. From the vision perspective, the company’s strategic orientation was mainly guided by its global-based vision. This makes it imperative for The Star to constantly explore further and further opportunities in the international market, regionally and globally. From the product perspective, the company’s internationalization was driven by the nature of its e-commerce products and their cross-border applications and uses. Taking into account the significant contribution of the cross-border e-commerce in the global online market, the company’s decision to internationalize its activities can be rationalized.

Similar to The Cloud and The Sky, The Star chose the Greenfield entry mode to enter the international market. This choice is attributable to the risk and the local context factors. Firstly, given the high financial risks associated with the company’s services and products and the level of confidentiality embodied within them, The Star preferred to control its overseas operations on its own without the involvement of a partner from the host market.

Secondly, the self-management approach adopted by the company for its overseas operations was supported by a focus on bringing local context expertise through a hiring strategy oriented towards the host market. Consequently, the company can simultaneously maintain the level of confidentiality and autonomy it requires and leveraging the host market expertise through recruiting local human resources.

Being a new entrant to a number of foreign markets has brought some market-based difficulties to The Star. First, at its early stage of internationalization, the issue of identifying new clients and building trusted long-term relationships with them was strenuous. The absence of any previous interactions with cross-border clients, the non-recognition at the regional level and the nascent internationalization experience were all reasons behind The Star’s struggle in clients’ identification.

Second, at an advanced stage of its internationalization, the company found it difficult to appropriately position itself in the niches of online payment processing and anti-fraud protection within the e-commerce foreign markets. This positioning issue is primarily owing to innovativeness and competitiveness factors.

In online payment markets, innovation is natural. Meaning that The Star was enforced to go beyond innovation to uniquely position itself. Furthermore, the increasing entry of companies into the online payment market due to the novelty of the service resulted in maximizing the market's competitiveness. The Star therefore, had no option but to deal with intense competition in this niche market regionally and internationally.

5. DISCUSSION

To explore the internationalization of Saudi startups, three theoretical themes (motives, paths and obstacles) were firstly extracted from the literature of startups' internationalization and then empirically investigated in the cases of (The Cloud, The Sky and The Star). Investigating these cases facilitated the identification of some implications that can enrich the experiences of decision makers of current and future Saudi startups on internationalization.

The motives behind the internationalization of startups can be concerned from four differentiated experiences. First, the stability of a specific startup within the domestic market does not necessarily reflect the company's readiness to internationalize its activities. This implies that a warning should be issued over the early internationalization of a startup if it lacks the possession of well-defined goals and a solid organizational culture and structure at its early stage of emergence (Bryant, 2004). The internationalization of such startups; therefore, should be motivated by building a solid organizational culture that can be absorbed internationally in an identical way to how it is absorbed domestically. Second, a proactive indirect engagement within the host market seems to be necessary prior to making a long-term commitment in that market.

This engagement can be a source of abstract market knowledge and may take the forms of knowledge exchange, service contractual agreements, social networking and others. As indicated by Liesch and Knight (1999, p. 386), "a SME's readiness for involvement in international markets can be interpreted as being a function of its targeted foreign market(s)". Meaning that a start-up is more required to stuff its brain with in-depth market knowledge before its internationalization's journey starts, as it cannot afford any market failure. Therefore, such knowledge shall be inevitably needed to inform the start-up's actions within the foreign market. Third, the internationalization of startups should be vision-driven rather than founder-driven.

The international presence of a startup can be institutionally backed if it is oriented towards the realization of its collective vision at the expense of its founder's vision. Employees are expected to mobilize greater efforts behind the internationalization when they enjoy greater strategic involvements and adequately feel that they are an integral part of such expansion. Oppositely, the meager employees' involvement in drawing the strategic run of their startups might result in creating a "bleak house" situation, in which startups are dictatorially led and employees are poorly informed (Sisson, 1993).

As a consequence, startups at their growth stage in particular (when internationalization is expected to happen), are urged to adopt a "shared leadership" model (Ensley et al, 2006) with taking into consideration the inability of a single individual to afford all the responsibilities derived from the internationalization process. Fourth, Startups should only limit their internationalization to competitive industries.

This is attributable to the fact that a startup as a learning organization needs to improvise and change its dynamism to learn and growth. They also need to engage in innovative, internationally diverse and formally and informally interactive environments for development opportunities (Daszkiewicz & Wach, 2012). The availability of these characteristics is conditioned by how competitive the target international industry is.

Concerning the paths to the international market, three experiences can inform the future decision making processes of startups. First, cross-border internalization seems to be necessary for startups on their first internationalization journey. The tacit knowledge of startups is mostly associated with individuals rather than institutions and it is characterized as infancy-based knowledge. This explains why such knowledge tends to be less-documented in comparison with the knowledge of well-established companies. Therefore, startups can see cross-border internalization as a mean to ensure safe knowledge transfer and minimize the ambiguity that is resulted from venturing abroad. The adoption of cross-border internalization by startups is supported by their ability to meet specialized needs of customers in different contexts (Mascarenhas, 1996) “to adapt their systems, routines, and the collective employee mindset to the imperatives of international competition” (Liesch & Knight, 1999, p. 385).

Second, startups are encouraged to determine the choice of their host markets by the geographic proximity and the possibility of cross-border national expansion. Taking into account, it might be recommended for fellow startups, to be “geographically-focused”. This is supported by the argument made by Figueira de Lemos, et al. (2010) in which they posited that internationalization is only about the company’s alignment to its surrounding environment in the foreign market. They emphasized that the company’s stability in a specific foreign market is a successful way to generate objective knowledge on this market; thus, succeeding in prospecting and planning for future commitments within in it. Third, before beginning their internationalization journey, startups should identify the type of entry mode that allows them to acquire a quality internationalization experience.

This implies that any startup should not only concentrate on how many financial returns it can earn in the host market, it should also concentrate on how much quality experience it can bring back to its home market. Narooz and Child (2017) detected that the learning capability of startups can be fostered through exchanged knowledge in the host markets, so that they can then utilize it to fill the institutional voids that exist in their home markets. To attain this, startups must avoid classical export/import entry modes, given the inability of these modes in providing rich learning and experience acquisition opportunities.

Regarding the obstacles encountered by the startups during their internationalization journey at the host markets, positioning, human capital, knowledge transfer and localization experiences can be emphasized. From a positioning perspective, startups might overcome their positioning dilemmas by start their internationalization experience from countries where they can distinctly position themselves and acquire international legitimacy.

This is justified by the fact that, usually, startups’ future and further international expansion is determined by the choice of their first international market. Simsek, et al. (2015) found that new ventures’ survival and growth internationally are highly correlated with the successful choice of the first foreign market as the development of their future international trajectory is usually determined by a specific focal transitional related to their first internationalization experience (Milanov & Fernhaber, 2009).

Consequently, a foreign market with similar cultural and market features to a startup’s host market shall be prioritized over other markets when it comes to the first internationalization experience. From a human capital perspective, startups’ realization of human capital as the blend of education, knowledge and skills (Rauch et al. 2005) is still incomplete. One reason for such incompletion is their overemphasis on the human capital development of the founders/owners at the expense of the development of the employees’ human capital (Cerrato & Piva, 2012).

This is contradicted with the determinative role played by the employees in the survival and growth of companies in the international market (Dal Zotto & Gustafsson, 2008). It also contradicted with the constant emergence of new roles of employees and the increasing number of startups’ employees engaged in operational and managerial activities as a result of their companies growing commitment in the international market (Cerrato & Piva, 2012).

Therefore, startups should carry out a careful appointment process of their overseas employees. The selection process of influential daily-basis employees must take into account different dimensions, namely, the sum of international business experience the candidate has, how internationally oriented is he and his ability to perceive and manage environmental risk (Ruzzier et al. 2007).

