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A MESSAGE FROM THE CO-EDITORS

It is with great pleasure that we welcome you to this issue of the *Journal of International Business Research*, the journal of the Academy for the Study of International Business, an affiliate of Allied Academies, whose mission is to support the exchange of ideas and insights in International Business.

This issue features the best papers among those presented at the ICBEIT 2012 Ho Chi Minh City International Conference on Business, Economics and Information Technology on the theme of "Doing Business in the Global Economy: Economic, Political, Social, Cultural and Technological Environments Facing Business". Founded on a very simple idea, that there is so much we can learn from each other, the above conference provided an opportunity for academicians, researchers, students, and representatives from industry and government to get together and exchange ideas in the spirit of scholarship and professional growth.

We thank the University of Guam's School of Business and Public Administration and Penn State Altoona's Division of Business and Engineering for their support of the publication of this journal issue. We also acknowledge the members of Allied Academies' Editorial Review Board for their collegiality and service to our profession. Additionally, we are grateful to the Academy for providing us with the outlet through which we can share our scholarly efforts with those interested in the study of International Business.

Consistent with the editorial practice of the Academy on all 18 journals it publishes, each paper in this issue has undergone a double-blind, peer-review process.

This issue includes papers by authors from Indonesia, Japan, Korea, Philippines, Vietnam, Continental U.S. and the Island of Guam, thus reflecting the international reach of Allied Academies and the diversity of its membership.

Information about the Allied Academies, the *JIBR*, and the other journals published by the Academy, as well as calls for conferences, are published on our website. In addition, we keep the website updated with the latest activities of the organization. Please visit our site and know that we welcome hearing from you at any time.

From the Co-editors,

Dr. Maria Claret M. Ruane, University of Guam

Dr. Barbara A. Wiens-Tuers, Pennsylvania State University-Altoona

REVISITING FINANCIAL INTEGRATION OF INTEREST RATES OF ASEAN5+3, 2000 – 2011

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ABSTRACT

The first decade of the new millennium saw the Global Financial Crisis affect many economies in ASEAN 5+3, including the degree and pace of financial integration, particularly interest rates. Recent events in the European Union and its potential impact in ASEAN 5+3 point to a revisiting on the importance of stability of currencies and interest rates as an integral part of financial integration. Using China and the Philippines as an initial study point, the results reveal increasing levels of integration within the region as a whole, but bilateral initiatives that will develop the capital and investment flows should be pursued vigorously.

INTRODUCTION

The European Commission has defined financial integration as "a process, driven by market forces, in which separate national financial markets gradually enter into competition with each other and eventually become one financial market, characterized by converging prices, product supply and converging efficiency/profitability among the financial services providers." (Jang, 2011). Following this definition, it is expected that several distinct and parallel channels can further financial integration, namely, cross-border ownership, establishment of cross-border service provision (Ibid, 2011). A key feature of this definition is that it is a market-driven process and that this process can be hastened or hampered by several drivers that often extend beyond the borders of a defined financial and economic market. This is even made more complicated when we consider the various measurements that have been developed over the years to determine the relative success or even failure of attempts of countries to integrate.

While the measurement of financial integration and globalization vary, Quinn, Schindler, and Toyoda (2011) have identified three major categories: de jure, de facto, and hybrid (combination of de jure and de facto). Examples of de jure factors are those found in the IMF's Annual Report on Exchange Arrangements and Exchange Restrictions (AREAER) which are published every year and are often-referred to as table indicators. De facto indicators, on the other hand, contain elements of intensity, magnitude, and/or breadth and depth of financial controls, an example of would be Schindler's 2009 KA index. Hybrid measurements combine de jure and de facto indicators. For instance, Bekeart, and Harvey's 2005 "Equity" measure does not rely on the IMF table indicators in analyzing financial integration. Their recent study noted that among de jure indicators, sample differences account for much of the variation in growth results, with a weaker impact found in more recent data and among advanced economies, which allows for other possible measurements. Attempts of the Association of Southeast Asian Nations (ASEAN) in the past years to become fully integrated have been cautious and deliberate, especially after the Asian Financial Crisis and more recently, the Global Financial Crisis. And as

the Euro Zone struggles, Asia looks to the lessons of recent events as it moves forward with its own integration efforts.

As a guide to increase integration, citing Cowen, et al., Mayes (2008) suggests seven channels of increasing financial integration for East Asian economies. These are the 1) removal of capital controls; 2) removal of internal controls such as the direction of lending for all purposes other than prudential regulation, anti-competitive practices and consumer protection; 3) adoption of harmonised non-discriminatory international standards; 4) creation of a cross-border infrastructure enabling the easy flow of payments, settlement and securities transactions; 5) mutual recognition to allow cross-border operation of financial institutions, local establishment and the interchange of skilled staff; 6) harmonization of detailed requirements; and 7) development of financial institutions. These are channels that have been used in the past by individual ASEAN5+3 countries but at various degrees which could explain why as a regional bloc, there have been differences in terms of integration.

This study is divided into three parts: a brief examination of more recent studies involving financial integration; then a description of the methodology and analysis of the findings; and finally, policy implications as well as areas of further study.

REVIEW OF LITERATURE

A recent study by Jang (2011) on the costs and benefits of international financial integration in East Asia showed that with financial openness, the capital markets become more developed, and possible cross border transactions, less asymmetric information, more risk-sharing and better efficiency in resource allocation. However, Jang (2011) cited (Dadush et al. [2000]) for the costs which may entail possible contagion risks, the loss of macroeconomic stability, the pro-cyclical nature of short-term capital flows that may lead to high volatility, and risks associated with foreign bank penetration.

Feldstein and Horioka's 1980 study linking domestic savings and international capital flows to financial integration is acknowledged to be one of the earliest and most comprehensive. Among other findings, Feldstein and Horioka observed that, for OECD countries, domestic savings rates and domestic investment rates are, instead, highly correlated.

Citing this and other studies, Park (2005) identified three other common measures of financial integration other than observing changes in capital flows across countries. These are interest rate parity conditions, inter-country savings investment correlations, and inter-country consumption correlations. The study showed that there was an increase in financial integration in the region post- crisis as evidenced by lower and less volatile nominal interest rates, and more significant correlation coefficients. By relating financial integration and macroeconomic volatility, Kose, Prasad, and Terrones (2003) showed that developing countries need to be more not less integrated with world financial markets to be able to reap the benefits of financial integration in terms of risk sharing. However, even prior to the Asian and Global Financial Crises, countries in East Asia appear to have stronger ties with the United States and Europe than with the rest of Asia, attributed by Eichengreen and Park (2003) to the faster and earlier integration of European countries with one another as shown by a faster removal of cross-border portfolio capital controls than that of Asia. Expanding the notion of consumption patterns and financial integration, Imbs (2006) found that financial linkages increase GDP consumption correlations.

Khalid, Iqbal, Umer, and Abbas (2011) examined the degree of financial integration among South Asian (Pakistan, India, Sri Lanka, Maldives, Bangladesh, Nepal, and Bhutan) economies and found varying levels among these countries. A related study by Moshin and Rivers (2011) used both techniques: Feldstein and Horoika's model and real interest rate differentials. The results showed strong levels of integration and correlation between savings and investment in South Asian countries. Furthermore, the findings show that the financial markets of major South Asian countries are integrated with the USA, United Kingdom (UK), Canada, Sweden, Germany, South Korea, Malaysia, Indonesia, Singapore, Japan and China. This finding is also supported by Rim and Setaputra (2010) when they determined that for period prior to, during, and after the Asian Financial Crisis, ASEAN countries have had little impact on US markets, although US influence remains strong in ASEAN markets. The same study noted that there exists much diversification opportunities in ASEAN markets. Furthermore, Laurenceson (2003) noted that while China's integration with ASEAN5 is already advance in goods and services, financial market integration is largely incomplete.

Goldberg, Lothian, and Okunev (2003) found evidence that long run financial integration existed among six industrial countries, namely, Canada, Japan, France, Germany, United Kingdom and the United States (US) under a floating regime. Furthermore, the study showed government controls in some of these countries brought in real interest rates differentials over short periods of time. Fratzscher (2002) examined the degree and nature of integration in European equity markets since some countries in Europe belong to the unification, i.e. one currency, the euro. The results showed strong evidence that integration increased after the unification. Some reasons cited for the increased integration were the reduced exchange rate uncertainty, monetary policy convergence of interest rates, and inflation rate.

Shabri, Meera, Azmi, and Aziz (2009) have found in ASEAN stock markets, unlike during the pre-crisis period, the long-run diversification benefits that can be earned by investors across the ASEAN markets in the post-crisis period tend to diminish.

METHODOLOGY AND ANALYSIS OF FINDINGS

The variables selected for this study are the 91 day t-bill rates to represent the short term rates and 3-months, 364 days, and 3-years to represent longer term rates for January 2000 to December 2011. The variability in longer term rates is due to data availability. Whenever the 91-day t-bill rates are not available, the interbank rates were used. Data were taken from the individual country's central bank websites.

Table 1 presents the descriptive statistics on the monthly rates. The minimum rate was 0.25% for Singapore and the maximum rate was 15.8% for the Philippines for the short term rates. For the longer term rates, the minimum rate was 0.56% for Singapore and the maximum rate was 16.6% for the Philippines.

Table 1: Interest Rate Summary, 2000 - 2011
(missing values were skipped)

Variable	Mean	Median	Minimum	Maximum
phi91	5.72281	5.35000	0.480000	15.8000
phi364	7.20862	6.90000	1.00000	16.6000
mal3mo	3.09919	3.19000	2.17000	3.65000
thai3mos	2.80202	2.96000	0.930000	4.96000
thai1y	2.60311	2.32000	1.01000	5.21000

Table 1: Interest Rate Summary, 2000 - 2011 (missing values were skipped)				
Variable	**Mean**	**Median**	**Minimum**	**Maximum**
sing3mo	1.55826	1.19000	0.250000	3.56000
sing12	1.77715	1.50000	0.560000	3.63000
indon3	8.67520	8.44000	6.55000	12.8300
indon6	8.38444	8.74000	0.000000	12.2500
jap3	0.136215	0.0670000	0.000000	0.715000
japn6	0.125583	0.0690000	0.000000	0.521000
china91d	3.02193	2.96900	1.38000	4.76670
china1yr	3.11477	3.29068	0.000000	6.00830
korea91	4.01750	3.28000	2.41000	7.79000
korea3y	4.30180	3.99000	3.19000	6.31000
Variable	**Std. Dev.**	**C.V.**	**Skewness**	**Ex. kurtosis**
phi91	2.67019	0.466586	0.600657	0.977715
phi364	3.06105	0.424637	0.398496	-0.109098
mal3mo	0.333953	0.107755	-0.729421	1.31747
thai3mos	1.19252	0.425593	0.175285	-0.932613
thai1y	1.14544	0.440028	0.645837	-0.619960
sing3mo	1.00346	0.643958	0.579069	-1.05001
sing12	0.931556	0.524185	0.547172	-1.11973
indon3	1.76668	0.203647	0.546050	-0.512385
indon6	2.79355	0.333183	-1.33117	2.53620
jap3	0.188907	1.38683	1.50258	0.975625
japn6	0.171677	1.36704	1.38747	0.503613
china91d	0.871810	0.288494	0.167032	-0.776543
china1yr	1.20073	0.385496	-0.788353	1.02051
korea91	1.85339	0.461329	1.00362	-0.708523
korea3y	0.869104	0.202033	0.916637	-0.433638
Source: Individual countries' central bank websites				

Table 2 shows the correlations of the different rates for the time period considered. The correlations are important because the time period considered is inclusive of the Global Financial Crisis. We note the following significant correlations at the 1% level:

1. Philippine short-term rates: Philippine year-long rate; Singapore short-term and year-long rates; Indonesia short-term and year-long rates
2. Philippine year-long rates: Singapore short-term and year-long rates; Indonesia short-term and year-long rates
3. Malaysia short-term rates: Thailand short-term and year-long rates; Singapore short-term and year-long rates; Japanese short-term and six-month rates
4. Thailand short-term rates: Thailand year-long rates; Singapore short-term and year-long rates; Indonesia short-term and six-month rates; Japanese short-term and six-month rates; China short-term rates; Korea short-term and three year-long rates
5. Thailand year-long rates: Singapore short-term and year-long-rates; Indonesia short-term and six-month rates; Japanese short-term and six-month rates; Korea short-term and three-year long rates
6. Singapore short-term rates: Singapore year-long rates; Japanese short-term and six-month rates; Korea short-term and three-year long rates

7. Singapore year-long rates: Indonesia short-term rates; Japanese short-term and six-month rates; Korea short-term and three-year long rates
8. Indonesia short-term rates: Indonesia six-month rates; Korea short-term and three-year long rates
9. Indonesia six-month rates: China short-term and year-long rates; Korea short-term rates
10. Japan short-term rates: Japan six-month rates; China short-term and year-long rates; Korea short-term and three-year long rates
11. Japan six-month rates: China short-term and year-long rates; Korea short-term and three-year long rates
12. China short-term rates: China year-long rates; Korea short-term and three-year long rates
13. China year-long rates: Korea short-term and three-year long rates
14. Korea short-term rates: Korea long-term rates

High correlations among the ASEAN countries is expected as they are geometrically and economically close markets, a finding made by Janakiramanan and Asjeet in 1998. This is also seen in terms of paired country observations, those which have the highest correlation coefficients (at least 0.800 and above) are the Philippines and Indonesia, Malaysia and Thailand, and Japan and Korea. It is interesting to note that there are high correlations among China, Japan, and Korea, indicating close economic and financial relations, aside from trade.

Ibrahim (2009) observed that even after the Asian Financial Crisis, there was no significant improvement in intraregional financial market integration within the region. The same study cited that Singapore and Japan have larger and more developed financial sectors than the rest of the ASEAN countries.

The difference in the direction and degree of correlations can also be traced to exchange rate volatility and the widening interest rate spreads within ASEAN countries, an observation made by Lehser and Plummer (2011). They noted that higher yields in ASEAN and other Asian countries can contribute to sizeable movements in currency markets and potentially destabilizing capital flows. As a result, "some economies in the region have implemented measures to discourage short-term capital flows and ensure tighter prudential requirements on financial institutions, Indonesia, for instance, recently put in place new capital control measures that set a minimum 1 -month holding period for investors of Bank Indonesia Certificates (SBI) with 1 -month maturities, and Thailand instituted a 15 per cent tax on interest and capital gains on foreign investors in Thai bonds."

Jang (2011) suggested that the correlations are supposed to increase over time and this has been confirmed in Table 2. A good number of interest rates across countries have correlations above 75%, mostly with the more developed economies of Japan, China, Korea, and Singapore.

Table 2: Interest Rates Correlation Matrix

```
. pwcorr, print(5) star(1)

             |    phi91   phi364  mal3mos thai3mos   thai1y sing3mos   sing12
-------------+---------------------------------------------------------------
       phi91 |   1.0000
      phi364 |   0.9753*  1.0000
     mal3mos |                    1.0000
    thai3mos |            0.2737   0.8480*  1.0000
      thai1y |  -0.1983            0.6557*  0.9819*  1.0000
    sing3mos |   0.3661*  0.4551*  0.5590*  0.7675*  0.7536*  1.0000
      sing12 |   0.3747*  0.4539*  0.5944*  0.7803*  0.7776*  0.9904*  1.0000
      indon3 |   0.8463*  0.8081*          0.7202*  0.6729*  0.5829*  0.6283*
      indon6 |   0.8858*  0.8622*  1.0000*  0.7591*  0.6364*  0.4823   0.4973
        jap3 |  -0.1923            0.5074*  0.3323*  0.4427*  0.3056*  0.3214*
       japn6 |  -0.1937  -0.1751   0.4871*  0.2976*  0.4257*  0.2653*  0.2847*
    china91d |            0.2023   0.4134   0.3526*  0.1906
    china1yr |   0.2382
     korea91 |            0.4157*          0.8283*  0.7436*  0.4962*  0.5705*
     korea3y |            0.4160*          0.6287*  0.5408*  0.4897*  0.5696*

             |   indon3   indon6     jap3    japn6 china91d china1yr  korea91
-------------+---------------------------------------------------------------
      indon3 |   1.0000
      indon6 |   0.9995*  1.0000
        jap3 |            0.5074   1.0000
       japn6 |            0.5845   0.9822*  1.0000
    china91d |            0.6328*  0.4265*  0.4457*  1.0000
    china1yr |            0.6980*  0.4566*  0.4712*  0.4170*  1.0000
     korea91 |   0.6815*  0.7656*  0.8421*  0.8789*  0.7885*  0.7511*  1.0000
     korea3y |   0.6055*  0.6045   0.8250*  0.8665*  0.6132*  0.7022*  0.9127*

             |  korea3y
-------------+----------
     korea3y |   1.0000
```

Note: * - significant at the 1% level

Kuang (2011) presented the savings-investment gap for the ASEAN5+3 in Table 3 as follows:

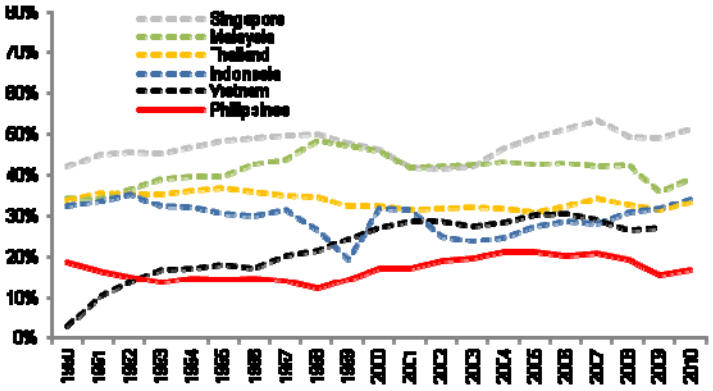
Table 3: Savings-Investment Gap in Selected ASEAN 5+3 Countries

Country	2010 Figures (in US$)	% of GDP	Range % of GDP
ASEAN 5	106 billion	6.3%	0.8%~22%
Cambodia, Laos, Myanmar and Vietnam	-6 billion	-3.7%	-18%~ -1.4%
China, Japan and Korea	529 billion	4.3%	3%~5%

Source: http://asianfinanceforum.com/2011/pdf/Dato_Ooi_Sang_Kuang.pdf; IMF; ADB as cited in the same website.

Kuang's findings show that the different ASEAN economies have different savings-investments gaps but taken as a region, domestic savings can finance domestic investments i.e. large infrastructure developments and other activities. Figure 1 shows that Singapore leads the gross domestic savings as % of GDP, throughout the twenty year period (1990-2010). (http://www.investphilippines.info/arangkada/part-iv-general-business-environment/macroeconomic-policy/)

Figure 1
Gross domestic savings, % of GDP



Source: ADB and respective national statistics offices; No 2010 data for Vietnam

Source: Figure 210: Gross domestic savings, % of GDP. Retrieved August 18, 2012 from http://www.investphilippines.info/arangkada/part-iv-general-businessenvironment/macroeconomic-policy
ADB and respective national statistics offices. No 2010 data for Vietnam as cited in the same website.

In the case of Japan, more foreign investors are buying in the domestic stock markets to take the opportunities of a stronger yen. Stock brokerages also now have savings banks that offer higher rates than commercial banks. Stock brokerages also cross sell products to their clients. Likewise, domestic commercial banks have offered financing to other regions, and more merger and acquisitions are initiated by Japanese firms to other corporations in the Asian region. (Shari, 2012).

Presence of unit roots is indicative of the nature and direction of the integration across the region. The analysis shows that most of the currencies support the hypothesis that we cannot reject the presence of a unit root except that of China as seen in Tables 4 and 5. This indicates that China can be seen as a form of benchmark for interest rates to be set by other countries in the region in the future. The choice of China is also intuitive because of its growing influence as an economic power in the region, not only in investments but also in trade as well. As of 2011, ASEAN ranks third behind the European Union and the United States in terms of total trade, estimated at US$ 382.4 billion (Global Trade Atlas, as cited in Morrison, 2012). The same report noted that China has now ranked among the top ten countries in terms for Foreign Direct Investment (FDI) outflows globally.

The unit root tests allow us to further examine the cointegration effects of China's interest rates to the rest of the region and to illustrate this we will use the short-term and long-term rates of the Philippines and China. In determining cointegration, Engel and Granger suggest a two-stage process, an ordinary-least-squares regression and a unit root test for the residuals.

Tables 6 to 9 show the results for the short-term and long-term rates for the Philippines and China. The coefficients of correlations show that the relationship between the two interest rates is considerably weak. This is supported by Mohan and Nandwa (2009) where they found out that there is cointegration and co-movement among interest rates in China and ASEAN.

Table 4: Unit Root Test for China's Interest Rates
(91 days, one lag period)

```
. dfuller china91d, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =       106

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)             -2.860            -3.508            -2.890           -2.580
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0502

. dfuller china91d, lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =       105

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)             -2.295            -3.508            -2.890           -2.580
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.1734
```

Table 5: Unit Root Test for China's Interest Rates
(1 year, one lag period)

```
. dfuller china1yr, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        70

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)             -3.406            -3.552            -2.914           -2.592
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0108

. dfuller china1yr, lags(2)

Augmented Dickey-Fuller test for unit root         Number of obs   =        65

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)             -2.734            -3.559            -2.918           -2.594
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0683
```

There are many factors that can explain this rather weak relationship, one of which would be the continued dependence of the Philippines to its traditional trading partners such as the United States, Europe and Japan.

Looking at its ASEAN neighbors, the Philippines could also benefit from a further acceleration of investments and other capital flows. Approved foreign direct investments by ASEAN 5 to the Philippines in 2005 were placed at a little less than P 2.5 billion. By 2010, this has grown to almost P 85.0 billion. In contrast foreign direct investments from China has risen to P 30.3 billion in 2010 from P 195 million in 2005 (http://www.investphilippines.gov.ph/statistic2.html). Despite the impressive growth, cointegraton results show weak correlation.

A bright side of this finding is that there are investment opportunities that can be explored between China and the Philippines outside of trade. For instance, incentives can be made for more Chinese investments in the Philippine financial sector such as stock market listing, more participation in the insurance industry, and further liberalize the banking sector to allow increase ownership of Chinese nationals in banking. As of the moment, only the Bank of China has a branch in the Philippines under the Republic Act 7721 which liberalizes the entry of foreign banks in the country.

Table 6: Cointegration Results for Short-Term Rates of the Philippines and China, 2000 – 2011

```
. regress phi91 china91

      Source |       SS       df       MS              Number of obs =      93
-------------+------------------------------           F(  1,    91) =    2.94
       Model |  6.07765756     1  6.07765756            Prob > F      =  0.0897
    Residual |  187.934811    91   2.0652177           R-squared     =  0.0313
-------------+------------------------------           Adj R-squared =  0.0207
       Total |  194.012469    92  2.10883118            Root MSE      =  1.4371

------------------------------------------------------------------------------
      phi91 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
   china91d |   .3313458   .1931507     1.72   0.090    -.0523243     .715016
      _cons |   4.222609   .5792173     7.29   0.000     3.072065    5.373153
------------------------------------------------------------------------------

. dfuller e, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        96

                                 ------------ Interpolated Dickey-Fuller ------------
                    Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)              -2.996            -3.516            -2.893           -2.582
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0352
```

CONCLUSION AND AREAS FOR FURTHER STUDY

As an economic bloc, ASEAN 5+3 has shown improvement in achieving financial integration, specifically in terms of interest rates and that there is evidence to suggest that this integration has increased within the region since the Asian Financial Crisis. On the policy level, there is still a need to further the development of financial integration through: 1) development of capital markets within the countries; 2) more cross border transactions with less transaction costs; 3) safety nets for the regions to minimize the contagion effect in case one country faces financial troubles and prevent other countries in the region to undergo the same crisis or minimize its effects to these countries and the region as a whole.

Within ASEAN, there are initiatives for the stock markets of Malaysia, Singapore, Thailand, and the Philippines to undertake cross-border training through direct investments in their stock exchanges. This will accelerate the entry of foreign capital within these countries and if successful can be applied to the rest of the region.

Table 7: Cointegration Results for Short-term Interest Rates of the Philippines to the Long-Term Interest Rates of China, 2000 – 2011

```
. regress phi91 china1y

      Source |       SS       df       MS              Number of obs =      75
-------------+------------------------------           F(  1,    73) =    4.39
       Model |  7.50431808     1  7.50431808           Prob > F      =  0.0396
    Residual |  124.704479    73  1.70828054           R-squared     =  0.0568
-------------+------------------------------           Adj R-squared =  0.0438
       Total |  132.208797    74  1.78660537           Root MSE      =   1.307

------------------------------------------------------------------------------
       phi91 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    china1yr |   .2899167   .1383239     2.10   0.040     .0142376    .5655957
       _cons |   4.671359   .4249676    10.99   0.000       3.8244    5.518319
------------------------------------------------------------------------------

. dfuller e, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        96

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)              -2.996            -3.516            -2.893           -2.582
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0352
```

Table 8: Cointegration Results for Long-term Interest Rates of the Philippines to the Short-Term Interest Rates of China, 2000 – 2011

```
. regress phi364 china91

      Source |       SS       df       MS              Number of obs =      95
-------------+------------------------------           F(  1,    93) =    3.97
       Model |  12.4869857     1  12.4869857           Prob > F      =  0.0493
    Residual |  292.677842    93  3.14707357           R-squared     =  0.0409
-------------+------------------------------           Adj R-squared =  0.0306
       Total |  305.164828    94  3.24643434           Root MSE      =   1.774

------------------------------------------------------------------------------
      phi364 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    china91d |   .4113443   .2065048     1.99   0.049     .0012667    .8214218
       _cons |   5.344377   .6500137     8.22   0.000     4.053579    6.635175
------------------------------------------------------------------------------

. dfuller e, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        96

                                 ------------ Interpolated Dickey-Fuller ---------
                    Test         1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)              -2.996            -3.516            -2.893           -2.582
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0352
```

Table 9: Cointegration Results for Long-term Interest Rates of the Philippines to the Long-term Interest Rates of China, 2000 – 2011

```
. regress phi364 china1y

      Source |       SS       df       MS              Number of obs =      79
-------------+------------------------------           F(  1,    77) =    0.27
       Model |  .775997885     1  .775997885           Prob > F      =  0.6076
    Residual |  224.719432    77  2.91843418           R-squared     =  0.0034
-------------+------------------------------           Adj R-squared = -0.0095
       Total |   225.49543    78  2.89096705           Root MSE      =  1.7083

------------------------------------------------------------------------------
      phi364 |      Coef.   Std. Err.      t    P>|t|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
    china1yr |   .0809523   .1569908     0.52   0.608    -.2316562    .3935609
       _cons |   6.658918     .51915    12.83   0.000     5.625158    7.692677
------------------------------------------------------------------------------

. dfuller e, lags(1)

Augmented Dickey-Fuller test for unit root         Number of obs   =        96

                                 ------------ Interpolated Dickey-Fuller ---------
                 Test            1% Critical       5% Critical      10% Critical
                 Statistic           Value             Value            Value
------------------------------------------------------------------------------
 Z(t)             -2.996            -3.516            -2.893           -2.582
------------------------------------------------------------------------------
MacKinnon approximate p-value for Z(t) = 0.0352
```

As far as bilateral initiatives are concerned, this study looked as an example what the Philippines can do to increase capital flows from China aside from foreign direct investments.

It would be interesting to extend the cointegration analysis to include the country-by-country effects since it is clear that there are varying degrees of integrating within the region and between countries. For instance, looking at the experience of China and the Philippines, more bilateral agreements can be made to further accelerate the pace of inflows of capital and investments, other than trade agreements.

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CORPORATE ENVIRONMENTAL EXPENSE IN THE PERSPECTIVE OF JAPANESE INVESTORS: MERELY ANOTHER TYPE OF EXPENSE?

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ABSTRACT

Much has been written about the relationship between corporate social performance and corporate financial performance. Some researchers argue that this relationship is consistent and mutual, while others are more sceptical. Some maintain that it is one directional, while some contend that it is bi-directional. Whatever the arguments are, they do not reach to the extent where investors, as the most rational business participants, are included into previous studies. Thus, the aim of this paper is to answer whether investors are concern with firms engaging in environmental issues, especially to empirically examine the relationship between firms` environmental expenses and their capital market performance. Drawing on Schaltegger & Figges`s (2000) shareholder value concept, applying robust statistical regression techniques of Ordinary Least Square and Panel Data estimations, and using archival data from 34 prominent Japanese firms within 8 years of observation, we find relatively sufficient evidence that Japanese investors are not impressed by firms with higher environmental expenses.

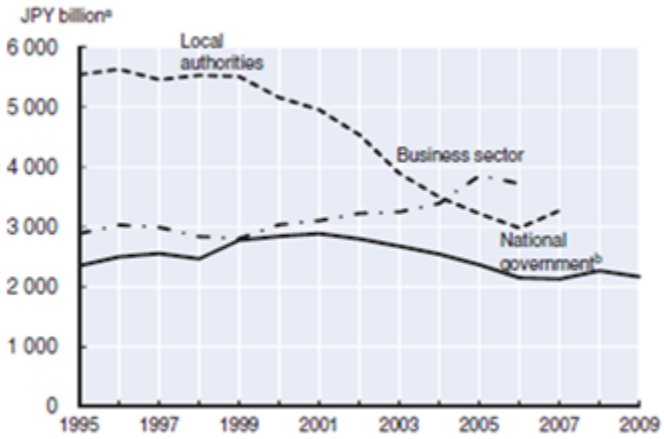
INTRODUCTION

Since early 1990s scientists have admitted that humankind has been facing severe environmental crises due to the continuing occurrences of global warming, acid rain, ozone depletion, biodiversity loss, topsoil erosion, tropical deforestation, and groundwater depletion. Business societies, especially corporations seem to contribute to those crises because in the process of producing goods and services, they have been consuming most of natural resource reserves. Environmentalists argue that the resources that enter the economic process will eventually emerge as waste, at the exact level of resources intake (Welford and Starkey, 1996). Fortunately, it appears that business societies are better aware of the importance of environmental aspects in their production and management systems and realize that they have to take a proper measure on business-environment relationships. Historically business practices were designed based on one important assumption: unlimited environmental resources. However, in most part of the world, it appears that this view has changed along with the decline of natural resource reserves. In Japan, new era of environmental-friendly-business operation has been started by the government, and consequently, business institutions have to adapt to this change.