From knowledge transfer perspective; startups need to pay attention to the way in which their indigenous knowledge is transferred cross-border. A successful knowledge transfer process is conditioned by the adoption of an organizational practice from a specific venue into another one, either domestically or internationally (Argote & Ingram, 2000). Such adoption is catalyzed by home-country embeddedness, which refers to "the extent to which a company's employees were integrated in the workplace and other professional activities while at home" (Wang and Qingfang, 2015). Thus, the higher the level of home-country embeddedness a startup's employees have, the greater the chances for it to successfully transfer its indigenous knowledge cross borders.

This should encourage startups to search for "cross-border brokers" among their employees and appoint them as country managers at their overseas offices given the influence the country managers have on their companies' entire performance, specifically at the outset of the internationalization. From a localization perspective, one possible strategy for startups to localize their products and services is through early internationalization. Startups with well-defined goals and solid organizational cultures and structures can develop country-specific market knowledge and acquire the required dynamic capabilities that enable them to do so (Sapienza et al. 2006).

Autio et al. (2000) illustrated that the earliness factor of internationalization is driving the learning and knowledge development process of firms, specifically, young ventures in foreign markets. Accordingly, early entrants startups can economise on great deal of efforts exerted for localization purposes and develop market power greater than their late entrant's counterparts (Knight & Liesch, 2016).

Knight (2015) investigated the obstacles that Saudi small startup enterprises faced while striving to enter the international market. The results showed several obstacles against using internationalization as a mode of expansion and investment by the small startup enterprises. Major obstacles faced by these enterprises were due to lack of financial, legal, marketing, educational, institutional, and developmental service support.

Despite the current study's contribution to the internationalization literature through its attempt to extract experiences from internationalization journeys of startups from emerging markets, it still has its own limitations. One limitation is the number of cases under investigation, which does not exceed three. A possible rationale behind this is the scarcity of Saudi startups with mature international experience. Another limitation is the variation of industries between the cases under investigation, which might reduce the generalization opportunities. This can also be justified by the same rationale.

6. CONCLUSION

The purpose of this paper was to shed light on the internationalization of Saudi startups in terms of motives, paths, obstacles and most importantly, experiences. The digital media & marketing, the education and the payment processing startups in this study were found to be internationally incentivized by domestic market stability, prior contractual arm-length relationships with international counterparts, competitiveness of foreign markets, existence of untapped niche international markets and vision realization. They adopted Greenfield path to cross-border internalize their activities for trust, control and confidentiality reasons. The types of obstacles encountered by the sampling startups during their internationalization were mostly pertaining to recruitment, knowledge transfer, customer identification, positioning, networking compliance with regulations and work scale differences. Fellow startups that have the intention to go international can leverage the experiences extracted from the internationalization journeys detailed in this study.

Specifically, they should pay attention to issues related to earliness of internationalization, home-country embeddedness, international experience and orientation of overseas personnel, choice of first international market, backward transfer of quality international market knowledge, cross-border national expansion, maintenance of infancy based knowledge, learning capability development in international market, vision-driven internationalization, importing of host market tacit knowledge and internationalization readiness.

Although this study is being considered as the first to document internationalization first-hand experiences of Saudi startups, there are still avenues for future studies to foster the findings of the current study. Theoretically, future researchers might focus on the mechanism in which startups (either from Saudi Arabia or other emerging markets) bring back quality international market knowledge to fill the voids in their home markets.

Empirically, it might be interesting to document the internationalization experiences of emerging markets' startups with a globally focused orientation rather than a geographically focused orientation to see how different the findings might be in comparison with the current study.

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THE FUNDAMENTAL EFFECT OF MACROECONOMIC ON THE STOCK PRICE OF THE BANKING SECTOR IN INDONESIA

Wastam Wahyu Hidayat, Universitas Bhayangkara Jakarta Raya, Jakarta, Indonesia
dx.doi.org/10.18374/JIBE-18-4.3

ABSTRACT

This research aims to find out whether there is influence of interest rates, rupiah / US dollar exchange rate and inflation on banking stock prices, banking data population listed on the Indonesia Stock Exchange in 2011-2016. To determine the effect of independent variables on the dependent variable, this study uses multiple linear regression analysis with Statistical Package for the Social Sciences version 20. The results show that: The interest rate is partially unreachable to the disclosure of banking stock prices, because siq is 0.885> 0.05. Rupiah / US.Dolar exchange rate partially has a positive and significant effect on banking stock prices, because Siq, 0.000 <0.05 and Inflation partially has no effect on banking stock prices, because Siq, 0.555> 0.05. Simultaneously all independent variables affect the banking stock price, by 8.60%, while 91.40% is influenced by other factors.

Keywords: *Interest Rate, Exchange Rate, Inflation and Share Prices*

1. INTRODUCTION

The economic crisis that hit Indonesia in mid-1997 affected the economic and non-economic sectors. In ongoing difficulties, operational costs will be even higher when compared to prices in the capital market. This condition will certainly influence investors to invest in certain capital fields.

According to Raharjo (2007) in Wayan Sri Asih and Masithah Akbar (2016) that interest rates are one of the attractions for investors to invest in deposits so that investments in shares will be competitive. There are two explanations of an increase in interest rates that can push the stock prices down. First, an increase in interest rates changes the investment return map. Second, an increase in interest rates will cut the company's profit. This happens in two ways. An increase in interest rates will increase the issuer's interest expense, so that profits can be cut. In addition, when interest rates are high, production costs will increase and product prices will be more expensive so consumers may delay the purchase and save their funds in the bank. As a result, the company's sales decline and this will lead to a decrease in profits so that it will suppress stock prices. Low interest rates will cause lower borrowing costs. Low interest rates will stimulate investment and economic activity will cause stock prices to rise.

According to Saputra and Dharmadiaksa (2016), the interest rate is the percentage of loan principal that must be paid by the borrower to the lender in return for services carried out within a certain period agreed by both parties. According to Perry Warjiyo and Solikin M Juhro (2016), the Monetary Policy Transmission Mechanism is a very complex process because it involves the interaction between the central bank, the financial sector, economic actors and also the government policies and other authorities, both domestically and internationally, so as to show how the monetary policy process adopted by the central bank influences various economic and financial activities to finally achieve the goals to be achieved, namely price stability and economic growth.

According to Mishkin, 2008 in Tri hendra P and Nurul W (2013), interest rates are borrowing costs or the price paid for the loan funds is usually expressed in percentage (Mishkin, 2008). Therefore, interest can also be interpreted as money obtained on loans granted. Interest rates basically have two meanings in accordance with the review, namely for banks and for entrepreneurs. For banks, interest is an income or an advantage on borrowing money by an entrepreneur or customer. And for entrepreneurs the interest is considered as the cost of production or the cost of capital. According to Puspoyo (2004) in Maria Ratna, Topo Wijono and Sri Sulasmi Yati (2016), interest rates are the price of borrowing money to use their purchasing power. Transactions in the banking sector will not be separated from the importance of interest rates. The amount of the loan is called the principal debt (principal), while the percentage of the principal payable as a service (interest) in a given period is called the interest rate. According to Tandelilin (2010) in Eri Saputra, Bambang H.S (2017), too high interest rates will affect the present value of the company's cash flow. So that investment opportunities do not exist or will not be attractive anymore. A high interest rate will also increase the cost of capital that must be borne by the company. Interest rate is the borrowing cost or price paid for the loan (Mishkin 2010). Interest is the amount of funds valued in the money received by the lender (creditor), while the interest rate is the ratio of interest to the loan amount. According to Dahlan Siamat (2007) in Ria Manurung (2016), the intended interest rate is the interest rate of Bank Indonesia Certificates (SBI), namely interest rate policies that reflect the attitude or monetary policy stance set by Bank Indonesia and announced to the public, SBI Interest Rate in this study is monthly inflation measured in percentage units (%).

Currency exchange rates or often referred as exchange rates are a unit of foreign currency in the domestic currency against foreign currencies. The exchange rate of a currency is a comparison of value of two or several different currencies which is determined by the intersection of the demand curve and the market supply curve of the foreign currency. Currency exchange rates are the prices of currencies against other currencies. Exchange rates are one of the most important prices in an open economy, given that the enormous influence on the current account balance and other macroeconomic variables.

According to Madura (1995) he states that the currency exchange rate is the price of a country's currency expressed in the currency of another country. Whereas according to Haris (1997) in stating the exchange rate or currency exchange rate can also be defined as the price of one unit of domestic currency in foreign currency units. According to Nopirin (2009) in Tri Hendra P and Nurul W (2013), the exchange rate is the price in exchange and in the exchange between two different currencies, there will be a comparison of the value or price between the two currencies. This comparison of values is called the exchange rate. The real exchange rate is the nominal exchange rate that has been corrected at the relative price of domestic prices compared to prices abroad. According to Manurung (2009) in Maria Ratna, Topo wijono and Sri Sulasmi yati (2016), the exchange rate is the price of a currency in the form of foreign currency. From the understanding of experts it can be concluded that the exchange rate or exchange rate is the price of a currency against a foreign currency, how much the domestic currency is valued in foreign currency.

According to Irham (2015) Inflation is an event that describes the situation and conditions in which the price of goods has increased and the currency has weakened. If this condition occurs continuously, it will have an impact on the overall deterioration of the overall economic condition and a shock the country's political stability. From this definition, it can be understood that inflation can endanger the economy because it can cause effects that are difficult to overcome, even ending in circumstances that could overthrow the government. Inflation is a general increase the price of goods caused by a decline in the value of a currency in a certain period.

According to Herman (2003) Impact is an action that is characterized by increasing prices in general or a decrease in the value of a distributed currency. The indicators submitted are as follows : a). The Consumer Price Index, an indicator commonly used to describe price movements. Changes in Consumer Price Index from time to time indicate price movements of the package of goods and services consumed by the public. The inflation rate in Indonesia is usually measured by the Consumer Price Index. b). The Wholesale Trade Price Index is an indicator that describes price movements of commodities traded in an area. According to Nopirin (2009) in Mishkin, 2008 in Tri hendra P and Nurul W (2013) Inflation is a general increase in the price of goods caused by a decline in the value of a currency in a certain period, in other words inflation as a process of increasing general prices of goods continuously. According to Gilarso (2004) in Maria Ratna, Topo Wijono and Sri Sulasmiyati (2016), inflation can be formulated as a general price increase that originates from the disruption of the balance between money flows and goods flows. According to Rahardja and Manurung (2008) in Deny R, Suhadak and Topowijono (2014) suggested that in the definition of inflation, there are three important components that must be met First, there is a tendency of increasing prices, even though at a certain time there is a decrease or increase compared to before, but still shows an increasing trend. Second, the price increases that occur are general, meaning that an increase in prices is not experienced by just one or several commodities. Third, continuous price increases which mean not only occur at one time. According to Irham (2015) in Ni Wayan Sri Asih and Masithah Akbar (2016), inflation is an event that describes the situation and conditions where the price of goods has increased and the currency has weakened. If this condition occurs continuously, it will have an impact on the overall deterioration of the overall economic condition and a shock country's political stability. From this definition, it can be understood that inflation can endanger the economy because it can cause effects that are difficult to overcome, even ending in circumstances that could overthrow the government.

In investing the capital market, especially stocks, changes in market prices are an important concern for investors, in addition to the condition of the issuer and the state of economy. The stock price used in conducting transactions in the capital market is a price that is formed from the market mechanism namely market demand and supply. According to R. Agus Sartono (2001) defines, the stock price is the amount of the present value of the cash flow that is expected to be received ". While Eduardus Tandelilin (2010) revealed, Shares as certificates show evidence of ownership of a company ". Stocks are usually traded on the stock exchange floor with market prices that will vary at each time, this will relate to the value of the stock.

According Jogiyanto (2015) in Patoni and A.Lesmana (2015), the principle of stock prices in the capital market is formed same as the price principle in the real market, so that the stock prices that occur in the stock market at certain times are determined by market participants and determined by the demand and supply of the relevant shares in the capital market, so the stock price requires strength in buying and selling, means that the price on the exchange is determined by market forces, namely the strength of demand and the strength of supply. According to Maria Ratna, Topo wijono and Sri Sulasmiyati (2016), stocks are one of the most popular financial market instruments. Publishing shares is one of the company's choices when deciding to finance a company. On the other hand, stocks are an investment instrument that many investors choose because stocks are able to provide attractive levels of profit. Shares as a sign of a person's equity or a party (business entity) in a company or limited liability company. By including the capital, the party has a claim on the company's revenue, claims on the company's assets, and has the right to attend the General Meeting of Shareholders (GMS).

2. MATERIAL AND METHOD

This study was conducted on four (4) banking companies listed on the Indonesia Stock Exchange (IDX) in the period of January 2011 to December 2016. Data retrieval method by sampling, The data studied is sourced from financial statements of banking companies listed on the Indonesia Stock Exchange. As independent variables are: Interest rates, inflation and the of the rupiah / US exchange rate while the Dependent variable is the price of banking shares. The research method used in this study is descriptive and associative and the relationships that arise between the variables in this study are causality relationships.

The data analysis model used was multiple linear regression analysis with Statistical Package for the Social Sciences (SPSS) version 20. To find out that the independent variable has a causal relationship with the Dependent variable, Statistical Package for the Social Sciences determined that if the significance level was <0.05 then there is an influence between the independent variable and the dependent variable, whereas if significant> 0.05, there is no effect between the independent variable and the dependent variable.

3. RESULTS

Data analysis model, multiple linear regression data in this study after processed with Statistical Package for the Social Sciences (SPSS) Ver-20 is:

Tabel.1 Regresion Result, Equation

SP = -7.254,28 + 31,55 IR + 1,54 FE + 182,69 IF
SP= *Stock Price* , IR= Interest rate, FE= *Foreign Exchange,* IF= *Inflation*

In Table 1 the resulting multiple linear regression equation shows that for interest, Foreign exchange and positive (+) variables. This shows that if the interest variable, Foreign exchange and firm inflation increase, the effect of the stock price also will be stronger.

Tabel.2 Regresion Result, Test T

Variabel	**Std.Eror**	**t-statistics**	**Sig**
Interest rate	218,86	0,144	0,885
Foreign Exchange	0,332	4,636	0,000
Inflation	309,07	0,591	0,555

Based on table.2, the interest rate variable partially has no effect on the stock price of the banking sector in Indonesia, because siq is 0.885> 0.05. Variable Rupiah exchange rate against US Dollar partially has a positive and significant effect on the stock price of the banking sector in Indonesia, because Siq, 0.000 <0.05. Inflation variables partially have no effect on the stock price of the banking sector in Indonesia, because Siq, 0.555> 0.05

Tabel.3 Regresion Result, Test F

Model	**Df**	**F-statistics**	**Sig**
Regression	3	8,933	0,000b
Residual	284		
Total	287		

Table 3 above shows that the significant value of 0.000b which processed using Statistical Package for the Social Sciences (SPSS) shows the Variable Interest Rate, Rupiah exchange rate against US.Dolar and inflation simultaneously have a significant effect on Banking stock prices, Because Siq, 0.000 <0.05.

Tabel.4 Regresion Result, Determinand

Model	**R**	**R Square**	**Adjusted R Square**	**F Change**	**Sig.F Change**
1	0,294	0.086	0.077	8.933	0.000

Based on table.4 Interest Rate, Rupiah exchange rate against US dollar and inflation simultaneously affect the share price of the banking sector in Indonesia, at 8.60. %, while 91.40% is influenced by other factors, based with Maria Ratna, Topo wijono and Sri Sulasmiyati (2016) in his research note that there is a significant influence between interest rates, exchange rates, inflation simultaneously on banking stock prices and also according to Deny Rohmanda Suhadak Topowijono (2014), based on the results of simultaneous testing there is a significant effect between the variables of Inflation, Exchange Rate and SBI Interest Rate on Banking Share Prices.