OECD (2010) outlined that Japan's experience in dealing with environment issue is valuable input for reviewing environment performance. The report showed that Japanese government has made substantial progress within this issue, allowing the country to become a leader in environmental innovations such as the 3Rs (reduce, reuse and recycle) approach for waste and eco –innovation and green technologies. While the government provides the basic environmental infrastructure and institutions, it should be noted that Japanese business

communities that actively participate in the implementation of the environmental policies should receive the major acknowledgement. Graph 1 below describes changing proportions of pollutant abatement expenditure of business sector and both of local and central government.

Figure 1. Pollutant abatement expenditure in Japan



Source: OECD Environmental Performance Reviews Japan (2010).

The trends reveal the increasing role of the private sector in financing and managing environmental expenditures. It seems that the Basic Environment Law, which was enacted in late 1993, has been emphasizing on the advanced participation of Japanese companies. The law set forth the responsibility of the central and local government, corporation and the general public to preserve the environment. Particularly, corporations are pursued to responsible for taking necessary measures to prevent environmental pollutions resulted from their activities and to properly conserve the natural environment in conducting business activities (Stanwick and Stanwick, 2006). This resulted in a 22% increase in pollution abatement expenditure funded by Japan's private corporations since 2000 (OECD, 2010).

The issuance of the Environmental Reporting Guidelines 2000 and the Environmental Accounting Guidelines 2005 by Ministry of Environment of Japan has urged business entities to implement environmental awareness practices and allocate more funding into environmental expenditures. Commenting on exposure draft of Environmental Accounting Guideline 2005, the Japanese Institute of Certified Public Accountants (JICPA) reported that application of environmental accounting would stimulate firms to perform some environmentally relevant activities such as appraising investment in environmentally-friendly equipment and designing environmentally-friendly process (www.hp.jicpa.or.jp). The report also shows that the advantages of implementing corporate social and environmental responsibility agenda are mounting. Those implementations allow Japanese firms to have their competitive advantages compared to those of their counterparts in other countries.

At industry level, competitive paradigm currently has shifted from static model where firms put more attention toward lowering production and management costs so that they could have better costs structures compared to their rivals, or the ability to offer products with superior values so that they could justify higher prices, to dynamic model where firms focus on their capabilities to improve and innovate new products and processes continuously (Porter and van der Linde, 1995). Thus, firms can benefit from adherence to environmental laws and gain more

favourable competitive edges compared to their competitor because innovation in response to environmental regulation, such as reducing pollution, is somehow coincident with improving productivity. At the same time, financial market might give positive responses to those activities that are geared to enhance firms' intangible assets associated with industrial innovation (Hall, 1999).

Aforementioned advantages could only be exercised if firms not only benefit from their environmental innovations, but also send information related to these innovations to the public, especially to capital markets. In fact, many Japanese firms state their achievements on environmental performance on separate annual documents to make sure that outside stakeholders are well aware of their involvements in environmental projects and expenditures. However, considering that the practice of green companies in Japan has been being largely influenced by the Japanese Environmental Laws, the bigger question is that Do Japanese financial markets react positively to firms expenses that are associated with environmental issues? In this paper, we try to explore a possibility whether there is a significant relationship between market responses and environmental expenses. The remainder of this paper is arranged as follow:, we will describe review of literatures that is helpful in interpreting this paper results in the next section. Then, we will explain the methodology, data, and model construction. Finally we will show the results and discussions, followed by research limitation and suggestion for future study.

REVIEW OF RELATED LITERATURE

The increasing number of social and environmental reports published voluntarily by companies has encouraged scholars to examine to what extent the information disclosed in these reports affect readers. Kolk (1999) noticed that an environmental report fit for stakeholders that concern to non-financial objectives of the firm such as governments, competitors, employees, customer advocate groups, and trade associations. Particularly, secondary stakeholders such as management consultants and accountants usually analyse the environmental reports and rank them for environmental awards.

However, recent evidences show that shareholders are also interested in firm's environmental disclosures (de Villiers & van Staden, 2010). The authors conducted surveys on shareholders and found out that they require overviews of environmental risks and impacts, the environmental policy, performance against measurable environmental targets and information on a range of environmental expenses. Spicer (1978) contended that investors behave in accordance to their economic interests when they make investment decision, which is to seek maximum potential return in term of capital gains and dividends. Their decisions are based on any information associated to the firms, including social and environmental information which seems to increase in the number. Spicer noted that the increase of concern over social and environmental consequences of corporate activities has resulted in an increase number of investors who believe to avoid investing in firms that are thought to be causing social injury or environmental damage. Then it leads to the raise of need on social and environmental related information to enhance investors' investment decision making (p. 96).

Moreover, recent development of environmental reporting guidelines has increased the comparability, auditability and general acceptance of such sustainability reports. Shareholder then can benefit from the reports by using them as complementary information to enhance the screening process of investment decision making. Investments that take environmental and social aspects into account are believed to have superior output in shareholder value creation and

capital market performance and then can outperform those that pursue only financial gains (Willis, 2003).

Halkos and Sepentis (2007) maintained that the increasing environmental sector performances positively affect the shareholder value, because investors recognize the decrease of expected business risk due to the improvement of environmental preservations by firms. The authors stated that the correlation between the corporate environmental policy of firm and shareholder value is established by availability of environmental information. Sufficient disclosures of environmental information are important to build shareholder's acknowledgement and to reduce asymmetrical information within capital market and generate shareholder value.

In addition, there are some considerable factors that influence firms to disclose social and environmental information: 1) to display social and environmental responsiveness, 2) to offset circumstance where firm faces higher systematic risk and lower leverage, and 3) because as large company firm has resource and capability to disclose those information (Belkaoui and Karpik, 1989).- Dowell et al. (2000) stated that value-seeking investors acknowledge that less environmental preservation practices are counterproductive to long-term performances. Furthermore, maintaining low level of adherence toward environmental activities would be more costly than adhering to the higher standards and might result to the deterioration of shareholder values.

Schaltegger and Figge (2000) noticed that the growing importance of environmental costs and the contribution of environmental products and services to generate firm's earning have been resulting to the increasing usage of shareholder value recently. Environmental management attempts to examine whether practicing eco-efficiency is in conflict or in harmony with the philosophy of shareholder value. By analysing some value drivers that contribute to building shareholder value, the authors concluded that well-incorporating shareholder value orientation to environmental management can help the firm to improve eco-efficiency and reduce the potential for conflicts between firm's environmental objectives and its financial objectives. The value drivers of shareholder value are: fixed capital investments, working capital investments, sales growth, operating profit margin and income tax rate, cost of capital and value growth duration. Generally those measurements are referring to three general concepts in the level of management decision: operating, investment and financing. Based on shareholder value, we derive some variables to test hypothesis of this study.

Finally, Hassel, Nilsson, & Nyquist (2005) investigated the relationship between market value and overall environmental performance in conjunction with financial statement information. They found that in the quarterly financial statements of Swedish listed companies, both book value of equity and net income provide value-relevant information to investors. Environmental performance has an incremental explanatory power and the negative relationship between environmental performance and the market value of equity indicates that firms rated highly in terms of environmental performance are not, ceteris paribus, highly valued by investors. The argument that high environmental performance is costly and thus has a negative impact on expected earnings and market values is highly supported (Hassel, Nilsson, & Nyquist, 2005, p. 16)

METHODOLOGY

Sample and Data

This paper samples 34 large companies from various industries which are listed in the Tokyo Stock Exchange first section. The primary reason of choosing these companies is that large companies are likely to have sufficient resources and financial capability to finance and publicly report their environment-preservation activities. Another reason is that these companies are globally recognized and thus selecting them justifies the proper representation of the Japanese companies in this study (see Table 1).

Financial information data set from 2002 to 2009 was generated using the COMPUSTAT and compared with individual companies` financial statements. Environmental expenses were directly retrieved from firms` sustainability reports. Market reaction, represented by Price to Revenue per Share from 2002 to 2009, was collected from the COMPUSTAT.

Table 1: Selected Companies

ASTELLAS PHARMA INC	MAZDA MOTOR CORP
CANON INC	MITSUBISHI MOTORS CORP
CASIO COMPUTER CO LTD	NIKON CORP
CITIZEN HOLDINGS CO LTD	NISSHINBO HOLDINGS INC
DAICEL CHEMICAL IND	PANASONIC CORP
DAIICHI SANKYO COMPANY LTD	SEKISUI CHEMICAL CO LTD
FUJI HEAVY INDUSTRIES LTD	SHIN-ETSU CHEMICAL CO LTD
FUJIFILM HLDGS CORP	SUZUKI MOTOR CO LTD
FUJITSU LTD	TAISEI CO LTD
HITACHI CHEMICAL CO LTD	TAKEDA PHARMACEUTICAL CO
HITACHI LTD	TAMRON CO LTD
KAO CORP	TEIJIN LTD
KAWASAKI HEAVY INDUSTR LTD	TORAY INDUSTRIES INC
KOMATSU LTD	TOSHIBA CORP
KUBOTA CORP	TOYOTA MOTOR CORP
KURARAY CO LTD	TSUMURA & CO
LION CORP	UNITIKA LTD

Model Specification

Hypothesis

Assuming that Japanese financial markets properly respond to the released annual information about Japanese firms` environmental expenses within the shareholders framework, and considering that environmental expenses reflect firms' efforts to preserve natural environment as pursued by the Japanese Government, shareholders will perceive the release of information as firms` attempt to increase their shareholders value. Therefore, it is suitable to question whether there is a link between environmental expenses and firm's stock value.

Drawing on Halkos and Sepetis (2007), Dowell et al. (2000), and Schaltegger and Figge (2000)`s results which shows that environmental expenses and shareholders` values are significantly related we propose that environmental expenses significantly affect firms` stock

values. Nevertheless, the fact that the practice of green companies in Japan has been being coercively influenced by the Japanese Environmental Regulations which might result in inefficient resource allocations and based on (Hassel, Nilsson, & Nyquist, 2005)'s finding where environmental performance has a negative influence on the market value of firms, we therefore hypothesize that Japanese financial markets do not react positively to firms expenses that are associated with environmental issues.

Variables

We use Price to Revenue per Share (PRTS) as dependent variable and environmental expenses as independent variable. We control companies` financial sustainability (total revenue), size (total assets), market risk (beta), financial risk (total liability), and profitability (return on assets or ROA). Further elaborations on dependent, independent, and control variables can be seen below.

As a proxy of market reaction, we use Price to Revenue per Share (PTRS). Schaltegger and Figge (2000) explained that shareholder value concept focuses on the sustainability of firms, in which accounting profits and non-financial profits sit at the same level of importance of performance measurement. Thus, firms engaging in environmentally friendly projects might temporarily suffer financial loss, but in the longer term might regain their competitiveness. PTSR is used because prices of stock, which represents market reactions to firms' environmental expenses, are divided by firms' revenue. Unlike Price-Earning-Ratio (PER) which uses earnings as denominator and thus reflects non-recurring events, PTSR are more consistent throughout observation by minimizing the effects of earning fluctuation and can better capture the essence of firms` sustainability. Environmental expenses as independent variable are environmental expenses without environmental investments for two reasons. First, we use PTRS in the current year without lagged, in which the past 12 months of revenue are aggregated. Second, preliminary observation shows that there is a consistent treatment of expensing and capitalizing environmental costs. However, we also reveal the regression results of PTRS lagged one year to five year for comparisons.

Total revenue (REV) constitutes the sustainability level of the firms. Within concept of shareholder value (Schaltegger and Figge, 2000), total sales revenue is one of important value drivers because it represents firms` growth and affects firms' investors (Capon, Farley, & Hoenig, 1990). It is useful to describe to what extent the operation of management might contribute to generate cash flow from operation. By maintaining and gradually increasing the cash flow, it contributes to the creating shareholder value of the firms and it will lead to the development of stock value. High level of firm's revenue might improve firms' capability to allocate part of their revenue to environmentally-related activities.

Total assets (ASSETS) refer to the size of the firms. Shareholder value concept pointed out that fixed capital investment (Schaltegger and Figge, 2000), in which equivalent with firm's size, is one of determinant factors of the generating shareholder value successfully. Bigger assets mean bigger firms` capability to adhere toward environmental regulations and practice environmental preservation, and might lead to better firms' environmental and financial performances (McGuire, Sundgren, & Schneeweis, 1988). Total assets as proxy for firms' size are widely used in environment-related research (Capon, Farley, & Hoenig, 1990).

We found that BETA as proxy for firms' market risks is also broadly used (McGuire, Sundgren, & Schneeweis, 1988). The level of risks is a substantial factor to explain to what

extent firms are able to provide expected returns. .In addition, it also signals investors whether firms could get involve into environmentally friendly activities. In this regard, Beta affects investors' decision to buy or sell stocks.

Total liability (LIAB) is proxy of debt as the important financial source to support firms' activities. Shareholders value recognizes debt as the important value drivers (Schaltegger and Figge, 2000). Within financing activities, the use of debt appears from the firm's cost of capital. As firms which issuing debt, high cost of capital due to high level of debt will lead to low level of shareholder value due to high risk perceived by shareholder relatively. Liabilities have been extensively used as proxy of firms` financial risk (Capon, Farley, & Hoenig, 1990) .

Return on assets (ROA) is used as proxy of firm's profitability. Within shareholder value concept, return on asset refers to the ability of firm's investment that can generate earnings. High ROA enables firm to build shareholder value as it reveals good firm's profitability and is valued by investors (McGuire, Sundgren, & Schneeweis, 1988). Related to environmental matters, high ROA allows firm to allocate more funds aimed for accomplishing environmental regulations.

Statistical Methods

We apply regression analysis to show the effects of environmental expenses on market performance. Ordinary Least Square (OLS) is used to reveal the impacts, and for the sake of robustness of the analysis, the results from Panel Data Random Effects Model (RE) are compared to those from OLS.

The model for OLS is estimated below:

$$lnPTRS_i = \beta_0 - \beta_1 ENV_i + \beta_2 REV_i + \beta_3 ASSETS_i - \beta_4 LIAB_i - \beta_5 BETA_i + \beta_6 ROA_i + \varepsilon_i$$

where ln denotes natural logarithms, and PTRS denotes the stock value of firms, represented by price to revenue per share for selected firms. ENV is the value of firms` environmental expenses, REV is the value of total revenue, ASSETS is the value of total assets, LIAB is the value of total liabilities, BETA is the market risk of individual firms, ROA is companies` return of assets. The log-linear regression is used for two reasons. First, it reduces the degree of skew-ness of dependent variable, and second it satisfies the Box-Cox fitting comparison model where the log-linear regression enables better goodness of fit.

While OLS is preferred because of its simplicity, panel data estimation method is more appropriate for our data due to their structure that comprise the cross-sectional time series features where 34 companies are observed for eight years. Furthermore, in order to determine whether such a model is necessary, we run the Breusch and Pagan Lagrangian multiplier test. The result supports the use of the RE because it does not repeat the results of OLS. The RE model is estimated below:

$$lnPTRS_{it} = \beta_0 - \beta_1 ENV_{it} + \beta_2 REV_{it} + \beta_3 ASSETS_{it} - \beta_4 LIAB_{it} - \beta_5 BETA_{it} + \beta_6 ROA_{it} + \varepsilon_{it}$$

where i represents firm and t constitutes year of observation, ln denotes natural logarithms, and PTRS denotes the stock value of firms, represented by price to revenue per share for selected firms. ENV is the value of firms` environmental expenses, REV is the value of total revenue, ASSETS is the value of total assets, LIAB is the value of total liabilities, BETA is the market risk of individual firms, ROA is companies` return of assets.

RESULTS AND DISCUSSION

Results

We first examine the descriptive statistics of all variables. Table 2 shows the statistics of dependent, independent and control variables.

Table 2.: Descriptive Statistics (N=209-286)

Variable	Mean	Std. Dev.	Min	Max	Corr. to lnptrs
lnptrs	6.40	0.83	4.44	8.54	1
env	24.98	42.02	0	260.60	-0.13
rev	2363.33	3835.99	14.49	26289.23	-0.10
assets	2538.05	4802.68	8.50	32574.77	0.01
liab	1476.09	3035.43	2.22	20110.43	-0.07
beta	0.84	0.44	-0.21	2.15	-0.37
roa	2.96	4.48	-29.87	13.32	0.57

Table 3 contains two statistical models for hypothesis testing. Model 1 is a linear regression using ordinary least square, in which we find that the hypothesis is strongly supported. Expectedly, the results show that for Japanese companies, their environmental expenses negatively affect their stock value. Model 2 is a panel data - fixed effects model. Similar to model 1, this model strongly supports our hypothesis in Y_0.

Table 3: Regression Results

Variable	Model 1: OLS					
	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5
env	-0.0109***	-0.0109***	-0.0103**	-0.0085*	-0.0085*	-0.0099*
rev	-0.0001*	-0.0001	-0.0001	-0.002*	-0.0002*	-0.0001
assets	0.0009***	0.0009***	0.0009***	0.0010***	0.0010***	0.0010***
liab	-0.0011****	-0.0012***	-0.0013***	-0.0013***	-0.0013***	-0.0013***
beta	-0.0763	-0.1706	-0.0632	-0.0838	-0.0538	-0.1120
roa	0.0440***	0.0457***	0.0277**	0.0062	0.0165	0.0158
Intercept	6.4270***	6.4339***	6.4464***	6.5561***	6.4419***	6.3637***
N	179	179	160	137	112	85
r^2	0.6592	0.6454	0.5975	0.5442	0.5537	0.5885
F	55.4504	52.1642	37.8597	25.8667	21.7117	18.5887

Note: *p<0.01, **p<0.05; ***p<0.001

Variable	Model 2: Panel Data Estimation (FE)					
	Y_0	Y_1	Y_2	Y_3	Y_4	Y_5
env	-0.0074*	-0.0067	-0.0027	-0.0000	-0.0017	-0.0016
rev	-0.0002**	-0.0000	-0.0001	-0.0002**	-0.0002**	-0.0002**
assets	0.0009***	0.0007***	0.0008***	0.0009***	0.0010***	0.0010***
liab	-0.0011***	-0.0010***	-0.0011***	-0.0012***	-0.0013***	-0.0013***
beta	-0.1167	-0.2309*	-0.0646	-0.1868	-0.0415	0.0231
roa	0.0314***	0.0288***	0.0010	-0.0410***	-0.0136	-0.0152
Intercept	6.4934***	6.4899***	6.5022***	6.7936***	6.5235	6.3204***
N	179	179	160	137	112	85

Note: *p<0.01, **p<0.05; ***p<0.001

DISCUSSION AND CONCLUSIONS

Much has been written about the relationship between corporate social performance and corporate financial performance. Some researchers argue that this relationship is consistent and mutual, while others are more skeptical. Some maintain that it is one directional, while some contend that it is bi-directional. Whatever the arguments are, they do not reach to the extent where investors, as the most rational business participants, are included into the studies. This motivates us to investigate whether there is a relationship between firms' environmental expenses and investors decisions.

We selected Japan as our focus of study because although Japanese government and business practitioners have been engaging in environmental initiatives for more than three decades and then being in the forefront of environmental innovations, not much information could be retrieved on investors' orientation toward these initiatives. Is it possible that environmental regulations enacted are carrying heavy burden costs overlooked by policy makers and business participants? Have Japanese Investors shifted their views from financial oriented money-making engines to environmentally tolerant business practitioners? Witnessing that Japanese economic growth has been stagnated for approximately two decades but its firms environmental expenditures have been growing substantially, partly because the firms have to comply to newly enacted environmental laws, it is interesting to see whether these expenditures are valued by investors or not. Using archival data from 19 firms within 4 years of observation, we find relatively sufficient evidence that Japanese investors are not impressed by firms with higher environmental expenses.

Specifically, after controlling firms' growth, size, financial risk, market risk, and profitability, we find empirical support that higher level of environmental expenses do not necessarily results in positive market's reaction. This result contradicts (Hart & Ahuja, 1996)'s conclusion that it does indeed pay to be green. However, It supports our previous results (Lasmin & Nuzula, 2011), in which it is revealed that investors did not value firms` with higher environmental expenses; and Hassel, Nilsson, & Nyquist, 2005)'s finding where environmental performance has a negative influence on the market value of firms. At this point, we can only speculate that: (1) markets perceive that the involvement of Japanese business societies and institutions in environmental projects is mainly triggered by Japanese Environmental Laws and not genuinely by firms' own initiatives; (2) the benefits of such projects are never certain.

These findings which shed light on the existence of negative effects of firms' environmental expenses to their stock performances may be of interest to CSR scholars, business practitioners, and the governments. For researchers, we add to the limited number of research about the relationship between environmental initiative and capital markets. For companies and policy makers, we hint that every regulation comes with cost. They need to balance the interests of triple bottom line in the policy making and execution. For investors, they ought to know that their investment decisions are largely influenced by the importance of firms' size and conventional financial rational.

Several limitations should be taken into account when interpreting the results of this study. First, we only include 34 companies within eight years observation. More sample and longer observation may provide better ground for generalization. Second, while our test revealed that no omitted variables in the research models, additional dummies, for example types of industry and ages of firm might be useful to refine the results. Third, relying heavily on archival

data, research on the actual perceptions and behaviours of investors could significantly improve this study.

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STATE OF CORAL REEFS MANAGEMENT: CASE STUDY OF OKINAWA ISLAND, JAPAN

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ABSTRACT

The tropical sea temperatures have been increasing in the past 100 years (Levitus, 2000) and at least 2 to 4.5 C water temperature rise is expected in the next century as a result of atmospheric greenhouse gases accumulation (IPCC, 2007). This rise in temperature may indirectly increase the occurrence and the magnitude of disease in organisms by altering the host susceptibility, infectious capacity and changing the distribution of the parasite organisms.

Coral reefs possess an enormous diversity of organisms and are often called the "Tropical Rain Forests under the Sea". Moreover, the reefs protect coastlines by minimizing the impact of waves caused by storms and Tsunami. However, despite their valuable features, the coral reefs are at risk due to rise in sea temperatures.

The present study assesses the status of coral reef management with focus on the Japanese island of Okinawa. We focus our assessment on coral's socio-economic values, and the efforts to lessen the impact on corals through coral research/monitoring and government initiatives. The data for this study have been gathered from the International Coral Reef Information Network (ICRIN), the International Coral Reef Initiative (ICRI), the Coral Reef Conservation and Research Center (WWF Japan), Japan Meteorological Agency (JMA) and the Japanese Ministry of Environment Annual Reports.

We suggest the establishment of the framework for sustainable resource management and conservation of corals, which are essential for the ecosystem services they provide to the society.

INTRODUCTION

Coral reefs also called "the tropical rainforests of the oceans" (Connell, 1978) provide various ecological, social and economical services. Costanza et al. (1998) report that coral reefs, with their extremely rich biodiversity, possess much greater net primary production (NPP) than the open ocean. Additionally, despite covering less than 0.2% of the ocean floor, approximately 25% of ocean species reside in the coral reefs, and as a consequence, the reefs have very high complexity (Roberts, 2003).

Despite their value and the increasing call for conservation and sustainable management by scientists, governmental and non-governmental organizations (NGOs), coral reefs have been degrading significantly during the past several decades. This study investigates the socio-economic values of coral reefs, their state of degradation and conservation management initiatives with particular focus on the Japanese island of Okinawa. The data for this study have been gathered from the published research articles, International Coral Reef Information Network (ICRIN), the International Coral Reef Initiative (ICRI), the Coral Reef Conservation

and Research Center (WWF Japan), recent data published by Japan Meteorological Agency (JMA) and the Japanese Ministry of Environment Annual Reports.

Coral Reef Organisms

Coral reefs, resembling oases in a desert, support communities with diverse organisms in tropical and subtropical oceans (Karleskint, Tuner, & Small, 2010). The symbiosis between several species of algae, known as zooxanthellae, and the coral animal forms the coral reef ecosystem, which provides food and shelter for other marine organisms in the community. Moreover, reef structures protect costal area by minimizing the wave impact of storms and Tsunami damages as reported for many islands in Maldives in the Asian Tsunami in 2004 (Hookway, 2004). A simulation study showed that a wide barrier reef within one or two meter of the sea surface reduces the tsunami run-up on the coastline by 50%, which helps to lower the potential disaster (Kunkel, Hallberg, & Oppenheimer, 2006).

CORAL REEFS SOCIO-ECONOMIC VALUES

There has been considerable attention on the values of coral reefs, and some researchers have estimated the socio-economic values of corals in order to initiate and to enhance the conservation and restoration efforts. Cesar et al. (2003) estimates the annual economic value of goods and services of global coral reefs to be at 29.8 billion dollars (U.S.) and 1.66 billion for coral reefs in Japan. The breakdown of their calculations for the net potential benefits of the global and Japanese coral reefs is presented in the Table 1. It should be noted that the value estimates for coral reefs' function to protect the coastlines from tsunamis are not included in the calculation.

Table 1. Annual potential net benefit of the global coral reefs. Unit million US$

Good/Service	Globe	Japan
Fisheries	5,718	89
Tourism/recreation	9,621	779
Biodiversity	5,483	529
Coastal protection	9,009	268
Total	**29,830**	**1,665**

Source: (Cesar, Burke, & Pet-Soede, 2003)

The Japanese Ministry of the Environment calculated the annual economic value of services of Japanese coral reef ecosystem during fiscal year 2007 (from April 1st, 2007 to March 31st, 2008). The calculation reports an annual economic value of 239.9 billion yen for tourism and recreation, 10.7 billion yen for commercial marine products and 7.5 billion yen on protection against wave and natural erosions. The report also indicates an average annual economic value of 10.5 billion yen for commercial marine products and 2.8 billion yen for tourism and recreation on Okinawa Island (FY2002~2006; The Japanese Ministry of Environment Report, 2008).

The earlier work of Costanza et al. (1997) reported the average global values of services coral reef ecosystems provide annually. They estimated 58 USD/ha/yr for waste treatment value (such as pollution control and detoxification) and 2,750 USD/ha/yr for disturbance regulation value (such as storm protection) (See Costanza et al. 1997 Table 1 for the list of values of the services coral reefs). Using the values of Costanza et al. and the survey data of coral reef area in Japan (96023.3 ha; Japanese Ministry of Environment 1994), the waste treatment value and

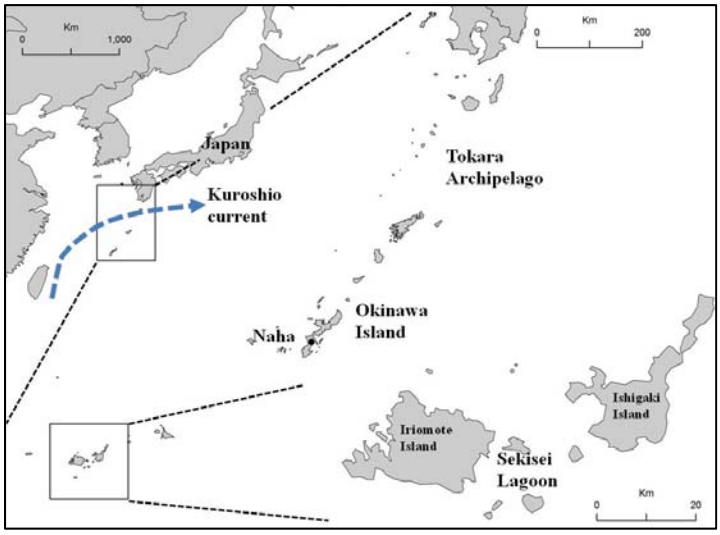
disturbance regulation value of coral reefs in Japan can be estimated to be 5.56 and 264.06 million USD/yr, respectively.

CURRENT STATE OF CORAL REEFS IN JAPAN, OKINAWA

Japan, surrounded by sea with 3400 km coastal line, possesses a wide range of climatic regions, from boreal zones to the north and sub-tropical zones in the south. Okinawa is located in the subtropical region within Japan, extending from 26□ 40́ N to 128□ 0́ E and with annual average temperature of 22.9 □C (2011). The oceans there provide the required environment for coral reef ecosystems.

The Kuroshio Current from the tropical regions in the south maintains the necessary conditions for the coral reef ecosystem in southern Japan; corals found in this region are the northernmost coral in the world, extending north to Tokara Archipelago. Sekisei Lagoon is one of the most enriched coral reef ecosystems, located between Iriomote Island and Ishigaki Island in Okinawa prefecture as shown in Figure 1.

Figure 1. Map of Tokara Archipelago and Sekisei Lagoon.
Dashed arrow shows direction of the Kuroshio Current.



The life of people living in Okinawa Islands relies on fishing, tropical aquaculture, and tourism. Therefore, sustainable management of marine resources is essential for their subsistence.

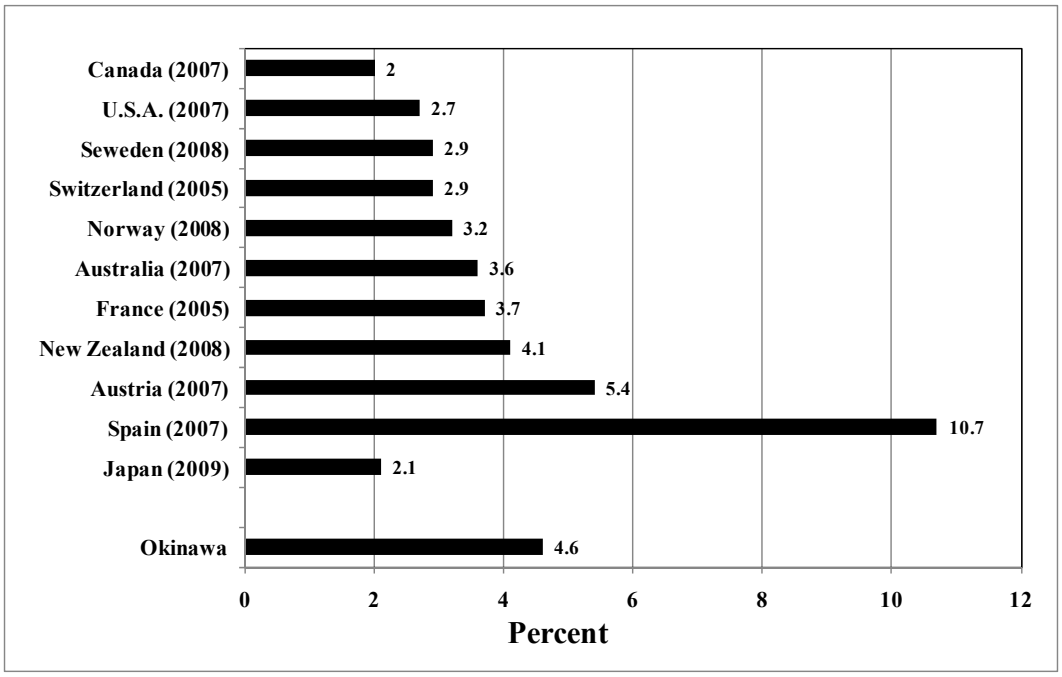
OKINAWA AND THE TOURISM INDUSTRY

Failure to properly manage coral reefs can result in dire consequences for the economy of Okinawa. According to the Japan Tourism Agency (2011), Okinawa Prefecture ranked 8th among the 47 prefectures in terms of the total number of travelers (13,350,000 visitors staying overnight; data for 2010). The number of visitors only trails prefectures that are in or close to major metropolitan areas such as Tokyo and Osaka; therefore, the number for Okinawa is

substantial for a prefecture that accounts only for 1% of the total population and 0.6% of the total land area of Japan.

Total travel consumption within Okinawa is approximately 382 billion yen (data for fiscal year 2009) and has been growing steadily since the 1970s (Okinawa Prefecture, 2012). This amount of consumption accounts for approximately five percent of the prefectural GDP and hence is a vital component of Okinawa's economy (Fig. 2). In addition to the direct spending, indirect ripple effects are estimated to generate additional 278 billion yen and create approximately 80,000 jobs accounting for 12.8% of the employment opportunities in Okinawa (Okinawa Prefecture, 2012).

Figure 2: The percentage of GDP generated by the travel industry: A comparison of Okinawa with other countries. (Okinawa Prefecture, 2012)



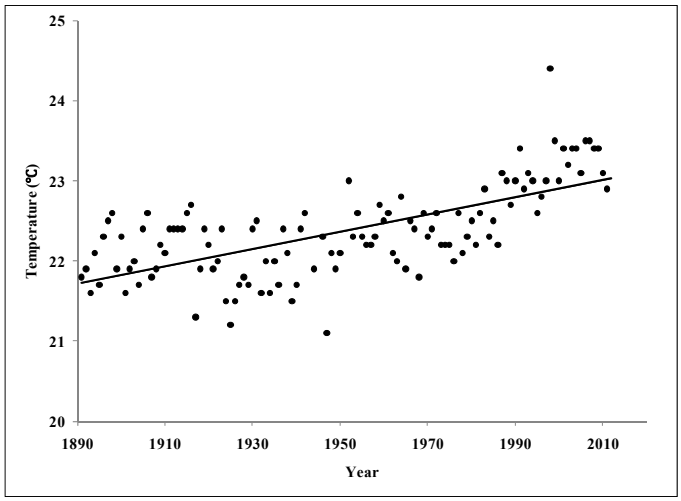
Approximately half of the travelers to Okinawa are from the Tokyo Metropolitan area. Recent statistics indicate that approximately 80% of the visitors are "repeaters" (i.e., travelers who have been to Okinawa more than once) (Okinawa Prefecture, 2010), and clearly, the sub-tropical sea with corals is a major attraction for these visitors from the city. A survey conducted on travelers to Okinawa indicates that they had high expectations for the "beauty of the sea" before embarking on a trip to Okinawa, and 81% of these travelers answered that they were satisfied with what they saw during the trip (Okinawa Prefecture, 2009). In addition, among the repeaters who expressed that their favorite domestic destination is Okinawa, 63% stated that their favorite activity while in Okinawa is diving and snorkeling (Okinawa Prefecture, 2010).

Therefore, Okinawa's travel industry's success is closely linked with the sea, and the mismanagement of the sea and of the coral reefs can have a negative impact on the flow of travelers to Okinawa. There are already signs of concern among the travelers as well, as they indicated in the survey that they would want to see the natural environment be protected properly (Okinawa Prefecture, 2010).

CLIMATE CHANGE AND THE POTENTIAL IMPACT ON CORAL REEFS

Climate change as defined by International Panel on Climate Change (IPCC) is "The significant, long-term changes in the "average weather condition in a given region". Over the last century, the global mean surface temperature has increased by 0.5 □C and is predicted to rise by 2 to 4.5 □C in the next century (IPCC, 2007).

Figure 3: Annual average temperature of Naha, Okinawa.
Data from Japan Meteorological Agency (JMA, 2012)



Coral reefs are one of the most temperature sensitive ecosystems living close to their thermal maxima, and thus are excellent examples of increased temperatures leading to higher disease susceptibility (Harvell, 2001). Coral bleaching, first reported in 1998 and now observed worldwide, involves the expulsion of algal symbionts, and is believed to be a consequence of the long-term exposure to high water temperatures linked with the El Niño Southern Oscillation (ENSO) (Strong, 1998). This temperature rise has also been observed in Naha, the capital city of Okinawa prefecture (Fig. 3)

Ocean Acidification

Along with the increase in the atmospheric concentration of carbon dioxide (CO2), the pH value of ocean waters, typically between 7.4 to 8.2, have been gradually decreasing. The increased level of anthropogenic atmospheric CO2 since 1970 has caused an average decrease of 0.1 units of pH in oceans, making the water to be more acidic (Hoegh-Guldberg, 2007) and further decrease of 0.3 to 0.4 pH units are anticipated by the end of this century (Caleria, 2003). Although, the effects of ocean acidification on marine ecosystems are not yet well documented, Kawano's research (2010) indicates that it would have negative impacts on marine shell organisms including corals (see Kawano, 2010 for more scientific evidences of ocean acidification in recent years).

Sakihama et al. (2008) reports that the pH values in Okinawa island ranged from 3.89 to 7.61, and notably, 72% of the precipitation samples showed pH of 5.6; although Okinawa Island is not considered as an heavily industrialized and polluted island, this value is what would be

expected from acid rain. Their study reveals the origin of the chemical components in Okinawa as sea salt generated from local land, and anthropogenic source (ammonia) from the Asian Continent, in particular China.

Sea- Level Rise

The sea level has been rising an average of 0.01 to 0.02 m per century since 1000 BC as stated in the 3rd Assessment Report published by the Intergovernmental Panel on Climate Change (IPCC 2001). However, the most recent IPCC 4th Assessment Report has indicated a 0.17 m sea level rise in the 20th century, and the report predicts a rise between 0.18 to 0.79 m, depending on the different emission scenarios (IPCC, 2007). A study by Rahmstorf (2007) indicates that the sea level rise will exceed the IPCC forecast and predicts a rise between 0.5 to 1.4 m and Cruz (2007) reports an annual rise of 1 to 3 mm sea level in the coastal regions of Asia. The projected sea level rise for East Asia is the annual rate of 5 mm over the next century (Cruz, 2007).

Sea level has been rising along the Japanese coastal area at an increasing rate of 3.3 mm per year since the mid 1980s, and at a rate of 5 mm per year since 1993 (JMA, 2007). The maximum annual sea level rise of 9.3 mm per year was recorded for Kushiro, Hokkaido, from 1970 to 2003 (JMA, 2004). The potential impacts of sea level rise are erosion of coastal zone, intrusion of saline in rivers and underground aquifers (Case, 2007). Sea level rise can also directly affect the coral reefs by limiting the amount of light penetration into the water column. As a result, light becomes a limiting factor for the growth and development of coral reefs given that coral relies on photosynthesis by the symbiotic algae.

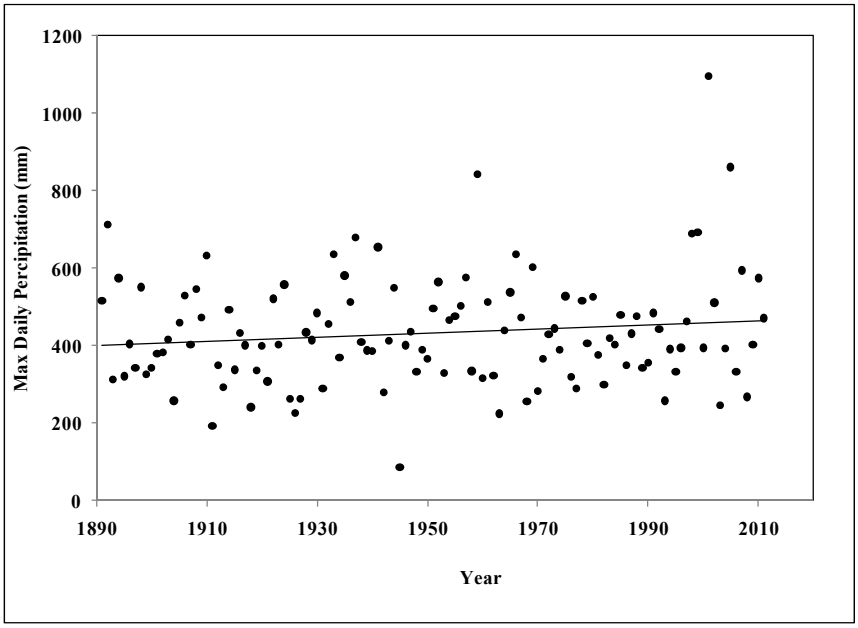
The sea level rise will also seriously threaten the 34,000 km of Japanese coastline and the economic activities within the country (Kojima, 2004). Similar to the global norm, Japan, with population more than 130 million, is ranked sixth regarding population density living within 10 km of the coastal line (IIED, 2007). Although coastal municipalities cover approximately 32% of the land area in Japan, approximately 46% of the total population with the 47% of industrial outputs is found in these municipalities. Additionally, 77% of the total expenditure for retail business or market goods is also spent in the coastal municipalities (Kojima, 2004).

Precipitation and Runoffs

Among the anticipated effects of climate change, there are changes in the pattern of precipitation and the availability of water, which subsequently changes the associated nutrients from precipitation and runoff from land. In the recent years, there have been irregular fluctuations in the precipitation patterns resulting in drought in some areas and more rainfall in other areas.

The precipitation pattern change has also been observed in Naha (Fig. 4). As the Figure shows, there is an increasing tendency in the maximum daily precipitation, which results in the increase of the runoffs from land; this body of water is eventually discharged into estuaries, increasing the stratification of the water column in the ocean. This phenomenon leads to decreased concentration of dissolved oxygen in estuaries and excess nutrients causing stress on coastal ecosystems including the coral reefs (Kennedy et al. 2002). Moreover, the increased precipitation increases the sedimentation in the coastal water, which leads to light limitation and consequently the destruction the coral reefs.

Figure 4: Maximum daily precipitation in Naha, Okinawa.
Data from Japan Meteorological Agency (2012)



GLOBAL CORAL REEFS CONSERVATION INITIATIVES

The world's largest coral reef ecosystem is the Great Barrier Reef in northeast Australia, which was selected as world heritage site in 1981. The coral reef management has its roots in Australia. Founded in 1922, the Australian Coral Reef Society is the oldest organization conducting research on the protection of coral reefs. They have continuously played an active role in identifying threats to coral reefs such as crown-of-thorn starfish outbreaks and oil drilling. Their activities have made the government and the general public to become more aware of these major conservation issues.

In the Earth Summit held in 1992, the coral reefs were recognized as ecosystem nurturing high biodiversity and the summit called for an integrated, sustainable management approach for their protection. In 1994, International Coral Reef Initiative (ICRI) was launched by eight nations; Australia, France, Japan, Jamaica, the Philippines, Sweden, the United Kingdom and the United States of America. Since then, additional partners from United Nations, governments, non-governmental organizations, and private sectors as well as environmental protection agency (EPA) have participated in the ICRI. Annual workshops, with focus on coral reefs, have been sponsored by ICRI members. In 1995, they called for intensive research and monitoring of coral reefs for collecting data required for their sustainable management. As a result, the Global Reef Monitoring Network (GCRMN) was formed by two organizations; the Australian Institute of Marine Science and the International Center for Living Aquatic Resource Management.

The US established the coral reef conservation program (CRCP) in 2000 as an American national, science-based organization to preserve, protect and restore coral reefs (Maurin, 2009). In 2008, the CRCP released a "Roadmap for the Future", listing activities and objectives for the program through 2015. The CRCP has mainly focused on understanding and addressing the top

three global threats to coral reef ecosystems: fishing impacts, land-based source of pollutions, and climate change.

CORAL REEF CONSERVATION IN OKINAWA, JAPAN

Since the establishment of the ICRI in 1994, the Japanese government has been actively engaged in activities related to coral reef monitoring and restoration, both domesticly and internationally, and efforts to raise public awareness. Based on Reefbase homepage (http://www.reefbase.org/gis_maps/datasets.aspx), 70 out of 4968 global coral monitoring sites are located in Japan. The Japanese Coral Reef Society (JCRS) was founded in November 1997 and the society publishes The Journal of Coral Reef Society (JCRS), Galaxea; Journal of Coral Reef Studies and newsletters, and has held annual meetings since 1998.

Japan is assisting the East and North Asian countries via the Ishigaki International Coral Reef Research and Monitoring Center established in 2000 as the base station of GCRMN in Japan and East Asia and the Nature Conservation Bureau in Japan. The center plays an important role in the conservation of the coral reefs in the "Coral Triangle"; the global center of rich marine biodiversity.

Along with government research and monitoring centers, private centers have also been actively participating in the conservation of the coral reefs. For instance, the Akajima Marine Science Laboratory (AMSL) was founded in 1988 as a private research station of Establishment of Tropical Marine Ecological Research (ETMER) in Aka Island, Okinawa. The AMSL has been actively engaged in research on restoration, remediation and conservation of corals, developing the necessary techniques for mass culture. They have also been organizing education and awareness activities for local communities (Omori, 2011).

Currently, there are several active compensatory restoration projects in Okinawa such as rehabilitation of coral reefs through underwater silviculture and transplantation. But the projects are considered to be relatively high cost, and doubts have been raised about the efficiency of these projects due to lack of funds for long-term monitoring of the planted corals (Mori, 2011).

DISCUSSION AND CONCLUSION

The life of people of Okinawa Island relies on fishing, tropical aquaculture and tourisms. Undoubtedly, the subtropical sea with coral reefs is a major attraction in tourism industry in the region. Thus, Okinawa's travel industry's success is closely related to the sea, and the mismanagement of the sea and of the coral reefs can have a negative impact on the tourism industry in Okinawa.

As mentioned in the previous sections, various international and local efforts to conserve and to restore coral reefs have been conducted, including monitoring, scientific information sharing, rehabilitation, transplantation and compensatory mitigation processes. However, despite these efforts, approximately 19% of coral reefs have been degraded and the other 15% are facing the risk of collapse within next 20 years (Wilkinson, 2008). These values indicate that the current conservation and restoration efforts are not enough to compensate for reef degradation world-wide.

The consequences of coral reef degradation can be significant. Although coral reefs cover less that 0.2% of the ocean surface, their high primary productivity rate indicates that they play an important role in marine carbon budget. Degradation of coral reefs will also result in

disruption in the food chain, hence affecting the rich marine biodiversity in the coral reefs, resulting decreasing the coral reef fisheries yield.

The degradation of coral reefs is affected significantly by the accumulating anthropogenic greenhouse gas emissions. Hence, only a well-planned and executed management plan and long-term monitoring system will lead to effective prevention of the degradation of coral reefs. This would not be possible unless local stakeholders, scientists, environmentalists and governmental and non-governmental organizations collaborate closely to conserve coral reef ecosystems, the ocean rain forest.

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THE GLOBALIZATION OF NORTHERN CALIFORNIA'S BIOTECHNOLOGY INDUSTRY

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ABSTRACT

The biotechnology firms in the North Bay of the San Francisco Bay Area in Northern California are conducting their global expansion strategies in heterogeneous ways. This paper examines what foreign market entry modes they choose, which international location clusters they are attracted to, and whether firm size and age matter in the internationalization strategy. The study also provides an assessment of what makes the North Bay biotech firms unique in terms of their location, product category and target markets. The results indicate that large and well established firms prefer equity entry modes, in particular, acquisitions followed by Greenfield FDI and joint ventures. Small firms clearly prefer exporting. They also use joint ventures and licensing but engage very minimally in Greenfield investment. Younger firms tend to choose exporting or joint ventures. As firms mature they switch away from joint ventures and strategic alliances to FDI; however, they tend to maintain their exporting strategy. The study also shows that large firms are predominantly biopharmaceutical companies and are more engaged in research while small firms are mostly medical device manufacturers/providers and are more active in diagnostics and wholesale trade. Irrespective of size and age, the most preferred international destinations for the North Bay biotech firms are Western and Southern Europe, Eastern Europe and Russia, and Asia.

Keywords: foreign market entry mode, internationalization strategy, biotechnology industry

INTRODUCTION

The biotechnology (or biomedical) industry is becoming one of the most global industries in the United States. Biotech firms that used to export or license their products to foreign countries have begun outsourcing their production, clinical trials and testing; some have started acquiring foreign manufacturing plants, and increasingly more have entered into international production alliances and joint ventures (Loceff, 2011; Stevens, 2011; Quakenbush, 2011; Verel, 2011). The North Bay of the San Francisco Bay area in northern California is being heavily impacted by this shift.

In the face of global competition, North Bay biotech firms are faced with the decision of which foreign market entry mode to choose. Dunning (1980) in his eclectic paradigm of international production provides a framework to explain the 'why', 'where' and 'how' of international production (foreign direct investment) through his theories on ownership, location

and internalization (OLI) advantages. According to his internalization theory, a multinational enterprise (MNE) can choose to expand abroad either through foreign direct investment (retaining knowledge-based firm-specific assets), or it can choose another form of entry, such as licensing, joint ventures, or alliances (all of which lead to potential dissipation of the knowledge-based firm-specific asset of the MNE) (Rugman, 2010). Following Dunning's theories, much work has been done on why firms internationalize and studies have found that firms across many industries expand internationally to seek markets, cost efficiencies, strategic assets and resources in host countries, or to escape from regulations and restrictions in the home market.

However, the process of *how* firms internationalize or what foreign market entry mode they choose has been relatively underexplored. This is particularly true in the case of biotech firms. Gurau and Ranchhod (2006) conducted a comparative analysis between U.S. and U.K. small- and medium-sized enterprises (SMEs) in the biotech industry; however, their study analyzed the impact of the domestic market on the internationalization of the biotech firms. Gassmann and Keupp (2007) study the competitive advantages of biotech firms in Switzerland, Germany and Australia but focus only on 'born global' SMEs and they acknowledge that because there is a lack of an integrative and theoretical framework, they use case study analysis. There is no known study, in the authors' knowledge, that has specifically examined the strategy choice of biotech firms in the North Bay area as they try to expand internationally. This study is an attempt to fill in this research gap and rests on the premise put forward by Andersen (1997), Brouthers & Brouthers (2001) and Luo (2001) that the choice of entry mode in a foreign market is one of the most important strategic decisions in a company's internationalization process.

Specifically, this study examines the heterogeneous international strategies the North Bay biotech firms employ to expand globally. It seeks to determine patterns of internationalization based on factors such as firm size, age, product category and industry sectors. It also seeks to unveil the various international location clusters with which North Bay biotech firms are having a business relationship. We borrow from the location and internalization aspects of Dunning's (1980) and Rugman's (2010) theories to examine 'where' North Bay biotech firms in the San Francisco Bay area are expanding internationally and which foreign market entry mode ('how') they are implementing during the 2006-2011 period.

The North Bay biotech firms have special characteristics that make them particularly interesting, for example, they represent approximately 8 percent of the biotech employment in the San Francisco Bay area; some of them have been in business for more than 60 years, and larger biotech firms have been adopting rather different expansion strategies and lines of businesses compared to smaller ones.

LITERATURE REVIEW

Foreign market entry mode is defined as ''an institutional arrangement that makes possible the entry of a company's products, technology, human skills, management, or other resources into a foreign country" (Root, 1994). Foreign market entry modes can be categorized into equity-based or non-equity-based modes. Pan and Tse (2000) argue that selecting a foreign market entry mode is essentially a hierarchical decision between equity and non-equity entry

modes. After deciding on whether equity or non-equity modes are the best entry strategy, managers then decide which specific strategy within equity or non-equity to further consider. Equity-based entry modes include joint ventures and foreign direct investment (FDI) or wholly-owned subsidiaries. FDI is further divided into Greenfield investment and acquisitions. Non-equity entry modes generally consist of non-binding exporting agreements, licensing agreements and strategic alliances.

In deciding which specific foreign market entry mode to select, managers generally have to weigh the risk involved with against the control offered by the intended mode of entry. For instance, FDI is the riskiest of all the entry modes but it also provides the most control. Exporting is the least risky of the modes; however, it also offers the least control. Hence, entering foreign markets is a decision about balancing how much risk the company would like to bear and how much control it would like to have on its foreign operations or in the foreign market. On average, equity modes provide more control but entail more risk than non-equity modes.

Risk and control are related to ownership. Ownership brings advantages which can be firm-specific such as knowledge, organizational and managerial skills, and brand names (Dunning, 1980; Rugman, 2010). Managers need to decide whether they would like to have full ownership of these advantages or have them shared. Among the equity entry modes, Greenfield FDI provides full ownership and control whereas joint ventures provide shared ownership and control (Musteen, Datta & Herrmann, 2009). Greenfield investment involves the establishment (from scratch) of a new operation in a foreign country. The other type of equity entry mode that provides some good degree of control and ownership is FDI by acquisition (or merger) where companies acquire (or merge with) existing institutions or established business entities (Dikova and Witteloostuijn, 2007). Acquisitions can be a minority where the foreign firm takes a 10 to 49 percent interest in the firm's voting stock, majority where the foreign interest is 50 to 99 percent, or full outright stake (wholly-owned) where the foreign interest is 100 percent (Hill, 2011).

In general, Greenfield FDI is an entry mode that is considered to be the riskiest and it requires a large sum of money and time to establish. In addition, the firm has to bear the entire expenses or losses should the business fail. Acquisitions, on the other hand, could be less costly and quicker to execute because the business entity to acquire is already there. Dikova and Witteloostuijn (2007) note that the "decision as to whether to establish an acquisition or a Greenfield subsidiary or to opt for full or partial ownership in a foreign investment carries significant strategic importance owing to the inherent benefits and risks of each foreign establishment and entry mode."

As Hill (2011) points out, FDI can be very risky because of the problems associated with doing business in a different culture where the rules of the game may be very expensive. When cultural differences are remarkable and there is a need to understand the foreign culture, some managers prefer to work in a joint venture with a foreign entity. Sometimes, political considerations may make joint ventures the only feasible entry mode. Equity joint ventures allow for sharing of assets and provide some degree of ownership and control. They are considered to be less risky compared to FDI. However, joint ventures could lead to a lack of synergy,

organizational and culture conflicts, and a loss of technical competence to the partner who might get access to the firm's key business knowledge and trade secrets.

The non-equity entry modes such as exporting, licensing and strategic alliances, by definition, entail no ownership. Exporting involves the least control because it involves producing goods at home and then shipping them to the receiving country for sale. Moreover, the viability of an exporting strategy can be constrained by transportation costs and trade barriers. For example, depending on the value to weight ratio, some firms may prefer to engage in FDI if transportation costs over long distances are high or if their products would be subject to import tariffs or quotas.

Licensing offers more control than exporting in that it grants a foreign entity the right to produce and sell the firm's product in return for a royalty fee on every unit that the foreign entity sells (Hill, 2011). However, internalization theory suggests that licensing could involve some serious drawbacks as a strategy for exploiting foreign market opportunities in that licensing may result in a firm's giving away valuable technological know-how to a potential foreign competitor. In addition, a problem arises with licensing when the firm's competitive advantage is based not so much on its products as on the management, marketing, and manufacturing capabilities that produce those products.

Non-equity strategic alliance occurs when two or more firms develop a contractual-relationship to share some of their unique resources and capabilities to create a competitive advantage. Strategic alliance can be attractive because it involves sharing high cost of technology development, technology transfer (access to knowledge and expertise), and shared risk. It is also an easy way to learn and secure access to the foreign market. However, competitors may get a low cost route to technology and markets.

In this study, we map each of the North Bay biotech firm to their respective foreign market entry modes. Some firms use a combination of equity and non-equity entry modes to enter a foreign market; others use several entry modes within a certain category (for example, licensing and exporting within the non-equity mode category). Our aim is to identify the choice of entry modes for both large and small enterprises.

DATA AND METHODOLOGY

This study examines the international expansion strategies of North Bay biotech firms between 2006 and 2011. The data set consists of a total of 30 biotech companies including research institutes. Given the existence of several small firms in the North Bay biotech industry, we define a firm as being small if it employs 100 people or less; and a firm as being large if it has more than 100 employees. Our database was developed from the North Bay Business Journal, which is a major weekly business-to-business online journal covering the north San Francisco Bay area (the "North Bay" area). We limit our analysis to only Marin, Sonoma and Napa counties in the North Bay area because they cover all the biotech firms we are interested in. Each issue of the North Bay Business Journal has one or more reports on specific industries including the biotech industry (In this study we use the generic term "biotech" to cover biotechnology as well as biomedical and biopharmaceuticals firms and institutes). Because data

in this industry is quite difficult to obtain due to the nature of the industry (the high degree of confidentiality, competition and trade secrets), we use data published by the North Bay Business Journal and update them using secondary data from the companies' websites and reports.

The international expansion strategies variables of the current study consist of six main foreign market entry mode variables: exporting, licensing, strategic alliances, joint ventures, acquisitions and Greenfield investment. Acquisitions and Greenfield investment constitute our foreign direct investment variable. We analyze which entry modes are most preferred and whether firm age and size affect the choice of entry modes. We also examine whether the firms have any preference in their choice of international locations or whether they are attracted to certain international location clusters.

One important contribution of the current study is our analysis of the North Bay biotech firms strategies based on their age and size. The age factor is important because a young firm likely faces the "liability of newness" not shared by established firms with a long operational history (Stinchcombe, 1965; Rhee, 2008). By expanding abroad and operating in unfamiliar environments, a firm also likely faces the "liability of foreignness" not shared by incumbent firms (Hymer, 1976; Johanson and Vahlne, 1977). A large and experienced firm can share its resources to realize economies of scale and scope across operations, thus lowering the marginal costs of an additional entry (Meyer, 2001). Small firms are not smaller versions of larger companies; they have different managerial style, ownership, and independence (Coviello & McAuley, 1999) and they tend to interact differently with their environment (Shuman & Seeger, 1986). Their limited resources may lead them to very different international strategic choices in comparison to larger firms (Zacharakis, 1997; Erramilli & D'Souza, 1993).

To better understand the business environment and context of the biotech firms, we start by providing an overview of the North Bay biotech industry characteristics. We examine their current locations/clusters in the North Bay area, size (based on the number of employees), age (years in existence), industry sectors (based on product category) and target markets (customers they currently serve). We also attempt to identify whether small firms tend to be more predominant in one sector compared to large firms and, if so, which one(s).

One of the purposes of this study is to use the preliminary findings to develop a survey questionnaire to be used in field research with biotech firms in the North Bay area to assess their performance and expansion strategies.

FINDINGS AND ANALYSIS

Industry Characteristics

The existence of strong knowledge spillovers along with the proximity to both seaports and airports and the technology corridor of the Silicon Valley has contributed to make the San Francisco Bay area and the North Bay area a very attractive and thriving biotech cluster (see Figure 1a). Firms benefit from knowledge spillovers because of intensive research and development (R&D) activities of both firms and universities in the San Francisco bay area. Universities include the University of California, Berkeley, in the east bay; University of San

Francisco, San Francisco State University, and University of California at San Francisco in San Francisco city; Dominican University of California in Marin County; Stanford University in Palo Alto; and several other California State Universities and private universities spread in the bay area.

Figure 1a. San Francisco North Bay

Figure 1b. Major Cities in North Bay

Santa Rosa, Novato and Petaluma are the three main cities where North Bay biotech firms tend to be concentrated locally (see Figure 2). These cities are connected by the highway US-101 which runs across them and straight down through the city of San Francisco and South San Francisco to the South Bay (see Figure 1b). San Rafael and Sausalito are other cities which are attracting increasingly more biotech firms.

The North Bay biotech firms are significant employers. With an employment level of more than 3878 employees alone, we found that the North Bay biotech industry accounts for approximately 8 percent of the biotech employment in the San Francisco Bay area. Employment figures for the North Bay are computed from the North Bay Business Journal and those for the Bay area are obtained from the California Biomedical Industry 2011 Report (Gollaher *et al.* 2011). Because 20 percent of the firms in the North Bay area did not disclose their employment figures, the actual employment level may be higher than the one reported here. For purposes of this study, we have categorized firms as being small if they have 100 employees or less, and large if they have more than 100 employees. This classification was necessary because some firms are quite small and information regarding their employment is not readily available. Overall, fifty percent of the North Bay firms employ more than 100 people each (see Figure 3). Some firms such as BioMarin Pharmaceuticals in Novato, CA, employs 850 people and Medtronic CardioVascular in Santa Rosa, CA, employs 840 people in the North Bay alone (North Bay Business Journal, 2012).