4. DISCUSSION AND CONCLUSION

Accordance to the research that has been done, it concludes that the variable interest rate partially does not affect the banking stock price in Indonesia, meaning the increases nor decreases of Indonesia bank interest rate, the Bank will raise and reduce interest rates on depositors and borrowers of the Bank's funds so that the price of banking shares is not affected because the stock price will remain stable.

The rupiah exchange variables rate against US Dollar partially has a positive and significant effect on the stock price of banking in Indonesia, meaning that the investor will withdraw their capital if the value of the rupiah weakens against the US dollar because the increase in profits on banking shares is not as high as US dollar. rupiah and vice versa. Whereas Inflation Variables do not partially affect banking stock prices in Indonesia.

Simultaneously Variable Interest Rate, Rupiah exchange rate against US Dolar and inflation have a significant effect on Banking stock prices in Indonesia, meaning that the more occurrence of rising prices, the price of banking shares is not strong because banks do not do business in the field of consumer goods or production units and channeling funds, so that even if prices rise, people will be more interested in saving.

For the next researcher, it is better to use the broader object of research, both the company and the research period. In this study limited only banking issuers listed on the Indonesia Stock Exchange are actively trading daily shares and classified Book IV so that only 4 banking companies are obtained. Research is limited to 6 years studied every month.

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THE IMPACT OF AGE STRUCTURE ON CONSUMPTION IN CANADA

Xuan Cui, The University of New Brunswick, Canada
Weiqiu Yu, The University of New Brunswick, Canada
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ABSTRACT

Due to decreasing birth and mortality rates, aging has become a global trend. Economic theories predict that age influences individuals' saving and consumption behavior. Existing studies found that there was a U-shaped relationship between consumption and age in the United State, consistent with the life-cycle hypothesis. In this paper, we investigate the relationship between population age structure and aggregate consumption in Canada using a province-level panel data set from 1983 to 2015. Results show that while the impacts of age structure on the consumption of nondurable goods and service are insignificant, the impacts on consumption of durable goods are significant. Furthermore, consistent with the literature, prime age people consume less than younger and old people do. With an aging population, the number of prime age people decreases over time in Canada. The implication of this research is that aggregate consumption of durable goods will increase over time in Canada.

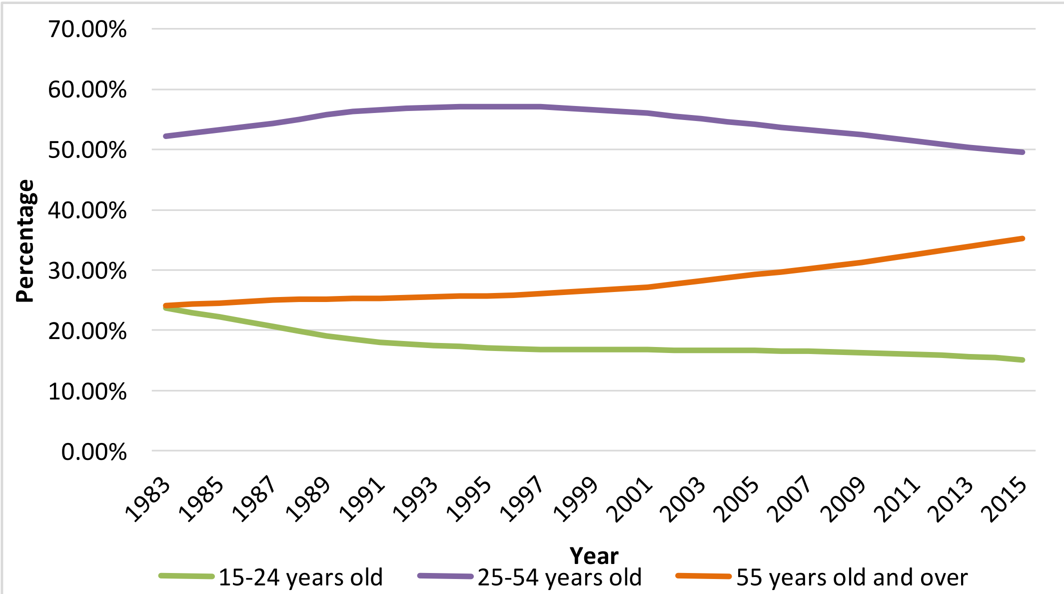
Keywords: *Aging, Age distribution, Life-cycle Hypothesis, Consumption, Durable Goods, Non-durable Goods, Canada.*

1. INTRODUCTION

Population plays an important role in consumption and economic growth of a nation. Since Keynes (1936) established a functional relationship between income and consumption in *The General Theory of Employment, Interest, and Money*, theories of the consumption such as Friedman (1957) 's *Permanent Income Hypothesis*, Modigliani (1954) 's *Life Cycle Hypothesis (LCH)*, and Campbell and Mankiw (1991) 's λ *Hypothesis* have been developed to explain consumption behavior. This paper examines the impact of population ageing on consumption in Canada.

Figure 1 shows that Canada's total population grew steadily from 25.37 million in 1983 to 35.85 million in 2015, an increase of 10.48 million in 33 years, equivalent to 41.3 % of the total population in 1983. In order to more intuitively observe the changes in age structure throughout the past three decades, we divide the population into three groups according to age: 15-24 years old, 25-54 years old and 55 years old and over. The population of the 15-24 years old age group has been declining by an average of 0.1 % per year from 4.7 million in 1983 to 4.56 million in 2015.

Figure 1: PERCENTAGE OF PEOPLE IN WORKING-AGE POPULATION (15 YEARS AND OVER) BY AGE GROUPS, CANADA, 1983-2015



Source: Statistic Canada Table 051-0001 Estimates of population

Originally, the 23.7% of the working-age population is 15-24 years old people, and now this ratio is only 15.1%. On the contrary, the population over 55 is 10.62 million in 2015, which is only 4.77 million in 1983. At the same time, its share in the working-age population is also increasing year by year, from the original 24.1% to the current 35.3%. The population of 25-54 years old has gone through a process that first rises and then falls. But the percentage in the working-age population is always between about 50% and 60%. These are consistent with the truth of low birth rate and low mortality rate in Canada. Different age groups of consumption and savings tendencies are not identical, so different age structure of the population on the impact of consumption and therefore are not the same.

Did the changes in Canada population age distribution in the past three decades impact aggregate consumption in Canada? Do prime-age people consume less, relative to their income than do the young and old? Fair and Dominguez (1991) examined the effects of changes in the United State population age distribution on the behavior of several macroeconomic variables including consumption. They found the support for the LCH: prime-age people consume less relative to their income than do the young and old. This paper follows Fair and Dominguez (1991) to analyze the impacts of Canadian age structure on consumption of durable goods, nondurable goods and services. We too found that prime-age people consume less durable goods relative to their income than do the young and old. But for nondurable goods and services consumption, these impacts are insignificant.

2. METHODOLOGY AND DATA

Methodology

To examine the impact of age distribution on consumption per capita in Canada and test our hypothesis that prime-age people consume less relative to their income than do the young and old, we use a panel data consisting of 10 provinces for the period from 1983 to 2015. Because of the focus on age structure, we decided to examine the consumption function in per adult capita terms, where aggregate consumption, income and wealth variables are divided by the adult population, defined to be those 15 years or older. In the meantime, in order to eliminate the impact of price changes and examine the actual level of these variables, we divided these variables by consumer price index (CPI). The results of Fair and

Dominguez (1991) showed that the influences of the independent variables on different components of consumption are different.

In order to comprehensively examine the different types of consumption affected by the age structure three components of household expenditures: services consumption, nondurable goods consumption and durable goods consumption are used as our dependent variables. The main independent variables this paper focused on are the age variables Z_1 and Z_2 constructed as in Fair and Dominguez (1991). Based on the literature review and data availability, we select the real value of the transfers from governments per capita (RYTR/POP) and the real value of the transfers from corporations per capita (RTC/POP) to pick up the effects of social security on consumption. In general, the direction of these effects is positive. To capture the impacts of per capita income level on household consumption, we selected the real value of disposable income per capita (RYD/POP).

Another important explanatory variable is the real average hourly earnings (RW) as used by Fair and Dominguez (1991). When wages rise, people have more money spent on consumption. So it is expected to enter the consumption function with a positive sign. Though the real average hourly wage (RW), the real value of disposable income per capita (RYD/POP) and the real value of the transfers from corporations per capita (RTC/POP) may be correlated, the real value of the transfers from corporations per capita (RTC/POP) belongs to secondary distribution. And the real value of disposable income per capita (RYD/POP) captures the impact of the income of people who do not work in a household, which is not captured by the real average hourly wage (RW). That is why we include them separately in the model. For examining the effect of price changes or uncertainty of macroeconomic on household consumption, we select three types of price indexes corresponding to three types of consumption- services (PCS), durable goods (PCD) and nondurable goods (PCN). We also include the real interest rate (RR) to our regression model since interest rate may influence saving rate and saving rate will influence consumption. Since there may also be substitution effects from interest rate changes, an increase in real interest rates makes consumption today more expensive relative to tomorrow's consumption and consumption is expected to decline. Its sign is expected to be negative. Furthermore, we use a time trend (T) to capture other unobservable. We also include the lagged dependent variables (L.RCS/POP, L.RCD/POP, and L.RCN/POP) to pick up partial – adjustment and expectational effects and they are expected to have a positive sign.

Following Fair and Dominguez (1991), we consider 56 age-groups in this study: age 15, 16, 17, … , 69 and $\geq$ 70. The "total" population, POP_{it}, is taken to be the population at least 15 years of age. Let POP_{jit} be the number of people in age-group *j* in province *i* in period *t* and $p_{jit} = \mathrm{POP}_{jit}/\mathrm{POP}_{it}$ which equals to the percentage of the population in age-group *j* in the total population aged $\geq$ 15 years. So, We have created 56 p_{jit} variables (*j*=1, …, 56), where the 56 variables sum to 1 for a given *t* and a given *i.* So, the consumption equation per capita can be written as:

$$\mathrm{c}_{it} = x_{it}\beta + \gamma + \alpha_1 p_{1it} \ldots + \alpha_j p_{jit} + u_{it} \quad t=1, \ldots, \mathrm{T}; \quad i=1, \ldots, \mathrm{I}$$

That is, whether age distribution impact the consumption is decided by the significance of the α_j coefficients of p_{jit}.Obviously, estimating 56 unconstrained α_j coefficients is not sensible. For reducing the number of parameters to estimate in equation above, we impose the same two restrictions on the age-group variable coefficients Z_{1it} and Z_{2it} as suggested by Fair and Dominguez (1991).

Before proceeding to regression analysis, we conducted the unit-root test since spurious regressions and misleading statistical inference can be caused by non-stationary panel data (Chen, 2010). In this study, three unit root tests are used: the Fisher-type test based on augmented Dickey-Fuller (Choi, 2001), the Levin-Lin-Chu unit-root test and the Im-Pesaran-Shin Panel unit-root test to determine whether the variables are stationary or non-stationary. Results show that the null hypothesis of a unit root is rejected for all variables at the 10% level of significance by at least two unit-root testes. We take this as evidence that the variables are largely stationary.

Regarding the estimation method, the least squares dummy variable corrected (LSDVC) was used since it is considered the appropriate estimation method for the dynamic long panel data set (Chen, 2010). Monte Carlo simulation shows that for long panel data with small n value, regardless of the size of the deviation or root mean square error, LSDVC is clearly superior to Difference GMM and System GMM. (Kiviet, 1995; Judson and Owen, 1999). The initial estimator we used is the system GMM estimator (also called Blundell-Bond estimator). The accuracy of approximation is up to O ($n^{-1}T^{-3}$). The repetitions of calculating a bootstrap variance-covariance matrix for LSDVC is 50.

Data

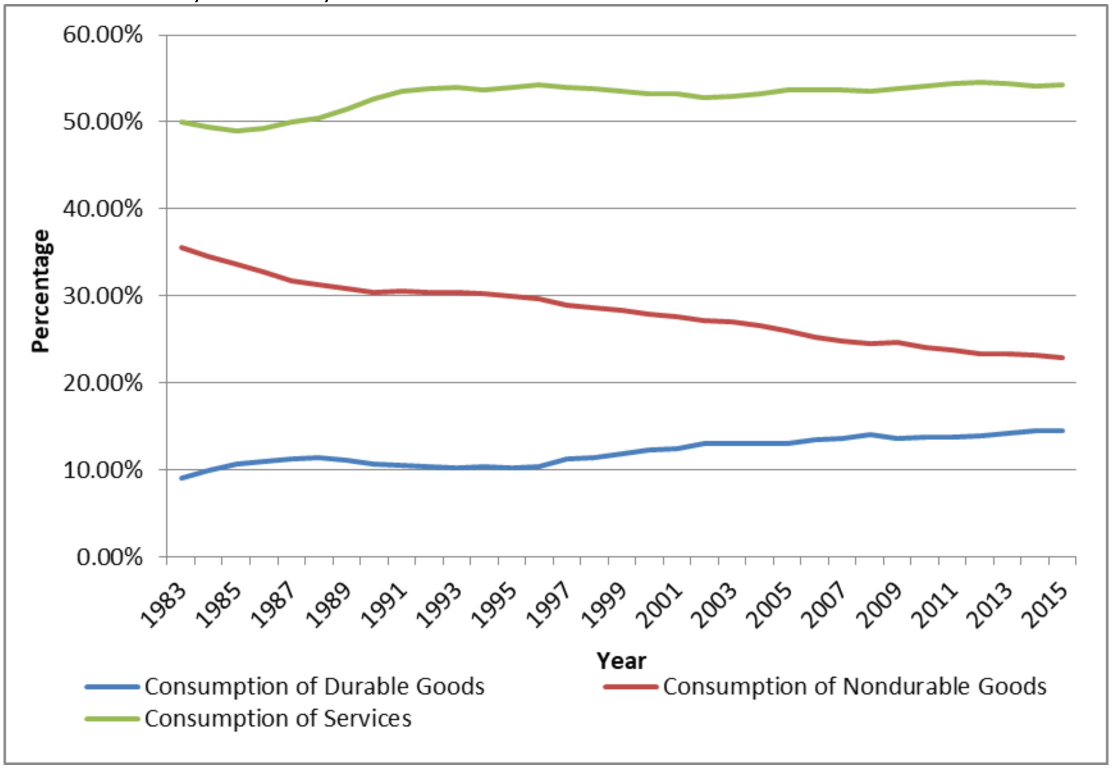
The data set includes the consumption of services (CS), the consumption of durable goods (CD),the consumption of nondurable goods (CN), consumer price index for all-items (CPI), the current transfers received from general governments to household sector (YTR), the household disposable income (YD), the current transfers received from corporations to household sector (TC), nominal average hourly earnings (W), nominal bank interest rate (R), age variables (Z1, Z2) and price indexes for services (PCS), for durable goods(PCD) and for nondurable goods (PCN).