Figure 2

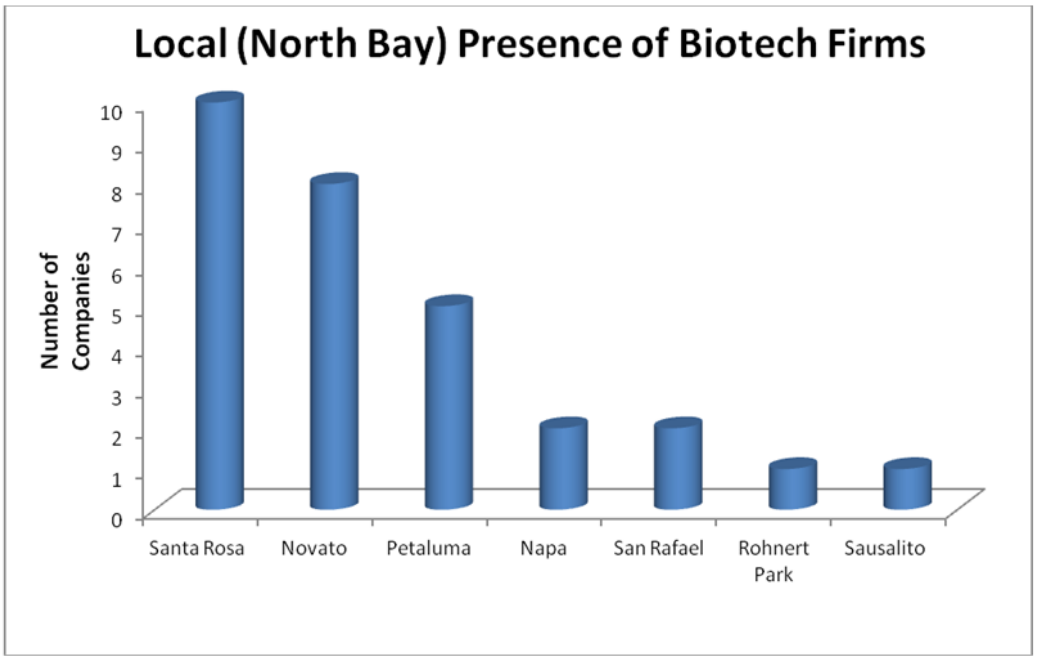
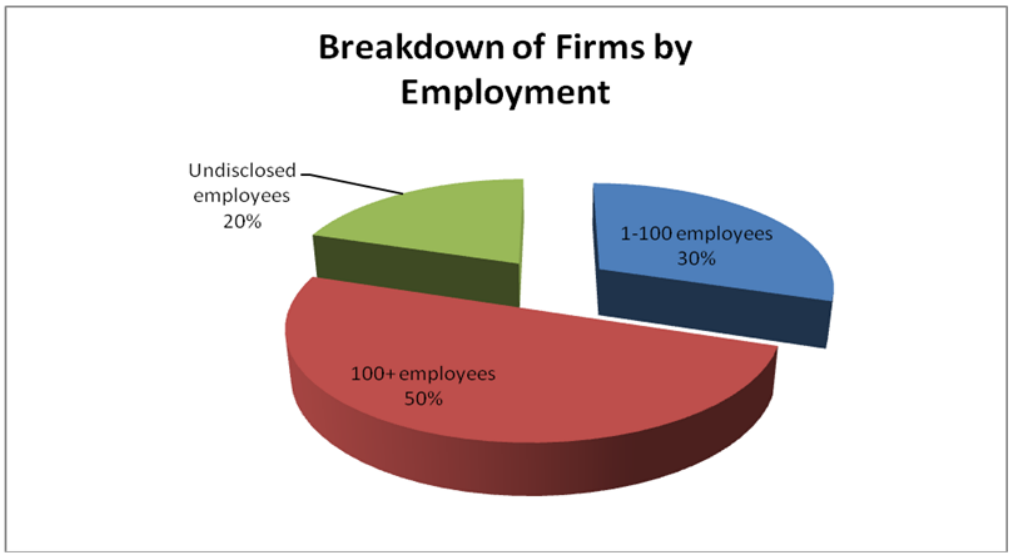


Figure 3

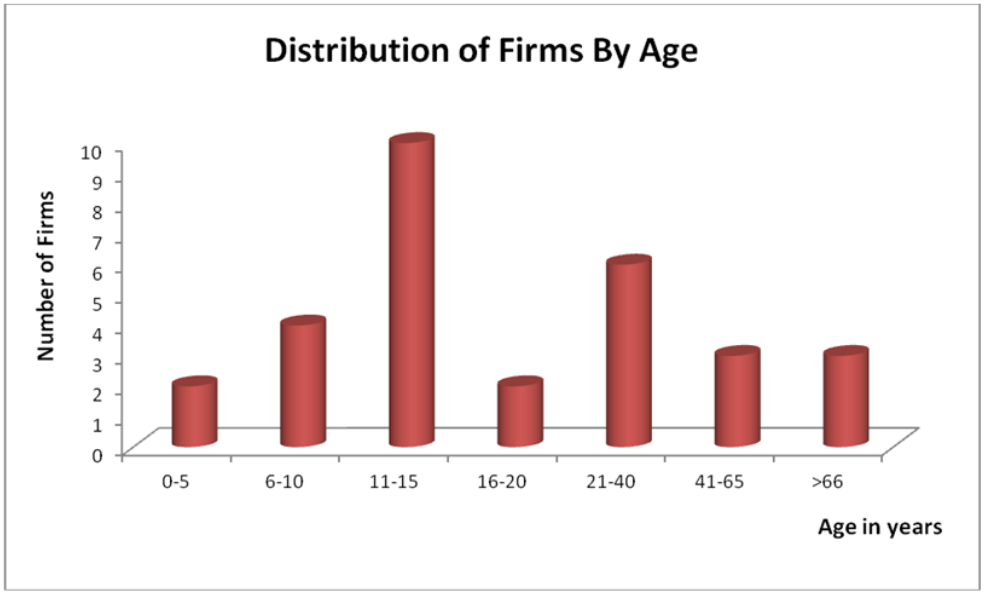


At the time of data collection, the North Bay area had 30 biotech/biomed firms. Approximately half of them were 15 years or younger. The youngest firm was Ultragenyx Pharmaceutical from Novato, CA, founded in 2010 and the oldest one was Santen, Inc. from Napa, CA, founded in 1890 (see Figure 4).

The California Biomedical Industry 2011 Report (CBIR, 2011) identifies six major industry sectors within the biotech/biomed industry: basic research, biopharmaceuticals, diagnostics, medical devices, laboratory services and wholesale trade companies. Consistent with the California biotech/biomed industry, the North Bay biotech industry spans the range of innovative research and technological development with the aim of improving human health and the quality of life for patients across the globe. However, the North Bay biotech industry is dominated by firms in the medical devices (39 percent) and biopharmaceuticals (36 percent) sectors. Laboratory services constitute 13 percent of the industry. Basic research, diagnostics and wholesale trade account for 12 percent of the industry (see Figure 5).

Basic research adds to the body of scientific knowledge (CBIR, 2011). California's universities and public and private research centers provide training for scientists, engineers and technical specialists and provide space for research, equipment and resources for ongoing research. However, in our study we have excluded the universities in the North Bay area because we wanted to focus primarily on the industry side. Instead, we have included the Buck Institute for Age Research in Novato, CA, because of their leading contribution to basic research in the area, and Xgene Corporation, based in Sausalito, CA, which is a basic research company that has good integration with universities in the North Bay.

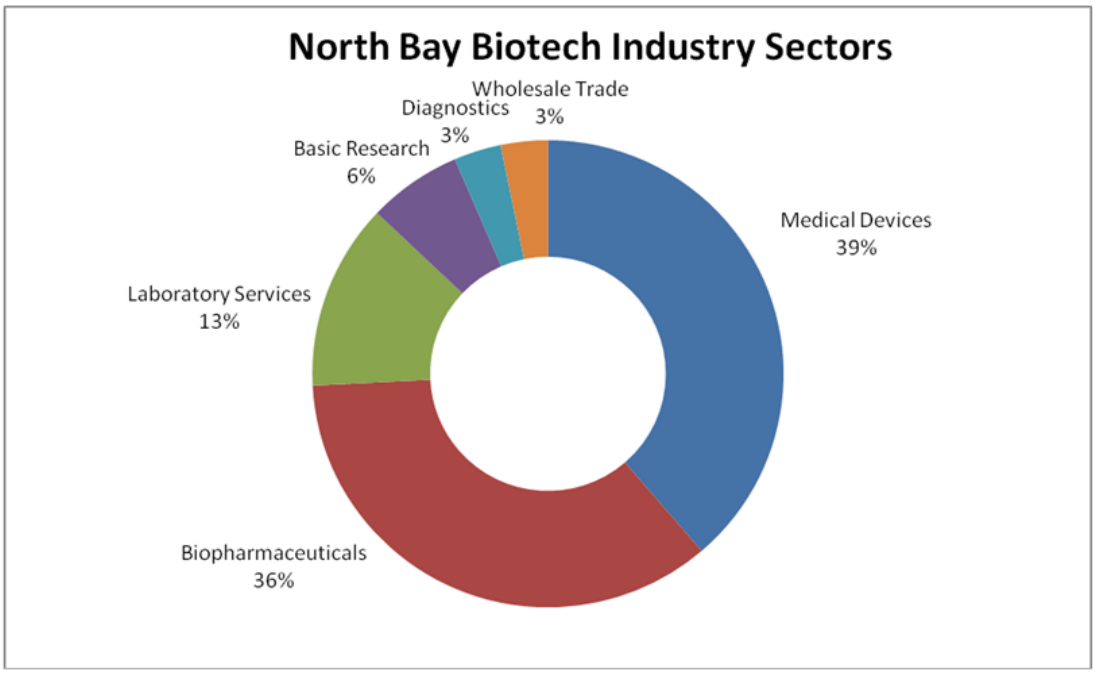
Figure 4



Biopharmaceuticals include human therapeutics (drugs) which can be small-molecule chemical compounds, biologics (genetically engineered proteins) or cell therapies (CBIR, 2011). Examples of biopharmaceuticals companies in the North Bay area include long established firms such as Dow Pharmaceutical Sciences in Petaluma, CA, and relatively new comers such as Ultragenyx in Novato. Diagnostics are technologies that diagnose and characterize patients' conditions (CBIR, 2011). These include traditional tools such as home test kits to computerized equipment to map a patient's genome. BioSearch Technologies in Novato, CA, is a diagnostics

firm which has been involved in the discovery and application of genomic information. Medical devices are tools for improving or diagnosing human health and mobility (CBIR, 2011). These "medtech" (medical technology) devices range from professionals' instruments to patients' devices, to implants that replace or reinforce body parts. Medical devices represent the line of business which is the most prevalent among the biotech firms in the North Bay area and include companies such as Medtronic Cardiovascular and Trivascular in Santa Rosa, CA, and Sutter Instrument Co. in Novato, CA, amongst others. Laboratory services represent service providers that test patients' or research samples with precisely calibrated and strictly regulated equipment and procedures to ensure accurate results (CBIR, 2011). Thermo Fisher Scientific in Petaluma, CA, is one of the long established laboratory services firm in the North Bay area. Wholesale trade companies manage the import, export and exchange of pharmaceuticals, medical devices, diagnostics and research reagents and other supplies in the global market (CBIR, 2011). International Technology Group, LLC in San Rafael, CA, is both a wholesale trade company as well as a medical devices firm.

Figure 5



One interesting aspect of the North Bay biotech industry is that large firms tend to be mostly in the business of biopharmaceuticals (with 46 percent of the large firms in that sector) while small firms tend to be mostly in the medical devices business (44 percent of the small firms are in the medical devices sector). Small firms also appear to be more active in diagnostics and wholesale trade. Large firms tend to be engaged more in basic research than small firms (see Figure 6).

Biotech/biomed companies, hospitals, patients and research scientists/labs are the top four target markets for the products and services of North Bay biotech firms and they account for

16 percent each of their total market (see Figure 7). The North Bay biotech firms also supply to universities which represent 14 percent of their target market and doctors which represent 12 percent. Drug companies account for only 8 percent of the total market.

Figure 6

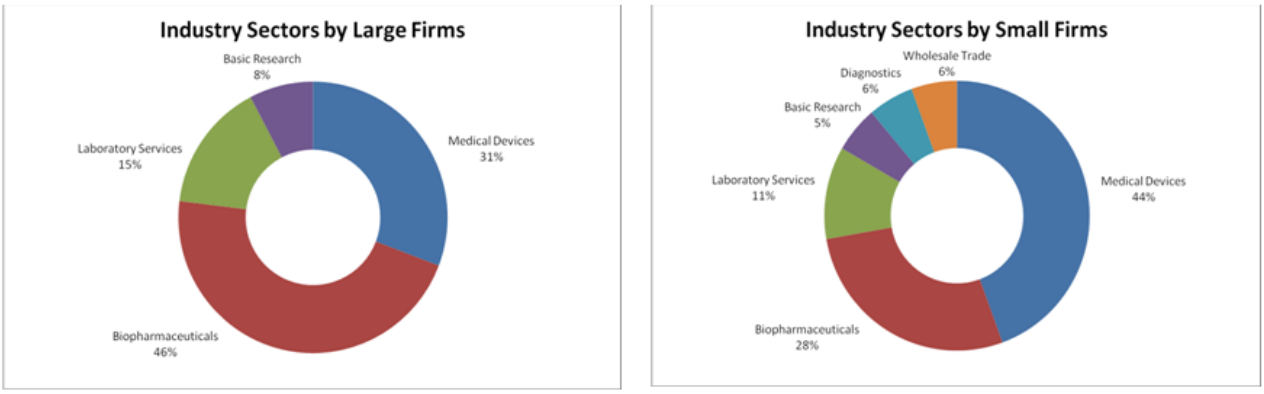
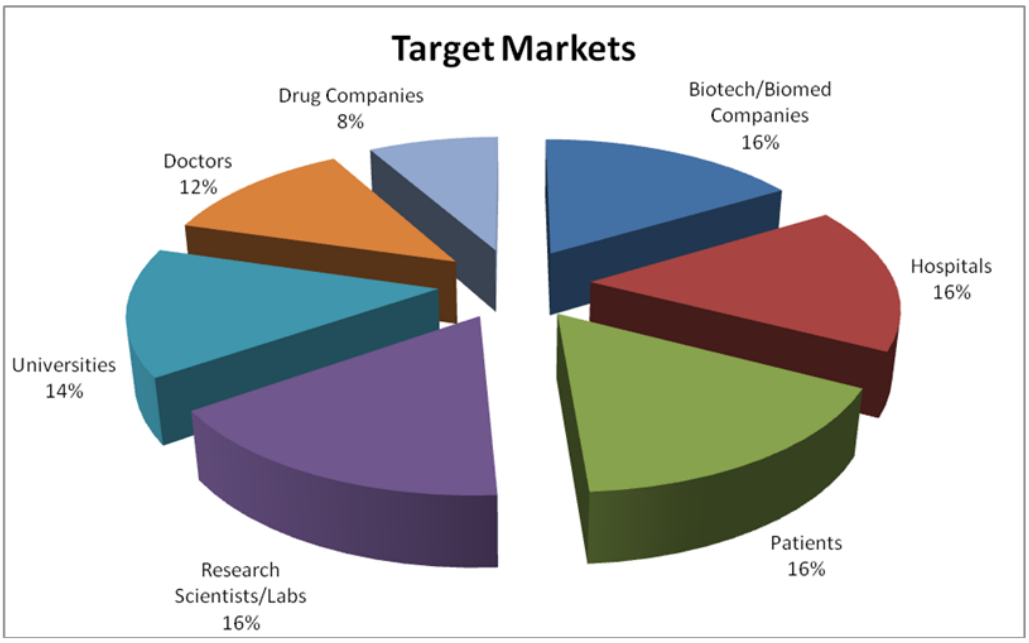


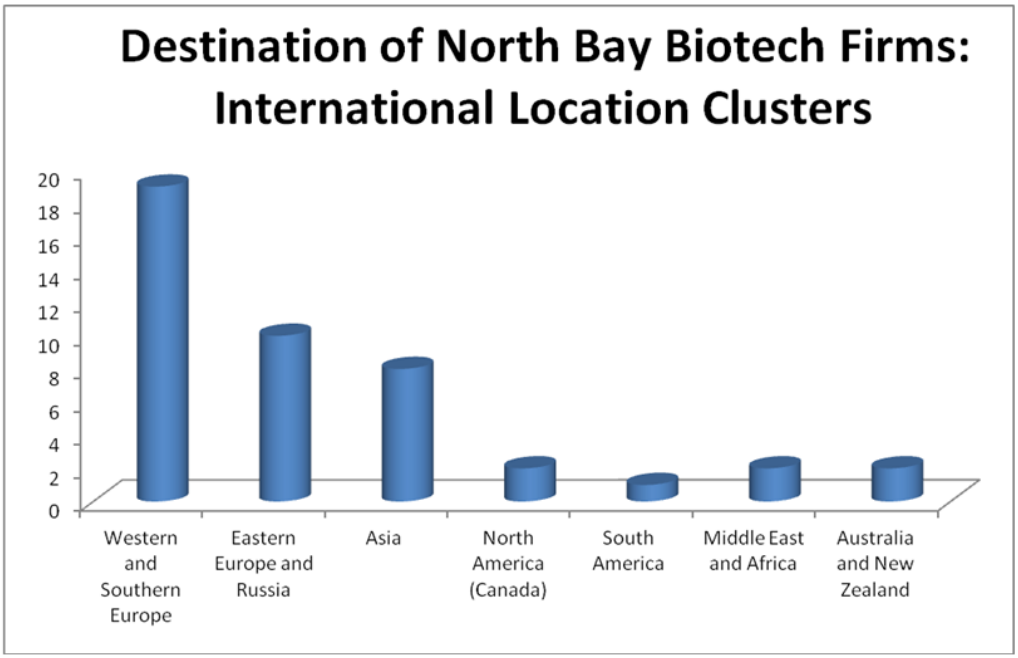
Figure 7



Foreign Market Destinations and Entry Strategies

This section examines the international locations where the North Bay biotech firms are expanding their activities and the strategies they employ to enter these foreign markets. As Figure 8 shows, Western and Southern Europe, Eastern Europe and Russia, and Asia are emerging as the favored international location clusters for North Bay biotech firms.

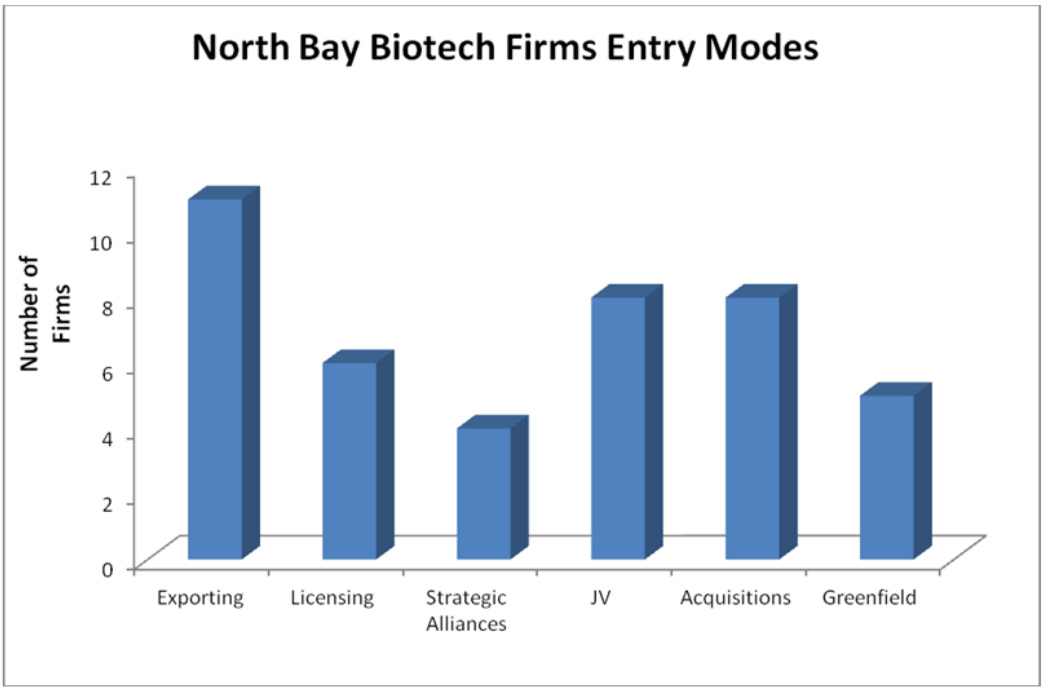
Figure 8



Western and Southern Europe, Eastern Europe and Russia, and Asia are emerging as the favored international location clusters for North Bay biotech firms (see Figure 8). North Bay biotech firms are increasingly expanding their (operations, offices or trade) in several countries in these regions. The Middle East (in particular, Israel) and North Africa is becoming an important cluster too along with Brazil.

Although the focus of this study is not about "why" the North Bay biotech firms are expanding in certain international locations but about "how" they are expanding and "where" they are going, it is important to briefly highlight some key issues about the logic of their international expansion. Depending on the location, business entities transfer their production internationally based on key aspects of the host country. Some biotech firms in the North Bay that started off in the Americas are now shifting their operations to Europe (e.g. Ireland) or countries in transition (Eastern Europe). European countries are an attraction over other geographic locations such as Asia, Africa or the Middle East not primarily because of cost reasons (such as tax incentives and skilled labor) but because of the availability of good intellectual property rights protection in these regions that is critical for the biotech industry. In addition, countries in Europe offer valuable technological assets, government support (such as the Industrial Development Authority (IDA) in Ireland) and good infrastructure that make them an attractive destination. But when trying to escape national costs and restrictive regulations in the U.S. (such as those regarding stem cell research), businesses are shifting their production to countries in East and South East Asia (e.g. Singapore). The escape motive becomes an important element in international expansion strategies. The fact that emerging parts of Asia, the Middle East and Africa are surfacing as new destinations for U.S. biotech firms represents a major paradigm shift.

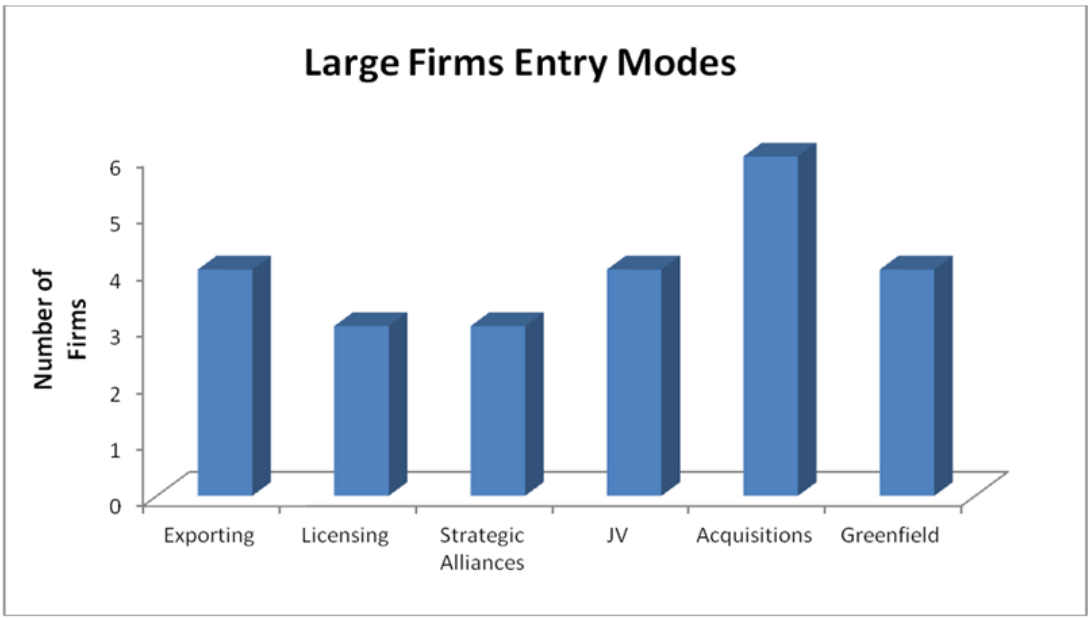
Figure 9



The top choice of foreign market entry mode for North Bay biotech firms as a group appears to be exporting followed by joint ventures and acquisitions (see Figure 9). The overall behavior is that firms appear to have equal preference for equity modes (JV, acquisitions and Greenfield) and non-equity modes (exporting, licensing and strategic alliances). However, these conclusions may be misleading because North Bay biotech firms are quite heterogeneous in terms of size and age. Moreover, if we combine acquisitions and greenfield ventures, then FDI becomes the number one choice of entry mode. To get more insight into the entry modes of these firms, we have decomposed their strategies based on firm size and age. Large firms in the North Bay area have a very different foreign market entry strategy compared to small firms in the North Bay area.

Large North Bay biotech firms enter foreign markets mostly through equity-based entry modes, comprising primarily of FDI by acquisitions, followed by greenfield FDI and joint ventures (see Figure 10). This finding confirms the resource-rich characteristics of large firms: they can start operations or set up plants from scratch likely because they have the availability of funds, or they have the credibility or capability to engage in mergers and acquisitions or joint ventures in foreign markets. Meyer (2001) argue that large and experienced firms can share their resources to realize economies of scale and scope across operations, thus lowering the marginal costs of an additional entry. Gatignon and Anderson (1988) and Kogut and Singh (1988) also support the argument that firm size facilitate wholly-owned ventures. In addition to these, this study also finds that the large firms do also engage in exporting (which is the preferred entry mode over licensing and strategic alliances among the non-equity-based entry modes).

Figure 10



Small biotech firms in the North Bay area clearly tend to favor exporting as their preferred mode of foreign market entry (see Figure 11). Joint ventures and licensing come in the second and third place. Small firms engage very minimally in greenfield FDI likely because they lack the resources to set up costly foreign operations from grounds up. They also appear to prefer joint ventures over strategic alliances possibly because of the higher risk associated with strategic alliances. Overall, small firms tend to favor non-equity based entry modes.

Figure 11

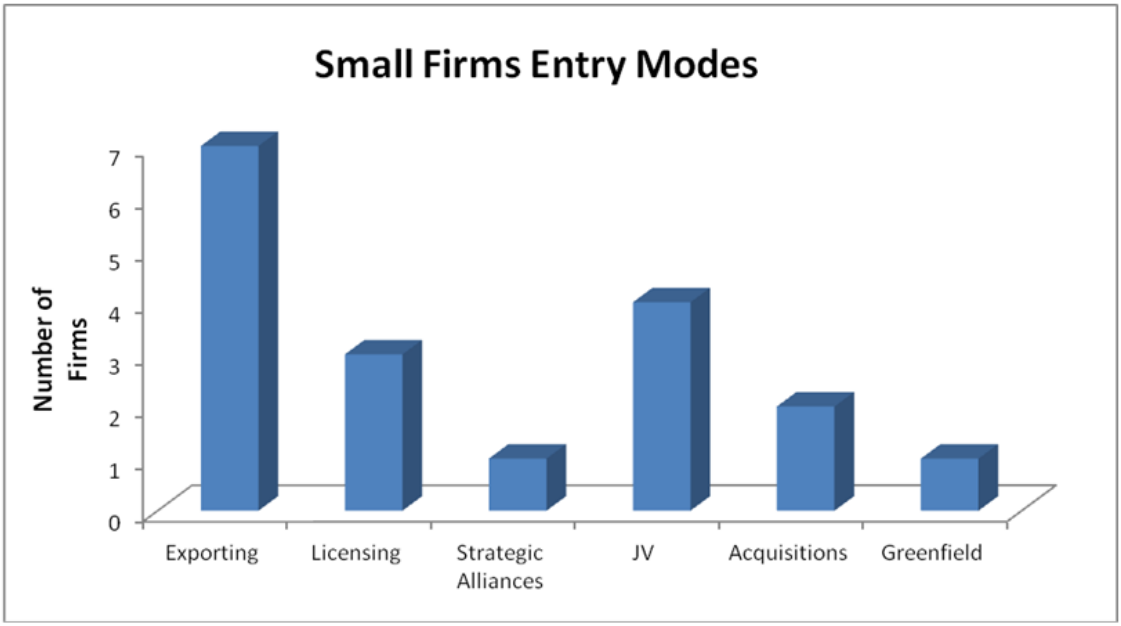
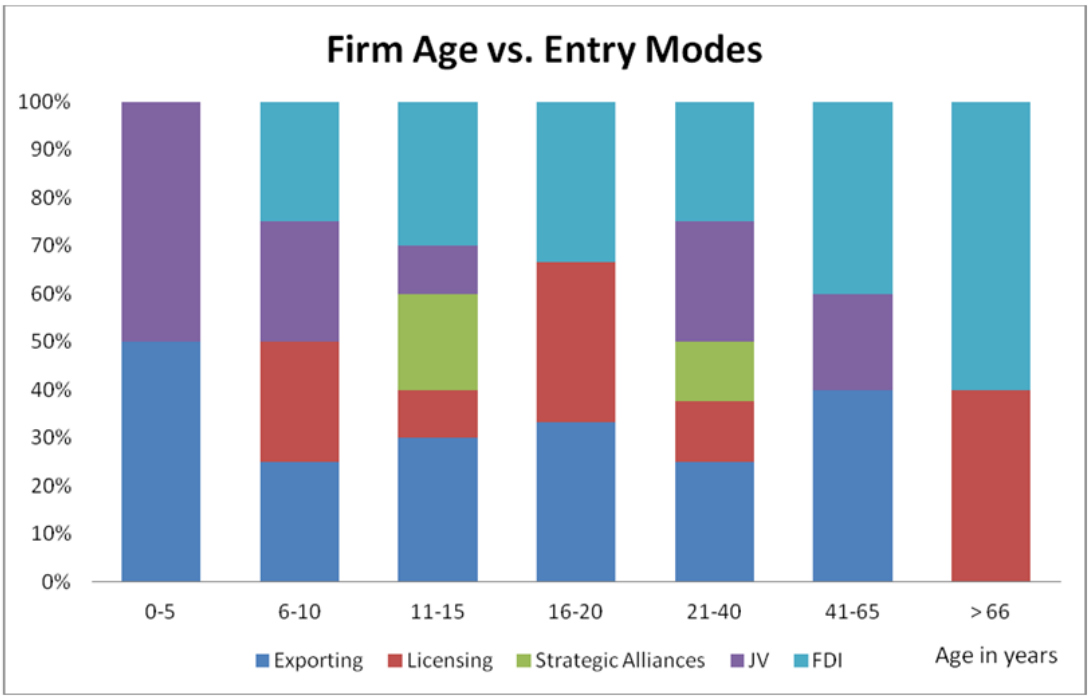


Figure 12 shows how the choice of entry modes in foreign markets varies with the age of the firm. Very young firms (age 0-5 years) tend to choose either exporting or joint ventures as their preferred mode of entry; in fact, they are indifferent between these two entry modes (50 percent of the very young firms engage in exporting, the other 50 percent engage in joint ventures). As firms mature they switch away from joint ventures and strategic alliances to FDI; however, they tend to maintain their exporting strategy. On average, older firms tend to prefer equity-based entry modes (in particular, FDI) to non-equity-based modes. This could be explained by the "liability of newness" and "liability of foreignness" arguments (Rhee, 2008). There is no clear pattern for the choice of licensing as an entry mode except that there seems to be an inverted-U shape relationship: very young (age 0-5) and older (age 41-65) firms seem to refrain from it, but others do seem to engage in it. There also appears a pattern that exporting and licensing are substitutes. However, strategic alliance is the least favored entry mode choice.

FUTURE RESEARCH

One of the contributions of the current study is to use the findings as a platform to develop a survey questionnaire to be used in field research in the North Bay biotech industry. The follow-up research will gather primary data and consist of in-depth interviews that will shed light on the managerial aspect of the firms' expansion strategies. More sophisticated statistical models will also be used to analyze the foreign market entry choice.

Figure 12



CONCLUSIONS

This paper has analyzed the international location and entry strategies North Bay biotech firms choose when they expand in global markets. The study has specifically examined how foreign market entry modes might be affected by firm size and age.

The findings reveal that Western and Southern Europe, Eastern Europe and Russia, and Asia are the most favored international location clusters for North Bay biotech firms. In addition, large firms enter foreign markets mainly through equity-based entry modes. These include primarily foreign direct investment (FDI) by acquisitions, followed by greenfield FDI and joint ventures. However, large firms do also engage in exporting and, among the non-equity entry modes, exporting is preferred over licensing and strategic alliances.

Smaller biotech firms in the North Bay area clearly prefer to enter foreign markets through exporting, followed by joint ventures and licensing. Smaller firms engage very minimally in greenfield FDI. They also appear to prefer joint ventures over strategic alliances possibly because of the lower risk associated with joint ventures. Overall, smaller biotech firms tend to choose non-equity based entry modes.

Very young firms (age 0-5 years) tend to choose either exporting or joint ventures as their preferred mode of entry. As firms mature they switch away from joint ventures and strategic alliances to FDI; however, they tend to maintain their exporting strategy. On average, older firms tend to prefer equity-based entry modes (in particular, FDI) to non-equity-based modes. There is no systematic pattern for the choice of licensing as an entry mode except that very young firms seem to refrain from it. Strategic alliance is the least preferred choice among entry modes.

This study has also provided an overview of the special characteristics of the North Bay biotech firms. The authors have found that the North Bay biotech firms account for roughly 8 percent of the biotech employment in the San Francisco Bay area and their main target markets are other biotech/biomed companies, hospitals, patients and research scientists/labs. Large firms tend to be predominantly biopharmaceutical companies while small firms tend to be mostly medical device manufacturers/providers. Large firms are also more engaged in basic research while small firms are more active in diagnostics and wholesale trade.

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THE CONTRIBUTION OF SOCIAL CAPITAL INTO THE ACTIVITIES OF REAL ESTATE COMPANIES IN VIETNAM

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ABSTRACT

The study aims at exploring the structure of social capital and the activities of real estate companies in Vietnam. It also analyzes the contribution of social capital in the activities of real estate companies, which suggest policies to help real estate companies use social capital to improve performance, and assist the Government restrict the forms of negative social cohesion and help companies develop forms of positive social cohesion.

The research was conducted in two stages. The first stage, in-dept interviews were used to build the scale and theoretical models. The second stage, a sample of 262 real estate companies in Ho Chi Minh city of Vietnam was surveyed to test the theoretical model. Structural equation modeling was used to analyze the data.

The research results have shown that social capital contributes to all the activities of real estate companies. It suggests policies to improve the performance of the company through the use of social capital, and the macroeconomic policies to restrict the formation of negative social cohesion, and support companies to develop the forms of positive social cohesion.

The research has limitations on the scope of scale testing and theoretical models, the sample size is not large, the environmental legal framework is incomplete, research time is in the context of an inflation economy (2010 and 2011).

The research results suggested that real estate companies should be concerned and take more time for establishing relationships with internal, external and leaders of business networks to serve business activities. Also the Government should issue policies to regulate social capital on the real estate market in a positive way. Moreover, the findings also suggested the Association of real estate in Vietnam should create values from the social network to serves the interests of the participants.

This study is the first of its kind in Vietnam, which explores the relationship between social capital with the business activities of the real estate companies in Vietnam.

INTRODUCTION

According to the General Statistics Office (2010), real estate is one of the industries of high growth in the economy of Vietnam, but the number of small and medium enterprises account for 88%. This implies that real estate companies in Vietnam lack financial capital while tools for its funding are limited. Therefore, it depends very much on the credit markets. In the

context of Vietnam's economy facing inflation from 2009 to 2011, the Government has issued many policies tightening funding channels from customers (Anh, 2010). Meanwhile, the capital mobilization channel in the form of links among market participants has not been paid attention by the Government of Vietnam.

On the other hand, the behavior of real estate companies is driven more by personal relationships between their leaders and government officials concerning access to land. Therefore, understanding of those companies about the role of relationship is distorted. As a result, they have not exploited the relationships optimally and efficiently to serve their business operations.

In this context, current theories of social capital cannot solve the practical problems of establishing a policy framework which helps real estate companies and the Government recognize and measure resources existing in the relations of the company, as well as point out the contribution of social capital into activities of the real estate companies. By doing so, it helps companies identify and plan programs to develop social capital to serve the business activities. Therefore, the objective of this research is to develop a theoretical framework and test the relationship between social capital and the operation of real estate companies in Vietnam. The research findings suggest policies to improve their performance through the efficient use of social capital.

LITERATURE REVIEW AND CONCEPTUAL FRAMEWORK

Theories about social capital

Social capital is an intangible resource that exists in relationships. Many researchers such as Coleman (1988, 1990), Putnam (1995, 2000), and Nahapiet and Ghosal (1998) defines social capital as a form of resources which exists in the network of quality relationships (such as trust, sharing, support) among participants. Social capital is studied in many different levels such as nations, communities and businesses.

Studies of social capital in the business referred to each individual aspect of social capital, including the quality of external, internal, and the company’s leadership networks, which are summarized as follows:

External social capital:

The study by Jansen *et al* (2011), Landry *et al* (2000) refers to external social capital as the quality of relationships between enterprises and other entities in horizontal networks (customers, distributors, suppliers, companies in the same group, consultants, researchers, the competitors in the industry) and vertical networks (governments at all levels and parent companies - subsidiary companies in the same group). These studies have not established scale of relationship quality for each entity in the network, but instead refer to the quality of business relationships with external entities in general. With these scale, it is very hard for enterprises to develop and evaluate external social capital.

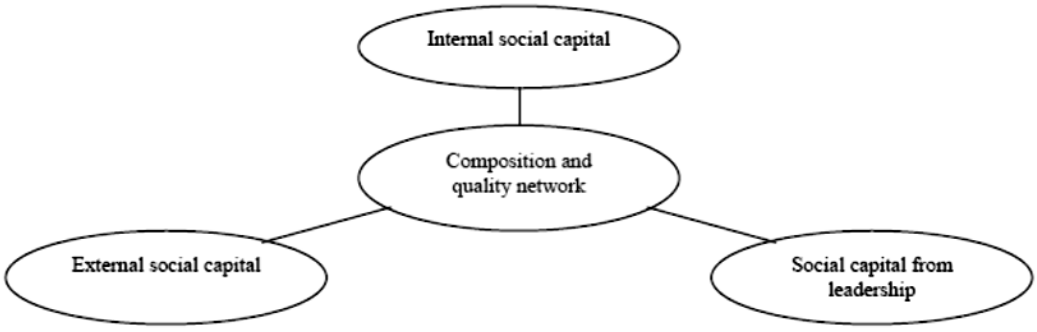
Internal social capital

Studies about internal social capital considered mutual relationship between individuals and divisions within the company, such as research of Schenkel and Garrison (2009), Nisbet (2007), Cheng *et al* (2006). These studies view internal social capital in terms of quality relationships among staff and functions. However, these studies have not developed the scale and assessed impacts of internal social capital to the operating results of the business. Therefore, they have not suggested approaches to measure and use social capital to serve business activities.

Social capital from leaders

Recent studies such as McCallum and O'Connell (2009), Truss and Gill (2009), Pare & *et al* (2008), Wharton and Brunetto (2009), Cialdini & et al (2001), Tushman and O 'Reilly III (1997) mentioned the social capital of leadership as the quality of networks of leaders such as friendship, reciprocity, power, social recognition, commitment. However, these studies have not built quality scale for each of the networking leader. As a result, they could not recommend approach to develop and evaluate social capital.

Figure 1: Structure of social capital in the company



Source: Integrated from theories

From the literature summarized above, social capital of the company may be generalized as the quality of business relationships with external stakeholders, the quality of the relationship among individuals and functions in the enterprise, and the quality of the relationship of business leaders as summarized in Figure 1.

The operation of real estate companies

Like other economic sectors, Krumm (2001) divided real estate enterprises into two areas: manufacturing and services. Similar to Krumm (2001), Nelen (2008) pointed out six business areas of real estate companies: looking for land, studying models of project development on the land and asking for permission to carry out the project, raising capital - finding fund for projects, looking for construction companies (to ensure progress, cost and

quality), looking for clients to lease / sell products; sale (lease) projects for investors. Combining six business areas of real estate companies with a value chain model proposed by Porter (1985), the company's real estate trading can be classified into three groups of activities: (1) input activities are looking for land for sale or lease to develop projects, permits, funding, (2) production activities: construction and deployment activities to ensure progress, quality and cost; (3) output operation: customers looking for lease or sale (see Figure 2).

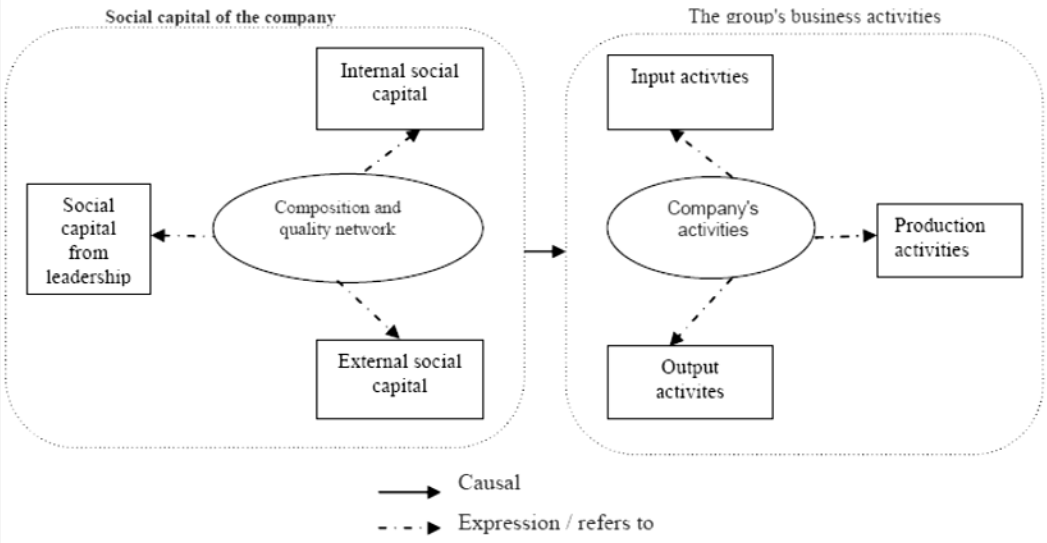
Figure 2: The operation process of real estate companies for the study

Source: Integration from the point of Porter (1985), Krumm (2001) and Nelen (2008).

Conceptual framework of the research

The objective of this study is to analyze the relationship between social capital and the operation of real estate companies and its analytical framework is presented in Figure 3. First, the scale is established for social capital of the company with the quality of the networks of external, internal and leadership as well as group of activities in the operation process of real estate companies including input, production and output activities. Next, hypotheses are built and tested about the contribution of social capital in the company's real estate activities.

Figure 3: Conceptual framework of the research



RESEARCH METHODOLOGY AND DATA

To solve issues raised in the analytical framework, the research process is divided into two stages: (1) building scale and research model, (2) testing scale and research model for a case study.

In the first stage, the scale and research model are built by in-dept interview, Crobach's alpha and exploring factor analysis (EFA). The second stage, the scale and model research will be tested for a case study in Ho Chi Minh City with tools: confirmatory factor analytical (CFA), structural equation modeling (SEM). The process and methodology are summarized in Table 1.

Table 1: Research Process and Methodology

The stages	The steps in the each stage	Research Methodology
Stage one: Building scale and model research.	Step 1: Building scale	Discuss with a first focus group including directors of real estate companies, outline for discussion first, technical description, classification and connection to establish a preliminary scale. The scale is a preliminary assessment with the sample size of 150 observations: - Cronbach's alpha: Eliminate variables with Corrected Item-Total Correlation (<0.35) and Cronbach's alpha (> 0.6). - EFA: factor loading >0.6, 0.5≤KMO≤1, Total Variance Explained >0.5.
	Step 2: Develop hypotheses and model research	Discuss with a second focus group including directors of real estate companies, outline for the second discussion, technical description, classification and connection to establish research model.
Stage two: Measuring and modeling studies will be tested for a typical case in real estate companies in Ho Chi Minh.	Step 3: Identify objects and scope for test	Respondents are directors or deputy directors of real estate companies in Ho Chi Minh Sampling in convenient method; sample size allocation in the form of ownership.
	Step 4: Testing the scale	- Cronbach's alpha; EFA with the selection criteria as step 1 of the first stage. -CFA: Check the relevance of the model; remove small CFA variable coefficient (<0.5) Check the unitary, the value of convergence and discrimination.
	Step 5: Testing hypotheses and model research	SEM: Assessing the appropriate level (0.9 <CFI; C ss min / df <2 and RMSEA <0.8).

Source: Authors' proposals

RESULTS OF THE SCALE AND HYPOTHESES BUILDING

The scale of the company's social capital

Results of combining theories with first qualitative study have developed the social capital's third-order scale. Three second order components of social capital are networks quality of leadership, external and internal:

The social capital from leadership: Quality of five networks of business leaders including the family (relatives, clans), friends (acquaintances outside of activities through personal leadership), business partners (networks obtained through the business activities of the authorities), government (individuals at all levels of government that leaders have established relationships) and co-workers (staff who work together). Each network has four observed variables measuring the network quality (maintenance, trust, sharing and helping), the total number of observed variables is 20. The scale is summarized in Table 2.

Table 2: Measuring social capital of the company leaders

Components	Symbols and variables observed
Network of family	As company leaders, L1: I have established and maintain good relationships with people in the family L2: I always get the trust from people in family L3: I always get sharings from people in family L4: I usually get help from people in family
Network of friends	L5: I have established and maintain good relationships with my friends L6: I always get the trust from my friends L7: I always get get sharings from my friends L8: I often get help from my friends
Network of business partners	L9: I have established and maintained good relationships with business partners L10: I always get the trust from business partners L11: I always get the sharing of information from business partners L12: I often get help from business partners
Network of authorities	L13: I have established and maintained good relationships with all levels of government L14: I always get the trust from the authorities L15: I always get the sharing of information from authorities L16: I often get help from the authorities
Network of colleagues	L17: I have established and maintained good relationships with colleagues L18: I always get the trust from colleagues L19: I always get the sharing of knowledge from their colleagues L20: I often get help from colleagues

Source: Combining theories with the first qualitative study.

External social capital

The quality of the seven networks of companies relationships with external stakeholders, including customers, distributors, suppliers, governments at all levels, consulting unit, companies within the Group and associations. Each network has five variables representing for network

quality (choice of area-based, policy development relationships, maintaining relationships, trust and benefit), the total number of observed variables is 35. The scale is summarized in Table 3.

Table 3: Measuring external social capital	
Networks	**Symbols and variables observed**
Customers	EX21: In this area we have many opportunities to develop new customers. EX22: Our company have policies to attract more customers. EX23: Our company have policies for customer care. EX24: Our company make good trust with customers. EX25: Customers of our company increase as expected.
Distributors	EX26: In this area we have many opportunities to link with distributors. EX27: We have a policy in the development of additional distributors. EX28: We always maintain a policy of cooperation with distributors. EX29: Our company generate good trust with the distributor. EX30: Distributors for our company grow as expected.
Suppliers	EX31: In this area we have more opportunity to choose good suppliers. EX32: We always have good policies in the development of additional suppliers. EX33: We always have a good policy to maintain the cooperation with suppliers. EX34: Our company generates the trust from suppliers. EX35: Providers for our company have expected quality.
Consultants	EX36: In this area we have many opportunities to access good consulting unit. EX37: we have developed policies for consulting unit. EX38: Our company has always maintained a policy of cooperation with consulting unit. EX39: Our company creates good trust for the consulting unit. EX40: Our consultants achieve the desired quality.
Authorities at all levels	EX41: In this area we benefit from local policies. EX42: We have a strategy to get the support of state policies. EX43: Our company regularly participate in community support. EX44: Our company made good trust for the authorities at different levels. EX45: Authorities at all levels support our companies as expected.
Companies in the same group	EX46: In this area we collaborate with units within group easily. EX47: Our company is committed to implementing the strategy of the group. EX48: We have a policy to maintain good relationships with companies withingroup. EX49: Our company created the trust with with companies within group. EX50: We have received the support from companies within group as expected
Associations	EX51: In this area we have many opportunities to join associations. EX52: Our company has policy to participate relevant associations. EX53: Our company has policy to maintain membership in associations regularly. EX54: Our company creates good trust from members of associations. EX55: Associations provide information to us completely and accurately as expected
Source: Summary from qualitative study first.	

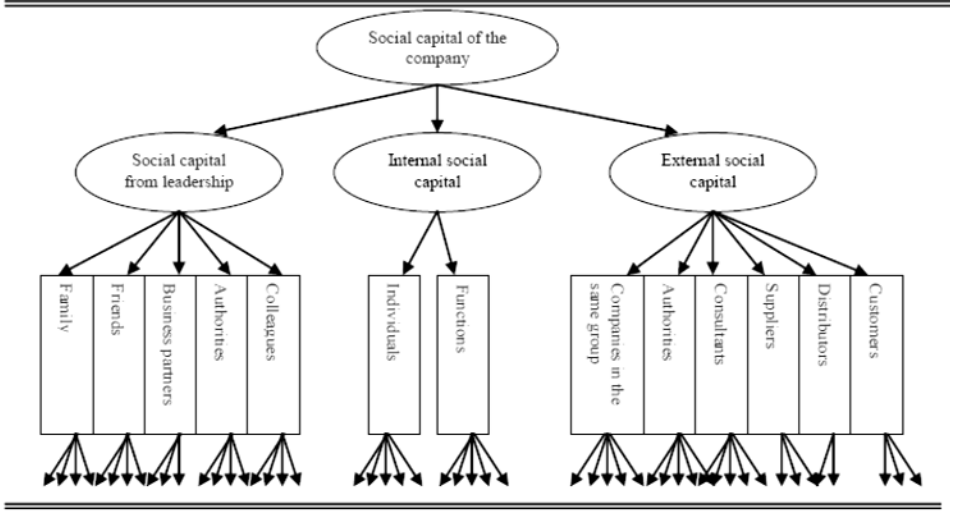
Internal social capital

Internal social capital measuring the quality of the two networks of individuals to cooperate with each other (five observed variables) and functions with each other (five observed variables). Quality networks are assessed by the level of trust, sharing knowledge and

experiences, mutual support between staff / functions in the organization. The total number of observed variables is 11. The scale is summarized in Table 4.

Table 4: Measuring internal social capital	
Components	**Symbols and the scale content**
Cooperation among individuals	I56: We always focus on creating mechanisms of cooperation between individuals. I57: We always monitor the cooperation among individuals. I58: Our company has mechanism to focus on cooperation between individuals in the process of performing their tasks. I59: Everyone in the company trusts each other. I60: Most people in the company are willing to share knowledge and experience in handling tasks. I61: The collaboration among individuals in our company to achieve good results.
Mutual cooperation between the functions	I62: We always focus on creating mechanisms of cooperation between functions. I63: We have a monitoring mechanism of cooperation between functions. I64: Our company has mechanism to focus on collaboration among functions in the process of performing their tasks. I65: Most functions within the company are willing to support each other in their work to achive the overall goal of the company. I66: The effective work of our company relies on the cooperation between the functions.
Source: Summary from first qualitative study.	

Figure 4: The structure of the scale of social capital after the preliminary assessment



Source: Drawing from the preliminary scale assessment.

The scale of the company's social capital is built to link theory with qualitative study to ensure the scale to achieve value content, it can be applied to the real estate sector in Vietnam. This method overcomes the shortcomings of previous studies which only refer to each individual aspect of social capital; therefore they do not cover the full content of company's social capital.

After the scale was preliminarily assessed by Cronbach's alpha and EFA tools, the official scale of social capital is summarized as shown in Figure 4. For social capital from leaders, L9 variable

was excluded; For external social capital, observed variables eliminated were EX34, EX30, EX35, EX24, EX25, EX52, EX53, EX51, EX27, EX26, EX54; and for internal social capital, I56 was excluded.

The scale of business activities

The group's business activities were developed based on integrating the study of Porter (1985), Krumm (2000) and Nelen (2008) with the results of qualitative research. The results of the scale building showed that three groups of activities of real estate businesses are unidirectional scale: (1) The Input activities: looking for land for sale or lease for project development, licensing, raising capital, (2) The production activities: the construction activities to ensure project progress, quality and costs, (3) The output activities: finding customers for rent or sale. The scales for activities of the company are unidirectional scale and summarized in Table 5.

Table 5: **The scale of real estate businesses activities**

Groups activity	Objectives	Symbols and scale content
Input activities	Application for permission	IP67: Our company apply for licensing projects easily
	Designing projects	IP68: Our company have project consulting unit as expected
	Raising capital	IP69: Our company raises capital as expected
Production activities	Progress	IP 70: Progress of construction is as planned
	Cost	IP71: The actual cost of construction is as planned
	Quality	IP72: The quality of construction is guaranteed
Output activities	Marketing	IP 73: our company have advantages in sale activities
	Distribution	IP74: We have product distributors as expected
	Revenue	IP75: Our company achieved revenue as expected
	Market share	IP76: Our company gain market share as expected

Source: Summary from qualitative study first.

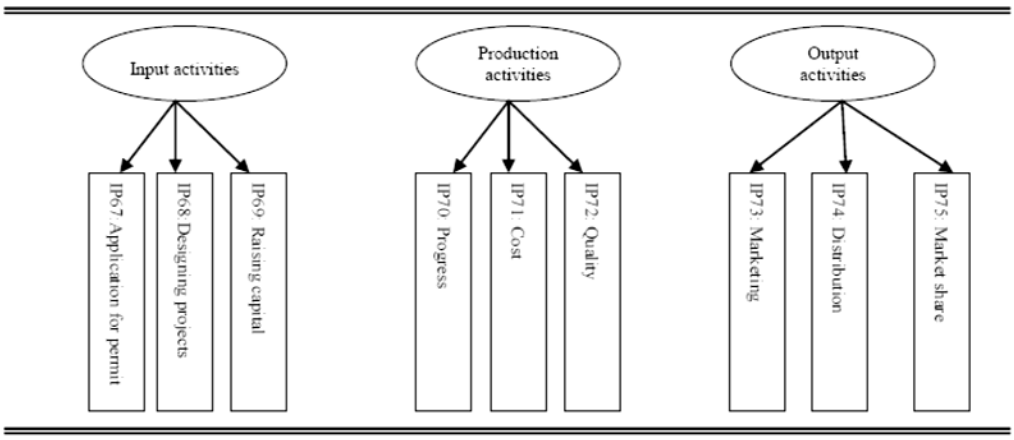
After a preliminary scale was assessed by Cronbach's alpha and EFA, IP76 observed variables were excluded. Scale structure of uni-directional input, production and output activities are shown in Figure 5.on the following page.

THEORETICAL MODEL: THE CONTRIBUTION OF SOCIAL CAPITAL INTO THE COMPANY'S ACTIVITIES

Social capital of real estate businesses is a multidimensional scale composed of three aspects: external, internal network quality, and leadership. To review our contributions to the operation of the business, they must consider the impact of each aspect of social capital.

The social capital of leadership: Implications from the points of Tushman and O'Reilly (1997), Wharton and Brunetto (2009), Ireland (2006) and Tansley and Newell (2007), Lee et al (2001), and combined with qualitative research shows that social capital of leaders has an impact on input, production, output of real estate businesses

Figure 5: Structure of unidirectional scale of business activities



Source: Drawing from the preliminary assessment scale.

For internal social capital: Implications from the arguments of Cheng *et al* (2006) and Kurt (2000) about possible cooperation to solve the coordination problem, and combined with the second qualitative research results, it is found that social capital affects corporate real estate activities.

For external social capital: Implications from the points of Grant (2002), Landry *et al* (2000), Acquaah (2007), and combined with the second qualitative research shows that social capital affects input, production and output activities of real estate businesses.

Thus, from the literature review, combined with qualitative research shows that internal, external and leadership social capital have a positive impact on the outcome of input, output, and production activities of the business. As a result, the hypotheses are established as follows:

H1: Strengthening the social capital variables makes input activities increase.
H2: Strengthening the social capital variables makes production activities increase
H3: Strengthening the social capital variables makes output activities increase

Moreover, activities of the business process is a value chain of the enterprise which have a close link to one another (Porter, 1985). This means that the input activity affects production activities and inputs; production activities affect the output activities. With these assumptions, two more hypotheses are built:

H4: Increasing the efficiency of input variables makes production activities increase
H5: Increasing the efficiency of input variables makes output activities increase

RESULTS OF TESTING OF THE SCALE AND HYPOTHESES FOR THE CASE OF REAL ESTATE BUSINESSES IN HO CHI MINH CITY

Sample characteristics

According to Bollen (1998), with the method of maximun likelihood estimation, the sample size is at least 5 samples for an estimated parameter. In this study, after preliminary studies there remains 61 observed variables, plus 16 potential variables related to each other by five research hypotheses. It means that there are 82 estimated parameters, so the minimum sample size is 5x82 = 410 observations. However, the investigation of 410 observations with real estate managers is very difficult to implement because the number of real estate businesses are not many (according to the Ministry of Construction, in 2009 the country has only about 1,717 businesses; Ho Chi Minh City has about 1,460 businesses ; Ministry of Construction, 2011). Therefore, the SEM model are estimated based on the average variable (Bagozzi and Edward in 1998, cited in Tho & Trang, 2009) of the component scale of the concept of social capital of leaders (5 components), external social capital (6 components) and internal social capital (two components), plus nine observed variables of the operation of the business and 5 research hypotheses, the minimum required sample size is less than 200. So 216 observations can be used.

To achieve the sample size of 216 observations, 400 questionnaires were generated and 300 questionnaires were collected. There are 84 invalid questionnaires and they were excluded. 40 questionnaires were excluded because the participants are not a member of the board of directors. 44 questionnaires have the unanswered space of more than 10%. So the final sample size is 216. Selected samples distribute according to business type although it is not entirely consistent with the overall rate but still acceptable at the level of approximation (Table 6).

Table 6: Comparison of percentage of the overall sample distribution by type of ownership

Type of business	Population		Sample	
	Number of enterprises	Percentage	Number of enterprises	Percentage
State Enterprises	19	1%	19	9%
Non-state enterprises	1.383	95%	184	85%
Foreign Enterprises	58	4%	13	6%
Total number of enterprises	**1.460**	**100%**	**216**	**100%**

Source: Calculated from data of Statistics (2009) and investigation of the thesis in 2011

Results of scale testing

The scale from the sample of 216 observations were selected by the method of non-stratified probability (by type of business: state enterprises, non-state and foreign enterprises) at a rate of approximation respondents were the directors or deputy directors of real estate businesses. Evaluation results show that the scale of internal, external social capital, the leader; the input operation, production and output of real estate businesses are guaranteed compatible

with the level of data, the monad value of convergence, discrimination, general reliability and extracted variance.

Results of hypothesis testing

Results of testing the theoretical model of the contribution of social capital in the activities of real estate businesses for the case of Ho Chi Minh City showed that the observed variables of the scale conform with the SEM model with all regression coefficients are statistically significant and greater than 0.5. The hypotheses about the contributions of social capital in the enterprise's activities, as well as the relationship among the activities of real estate businesses are accepted with 1% significance level (see Figure 6).