The data used in this report are annual and are all collected from Statistics Canada. The total number of observations for each variable is 330 which include 33 years (1983-2015) of observation for every province. The household final consumption expenditure of services (CS), the household final consumption expenditure of durable goods (CD) and the household final consumption expenditure of nondurable goods (CN) are extracted from CANSIM Table 384-0038-Provincial and Territorial Gross Domestic Product by Income and by Expenditure Accounts, current price, annual. The consumer price index for all-items (CPI), for services (PCS), for durable goods (PCD) and for nondurable goods (PCN) are from CANSIM Table 326-0021, 2002=100, annual.

The current transfers received from general governments to household sector (YTR), the household disposable income (YD) and the current transfers received from corporations to household sector (TC) are collected from CANSIM Table 384-0040-Provincial and Territorial Gross Domestic Product by Income and by Expenditure Accounts, annual. Nominal average hourly earnings (W) are extracted from CANSIM Table 281-0008 (for year 1983-2000) and 281-0030 (for year 2001-2015)-Survey of Employment, Payrolls and Hours (SEPH), average hourly earnings for employees paid by the hour, by overtime status and detailed North American Industry Classification System (NAICS), annual. Nominal bank rate (R) is also from CANSIM Table 176-0043-Financial market statistics, last Wednesday unless otherwise stated, Bank of Canada, annual. Population aged 15 years and over (POP) is from CANSIM Table 051-0001-Estimates of population, by age group and sex for July 1, Canada, provinces and territories, annual.

Figure 2 shows that the household final consumption expenditure in 2015 was 1008 billion dollars, of which 54.3% were services consumption.

Figure 2: PERCENTAGE OF CONSUMPTIONS IN HOUSEHOLD FINAL CONSUMPTION EXPENDITURE, CANADA, 1983-2015



Source: Statistic Canada Table 384-0038 Gross Domestic Product, expenditure-based (2007 constant dollars)

The rest is the consumption of goods, of which the most is nondurable goods consumption, accounting for 22.9%. Among them, durable goods consumption grew the fastest; it was 146.2 billion dollars in 2015, almost four times it in 1983. In addition, its share of household final consumption expenditure increased from 9% to 14.5%.

Although the proportion of nondurable goods consumption in total household final consumption expenditure is high, its growth was the slowest, compared with the average annual increase of 4.6% of durable goods, it increased only 1.6% per year. The value of the nondurable goods consumption also increased but its proportion in total household final consumption expenditure has been reduced from the original 35.6% to 22.9%.

As for services consumption, it grew at an average annual rate of 3.3%. In 1983, it only accounted for 50% in household final consumption expenditure. By 2015, its share increased to 54.3%. In general, the people tend to spend more in the services sector.

And the consumption of nondurable goods is still the most in the goods consumption sector, but this ratio has declined year by year. With the economic development and the improvement of people's living standards, people are gradually reducing the proportion of spending on nondurable goods.

Table 1: ESTIMATES OF THE SERVICES CONSUMPTION EQUATION (1983-2015)

Dependent Variable: RCS/POP	Coefficients	Standard Errors	Z	P-Values
L.RCS/POP	0.9370393***	0.0260885	35.92	0.000
RYTR/POP	-0.06477*	0.0343624	-1.88	0.059
RYD/POP	0.066177***	0.010255	6.45	0.000
RTC/POP	0.1087652	0.0746535	1.46	0.145
RW	2.033387	17.46886	0.12	0.907
PCS	-0.1614014***	0.0347572	-4.64	0.000
RR	-0.0980512	0.0709959	-1.38	0.167
Z1	**0.372827**	**0.6134089**	**0.61**	**0.543**
Z2	**-0.0142599**	**0.0109787**	**-1.30**	**0.194**
T	0.4155203***	0.1148652	3.62	0.000
Jointly Significant Test of Z1&Z2			4.40	0.1106

Notes: *Statistically significant at the 10% level; ** Statistically significant at the 5% level; ***Statistically significant at the 1% level.

3. RESULTS

Table 1 shows the results of our estimation of consumption of services. The dependent variable is the real value of consumption of services per capita. Results indicate that the coefficients of age variables Z_1 and Z_2 are insignificant which means that the change of age distribution does not affect the consumption of services. The coefficient of lag one of the real value of consumption of services per capita (L.RCS/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of services per capita.

The coefficient of real value of transfers from corporation per capita (RYTR/POP) is statistically at the 10% level of significance, and is negatively correlated with the real value of consumption of services per capita. The coefficient of real value of disposable income per capita (RYD/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of services per capita as expected.

The coefficient of price index of services (PCS) is statistically at the 1% level of significance, and is negatively correlated with the real value of consumption of services per capita. The coefficient of time trend (T) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of services per capita.

Table 2: ESTIMATES OF THE DURABLE GOODS CONSUMPTION EQUATION (1983-2015)

Dependent Variable: RCD/POP	Coefficients	Standard Errors	Z	P-Values
L.RCD/POP	0. 8169184***	0.0325484	25.10	0.000
RYTR/POP	-0.1661847***	0.0280576	-5.92	0.000
RYD/POP	0.0241459***	0.0083284	2.90	0.004
RTC/POP	0.2392557***	0.0590284	2.05	0.040
RW	33.18319***	16.16915	-3.55	0.000
PCD	0.119616***	0.0276357	4.33	0.000
RR	-0.2497043***	0.0605396	-4.12	0.000
Z1	**-4.768072*****	**0.9986064**	**-4.77**	**0.006**
Z2	**0.0849501*****	**0.017055**	**4.98**	**0.000**
T	-0.2208957***	0.0459226	-4.81	0.000
Jointly Significant Test of Z1&Z2			25.64***	0.000
α_1	40.013			
α_{56}	44.0876			
j^*	28			
α_{j^*}	-22.209			

Notes: *Statistically significant at the 10% level; ** Statistically significant at the 5% level; ***Statistically significant at the 1% level.
j^* : value of j for which α_j is at a minimum.

Table 2 presents the estimation results for the consumption equation of durable goods. The dependent variable is the real value of consumption of durable goods per capita. The results for durable goods strongly support the hypothesis that age variables matter. The coefficient of lag one of the real value of consumption of durable goods per capita (L.RCD/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of durable goods per capita. The coefficient of real value of transfers from government per capita (RYTR/POP) is statistically at the 1% level of significance, and is negatively correlated with the real value of consumption of durable goods per capita. The coefficient of real value of disposable income per capita (RYD/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of durable goods per capita.

The coefficient of real value of transfers from corporation per capita (RTC/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of durable goods per capita.

The coefficient of real average hourly earnings (RW) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of durable goods per capita. The coefficient of price index of durable goods (PCD) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of durable goods per capita.

Table 3: ESTIMATES OF THE NONDURABLE GOODS CONSUMPTION EQUATION (1983-2015)

Dependent Variable: RCN/POP	Coefficients	Standard Errors	Z	P-Values
L.RCN/POP	0.9609017***	0.0288804	32.27	0.000
RYTR/POP	-0.1242613***	0.0248556	-5.00	0.000
RYD/POP	-0.0051108	0.0069189	-0.74	0.460
RTC/POP	-0.0058466	0.046843	-0.12	0.901
RW	16.61714	12.06279	1.38	0.168
PCN	0.004755	0.017176	0.28	0.782
RR	0.0956465*	0.0541907	1.76	0.078
Z1	**0.3648894**	**0.493981**	**0.74**	**0.460**
Z2	**-0.0015249**	**0.0085341**	**-0.18**	**0.858**
T	0.0598956	0.064792	0.92	0.355
Jointly Significant Test of Z1&Z2			3.31	0.1916

Notes: *Statistically significant at the 10% level; ** Statistically significant at the 5% level; ***Statistically significant at the 1% level.