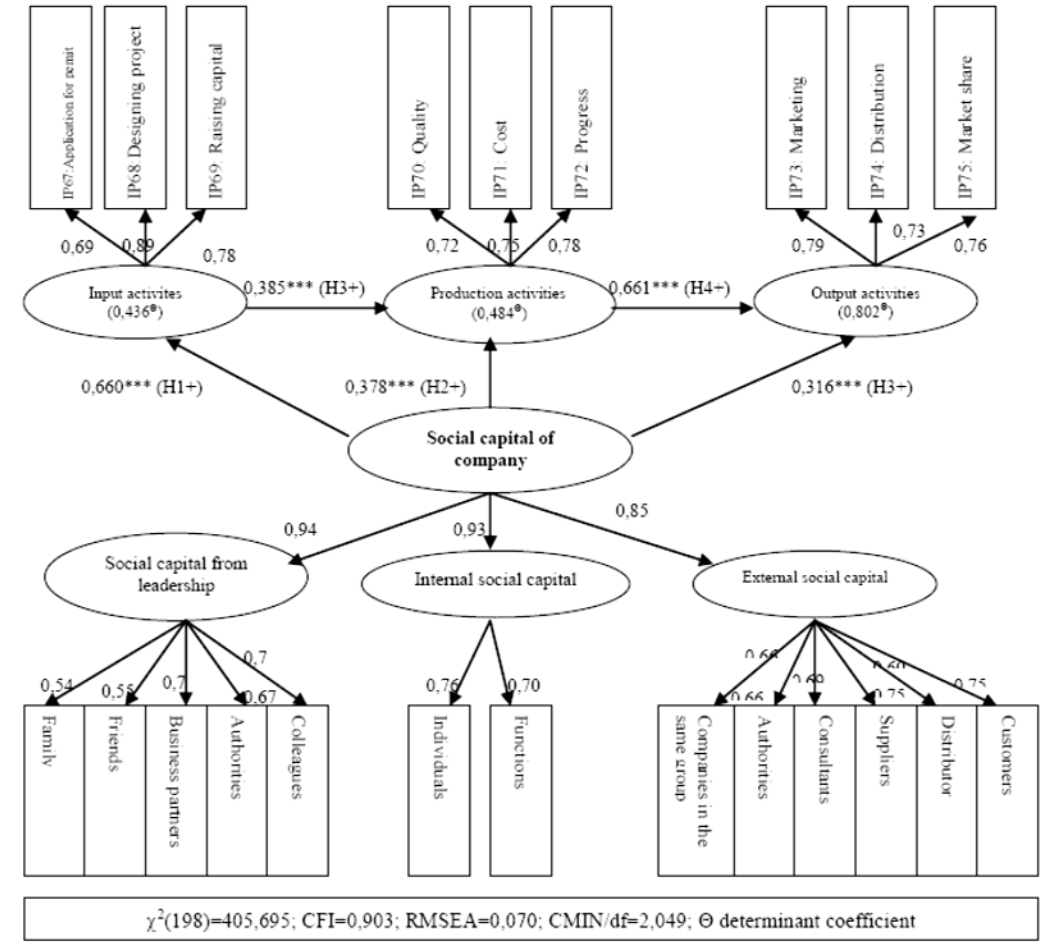
The results of the analysis of the contribution of social capital into the business activities reveals the following findings: (1) social capital contributes directly to the input activities, (2) social capital contributes directly and indirectly in production activities through the input activities , (3) social capital contributes directly and indirectly to the activities through input activities and production. Social capital influences directly the strongest into the input operation and then output activities . The overall level of impact (direct + indirect) of social capital on output activities is the most powerful, followed by production activities and input activities (see Table 7).

Table 7: Impact Direct, indirect and total (standardized) between concepts

Dependent variables	Impact	Social capital of the company	Production activities	Output activities
Input activities	Direct	0.660		
	Indirect	-		
	Total	**0.660**		
Production activities	Direct	0.378	0.385	
	Indirect	0.254	-	
	Total	**0.632**	**0.385**	
Output activities	Direct	0.316		0.661
	Indirect	0.418	0.254	-
	Total	**0.734**	**0.254**	**0.661**

Source: Calculated by the authors.

Figure 6: Results of SEM research model (standardized)



Source: Estimated from survey data of real estate businesses in Ho Chi Minh City

RESEARCH FINDINGS AND POLICY RECOMMENDATIONS

Research findings

Results of stage 1 have identified social capital scale is the third-order scale with three second-order components: the quality of networks inside and outside of the leadership; the operation of the business single scale including input and output production. Scale test results for the typical case in Ho Chi Minh City shows the scale model achieves compatibility with market data, the monad, the value of convergence, distinct value, extracted variance and reliability synthesis.

Structural equation model (SEM) was used to estimate the model and hypothesis testing. SEM results show that the hypotheses are acceptable. Social capital contributes (directly and indirectly) to all active: input activities, production and output activities, as well as the operational activities of real estate businesses are linked together.

Social capital contributes positively to the business of real estate businesses will generate positive and negative effects on the market: the positive effect is that social capital contributes to capital markets, reduces transaction costs and promote effective cooperation, information and knowledge transfer on the property market; negative effects of social capital are the inadequacies of macro adjustment policies of not creating fair "rules" among firms in the market, leading to adverse selection by the Government and the tendency of dependence of some real estate companies.

Policy recommendation

Firstly, real estate businesses should rely on the uni-directional scale of input activities, production and output activities to determine the objectives and criteria for measuring and evaluating the activities of the business in relation to social capital as in Table 8.

Table 8: Objectives, measuring the performance of real estate businesses

Group of activities	The overall objectives	The specific objectives	Measurement
Input activities	Continuous increase in land and funding for real estate development projects	Access to land at strategic position for project development	Number of licensed land on average; Average time to complete investment procedures for a project
		Find project development model meet the needs of customers	The number projects having new design and implementation method on average
		Ensure adequate mobilization of capital for project development	Average time for finding fund for each project Number of capital mobilization channels for each project
Production activities	Ensuring the project implementation schedule, cost and quality	The project implementation schedule	The rate of delayed projects Expenses incurred by the project behind schedule on average
		The project is implemented properly as planned	The rate of completed project cost exceeded Rate exceeded cost compared to the average planned cost
		Achieve The project achieved required quality	The rate of projects achieving required quality on average; Expenses due to unguaranteed quality/ average planned cost
Output activities	Continuously improve distribution and increase market share	Improve marketing effectiveness	Growth rate of customer interested in the company's products
		Improving distribution efficiency	Average time of distribution in a project
		Improving sales results	Growth rate of average revenue

Source: Author's recommendations from research findings

Secondly, real estate businesses should be aware of the social capital resources necessary to take into development strategies of real estate businesses. In doing so, it should base on the

results of the social capital scale to determine the objectives and criteria for measurement and evaluation of social capital as in Table 9.

Table 9: Objectives, measurement of social capital's real estate businesses

Aspects	The overall objectives	The specific objectives	Measurement
The social capital from leadership	Continuously maintain and improve the quality of the relationship of leadership to support the operation of business	Information is shared and there is help from family	Information and number of times receiving help from family on average
		Information is shared and there is help from friends	Information and number of times receiving help from friends on average
		Information is shared and there is help from partners	Information and number of times receiving help from partners on average
		Information is shared and there is help from government	Information and number of times receiving help from the Government on average
		Information is shared and there is help from colleagues	Information and number of times receiving help from the Government on average
External social capital	Continuously maintain and improve the quality of relationships outside the enterprise	Loyalty of old customers and develop new customers through existing customers' referral channels	Number of times old customers buy goods on average; Number of new customers buying goods from the introduction of former clients on average.
		Loyalty of the old distributors and develop new distributors through the old distributors's introducing channels	The number of products sold by od distributors; The number of new distributors introduced by former distributors; The number of policies issued to maintain the distribution system.
		Suppliers agree to sell on credit and deliver goods at good quality and timely	The average time of selling on credit; The rate of delivery delays; The rate of delivery of poor quality;
		The quality of consultants	The number of valuable advice used on average
		Get help, preferable treatment from the Government at all levels	The number of valuable pices of information which is promptly informed; Average incentives from the government.
		Get help from other companies in the same group	Number of received average support
For internal social capital	Continuously create effective mechanisms of cooperation and increase the value of cooperation within	Mechanisms to create and monitor individual partnership performance	The average number of new knowledge updated in the organization; The level of trust and sharing among individuals; Number of conflicts among individuals
		Mechanisms to create and monitor individual partnership performance	Average execution time of each process

Source: Proposal from the author's research results

Thirdly, enterprises wanting to improve performance need apply additional measures to maintain and develop social capital by concentrating on the quality of the networks mentioned in the scale: network's leadership, external network and internal network.

Fourthly, the Government should develop macroeconomic policies to limit the effects of negative social forms in real estate sector: (1) building system of documents guiding the process

permitting the project clearly and transparently, facilitating access to land and settlement procedures of land the same for all businesses, making enterprises not spending much time into relationships junctions which cause negative effects on national real estate industry, (2) prohibiting rent seeking behavior, specifically projects has been granted but not yet built with the aim of preventing more companies taking advantage of relationships with key authorities for permission to transfer the project back then, through which will help to reduce investment costs and lower prices for real estate sector.

Finally, building macroeconomic policies creating conditions for enterprises to develop social capital in the form of a positive link for real estate sector: (1) The Government should support the development of sales relationships by the policy to encourage and support the establishment of consumer organizations such as trade fairs and exhibitions which create conditions for enterprises to develop social networks with customers, suppliers and distributors, (2) The Government should have the investment program to develop channels of social interaction among real estate companies in the industry, among real estate enterprises with concerned industries, among real estate businesses with the policy makers, (3) the Government should develop a legal framework to facilitate the formation and development of a variety of financial instruments based on the connection of participants in the market such as real estate trusts (this fund does not exist in Vietnam and is integrated into development saving funds for houses which have been implemented legally) that developed countries are applying and bring good results for raising capital for entities in the market, thus contributing to creating social capital in the real estate market and also create additional provision of credit for this market.

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TRADE LIBERALIZATION AND PRODUCTIVITY SPILLOVER FROM DIFFERENT FOREIGN DIRECT INVESTMENT SOURCING ORIGINS

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ABSTRACT

The study investigates productivity spillovers of different Foreign Direct Investment sourcing origins into domestic firms in 23 Vietnamese manufacturing sectors through horizontal and vertical linkages in two periods: pre and post WTO accession (2004-6, 2007-9). The analysis uses an augmented production function and System GMM estimators to show that the foreign presence by sourcing origin appearing in the same or in downstream industries causes different productivity spillovers into domestic enterprises, and the trade liberalization strongly enforces the spillover process in two directions: (1) Horizontal spillovers are positively improved; (2) Vertical spillovers are strongly diversified. We prove that kind of technology transferred which is more suitable to the local economy' characteristics could drive the spillover absorption through vertical linkages, and domestic firms could actively absorb FDI spillovers through horizontal linkages.

INTRODUCTION

Foreign Direct Investment (FDI) is always attracted by developing countries in hope for more capital for their economic development. While many researchers find evidences on positive FDI impact on one developing country's economic growth and its contribution on taxation, creating more jobs for young population, or supplying wider range of goods and services to the economy, others still argue for its spillover effects on domestic economy (Aitken, Harrison & Lipsey, 1996 and Lipsey & Sjöholm, 2005). On the one hand, it is believed to stimulate the technological progress in the host country. FDI may be used as a vehicle for increasing productivity growth (Bitzer & Görg, 2009). FDI can bring newer technology transfer to developing countries than licensing (Mansfield & Romeo, 1980). In addition, it possibly improves the knowledge and skills of managers or workers, and enhances efficiency and productivity in production and performance. On the other hand, possessing better production technology, managerial skills, export contacts, reputation and good will, FDI is able to force local enterprises to strive in a strong competitive environment and can draw the demand from domestic firms.

However, it is truly difficult to find an existing study on productivity spillovers from different sourcing origins except Javorcik & Saggi (2004). In view of the approach, this study uses firm-level data from the Vietnamese General Statistics Office (GSO) for 23 manufacturing sectors in Vietnamese economy covering the period 2004-2009 to investigate horizontal and vertical productivity spillovers of foreign enterprises sourcing from main traditional counterparts

(China, Japan, South Korea, Taiwan, the United States) and associations (ASEAN, Europe). Vietnam has changed to a market oriented economy since 1986. It joined the Association of Southeast Asian Nations (ASEAN) in July 1995 and was fully engaged to the trade liberalization program under ASEAN Free Trade Area (AFTA) in January 1, 2006. After 16 years since applying to participate in the World Trade Organization (WTO) in 1991, Vietnam was accepted to be a full official WTO member in 2007.

Table 1 introduces inward FDI in general and FDI in manufacturing in particular, and FDI by main sourcing origins. In the Vietnamese economy, FDI plays an important role when contributing yearly 16-18% in GDP and foreign firm size is increasing in term of capital when Vietnam is involved more in the regional and the world economies. FDI inflows increased with an average rate from 46% in the period 2004-2005 to 76% in the period 2006-2007, but enormously bumped to 236% in 2008. The largest investors come from Asian countries such as Taiwan, South Korea, Japan, China, Malaysia and Singapore. The United States is a special case when it registered more capital to be the largest investor who occupied 43% of the whole inward FDI in 2009. While many European countries invest in Vietnam at an average capital level, not much FDI from Africa appear in this developing economy.

The study aims at observing the trade liberalization shock on the productivity spillovers from different sourcing origins by separating two periods pre- and post WTO accession: 2004-2006 and 2007-2009. Applying two-step System GMM for the production function model helps to give out robust results. By considering the trade liberalization shock in an economy, the analysis firstly contributes evidence that integrating more in the regional and the world trade strongly enforces the spillover absorption process. The sign and magnitude of horizontal spillovers are positively improved, ignoring the serious influence of the world financial crisis in the period 2008-2009. Possibly, severer competition against foreign competitor from trade liberalization cannot surpass the gain of local enterprises from learning, imitating, competing their business activities, and knowledge transfer from labor mobility. Besides, spillovers could be not only driven by a 'negative' absorption so called absorptive capacity but also by a 'positive absorption' with which domestic firms actively select suitable structural characteristics of FDI sources to absorb through demonstration and labor mobility effects.

Moreover, the study makes a further contribution to literature in analyzing the productivity spillovers through vertical linkages from different FDI sourcing origins. It is expected that FDI origins whose the industry technology level are more suitable to the local economy can spill better over to the productivity of domestic firms. Different from investors from ASEAN, Europe, Japan, and South Korea, those from the United States, China, and Taiwan who focused more on selecting low technology industries to begin with after trade liberalization bring positive spillovers. Hence, kind of technology transferred via industry reallocation of investors could affect the potential of spillover absorptive capacity of local firms. This result supports the assumption suggested by Görg & Greenaway (2004).

Table 1: Inward FDI and Manufacturing in the Vietnamese Economy, 2005-2009					
In percentage (%)	**2005**	**2006**	**2007**	**2008**	**2009**
Manufacturing products in GDP	34.67	34.92	34.51	31.04	30.36
**except Mining & Quarrying/ Electricity, gas, and water supply*	*20.63*	*21.25*	*21.26*	*20.35*	*20.09*
Products of Foreign invested sector in GDP	15.99	16.98	17.96	18.43	18.33
Percentage of total FDI to Manufacturing	70.45	68.90	-	45.15	17.06
Inward FDI:					
- *Number of projects*	*970*	*987*	*1544*	*1557*	*1208*
- *Registered capital (Mill. USD)*	*6839.8*	*12004*	*21347.8*	*71726*	*23107.3*
- *FDI growth rate (%)*	*50.40*	*75.50*	*77.84*	*235.99*	*-67.78*
FDI and shares by origin (Mill. USD)					
- ASEAN	651.9 *9.5%*	970.3 *8.1%*	4190.3 *19.6%*	27943.2 *40%*	1302.1 *5.6%*
** Singapore*	247.0 *3.6%*	675.3 *5.6%*	2572.3 *12.0%*	4495.8 *6.3%*	922.5 *4.0%*
- Taiwan	753.1 *11.0%*	845.8 *7.0%*	2489.7 *11.7%*	8851.7 *12.3%*	1626.5 *7.0%*
- South Korea	929.4 *13.6%*	3106.5 *25.9%*	5395.4 *25.3%*	2019.0 *2.8%*	1911.5 *8.3%*
- Japan	945.3 *13.8%*	1490.4 *12.4%*	1385.9 *6.5%*	7578.7 *10.6%*	715.0 *3.1%*
- China (include Hong Kong)	682.4 *10.0%*	2094.3 *14.1%*	1179.9 *6.5%*	782.5 1.1%	1154.9 *5.0%*
- United States	333.4 *4.9%*	816.5 *6.8%*	388.3 1.8%	1519.4 *2.1%*	9945.1 *43.0%*
- Europe	1588.3 *22.2%*	2032.0 *16.9%*	5341.6 *25.0%*	8252.9 *11.5%*	4080.0 *17.7%*

*Source: The Vietnamese General Statistics Office

**Notes: ASEAN includes Singapore, Thailand, Malaysia, Myanmar, Indonesia, the Philippines, Brunei, Laos, and Cambodia. Europe includes Cayman Islands, British Virgin Islands, France, Germany, Luxembourg, Netherlands, Italy, United Kingdom, Switzerland and Denmark.

However, the finding is object to assumptions of 'higher development distance, more imitated technology' of Findlay (1978) or 'higher technology gap between countries, lower spillover potential' of Glass & Saggi (1998). For example, in the period 2004-2006, different from Chinese investors, firms from the United States spilled negatively over domestic enterprises. After the trade liberalization, the appearance of an American enterprise in the same industries or in downstream industries brought the highest positive productivity spillovers. This is contrary to the presence of an ASEAN or a Chinese firm.

The following includes five other sections. Section 2 gives theoretical framework and empirical studies. Then section 3 introduces data, research methodology, and some summary statistics. The results are presented in section 4. Section 5 finally gives conclusion and some discussion.

THEORETICAL AND LITERATURE REVIEW

In fact, a wide range of empirical works have investigated the externalities of inward FDI. Görg & Greenaway (2004) reviewed findings of 45 cases on horizontal and/or vertical productivity spillover of FDI into host developed, transition, and developing economies in the period 1966-2000 and some others on wage, export spillovers. In general, developing economies could suffer negative productivity spillovers but mostly absorb positive spillovers from the appearance of foreign firms in the same industries. However, there were still very few evidences of vertical spillovers. Since the approach of Javorcik (2004) which applied Input-Output (I/O) tables in calculating vertical foreign presence through backward and forward linkages, a large number of papers have deeply analyzed spillover effect of FDI presence in upstream and downstream industries. For example, Javorcik (2004), Kim & Kim (2010) found positive backward productivity spillovers for the cases of Lithuania, Korea, respectively but Bwalya (2006) pointed out negative productivity spillovers for the case of Zambia.

These different results could be explained by a well developed theoretical literature. Once a multinational company (MNC) has established a subsidiary, they are likely to bring along more sophisticated technology, marketing and managerial practices which are possibly spilled over to domestic firms through channels: imitation, skills acquisition, competition and exports (Wang & Blomström, 1992; Aitken & Harrison, 1999). In a more general concept, productivity spillovers can occur through the channels: demonstration, competition, labor mobility, and market stealing effects (Wang & Blomström, 1992, Kokko, 1996, Glass & Saggi, 2002). But in nature, spillovers from FDI are more likely to be vertical than horizontal because MNCs can use ways of protection such as intellectual property, trade secrecy, paying higher wages to prevent labor turnover or locating in countries or industries where domestic firms have limited imitative capacities to begin with (Görg & Greenaway, 2004; Javorcik, 2004).

Referring to the relation between source and host countries, economic theories examine factors affecting the speed of adoption of new technology or driving the degree of horizontal and vertical spillovers. The greater the distance between two economies in terms of development, the more rapidly new technology is imitated (Findlay, 1978). Whereas, Glass & Saggi (1998) concluded that the larger the technology gap between the host and home countries, the lower the quality of technology transferred and the lower the potential for spillovers. In conclusion, Görg & Greenaway (2004) pointed of the absorptive capacity where the spillovers have the potential to raise productivity and exploitation which might be related to the structural characteristics of the host economy. Accordingly, some empirical studies have analyzed the role of both local firm characteristics in the host economy and foreign capital features like firm size, ownership, location, kind of industry, or business orientation (see Attiken & Harrison, 1999; Javorcik, 2004; Le & Pomfret, 2010a).

For empirical works, Javorcik & Saggi (2004) used firm level data for the case of Romania to find that there existed a difference in the magnitude of vertical spillovers associated with multinationals from three regions Europe, America, and Asia. Their findings strongly support the hypothesis from theoretical models of Rodrigues-Clare (1996) and Markusen & Venables (1999) that the share of intermediate inputs sourced by MNCs from a host country is

likely to increase with the distance between the host and the source economy. Therefore, they confirmed the role of regional preferential trade agreements which can possibly cause different spillovers of MNCs sourcing from a country in or out of the agreement association. And so, they find evidence of positive productivity spillovers from American and Asian firms but negative spillovers from European firms through vertical linkages.

DATA AND METHODOLOGY

Data Source

The data used in this study is from the annual enterprise censuses conducted by the GSO. They started from 2000 to survey on 100% of state-owned enterprises and all non-states with employee number no less than 10 in service sectors and 29 manufacturing sectors which are divided into 3 industrial groups: 4 industries in Mining and Quarrying; 2 industries in Electricity, Gas and Water Supply; and 23 industries in Processed Manufacturing (VISC, 1993). The years covered include 2004 through 2009. The number of enterprises increases from a low of 91,755 enterprises in 2004 to a high of 233,236 enterprises in 2009.

This study applies for 23 processed manufacturing industries according to the Vietnamese Standard Industrial Classification (VSIC 1993). Based on the OECD SITC Revision 2_ 1993 (Hatzichronoglou, 1997), these industries are divided into 15 low technology sectors and 8 high technology sectors (*see Table 2*). According to the GSO, the products of 23 processed manufacturing sectors occupied two third in total manufacturing sectors' and contributed 20.5% in GDP annually in the period 2004-2009. However, FDI inflow to processed manufacturing seriously reduced from 70.5% in 2005 to 17% in 2009. Actually, the registered capital in manufacturing goes from 8.4 trillion USD in 2006 up to 35.7 trillion USD in 2008, but then fell down nearly 8 times in 2009, against 1.5 times in service.

To analyze the impact of trade liberalization shock when Vietnam joined the WTO, the data set is divided into two periods. After controlling zero and missing values, we have two balanced data sets including 33,150 observations in the period 2004-2006 (28,029 domestic observations and 5,121 foreign observations) and 48,618 observations in the period 2007-2009 (40,507 domestic observations and 8,111 foreign observations). The data sets contain rich information on domestic and foreign ownership, output, sales, assets, employment, location, products, etc. but no direct information of material inputs, except years 2004-2006.

The approach of Javorcik (2004) is applied to calculate horizontal and vertical spillovers from different FDI sourcing origins. Because the surveys are lack of the information of export, we use only backward spillovers representing for vertical effects.

Table 2: Manufacturing Industries, 2 Digits (VSIC, 1993)			
	Low_ tech	**High_ tech**	**D. Manufacturing**
1.	X		D15. Manufacture Of Food Products And Beverages
2.	X		D16. Manufacture Of Tobacco Products
3.	X		D17. Manufacture Of Textiles
4.	X		D18. Manufacture Of Wearing Apparel; Dressing And Dyeing Of Fur
5.	X		D19. Tanning And Dressing Of Leather ...
6.	X		D20. Manufacture Of Wood And Products Of Wood ...
7.	X		D21. Manufacture Of Paper And Paper Products
8.	X		D22. Publishing, Printing And Reproduction Of Recorded Media
9.	X		D23. Manufacture Of Coke, Refined Petroleum Products And Nuclear Fuel
10.		X	D24. Manufacture Of Chemicals And Chemical Products
11.	X		D25. Manufacture Of Rubber And Plastics Products
12.	X		D26. Manufacture Of Other Non - metallic Mineral Products
13.	X		D27. Manufacture Of Basic Metals
14.	X		D28. Manufacture Of Fabricated Metal Products ...
15.		X	D29. Manufacture Of Machinery And Equipment &etc.
16.		X	D30. Manufacture Of Office, Accounting And Computing Machinery
17.		X	D31. Manufacture Of Electrical Machinery And Apparatus & etc.
18.		X	D32. Manufacture Of Radio, Television And Communication Equipment
19.		X	D33. Manufacture Of Medical, Precision And Optical Instruments ...
20.		X	D34. Manufacture Of Motor Vehicles, Trailers And Semi - trailers
21.		X	D35. Manufacture Of Other Transport Equipment
22.	X		D36. Manufacture Of Furniture; Manufacturing & etc.
23.	X		D37. Recycling
*Notes: Manufacturing industries classified according their global technological intensity (OECD, SITC Revision 2)			

This study also uses the I/O table provided by the GSO (2007) which is the newest one with the dimension of 138 products in order to calculate the backward linkages. The I/O table gives input coefficients in aspect of production technology applied to create products, gross capital formation, final consumptions and exports, and some other indicators. There have been only two versions of the I/O (2000, 2007) so far for the Vietnamese economy. Hence, the version 2007 is used for calculating vertical presence and demand by industry in the whole period 2004-2009. We assume that the input coefficients are constant over time.

The model and econometric approaches

To meet the study's purpose, a model from augmented Cobb Douglas production function is applied.

$$ln\, Y_{ijrt} = \alpha + \beta_1\, ln\, K_{ijrt} + \beta_2\, ln\, L_{ijrt} + \beta_3\, lnM_{ijrt} + \beta_4\, Horizontal_{mjt} + \beta_5\, Backward_{mjt} + \beta_6\, X + \alpha_i + \varepsilon_{ijt}$$

Y_{ijrt} is the output which is represented by the sales from the main industry of firm *i* operating in sector *j* in region *r* at time *t*. The previous studies using the same data source (Le

and Pomfret, 2008; Lan, 2008) used output but firms are asked to directly give output at the base year 1994 so the given data could be not correct. Besides, there are much more missing values of output compared to sales. Different from some other studies (Chuc et al., 2008) using total sales, this measure is better to treat the case when the total sales of a firm can come from doing business on other industries, or investing in financial market.

K_{ijrt} stands for the capital, defined as the value of fixed assets at the beginning of the year. M_{ijrt} , material inputs, are calculated by total expenditure which are equal to total sales minus total profit, adjusted by total wage. There are no specific information of expenditure and wage for the main industry. We assumed total expenditure for products are mostly from payment for materials and labor. Bitzer & Görg (2009) measured materials as the difference between gross output and value added.

Sales, capital, and materials are all deflated by the Producer Price Index for 23 appropriate two-digit manufacturing sectors to get the resulting values at the base year 2004. Labor L_{ijrt} is defined by the number of employees working in the main industry of a firm. Due to lack of data, we cannot apply labor as efficiency units so we accept the same efficiency for a labor working in every enterprise. Javorcik (2004) divided the wage bill by the minimum wage.

$Horizontal_{mjt}$ captures the presence of foreign firms from country or association *m* (ASEAN, Taiwan, South Korea, Japan, China, the United States, Europe, and Multi_nations) in sector *j* at time *t,* defined by the foreign equity participation (*foreign share*) averaged over all firms in the sector, weighted by each firm's share in sectoral sales. Foreign share is equal to 100% for a foreign firm without the information of its foreign share. Horizontal from one country or association is measured when 100% of the foreign equity comes from this country or association. We set H_multi for the presence of foreign multiple shareholders in the industry.

For the purpose of the study, $Horizontal_{mjt}$ could represent for the presence of foreign investors working in low or high technology sectors. That means we can separate horizontals to two types of sectors: low or high technology according to SITC Revision 2 (OECD). Horizontal can cause negative or positive spillover, depending on how local firms overcome the marketing stealing effect from foreign enterprises.

$$\boldsymbol{H_{mjt} = \frac{\sum_{\forall i \in j} Foreignshare_{imt} * Y_{imt}}{\sum_{\forall i \in j} Y_{it}}}$$

Backward $_{mjt}$ is proxy for the foreign presence in manufacturing from country or association *m* (or in low or high technology industrial sectors) in downstream industries which are being supplied by sector *j* at time *t*. Backward in this model represents for the spillover through vertical linkage. a_{jk} is the proportion of sector *j*'s output supplied to sector *k*, calculated from the I/O table 2007. The higher appearance of foreign buyers might result a negative or positive productivity effect on local firms.

$$B_{ijt} = \sum_{k \text{ if } k \neq j} a_{jk} \, Horizontal_{ikt}$$

X includes *lndemand, concentration* which are controlling variables. The controlling variables are limited to avoid much more missing values.

$demand_{jt}$ stands for demand for intermediates of industry *j* at time *t*. One more per cent of the demand is able to force more or less percentage increase in the output depending on the price change in time *t*. a_{jk} is the I/O coefficient indicating proportion of good *j* used to produce one unit of good *k*.

$$\boldsymbol{demand_{jt} = \sum_{k} a_{jk} * Y_{kt}}$$

$concentration_{jt}$ is the Herfindahl index representing the level of industry concentration which is against the competition, equal to sum of all square of relative firm output compared to the whole output in industry *j*. The increasing index indicates less competition in the industry. That may lead to less productivity growth when lacking of competition effect, or more productivity growth when firms explore resource concentration and effect of increasing return of scale.

$$concentration_{jt} = \sum_{i=1}^{n} \left(\frac{Y_{ijt}}{Y_{jt}} \right)^2$$

From the production function above, many econometric methods could be applied to give different results. In order to obtain robust and consistent coefficients, we must solve the nature problem of error terms. The results from Fixed Effects (FE) estimator will be consistent but those from OLS estimator are both consistent and efficient when the error term is independently and identically distributed. However, observed or unobserved factors from choosing inputs may lead to the correlation between error terms and lagged output, so OLS estimator is no longer consistent (Nickell, 1981). To solve input endogeneity, we use the system GMM which is considered to be consistent and efficient because both lagged differences and lagged levels are used as instruments. Being different from 2SLS, GMM has one more advantage as saving observations when building instrument set whose missing observations are replaced by zeros (Holtz-Eakin, Newey, & Rosen, 1988).

The crucial assumption for the validity of GMM is that the instruments are exogenous. Sargan and Hansen test for joint validity of the instruments is required after GMM estimations. But the Sargan test is inconsistent when the errors are suspected non-sphericity (Roodman, 2006). Arellano and Bond develop a test namely autocorrelation in the idiosyncratic disturbance term. In order to get robust results, the study also uses the recommendation of Roodman (2006)

to "collapse" the instrument set and/or limit instruments in confronting the problem of too many instruments. Two-step GMM is applied for Windmeijer (2005) finite-sample correction to the reported standard errors, without which those standard errors tend to be severely downward biased. OLS controlled for industrial, time and regional fixed effects, within group estimator, system GMM estimators are used in this study.

Summary Statistics

As can be seen from *Table 3*, a foreign enterprise has capital and employee number nearly 50% higher than a local firm on average and it gains higher sales in the main industry. There is not a remarkable difference in domestic and foreign firm size in term of sales, capital, labor, and materials in 2 periods. In detail, a foreign firm's averaged log sales is 10.3, compared to 8.1 of a local firm. Among FDI sources, *Htaiwan* representing the presence of Taiwanese DI in intra-industries strikingly appears at the largest level 9.7% on average, followed by FDI from Japan, South Korea, ASEAN, and Europe.

In overall, *Backwards* of all origins are much lower than *Horizontals*. That means the presence of all investors in downstream industries with the role as customers of domestic firms are much lower than that in the same industries with the role as competitors. The Japanese and the Taiwanese investors purchased more products from domestic enterprises than other sources although their appearance in downstream industries was still very low at 2.9% and 2.5% respectively. It is possible that domestic products are not competitive enough to attract demand of foreign investors from all origins.

Table 3: Summary Statistics

Variables	2004 - 2009		2004-2006		2007-2009	
	Mean	***Std. Dev.***	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***
**** Domestic firms:***						
Log sales	7.97692	1.91994	8.10366	1.98071	8.16424	1.91535
Log capital	6.58183	1.95375	6.75198	1.96125	6.74344	1.94436
Log labor	3.36272	1.46160	3.59844	1.51477	3.41193	1.45859
Log materials	7.78164	2.06591	7.94696	2.10537	7.93524	2.08245
**** Foreign firms:***						
Log sales	10.17696	1.79856	10.33287	1.74716	10.25238	1.76316
Log capital	9.17265	1.77459	9.34204	1.69125	9.17722	1.77772
Log labor	4.95846	1.46473	5.09188	1.39827	4.99277	1.47830
Log materials	9.97775	1.80977	10.16239	1.76299	10.00556	1.81367
**** Horizontals and Backwards by origin and technology level:***						
Hamerica	.010952	.011763	.010360	.013130	.011660	.010748
Hasean	.052245	.036212	.051552	.034169	.053586	.037851
Hchina	.011712	.014791	.008359	.008657	.014743	.018617
Heurope	.041493	.039709	.046359	.044780	.038644	.035516
Hjapan	.054875	.080756	.055421	.092930	.053813	.067261
Hsouthkorea	.049272	.064165	.045380	.063725	.052206	.065463
Htaiwan	.097193	.083238	.095612	.082794	.097997	.084165
Bamerica	.002144	.002353	.002345	.002525	.002000	.002221
Basean	.008533	.012309	.008005	.012563	.008641	.011601

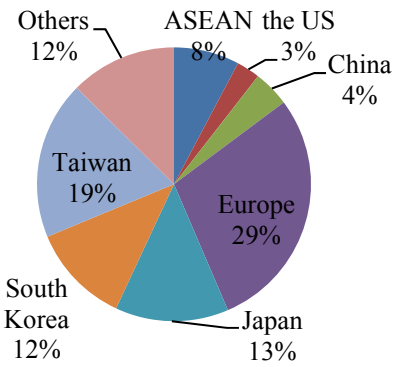
Table 3: Summary Statistics						
Variables	**2004 - 2009**		**2004-2006**		**2007-2009**	
	Mean	***Std. Dev.***	***Mean***	***Std. Dev.***	***Mean***	***Std. Dev.***
Bchina	.002663	.004157	.001848	.002335	.003225	.005086
Beurope	.010654	.013634	.009618	.014412	.010944	.012352
Bjapan	.029298	.053877	.026663	.054682	.030754	.053302
Bsouthkorea	.011129	.013295	.010161	.011769	.011735	.014445
Btaiwan	.025333	.036012	.024858	.035975	.024436	.034044
Hlow_tech	.298293	.181706	.288545	.179742	.304678	.182065
Hhigh_tech	.072963	.188852	.079063	.199382	.069139	.179974
Blow_tech	.056530	.087464	.053017	.086195	.056566	.084741
Bhigh_tech	.050243	.074019	.047173	.073235	.051357	.074207

After WTO accession in 2007, most of the horizontal and vertical presence of FDI in all sourcing origins slightly increase compared to the previous period except the European and the Japanese investors for the case of horizontal presence, and the American and Taiwanese investors for the case of vertical appearance. Especially, *Hchina* is from 0.84% in the previous period up to 1.47% in the latter period and *Bchina* also goes up from 0.18% to 0.32%. The United States, the largest counterpart who occupied over 40% of the whole inward FDI in 2009 had low presence in the same or downward industries.

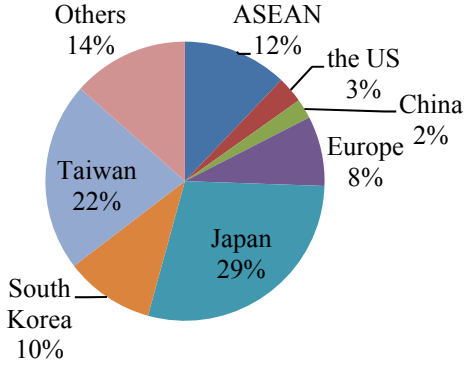
Regarding technology level, inward FDI in 2 periods concentrated much in low technology industries. For example, in the period 2004-6, their presence in a low technology industry was 29.8% while that in a high technology industry was just 7.3%. Noticeably, investors appeared more in the same and in downstream low technology industries after Vietnam participated more on trade liberalization. On the contrary, the foreign presence appeared less in intra- high technology industries of domestic firms.

Figure 1: INWARD FDI IN MANUFACTURING BY SOURCING ORIGIN IN 2 PERIODS

2004 - 2006



2007 - 2009

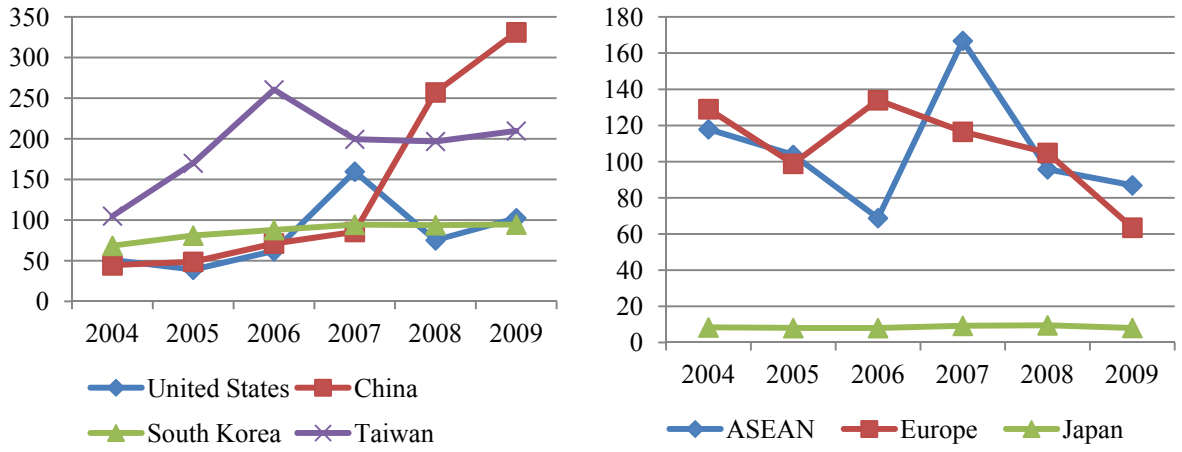


In the manufacturing sectors, FDI inflows increased by 111% from 29.2 trillion VND in the first period to 61.6 trillion VND in the second and the inward capital from all sourcing origins went up. *Figure 1* shows a dramatic increase in Japanese DI with the proportion from 13% up to 29%. The ASEAN and the Taiwanese invested capital also rose up. Nevertheless, this

trend was inversed for FDI from countries in Europe. In the post WTO accession, Japan became the largest investors in manufacturing sectors, followed by Taiwan, ASEAN, and South Korea.

Figure 2 presents two groups of sourcing origins: one group has the upward tendency to invest more in low technology industries while the latter has the downward trend. The Chinese, the Taiwanese, the South Korean, and the American investors were moving to do business more in low technology industrial sectors from 2004 to 2009. But this trend was reversed for the cases of ASEAN, Europe, and Japan. By taking the relative horizontal in low/high technology industry yearly, the proportion is 100% when one origin balances the same appearance in high and low technology industries. In detail, FDI from Taiwan only flows to low technology industries because the rates are always larger than 100%. Meanwhile, FDI from South Korea and Japan enters entirely in high technology industries.

Figure 2: RELATIVE HORIZONTAL IN A LOW TECHNOLOGY INDUSTRY COMPARED TO THAT IN A HIGH TECHNOLOGY INDUSTRY



FOREIGN DIRECT INVESTMENT AND PRODUCTIVITY SPILLOVERS

Trade Liberalization and Productivity Spillover by Origin

Table 4 shows the results of productivity spillovers through horizontal and vertical linkages by sourcing origin to local firms. Columns 1 through 3 are applied for the period 2004-6, whereas columns 4 through 6 are for the period 2007-9. The OLS estimation controlling industrial, time, and regional fixed effects so called OLS level gives the results in columns 1 and 4. Columns 2 and 4 reports within or fixed effect estimations. Columns 3 and 6 are for two-step system GMM estimates. Robust standard errors are corrected for finite sample bias. In this study, The GMM estimators only support output and labor endogeneity. Sargan/ Hansen tests show p-values which are more than 5% so we can conclude that these instruments are exactly valid. The results from system GMM are the most consistent and efficient.

Table 4: Productivity Spillovers through Horizontal and Vertical Linkages by Sourcing Origin						
	(1)	(2)	(3)	(4)	(5)	(6)
Variables	**OLS level**	**Within**	**SYS_GMM**	**OLS level**	**Within**	**SYS_GMM**
	2004 – 2006			**2007-2009**		
Log capital	-0.00172	0.0106***	0.450**	0.0104***	0.00977***	2.721**
	(0.00261)	(0.00387)	(0.215)	(0.00245)	(0.00338)	(1.175)
Log labor	0.211***	0.174***	-0.145	0.241***	0.187***	-1.384**
	(0.00499)	(0.00925)	(0.178)	(0.00455)	(0.00747)	(0.571)
Log material input	0.808***	0.765***	1.045***	0.766***	0.710***	0.616***
	(0.00435)	(0.00773)	(0.109)	(0.00402)	(0.00611)	(0.101)
H_America	1.230**	1.552***	-2.512*	0.322	0.344	16.80*
	(0.560)	(0.582)	(1.455)	(0.674)	(0.669)	(9.532)
H_ASEAN	-0.102	-0.201	1.430*	-1.295***	-1.368***	1.813
	(0.295)	(0.298)	(0.803)	(0.262)	(0.249)	(1.780)
H_China	1.492	1.478	2.880	-0.231	-0.137	4.302***
	(1.012)	(0.987)	(2.860)	(0.163)	(0.158)	(1.617)
H_Europe	0.0678	0.00291	-0.00586	-2.119***	-2.143***	2.811*
	(0.180)	(0.180)	(0.281)	(0.363)	(0.345)	(1.604)
H_Japan	0.197	0.0767	0.127	0.121	-0.0192	0.287
	(0.250)	(0.268)	(0.192)	(0.164)	(0.160)	(0.493)
H_South Korea	0.399	0.463	0.0337	0.853**	0.618	3.731***
	(0.344)	(0.343)	(0.343)	(0.413)	(0.403)	(1.312)
H_Taiwan	-0.209	-0.332*	0.654	-0.308	-0.217	2.204**
	(0.169)	(0.170)	(0.403)	(0.222)	(0.214)	(1.024)
H_multi	-0.180	-0.290*	-0.351	0.0509	-0.122	-3.174**
	(0.156)	(0.160)	(0.257)	(0.190)	(0.184)	(1.480)
B_America	1.496	2.521	-1.261	-3.769	-4.764	51.20**
	(5.173)	(5.118)	(6.745)	(4.303)	(4.260)	(25.27)
B_ASEAN	-3.045	-3.881	-6.933**	-1.775	-2.950	-49.24
	(2.821)	(2.839)	(3.296)	(4.159)	(4.126)	(31.50)
B_China	-0.0880	-4.670	-52.39**	-17.03***	-16.81***	45.16*
	(10.39)	(10.25)	(20.87)	(1.780)	(1.748)	(24.24)
B_Europe	-2.746***	-3.069***	-6.039**	5.462	3.920	-47.34**
	(0.997)	(1.012)	(2.657)	(3.477)	(3.376)	(21.62)
B_Japan	-4.453*	-5.079**	-1.613**	4.653**	2.864	1.095
	(2.313)	(2.301)	(0.823)	(2.000)	(1.987)	(1.113)
B_South Korea	7.049*	7.072*	5.700**	-5.358***	-5.239***	-16.70**
	(3.795)	(3.772)	(2.769)	(1.827)	(1.758)	(7.978)
B_Taiwan	0.320	0.146	7.621**	-0.758	-0.743	31.37**
	(1.852)	(1.865)	(3.293)	(1.086)	(1.073)	(15.70)
B_multi	2.534***	3.055***	2.118*	5.027***	5.346***	27.86**
	(0.937)	(0.947)	(1.224)	(1.033)	(1.016)	(13.65)
concentration	-0.625	-0.682	-1.743*	-1.011***	-0.973***	1.546
	(0.622)	(0.641)	(1.036)	(0.270)	(0.253)	(1.139)
Log demand	0.228***	0.262***	-0.0539*	-0.0949	-0.113	-0.500**
	(0.0845)	(0.0835)	(0.0284)	(0.0908)	(0.0883)	(0.234)
Constant	-3.116**	-3.232**	93.51	3.088*	4.043**	13.75
	(1.469)	(1.445)	(59.13)	(1.625)	(1.578)	(74.81)
Observations	*28,029*	*28,029*	*28,029*	*40,507*	*40,507*	*40,507*
R-squared	*0.964*	*0.784*		*0.958*	*0.783*	
AR(1)			*0.000*			*0.019*
Sargan test			*0.546*			*0.412*
Hansen test			*0.665*			*0.664*

Robust standard errors are given in parentheses.
(***), (**), and (*) denote significance at 1%, 5%, and 10%, respectively.
(1) (2) and (4) (5) estimates include sector, year, and province dummies.
(3) (6) use GMM instruments which are log sales, log labor lagged t – 2 for first differences and collapsed.

After Vietnam joined the WTO in 2007, the spillovers through horizontal linkages became positive to most of sourcing countries or organizations. Although causing a negative

effect in the previous period, American DI triggered the highest spillover to the local economy in the second period. One standard unit increase in foreign presence in the same industry which is equivalent to 100% increase in sales brings 1,680% increase in domestic firms' productivity. This is nearly 4 times higher than the externality effects of Chinese and South Korean DI, but 5 times better than those from European and Taiwanese DI. Robust positive spillovers from the presence of ASEAN firms disappeared when Vietnam integrated more to the regional trade.

Different from horizontal spillovers, vertical spillovers were much diversified. The externalities from American, Chinese and Taiwanese DI in downstream sectors with the role as customers of domestic firms have a good improvement. For example, if the presence of the Chinese buyers went up 1%, productivity of local firms could raise 45.16%. However, the vertical spillovers from European DI were much worse, and those from the Japanese buyers were not significant.

Foreign Direct Investment Spillovers and the Technology Level

The results showed in *Table 5* present horizontal and vertical spillovers by technology level of the industry which foreign firms select to begin with. The level of low or high technology of an industry depends on OECD standard industrial classifications. OLS level, fixed effects, and system GMM estimations are applied to 2 periods 2004-2006 and 2007-2009.
From the results in Column 3 and 6, there are robust spillovers from foreign firms which work in low technology sectors through both horizontal and vertical linkages. Any more presence of firms in the same industry, which is at low technology level, could encourage the productivity improvement of local firms. The same trend occurs to the appearance of foreign enterprises in downstream low technology industries. However, the effect is higher under trade liberalization. In detail, the horizontal effect magnitude went up nearly 7 times and the vertical effect magnitude rose about 5 times after Vietnam became an official member of the WTO.

Nevertheless, there was only a significant evidence of positive horizontal spillover of foreign firms at high technology levels for the second period. If the firm presence was 1% higher in a high technology sector, the domestic firms' productivity would be higher via a 1.42% increase in sales. Whereas, the presence of high technology buyers caused a negative effect in the first period but we find no robust results for the period 2007-2009.

Table 5: Productivity Spillover through Horizontal and Vertical Linkages by Technology Level

Variables	(1)	(2)	(3)	(4)	(5)	(6)
	OLS level	**Within**	**SYS_GMM**	**OLS level**	**Within**	**SYS_GMM**
	2004-2006			**2007-2009**		
Log capital	-0.00177	0.0105***	0.528***	0.0106***	0.0104***	2.929**
	(0.00261)	(0.00387)	(0.189)	(0.00245)	(0.00338)	(1.244)
Log labor	0.211***	0.174***	-0.250	0.241***	0.186***	-1.602**
	(0.00499)	(0.00926)	(0.162)	(0.00455)	(0.00749)	(0.649)
Log material inputs	0.808***	0.765***	1.044***	0.766***	0.710***	0.716***
	(0.00435)	(0.00771)	(0.120)	(0.00402)	(0.00613)	(0.0987)
Horizontal_	-0.0141	-0.0171	0.749**	0.0917	0.0834	2.831***
low technology	(0.123)	(0.118)	(0.343)	(0.0894)	(0.0858)	(1.047)
Horizontal_	0.0628	0.0202	0.224	-0.173	-0.153	1.423***

Table 5: Productivity Spillover through Horizontal and Vertical Linkages by Technology Level						
Variables	(1)	(2)	(3)	(4)	(5)	(6)
	OLS level	Within	SYS_GMM	OLS level	Within	SYS_GMM
	2004-2006			2007-2009		
high technology	(0.138)	(0.131)	(0.166)	(0.196)	(0.189)	(0.506)
Backward_	-0.641	-0.829	0.643**	-0.386	-0.530*	3.384**
low technology	(0.547)	(0.546)	(0.317)	(0.328)	(0.317)	(1.568)
Backward_	-0.530	-0.597	-1.218**	4.691***	4.479***	0.0952
high technology	(0.719)	(0.717)	(0.530)	(1.083)	(1.054)	(0.653)
concentration	-0.150	-0.296	-2.459**	-0.189	-0.182	-5.923*
	(0.287)	(0.279)	(1.058)	(0.184)	(0.174)	(3.306)
Log demand	0.139**	0.155**	-0.0999**	-0.0376	-0.000443	-0.531**
	(0.0701)	(0.0712)	(0.0407)	(0.0534)	(0.0526)	(0.224)
Constant	-1.550	-1.373	149.3**	1.769*	1.723*	80.73
	(1.213)	(1.228)	(61.74)	(0.952)	(0.937)	(88.86)
R-squared	*0.964*	*0.784*		*0.958*	*0.782*	
AR(1)			*0.000*			*0.019*
Sargan test			*0.551*			*0.761*
Hansen test			*0.419*			*0.877*
Observations	*28,029*	*28,029*	*28,029*	*40,507*	*40,507*	*40,507*

Robust standard errors are given in parentheses.
(***), (**), and (*) denote significance at 1%, 5%, and 10%, respectively.
(1), (2), (4), and (5) estimates include sector, year and province dummies.
(3) and (6) use GMM instruments which are log sales, log labor lagged t – 2 for first differences and collapsed.

What can explain for the different spillover magnitude by sourcing origins?

Spillovers from FDI are more likely to be vertical than horizontal because MNCs can prevent spillovers to their competitors but they are likely to transfer knowledge to local suppliers or buyers (Javorcik, 2004). In this study, this argument is weakened by the affects of trade liberalization. Different from positive horizontal spillovers, there is strong diversification of FDI externalities by sourcing origin through vertical linkages. Reviewing the earliest literature, Findlay (1978) referred to a better FDI externalities sourced from countries which have higher distance in term of development compared to the host country where local firms can imitate the technology. This cannot explain for the cases of South Korean, European, and Japanese DI as foreign buyers do not bring good productivity spillover compared to Chinese DI in the period 2007-2009. This is also not the case of 'higher technology gap between countries, lower spillover potential' (Glass & Saggi, 1998). In fact, the technology gap between Vietnam and the United States is very high compared to the distance from other countries in ASEAN but the American invested enterprises are found to positively spill over the Vietnamese firms through both horizontal and vertical linkages. However, the assumption of Javorcik & Saggi (2004), which concluded that a regional preferential trade agreement may prevent spillover from countries in the association, could make sense. In this study, we find evidence of low spillovers of enterprises coming from countries in ASEAN. But the view point cannot give an explanation to the different effects of firms from China, Japan, and South Korea which all signed a trade agreement in an association with ASEAN, so called ASEAN+3.

Table 6: Foreign Presence in the Same Industry (Horizontal) By Origin												
%/industry	in low technology industries						in high technology industries					
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
United States	0.73	0.79	0.61	0.69	0.80	0.88	1.43	2.03	1.00	0.43	1.07	0.86
ASEAN	3.04	3.29	3.01	3.44	3.12	2.88	2.58	3.17	4.38	2.06	3.26	3.31
China	0.42	0.60	0.65	0.71	1.42	1.75	0.96	1.24	0.91	0.84	0.55	0.53
Europe	4.32	5.20	5.51	5.08	5.46	3.58	3.35	5.26	4.11	4.36	5.21	5.64
Japan	2.49	2.46	3.00	2.68	2.63	2.68	29.77	30.50	37.43	28.94	27.53	33.22
South Korea	5.02	5.14	5.56	5.59	5.79	6.00	7.35	6.34	6.33	5.93	6.18	6.35
Taiwan	9.57	9.94	12.01	11.59	10.29	9.73	9.11	5.85	4.61	5.81	5.23	4.64
*Notes: calculated from the unbalanced data. Horizontal by country or association reflects their appearance by summing up horizontals of 15 low technology industries/ or 8 high technology industries.												

In fact, the study supports the assumption of Görg & Greenaway (2004) by analyzing different spillovers depending on kind of technology transferred. Firstly, we realize that after trade liberalization, foreign presence either in low or high industry causes positive spillover. This results in the evidence of positive effects from all sourcing origins except Japan even though Japanese DI appeared at the highest level in the same industry of the local firms *(Table 6)*. There could be the possibility that the Japanese firms have higher capacity of preventing the knowledge leakage to local firms and/or local enterprises find difficulty to learn production and business practices from firms in a high technology industry. American DI, as a special case, brought much higher spillovers compared to the others although it occupied only 8% of the whole inward capital and appears more in high technology industry. From the fact in the business environment in Vietnam, maybe an American firm is the model that a domestic firm tries to imitate and the spillover could go through labor mobility channel, leading to active technology absorption of local firms.

Secondly, concerning the vertical linkages, only the foreign presence in downstream low technology industries fosters a positive productivity spillover. Apparently, the results can explain why FDI from the United States, China, and Taiwan bring good externalities through backward linkages. Furthermore, the remarkable result of Chinese DI between 2 periods might also derive from the fact that they are present more in downstream low technology industries (*Table 7*). In addition, although the South Korean investors gradually appeared more in low technology industries but like Japan, its presence was still higher in high technology industries so it could be difficult to transfer knowledge to local firms. On the contrary, only investors from ASEAN or Europe appeared more in high technology industries than in low technology industries, and the European investors were faced to a faster downward tendency. Especially, different from all other sourcing origins, they increased their presence in downstream high technology industries. In this case, we find negative productivity spillovers through backward linkages from ASEAN DI in the period 2004-2009, and from Europe DI in both 2 periods.

From the above, we realize a close link from the results in *Tables 4 and 5*. These precisely show that the different sign and magnitude of different FDI sources through both horizontal and vertical linkages originate from the low technology absorptive capacity of the local firms. However, local firms can actively or negatively absorb the spillover depending on structural characteristics of the host economy. The investors, when selecting types of industry to begin with or changing their orientation by time, possibly affect the spillover channels.

Table 7: Foreign Presence in Downstream Industries (Vertical) by Origin												
%/industry	in low technology industries						in high technology industries					
	2004	*2005*	*2006*	*2007*	*2008*	*2009*	*2004*	*2005*	*2006*	*2007*	*2008*	*2009*
United States	0.29	0.36	0.18	0.16	0.26	0.28	0.11	0.15	0.09	0.06	0.13	0.12
ASEAN	1.06	0.95	1.01	1.02	1.04	0.98	0.35	0.35	0.28	0.38	0.53	0.51
China	0.23	0.26	0.27	0.30	0.39	0.47	0.18	0.19	0.16	0.14	0.13	0.16
Europe	1.06	1.15	1.55	1.24	1.35	1.31	0.26	0.29	0.60	0.61	0.70	0.68
Japan	2.73	2.72	3.06	3.07	2.88	2.86	4.75	4.86	5.20	4.87	4.77	4.53
South Korea	1.33	1.22	1.34	1.33	1.45	1.47	1.47	1.32	1.29	1.21	1.28	1.32
Taiwan	2.95	2.84	3.04	2.74	2.36	3.03	1.19	1.03	1.26	1.14	1.02	1.35
*Notes: calculated from the unbalanced data												

CONCLUSION

This study investigates the productivity spillovers of inward manufacturing FDI from different sourcing origins. Using firm level data in 23 processed manufacturing sectors which is solved by system GMM estimators for the whole and separated periods from 2004 to 2009 under trade liberalization shock, we give evidence of different horizontal and vertical spillovers by FDI sourcing origin. Those origins are ASEAN, Europe, China, Japan, South Korea, Taiwan, and the United States which are the main traditional counterparts of the Vietnamese economy. The results show that after Vietnam integrates more in the regional economy by completing the AFTA agreement in 2006, or in the world economy by joining the WTO in 2007, American, Chinese, and Taiwanese DI appeared in the same or in downstream industries cause positive productivity spillovers. Meanwhile, other sourcing origins bring good externalities through horizontal linkages, but they do not, or negatively, spill over the productivity of local firms through vertical linkages.

In addition, we argue that the different sign and magnitude of these spillovers cannot be explained by the difference in development or technology between sourcing and host countries, or fully by the regional trade agreement of the host country (Findlay, 1978; Glass & Saggi, 1998; Javorcik & Saggi, 2004). However, the results of the study support the assumption suggested by Görg & Greenaway (2004). That means the absorptive capacity of the local economy and kind of technology that investors select to enter make sense. After the trade liberalization, the Vietnamese firms can absorb much better horizontal and vertical productivity spillovers from American, Chinese and Taiwanese DI when we witness their strong movement toward low technology industry to do business with. We don't see this trend for FDI from ASEAN, Japan, and Europe. More specifically, only South Korean and Japanese DI concentrate more in high technology industries than in low technology sectors. Hence, there is no evidence of good spillovers from them or the spillovers do not match the absorptive capacity of local firms in a developing economy like Vietnam.

However, even there is a tendency toward low technology industries, what can explain for the very different effects between Chinese and American DI for the case of Vietnam? We suggest the concept of "negative/positive absorption". According to Görg & Greenaway (2004), the structural characteristics of the host economy could be related to spillover absorption with the potential to raise productivity and exploitation. We mean that is the negative absorptive capacity.

The positive absorption, on the other hand, let the host country to choose which structural characteristics of FDI sources to absorb through demonstration and labor mobility effects.

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VIETNAMESE CONSUMER BEHAVIOR TOWARD CHILDREN'S OVER-THE-COUNTER MEDICATIONS: A REASONED ACTION APPROACH

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ABSTRACT

This study investigated the key antecedents of the repetitive use of over-the-counter anthelmintic medications and their relative importance in predicting the intention and behavior of mothers of school-age children to use these drugs. Based on the reasoned action model, we developed and tested a causal model using data collected from 395 mothers in Ho Chi Minh City. Multiple regression and bivariate correlation were used for data analysis. Attitude was found to be the most important antecedent of intention and behavior of mothers toward the repetitive use of anthelmintic medications while subjective norm and perceived behavioral control exerted moderate and smaller effects on intention, respectively. Underlying salient behavioral and normative beliefs correlated with intention. The relative importance of attitude, subjective norm, and perceived behavior control predicted intention differentially, depending on demographic groups of mothers. Theoretical and managerial implications are discussed based on these findings.

INTRODUCTION

Consumer behavior is related to the consumer's acts of purchasing and using a product or service (Ajzen, 2008). Insights on how consumers buy and consume a product or service have important implications for any business firm. This issue is particularly critical in pharmaceutical marketing because, compared to fast-moving consumer goods, consumer behavior toward pharmaceutical products is far more complex. The complexity of consumer behavior toward pharmaceutical products can be attributed to the unique characteristics of consumer behavior within the domain of pharmaceutical marketing (Stremersch, 2008; Stremersch & Van Dyck, 2009).