Table 3 shows the results of our estimation of consumption equation of nondurable goods. The dependent variable is the real value of consumption of nondurable goods per capita. Results show that the coefficients of age variables are insignificant which means that the change of age distribution does not affect the consumption of nondurable goods. The coefficient of real interest rate (RR) is statistically at the 1% level of significance, and is negatively correlated with the real value of consumption of durable goods per capita. As for the age variables, results show that the coefficients of Z1 and Z2 are both statistically at 1% level of significance. Z1 is negatively correlated with the real value of consumption of durable goods per capita and Z2 is positively correlated, which means that the age variables do explain the change of the consumption of durable goods.

The coefficient of lag one of the real value of consumption of nondurable goods per capita (L.RCN/POP) is statistically at the 1% level of significance, and is positively correlated with the real value of consumption of nondurable goods per capita. The coefficient of real value of transfers from government per capita (RYTR/POP) is statistically at the 1% level of significance, and is negatively correlated with the real value of consumption of nondurable goods per capita. The coefficient of real interest rate (RR) is statistically at the 10% level of significance, and is positively correlated with the real value of consumption of nondurable goods per capita.

Figure 3: DURABLE GOODS CONSUMPTION EQUATION: AGE VARIABLES COEFFICIENT ESTIMATES (SEE TABLE 2)

Figure 3 presents the computed α_j from the consumption equation of durable goods for each the 56 age groups. For consumption of durable goods, the lowest value of α_j occurs at j = 28 (age 42), meaning that a one percentage increase in the proportion of the 42-year-old population to the total population decreases the number of real value of consumption of durable goods by 0.222 dollars. We can see from the graph above that the age distributions curve in the consumption function of durable goods is the imposed U-shaped curve with the minimum point at around age 42. The results for durable goods consumption equation strongly support the hypothesis that age variables matter. Further, the patterns of the age variables coefficients are consistent with the LCH that prime-age people consume less durable goods relative to their income than do the young and old.

4. CONCLUSIONS

Like many other western developed countries, Canada experienced a baby boom in the first decades after World War II and then low birth rates and mortality, leading to a significant impact on its population age distribution. Changes in population age structure affect the consumption in both theoretical and empirical perspectives. On the theoretical front, according to the LCH point of view, people borrow when they are young, save in their middle-age and dissave after retired. Empirically, many studies found that young and old persons had a higher average propensity to consume than the middle-aged which is consistent with the predictions of the LCH.

Following the Fair and Dominguez (1991) model for the United States, we estimated the effects of changes in Canada population age distribution on aggregate consumption and test the hypothesis that prime-age people consume less relative to their income than do the young and old. We consider three components of household consumption including services, nondurable goods and durable goods rather than only aggregate consumption in most of the previous studies. This paper analyzes the relationship between demographic factors-age variables and the real value of per capita consumption of durable goods, nondurable goods and service by using annual panel data set in ten Canadian provinces at aggregate level over the period 1983-2015. The results show that for consumption of durable goods, the impact of the population age structure is significant, but for nondurable goods and services consumption, it is not. Furthermore, the results indicate there is a U-shaped relationship between age distribution and consumption of durable goods with a minimum point of 42 years old. That is, prime-age people consume less durable goods relative to their income than do the young and old.

But different from the results of Fair and Dominguez (1991), the minimum point (42 years old) of this U-shaped curve is 11 years younger than that (53 years old) found by Fair and Dominguez (1991) for the durable goods consumption in the United State. One possible reason is that the age results are not robust for durable expenditures in Fair and Dominguez (1991) report as they claimed. Another may be due to the difference in the sample periods used. The difference may reflect the change over time. However, even though the minimum points are different, they both belong to the prime-age group (25-55 years old). Thus, we conclude that our results are consistent with previous empirical studies for developed countries and strongly support the LCH.

As for nondurable goods and services, these impacts of population age structure are insignificant. The difference between the age groups of consumption of services such as haircut and non-durable goods such as milk and bread is not huge. Whether young, prime-age people or elderly, they have similar needs for both services and nondurable goods and should not vary significantly from one age group to another.

As for other economic variables, lagged dependent variables are all significant and are positively correlated with dependent variables. The real value of the transfers from governments per capita (RYTR/POP) is significant for all three types of consumption and has a negative relationship with the dependent variables. This result is counter intuition as we expect that transfer payment would increase consumption. This counter-intuitive result could be due to potential endogeneity and/or omitted variables bias. The real value of the household disposable income per capita (RYD/POP) is significant for both consumption of durable goods and services and is positively correlated with dependent variables. The real value of the transfers from corporations per capita (RTC/POP) are only significant for durable goods consumption and are positively correlated with the dependent variable.

Real average hourly earnings (RW) are only significant for consumption of durable goods and have a positive relationship with consumption of durable goods. Real interest rate (RR) is both significant for consumption of durable goods and nondurable goods. It has a negative relationship with consumption of durable goods but has a positive relationship with consumption of nondurable goods. That is, the increase in interest rates will promote consumption of nondurable goods, but will inhibit the consumption of durable goods. This may be caused by substitution effects; real interest rates make consumption today more expensive relative to tomorrow’s consumption. Compared to nondurable goods, people will be more willing to reduce the current durable goods consumption and allocate their money in the future consumption of durable goods, thereby enhancing the utility. The price indexes are both significant for consumption of services (PCS) and consumption of durable goods. It has a negative relationship with consumption of services but has a positive relationship with consumption of durable goods. Because of the increases in prices, people have to spend more on durable goods. Finally, only the consumption of services and durable goods are influenced by the time trend. The implication of this research is that aggregate consumption of durable goods will increase over time in Canada.

This paper has several limitation. First, there may be some other important variables (e.g., interest rate) affect consumption have not been taken into the regression model. Future research could explore an even richer data source that contain these omitted variables. Second, the data set used in this research ends 2015 the study could be updated with a newer data set.

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AUTHOR PROFILE(S)

Dr. Weiqiu Yu is Professor of Economics at the University of New Brunswick (Fredericton). She has published numerous articles in refereed economic journals such as Public Finance Review, Public Finance, Canadian Journal of Economics, Canadian Tax Journal, Applied Economics Letters, Canadian Journal of Regional Science, Canadian Public Policy, Canadian Journal of Regional Science, Journal of Forest Economics, and Journal of Social, Political and Economic Studies.

Liang Ma received his MA in Economics at the University of New Brunswick (Fredericton) under the supervision of Dr. Weiqiu Yu.

ENVIRONMENTAL SUSTAINABILITY FACTORS IMPACT ON FINANCIAL PERFORMANCE IN MATERIALS INDUSTRY

Paul Brown, Clark Atlanta University, Atlanta, Georgia, U.S.A.
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ABSTRACT

The purpose of the research is to investigate the relationship between environmental sustainability factors and organizational financial operational efficiency. The relationship between sustainability practices and financial performance has received much attention in research through the years with mixed results. We examine 30 companies in the Materials industries and assess whether companies that are Greener reap economic benefits as reflected in their financial performance. Using Green rankings from Newsweek, our study uses four categories of Environmental Sustainability. Our initial results indicate that firms that were higher ranked in the Newsweek Environmental Sustainability survey in Water Productivity, Energy Productivity and Waste Productivity showed a lower growth rate in operational expenses indicating that improvement in operational efficiency may occur.

***Keywords**: Sustainability, Operational efficiency, financial performance, Productivity*

1. INTRODUCTION

Environmental sustainability is increasing attention to global environmental concerns, providing the incentive for business to assess their environmental impacts—such as the usage of natural resources and carbon footprint. Environmental sustainability in business offers the opportunity to integrate comprehensive sustainability targets and programs into business strategies and corporate responsibility programs (https://ccc.bc.edu).

Environmental sustainability addresses how the needs of the present can be met without compromising the ability of future generations to meet their own needs with an emphasis on protection of natural resources and the environment (https://www.gasanmamo.com/news/gasanmamo-sails-summer-party/?). Companies are therefore continuously searching for new ideas and methods which will allow them to improve their sustainability (Srivastava, 2007, Chung and Wee, 2008). While companies are trumpeting the benefits of being Green, it is not clear whether a Green strategy is financially beneficial or simply a means of survival (Wilcox, et al, 2014).

We examine companies in Materials industries to assess their Environmental Sustainability results and how they may have impacted the firm's financial performance. We propose that elements of Environmental Sustainability, Energy Productivity and Carbon Productivity have an impact on organizational financial performance.

2. LITERATURE REVIEW

Findings regarding the new financial effect of environmental sustainability are mixed (Delmas and Nairn-Birch, 2011). Various benefits of environmental sustainability have been conducted, which may lead to higher financial performance (Becchetti et al., 2007; Carter and Rogers, 2008; Srivastava, 2007: Zhu and Sarkis, 2004). Zhu and Sarkis (2004) claim that environmental sustainability can increase revenue by enabling firms to charge premium prices and to access new markets. An advantage of environmental sustainability has been decreased energy consumption, reduction of waste and general reduction of costs. These factors have an impact of a firm's Green ranking as they either reduce environmental impact or positively impact management's policies (Wilcox, et al, 2014).

On the other hand, Zhu and Sarkis (2004) stipulate the environmental sustainability can have significant financial disadvantages in that firms that pursue environmental sustainability need to make additional investments in new or modified products and processes and that they may need to increase safety standards. It can be costly for a corporation to go green initially (Zhu and Sarkis 2004). For example, the switch to solar power will create the need to install solar panels at business facilities. The cost reductions in energy savings gained by going green are not always enough to offset the initial upfront conversion costs. In some cases, the switch to using green materials can lead to more expensive products for consumers. While cost-saving initiatives should help financial performance, many of these require a significant investment in technology and can require a significant investment in infrastructure and expertise. Because many cost-saving activities require significant up-front costs, it is unclear whether Green companies will enjoy a net reduction in operating costs relative to their less Green peers.

We examine companies in Materials industries to assess the Environmental Sustainability impact on a firm's financial performance. We propose that Energy Productivity, Waste Productivity, Water Productivity and Carbon Productivity will have a positive impact on organizational financial performance (http://asbbs.org).

3. METHODOLOGY

We use 2017 Newsweek’s Sustainability Report on top 500 companies in the United States. A “more Green” company is one that has earned a higher ranking in the report. We focus on one industry the materials industry to gain better understanding of a particular industry that could be missed by including companies from multiple industries. Four measurements are used to score each company. They are Water Productivity, Carbon Productivity, Waste Productivity, and Energy Productivity. There were a total of 30 firms in this study. We use 2015 data in the study to match the time period used by Newsweek. Operating Expense growth is the dependent variable in the study and is measured by:

Operating Expense Growth = Operating Expense End/Operating Expense Beginning

We develop four propositions for the study which are listed below:

Proposition 1: We propose that Operating expenses of a more Green Energy Productivity company will decrease (grow slower) relative to a less Green Energy Productivity company.

Proposition 2: Operating expenses of a more Green Water Productivity company will decrease (grow slower) relative to a less Green Water Productivity company.

Proposition 3: Operating expenses of a more Green Waste Productivity company will decrease (grow slower) relative to a less Green Waste Productivity company.

Proposition 4: Operating expenses of a more Green Carbon Productivity company will decrease (grow slower) relative to a less Green Productivity company.

4. FINDINGS

Table 1 shows the descriptive statistics of the variables used in this study. In order to evaluate our hypotheses, we have categorized the sample of firms into top one-half and bottom one-half in terms of relative rank of Greenness within the Materials industry.

For Energy Productivity, we see mixed results. The Operating Expense Growth for 2014 showed a difference .02 in mean between TOP firms and BOTTOM firms. The data indicates a small standard deviation for TOP firms compared to the standard deviation for BOTTOM firms. This would not appear to support the hypothesis.

In 2015, we see that a slower growth rate of TOP firm's relative (.92) to BOTTOM firms (.98). This would give us an indication of meeting the hypothesis. The standard deviations for this period are a little larger for TOP firms than BOTTOM ones but that are within .06 of each other.

Table 1: Descriptive Statistics Base on Operating Expense Growth Energy Productivity		
	TOP Mean	Bottom Mean
Operating Expense Growth (14)	1.06 Std Dev = .09	1.08 Std Dev =.32
Operating Expense Growth (15)	0.92 Std Dev = .32	0.98 Std Dev = .26

In Table 2, Water Productivity, we have similar results for both time periods which indicate that more Green firms had slower growth rate in their operating expenses than did less Green firms. The Operating Expense Growth for 2014 showed a small difference in median between TOP firms and BOTTOM firms. The data indicates a large standard deviation of 4.5 for TOP firms compared to a much smaller standard deviation for BOTTOM firms. This would not appear to support the hypothesis.

In 2015, we see that a slower growth rate of TOP firm's relative (.92) to BOTTOM firms (.98). The standard deviations for this period is are .32 for TOP firms and .26 for BOTTOM firm indicating similar variation for both groups.

Table 2: Descriptive Statistics Base on Operating Expense Growth Water Productivity		
	TOP Mean	Bottom Mean
Operating Expense Growth (14)	1.08 Std Dev = .13	1.06 Std Dev = .26
Operating Expense Growth (15)	0.85 Std Dev = .40	0.96 Std Dev = .21

In Table 3, Carbon Productivity, Operating Expense Growth for 2014 is opposite the direction we would expect as TOP firms have a higher growth rate than do BOTTOM firms. The standard deviation for TOP firms shows that the variation in these firms is relatively small compared to other groups.

In 2015, we see that the growth rate of both TOP and BOTTOM firms are very close, indicating that there is likely no difference between these groups. The standard deviations for this period are a little larger for TOP firms than BOTTOM ones but that are within .05 of each other.

Table 3: Descriptive Statistics Base on Operating Expense Growth Carbon Productivity		
	TOP Mean	Bottom Mean
Operating Expense Growth (14)	1.10 Std Dev = .14	1.05 Std Dev = .24
Operating Expense Growth (15)	0.91 Std Dev = .42	0.90 Std Dev = .23

In Table 4, Waste Productivity, Operating Expense Growth is opposite the direction we would expect as TOP firms have a higher growth rate than do BOTTOM firms. These results would not appear to support the proposition. The standard deviation for TOP firms shows that the variation in these firms is relatively small compared to other groups.

In 2015, we see that the growth rate of both TOP is at a slower growth rate than those for BOTTOM firms. The standard deviations for this period are a little larger for TOP firms than BOTTOM ones but that are within .06 of each other.

Table 4: Descriptive Statistics Base on Operating Expense Growth Waste Productivity

	TOP Median	Bottom Median
Operating Expense Growth (14)	1.09 Std Dev = .13	1.05 Std Dev = .25
Operating Expense Growth (15)	0.88 Std dev = .43	0.92 Std Dev = .22

5. CONCLUSION

The relationship between sustainability practices and financial performance has receive much attention in research with mixed results. The purpose of the research was to add to the discussion by investigating the relationship between environmental sustainability factors and organizational financial performance for the materials industry. Using four areas of environmental productivity, this paper examined 32 companies in the Materials industries that were part of the 2017 Green ranking from Newsweek.

Our initial results were mixed indicating some differences in operational efficiencies between firms that were higher ranked in the Newsweek Environmental Sustainability survey. Water Productivity, Energy Productivity and Waste Productivity showed a lower growth rate in operational expenses.

The findings may prove to be effective in examining environmental sustainability impact within an industry and role that Water Productivity may play in significantly reducing operational costs. Future Research may want to_incorporate outlier firms into study, Expand study to Top 500 US firms and Expand to International firms

Paul Brown earned his Ph. D in 2004 from Georgia State University. Currently he is a professor of Supply Chain Management and Analytics at Clark Atlanta University

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