In Vietnam, other reasons might explain or predict the consumer behavior in this rapidly growing business sector. Taking the case of anthelmintic pharmaceutical products, Vietnam is considered as one of the Southeast Asian countries where soil-transmitted helminth infection is a public health problem (Jex et al., 2011). It is estimated that 13.0 million preschool and school age children are at risk of infections with soil-transmitted helminths (Montresor et al., 2008). From a medical view, repetitive use of anthelmintic medications is a common way to get rid of helminths from human bodies. Using anthelmintic medications once or twice a year in populations at risk, such as school age children, is highly recommended and supported by health institutions (Crompton, Montresor, Nesheim, & Savioli, 2003; Montresor et al., 2008). In Vietnam, anthelmintic treatment involves self-medication, with 97% of anthelmintic medications

classified as over-the-counter drugs are distributed directly from retail pharmacies without a doctor's prescription (IMS Health, 2011). This allows parents to control medical decisions related to their children's helminth infections, even though they consult with doctors to obtain medical information (Roter, 2000). From the business perspective, anthelmintic treatment among individual families, especially children who are most vulnerable to helminths, is the major contributor to anthelmintic pharmaceutical market and is of interest to pharmaceutical firms. However, the rate of anthelmintic treatment is not high in practice (Montresor et al., 2008). Hence, understanding the intention and behavior of mothers, who are important caregivers of children, to give anthelmintic medications to their children is crucial in understanding the consumer behavior and designing marketing strategies and tactics at pharmaceutical firms.

Given the above context, this study aimed to identify antecedents of repetitive use of anthelmintic medications and their relative importance in predicting the intention and behavior of mothers of school-age children. To do so, this study adopted the reason action model (Fishbein & Ajzen, 2010) to develop a causal model. The model was then tested using data collected from a convenient sample comprising 395 mothers living in urban and suburban areas of Ho Chi Minh City, Vietnam. The next sections present theoretical background, research model, hypotheses, followed by the description of research method and empirical results. The paper ends with discussions of theoretical implications, managerial implications, limitations, and directions for future research.

THEORETICAL BACKGROUND AND HYPOTHESES

Theoretical Background

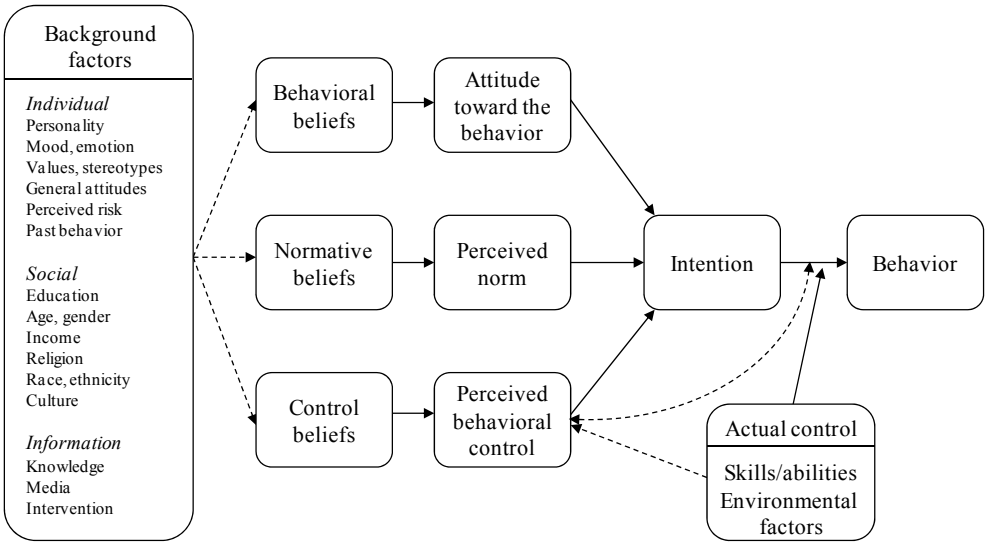
As intention is a predictor of actual behaviors, most contemporary theories of human social behaviors utilize intention as an important construct to examine factors that lead to the formation of intention (Ajzen & Fishbein, 2005). Well-known value-expectancy models include the health belief model (Becker et al., 1977), theory of protection motivation (Rogers, 1983), theory of reasoned action (Fishbein & Ajzen, 1975), and theory of planned behavior (Ajzen, 1991, 2012). The theory of reasoned action was first developed by Fishbein and Ajzen (1975). Later, Ajzen (1991) extended the model to develop the theory of planned behavior by adding the perceived behavioral control to the model to improve its applicability in partial volitional behaviors. In the latest version of the two theories, Fishbein and Ajzen (2010) renamed the model to the reasoned action model. The authors emphasized the addition of moderating effect of skills, abilities, and environmental factors on the relationship between intention and behavior (Figure 1).

The reasoned action model integrates attitude components into a structure that helps explain and predict intention and behavior better. The model and its predecessor, the theory of planned behavior, are the most powerful and common cognitive models of attitude-behavior relationship in consumer behavior (Ajzen, 2008). Briefly, attitude toward a given behavior is dealt with evaluation of the likely consequences of the behavior. Subjective norm reflects the likely approval or disapproval of a behavior by the subject's friends, relatives, professional

people, public media, and the like. Perceived behavioral control deals with the presence or absence of factors that make the behavior easier or more difficult to perform.

Furthermore, attitudes, subjective norms, and perceived behavioral control are shown to be related to a set of salient behavioral, normative, and control beliefs about the behavior. Although connected directly to attitude, subjective norm and perceived behavioral, these salient beliefs are not considered as antecedents to attitude, subjective norm, and perceived behavioral control. That is because the summed product of behavioral, normative, and control beliefs capture the underlying determinants of attitude, subjective norm, and perceived behavior control constructs (Ajzen, 2008). This conceptualization is useful for exploring the correlations of different salient beliefs with intention and behavior. It helps gain insight into the hidden cognitive foundation to explain certain attitudes, perceived subjective norms, and perceptions of behavioral control (Fishbein & Ajzen, 2010). Lastly, various background factors influence behavioral, normative, and control beliefs. As a result, such background factors influence attitude, subjective norm, and perceived behavioral control.

Figure 1: The reasoned action model (Fishbein & Ajzen, 2010, p. 22).



The theory of reason action and theory of planned behavior have been well supported by empirical evidence. Attitudes toward the behavior, subjective norms, and perceived behavioral control can predict intention toward behaviors with high accuracy. Intention, together with perceptions of behavioral control, accounts for considerable variance in actual behavior. A number of studies have used reasoned action model to predict different intention and behaviors, including health-related behaviors (Godin & Kok, 1996; Armitage & Conner, 2001) and behaviors associated with using various medical or pharmaceutical products in adults (Edwards et al., 2001; Farmer, Kinmonth, & Sutton, 2006; Legare, Godin, Dodin, Turcot, & Lapierre, 2003; Rise, Astrom, & Sutton, 1998). Furthermore, theory of planned behavior has been

successfully used to predict parents' intention and behavior toward giving healthy or unhealthy products to their children, such as limiting frequency of infants' sugar intake (Beale & Manstead, 1991), using oral rehydration products (Hounsa, Godin, Alihonou, Valois, & Girard, 1993), not smoking in-door in the presence of children (Moan, Rise, & Andersen, 2005), vaccination (Askelson et al., 2010), and starting supplemental feeding to children (Hamilton, Daniels, White, Murray, & Walsh, 2011).

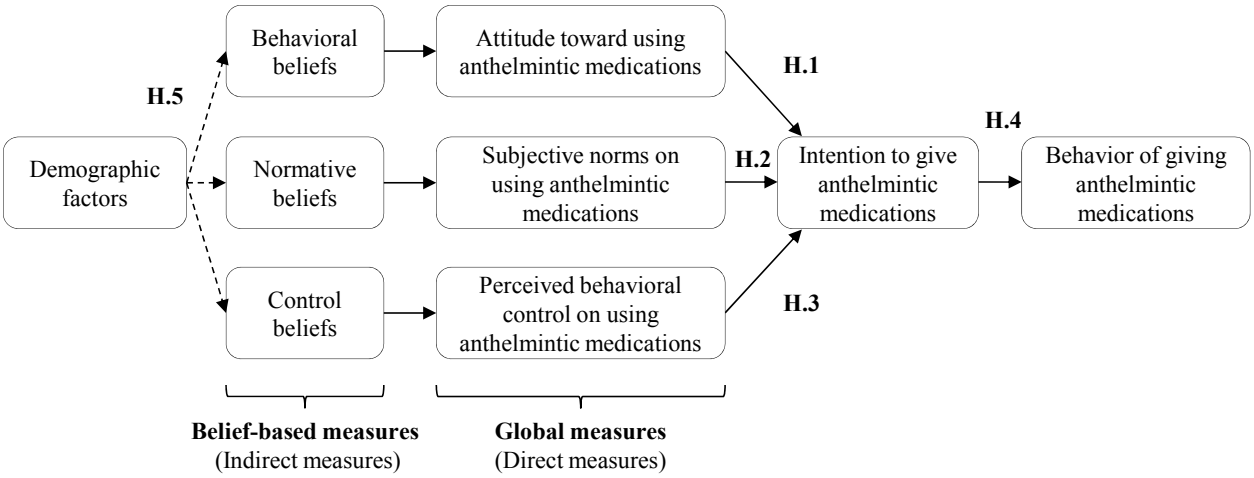
Within the domain of consumer behavior, several studies adopted the reasoned action approach to build research models. For instance, the works of Oliver and Berger (1979) on swine flu vaccination, Chinburapa and Larson (1990) on intention to use over-the-counter analgesics, and Moorman and Erika (1993) on preventive health behaviors were based on theory of reasoned action. Other studies that utilized the theory of planned behavior included Luce and Barbara's (1999) study on medical testing and Lodorfos, Mulvana, and Temperley's (2006) study on over-the-counter brand choice decision. However, to the knowledge of the author of this paper, no studies in the domain of consumer health behavior explored intention and behavior of parents to give anthelmintic medications to their children.

Research Model and Hypotheses

Based on the conceptual framework of the reasoned action approach, a research model for was developed, as illustrated in Figure 2. This study did not consider the relationship between perceived behavioral control and behavior or the effect of actual control, skills, abilities, and environmental factors. Attitude, subjective norm, and perceived behavioral control were directly measured using a set of global (direct) measures. These three constructs were also measured indirectly in the form of behavioral, normative, and control beliefs as belief-based measures.

It is possible to measure intention and behavior at the same time. This is a prevalent approach by researchers using theory of planned behavior (Armitage & Conner, 2001), such Hrubes, Ajzen, and Daigle (2001). The rationales are that even though helminth infection is a chronic health problem, its treatment is not influenced by free anthelmintic programs but by a self-medication behavior. The use of anthelmintic medications has a high degree of temporal stability. Therefore, mothers' past behavior probably correlates with future behavior of giving anthelmintic medications. In other words, as noted by Hrubes et al. (2001), it can be suggested that mothers' reports of past behavior can serve as a proxy for the likely future behavior.

Figure 2: Research Model and Hypotheses



Theoretically, attitude toward giving a medication, subjective norm and perceived behavioral control of giving the medication to children would predict intention to give the medication. In the present study, it is hypothesized that attitude, subjective norm and perceived behavioral control toward giving anthelmintic medications predict intention to repetitively give anthelmintic medications to children. Further, mothers' intention to give such a medication is assumed as an antecedent of the actual behavior. The following hypotheses are proposed.

H1 *Favorable attitude toward using anthelmintic medications in children has a positive effect on mothers' intention to repetitively give the medications to their children.*

H2 *Subjective norm of using anthelmintic medications in children has a positive influence on mothers' intention to repetitively give the medications to their children.*

H3 *Perceived behavior control of using anthelmintic medications in children has a positive influence on mothers' intention to repetitively give the medications to their children.*

H4 *Intention to give anthelmintic medications to children has a positive influence on mother's behavior of repeatedly giving the medications to their children.*

Considering several background factors, such as demographic variables, in the reasoned action model can increase the understanding of salient beliefs under the original constructs of the theory. However, background factors are not theoretically conceptualized as immediate antecedents of intention (Ajzen & Fishbein, 2005; Fishbein & Ajzen, 2010). It is hypothesized

that under different demographic factors, the relative importance of attitude, subjective norm, and behavioral control in the prediction of intention is different. Hypothesis 5 is proposed as follows:

H5 *Relative importance of attitude, subjective norm, and perceived behavior control in the prediction of intention to repetitively give anthelmintic medications to their children is different among demographic groups of mothers.*

RESEARCH METHOD

Measurements

The behavior of giving anthelmintic medications was defined according to specific details of its target, action, context, and time elements (Fishbein & Ajzen, 2010). It is defined as mothers' repetitive offering of anthelmintic medications every six months in the following 12 months to their child whose age was between 7 and 11 years.

The development of the measurement scales followed the procedures of the reasoned action modeling and according to the recommendations of Ajzen (1991, 2006) and of Fishbein and Ajzen (2010). The measures were constructed using unipolar 7-point Likert scales for all items except for the past behavior of giving anthelmintic medications. The scales were presented on interviewing cards in the form of numbers and graphics of expressive faces to help respondents understand the rating better. This helps collect more reliable responses from mothers with lower education levels. Further, it also facilitates the understanding of mothers' responses to the questionnaire with complex nature of psychological characteristics. The questionnaire items were written in Vietnamese and were naturally worded for easy understanding. The questionnaire was pilot tested to ensure the level of understanding of health vocabularies by laypersons (Zeng & Tse, 2006).

Global measures

Intention to give anthelmintic medications was assessed globally using three items. The verbs used to express the respondent's intention are "to expect to give", "to plan to give", and "will try to give" anthelmintic medications in the following 12 months. The three items were isolated and interspersed with other items in the final questionnaire. Attitude toward the repetitive use of anthelmintic medications was measured globally by two items using bipolar adjectives reflecting the attitude toward the use of anthelmintic medications, "not beneficial at all - very beneficial" and "unsafe - safe". Subjective norm was measured by one injunctive item and one descriptive item referring to the subjects, such as "the people who you trust most" and "the mothers like you". Perceived behavioral control was measured with two items. The first item reflects mothers' perceived capability using the phrase "use of anthelmintic medications is easy" while the second illustrates mothers' controllability using a phrase "it is mostly up to you"

whether respondents give anthelmintic medication to their child every six months in the following 12 months.

Past behavior of giving anthelmintic medications was measured to predict the future behavior of giving anthelmintic medications among mothers. Past behavior was measured with a single item was asking, "Did you give anthelmintic medications to your child in the past 12 months?" and if the answer to this question was yes, mothers were asked to specify, "For the past 12 months, how often have you given anthelmintic medications to your child?" Mothers answered this question by estimating the frequency with which they gave the medication to their child in the previous 12 months. The answers were later transformed into a 7-point scale ranging from 1 = 'to not giving at all' to 7 = 'the most frequent use'.

Belief-based measures

Elicitation interviews were conducted with 22 mothers from both urban and suburban areas in Ho Chi Minh City to identify the most common behavioral, normative, and control beliefs of mothers. The beliefs most often mentioned were selected and converted into a set of statements. These statements should adequately reflect the strength of beliefs under research. The indirect measurement scales were developed according to the statements. In this study, the inclusion of the statements reflecting all mentioned behavioral beliefs, normative beliefs and control beliefs reached 84%, 82%, and 86%, respectively (Table 1), which exceeded 75%, which is the minimum recommended by Fishbein and Ajzen (2010).

Table 1: Commonly Held Beliefs Identified from Elicitation Interviews

Type of beliefs	Description	Percentage mentioned	Inclusion in measurements
Behavioral beliefs	Outcome of using anthelmintic medications on nutritional status	41%	84%
	Outcome of using anthelmintic medications on physical development	23%	
	Beneficial and safe effect of using anthelmintic medications	20%	
Normative beliefs	Husband is an important referent group	42%	82%
	Family members are an important referent group	25%	
	Medical doctors are an important referent group	15%	
Control beliefs	Knowledge about anthelmintic medications	34%	86%
	Memory of regular anthelmintic treatment for children	29%	
	Perceived quality of anthelmintic medications	23%	

Behavioral beliefs were measured with three items assessing the strength of the behavioral belief and the corresponding outcome evaluation. Normative beliefs were measured with three items assessing the strength of the normative belief and the corresponding motivation to comply. Control beliefs were measured with three other items assessing the strength of the control belief and the corresponding influence of the belief on giving anthelmintic medications. The scores on the beliefs measures were calculated according to Fishbein and Ajzen (2010). Behavioral beliefs are the multiplication products of strength of the behavioral belief and

corresponding outcome evaluation. Similarly, normative beliefs are the multiplication products of strength of normative belief and corresponding motivation to comply, and control beliefs are the multiplication product of strength of the control beliefs and corresponding influence powers.

Demographic measures

Three demographic variables of age, income, and education were measured using ordinal scales. The age variable comprised categories of less than 28 years, 28-37 years, 38-47 years and equal or older than 48 years old. The variable of monthly household income ranged from 1 to 4, with 1 = less than 2.5, 2 = 2.5 to less than 5.0, 3 = 5.0 to less than 8.0, and 4 = 8.0 million Vietnamese dongs (VND) or higher respectively. The education variable ranged from 1 to 3 corresponding to less than high school graduation, high school graduation, and college degree or higher.

The Sample

A sample of 395 mothers was conveniently selected from 13 urban and 6 suburban districts of Ho Chi Minh City. Overall, 196 mothers were from urban and 199 were from suburban districts. University student interviewers approached prospect female subjects at their houses for screening and face-to-face inquiry. Screening questions were used to select only mothers who had and lived with at least a child aged between 7 and 11 years of age. Mothers who both had and had not given anthelmintic medications to their children in the previous 12 months were included. However, the mothers whose children had been administered an anthelmintic medication under school or government treatment programs were not enrolled in the present study because the decision to give anthelmintic medications was made by the third parties and as such, it was not under the control of the mother. In order to explore the moderating effects of demographic variables, quota control sampling was carried out for income and education of respondents.

Data Analysis

Direct and indirect items were tested for convergent validity and unidimensionality using separately exploratory factor analysis. Reliability analysis with Cronbach's alpha was used to check internal consistency of the direct measures. Because of the exploratory nature of this study, the minimum acceptable Cronbach's alpha values were 0.6 (Hair, Black, Babin, Anderson, & Tatham, 2006). The main statistical analysis used was multiple regression and bivariate correlation to explore the correlations and estimate the predictive power of attitude, subjective norm, and perceived behavioral control on the dependent variables, intention, and behavior (Fishbein & Ajzen, 2010).

DATA ANALYSIS AND RESULTS

Exploratory factor analysis was conducted with the Statistical Package for Social Sciences (SPSS) version 19.0 to evaluate the convergent validity of the direct measurement scales of attitude, subjective norm, and perceived behavioral control. Six direct measure items could be reduced to three factors, which corresponded to the three independent variables. More specifically, the items designed to measure subjective norm directly loaded on factor 1 (factor loadings 0.961-0.962), explaining 39.4% of the total variance. The items measuring perceived behavioral control loaded on factor 2 (loadings 0.907-0.910) and explained 27.8% of the total variance while the items measuring attitude loaded on factor 3 (0.836-0.843), explaining 17.0% of the total variance. No further refinement was necessary for these direct measures. Reliability analysis was performed with each construct to check the reliability. The internal consistencies of the scales were good, given that the Cronbach's alpha values were 0.6372 for attitude measure, 0.7513 for perceived belief control measure, 0.8482 for intention measure, and 0.9370 for the subjective norm measure.

Regression Results

Influence of the main constructs

Hypotheses 1, 2, and 3 were tested by multiple regression analysis. Three independent variables exerted strong influence on the dependent variable, intention to give anthelmintic medications, at the 0.05 significance level, supporting the hypotheses. The direct measures of attitude, subjective norm, and perceived behavioral control explained 32.3% of variance in intention to give anthelmintic medications. Among them, attitude had the strongest influence on intention ($\beta = 0.380$, $p = 0.000$), subjective norm had moderate influence ($\beta = 0.253$, $p = 0.000$), while perceived behavioral control had the smallest influence on intention to give anthelmintic medications ($\beta = 0.176$, $p = 0.000$).

To test Hypothesis 4, the measure of the past behavior of giving anthelmintic medications was first converted into a 7-point rating scale. The data on past behavior of giving anthelmintic medications was found to be normally distributed. Regression test was carried out. Intention to give anthelmintic medications had a strong influence on the behavior of giving anthelmintic medications at the 0.05 significance level. The results provided strong support for Hypothesis 4, supporting the positive effect of intention on the behavior of giving anthelmintic medications. Intention to give anthelmintic medications explained 21.5% of variance in the behavior of giving anthelmintic medications.

Influence of the salient beliefs

Because mothers can hold both positive and negative beliefs about using anthelmintic medications in children, it is not appropriate to assess the reliability of the indirect measures using internal consistency criteria (Fishbein & Ajzen, 2010). To evaluate the validity of the

indirect measures, which were developed and used in the present research, correlation of the summed products of each component's indirect measures had to be confirmed (Ajzen, 2008; Fishbein & Ajzen, 2010). The analysis showed that direct and indirect measures of attitude and subjective norm were correlated (Pearson correlation 0.249 and 0.511 respectively) whereas the direct and indirect measures of perceived behavioral control were not correlated (Pearson correlation 0.021). It means that only the behavioral attitudes and normative beliefs developed and used in the quantitative research captured well the overall attitude and subjective norm of mothers to give anthelmintic medications. Correlations of the individual summed products of indirect measurement items of attitude and subjective norm with intention ranged from 0.215 to 0.341 (Table 2).

Table 2: Correlation Between Beliefs and Intention

Belief perspectives	**Correlation with intention**
Belief - Outcome Evaluation	
Outcome of using anthelmintic medications on nutritional status	0.274**
Outcome of using anthelmintic medications on physical development	0.215**
Beneficial and safe effect of using anthelmintic medications	0.306**
Belief - Motivation to comply	
Husband is an important referent group	0.341**
Family members are an important referent group	0.215**
Medical doctors are an important referent group	0.342**
** Pearson correlation significant at the 0.01 level	

The effect of demographic factors

In this study, sampling quota control allowed for the analyses between the following groups: urban and suburban, mothers aged 28-37 and 38-47 years, groups of monthly household income between 2.5 million and less than 5.0 million Vietnamese dongs and between 5.0 million and less than 8.0 million Vietnamese dongs, and mothers with less than high school education and high school education.

To compare the relative importance of attitude, subjective norm, and perceived behavioral control in the prediction of intention to repetitively give anthelmintic medications among the above demographic groups, regression analysis was conducted for each of the groups (Table 3). Except for the education variable (B= 0.199) where both attitude and subjective norm have similar level of influence on intention, the influence of attitude on intention to give anthelmintic was strong for other demographic variables, with the unstandardized coefficients (B) ranging from 0.372 to 0.526. The influence of subjective norm on intention to give anthelmintic medications was also strong for different demographic variables with the unstandardized coefficients ranging from 0.149 to 0.319. The unstandardized coefficients were within the range of –0.007-0.114. These results strongly support Hypothesis 5.

Table 3: Relative Importance of Predictors Among Demographic Groups								
Unstandardized coefficients (B)	Geographic residence		Age of mothers (years)		Monthly household income (million VND)		Educational level of mothers	
	Suburban	Urban	28-37	38-47	2.5-<5.0	5.0-<8.0	Less than high school graduation	High school graduation
Attitude	0.513	0.449	0.506	0.430	0.372	0.434	0.526	0.199
Subjective norm	0.319	0.149	0.202	0.252	0.213	0.182	0.305	0.185
Perceived behavioral control	0.279	0.114^{+}	0.236	0.080^{+}	0.264	0.074^{+}	0.273	-0.007^{+}
Level of prediction (Adjusted R^2)	0.416	0.216	0.324	0.267	0.246	0.223	0.421	0.092
$^{+}$ Insignificant influence of the construct on intention to give anthelmintic medications. VND = Vietnamese dongs								

DISCUSSION

Considering the direct measures of the research model, the hypotheses underlying the reasoned action model were all well supported. Intention was assumed to capture the motivational factors that influence the behavior of repetitively giving anthelmintic medications and to indicate mothers' willingness or their effort to perform the behavior. The present study supports the use of reasoned action model in relation to mother's intention to give anthelmintic medications repetitively to their school-age children, in that the theoretical components explained 32.3% and 21.5% of variance in behavioral intention and behavior, respectively. The predictive utility of the reasoned action model in the present study was found consistent with several meta-analyses. In this study, the reasoned action model accounted for 32.3% of the variance in intention, which is comparable to 39.0% of the variance in intention from a meta-analysis of 195 studies by Armitage and Conner (2001) and to 40.9% of the variance in intention from another meta-analysis of 56 studies by Godin and Kok (1996). In the latter meta-analysis, the percentage of variance explained in intention varied from 32.0% for eating behaviors to 46.8% for oral hygiene behaviors. Further, in the present study, attitude was found to be the most influential factor explaining intention, which is consistent with the results of the aforementioned meta-analyses.

Perceived behavioral control of giving anthelmintic medications was found to have the smallest influence on intention. This component was measured in terms of the possibility and the ability of mothers to decide to administer anthelmintic medications, reflecting the facilitators and barriers mothers face in giving anthelmintic medications to their children. From the perspective of medication usage, two factors could explain low influence of perceived behavioral control on intention to give anthelmintic medications. First factor is the ease of administering anthelmintic medications to children. The most popular anthelmintic medications in Vietnam are administered with single dose of mebendazole (IMS Health, 2011), which requires simple administration. Commercial anthelmintic medications have good flavor and taste good, children can chew the tablet before swallowing. All of these easy-to-use factors make the administration of anthelmintic medications much simpler and easier. The second factor relates to the cost of anthelmintic medications. The current practice of anthelmintic in Vietnam involves mainly self-

medication. Due to government's price control policy, the retail prices of an anthelmintic product for children have been maintained over the past decade, whereas the consumer price index has increased quickly due to inflation. The perceived cost of anthelmintic medications, therefore, was low from mothers' point of view in general.

The indirect measures of attitude further supported the importance of mothers' perceived effects of giving anthelmintic medications. Evaluation of mothers of their children nutritional status and physical development positively influenced their intention to give anthelmintic medications to children. In terms of normative beliefs, medical doctors and family members appeared to exert positive influences on mothers' intention to give anthelmintic medications. Direct measures of attitude in this study focused on the global attitude of anthelmintic medications, such as "unsafe" vs. "safe" and "not beneficial at all" vs. "beneficial". Mothers with higher education did not seem to value these benefit and safety attributes in forming their intention to administer anthelmintic medications to their children.

Further, the main constructs of the reasoned action model deployed in this study, attitude, subjective norm, and behavioral control, were found to have different effect among different demographic groups of subjects. It is very interesting to note that the influence of perceived behavioral control on intention to give anthelmintic medications repetitively became insignificant when mothers belonged to groups with more favorable demographic conditions, such as higher education, higher monthly household income, and the group of older mothers.

CONCLUSION

Theoretical Implications

To our knowledge, there has not been theory-driven academic research addressing intention and behavior of giving anthelmintic pharmaceutical products in Vietnamese children. This study provides an empirical evidence of the predictive utility of reasoned action model in the context of over-the-counter medications in children. Up to date, most research in pharmaceutical marketing has been conducted mainly in Western European or North American territories. Research models applicable in these territories must not be assumed to be equally applicable in all regions of the world; therefore, future research should focus on Asian context as well. Research in emerging markets, like Vietnam, will also contribute to the growth of marketing science in terms of data acquisition and theory development (Burgess & Steenkamp, 2006). This empirical study has therefore fulfilled the gap in the literature from this theoretical perspective.

Managerial Implications

The results of this research provide insights into designing more effective integrated marketing programs for pharmaceutical firms. First, consumer communication campaigns should focus on shaping and changing mothers' attitudes, the most important factor that influences intention toward giving anthelmintic medications. This has to do with both outcome of giving

anthelmintic medications and the efficacy and perceived safety of the medications. Second, it is appropriate for pharmaceutical marketers to emphasize the important role of medical doctors in explaining intention toward giving anthelmintic medications. Given the effect of family members on mothers' intention, a specific strategy to address the family image, for example, in anthelmintic medications' campaigns, can be effective. Third, when marketers need to expand their product penetration into more remote areas, such as suburban segments, elements of communication programs should sufficiently address the perceived behavioral control factors because it helps increase the intention to give anthelmintic medications to children.

Limitations and Directions for Future Research

The present research has several limitations. First, in terms of research method, the indirect measures developed and used in this study have not captured very well the most influential components of perceived behavioral control. Further, the measure of behavior relies completely on past behavior, as self-reported by mothers. The reliability of this approach is not very high and needs to be improved by an observational method that would assess actual behavior of giving anthelmintic medications. Second, the present research does not include mothers in other areas of Vietnam and the use of anthelmintic medications among children in other age ranges, for instance preschool children. These key factors might explain intention and behavior of mothers in other cities and among other age groups of children; therefore, they should be considered in further studies. Third, the present research did not include fathers of children in the quantitative sample of respondents. Consequently, the proposed research model has not been tested among fathers of children. Because perception and use of anthelmintic medications may be different for fathers and mothers, the present research could not provide a comprehensive understanding of overall parents' intention and behavior to administer these medications to their children. When such an inclusion of subjects is made, the interrelationship between cognition of fathers and mothers using the reasoned action approach would be even more interesting to both academics and marketers.

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APPENDICES

Appendix 1 Correlations, Mean Scores and Standard Deviations, N = 395					
	Attitude	Subjective norm	Perceived behavioral control	Past behavior	Intention
Attitude	-	0.275***	0.245***	0.197***	0.493***
Subjective norm		-	0.036	0.152**	0.364***
Behavioral control			-	0.108*	0.279***
Past behavior				-	0.465***
Intention					-
Mean	5.735	4.420	5.652	3.352	5.839
Standard deviation	0.926	1.208	1.088	1.292	1.198
*** p≤0.001, ** p≤0.01, * p≤0.05.					

Appendix 2: Exploratory Factor Analysis o of the Global Measures			
Items	**Component**		
	1	**2**	**3**
Attitude item 1	0.161	0.089	**0.836**
Attitude item 2	0.077	0.155	**0.843**
Subjective norm item 1	**0.961**	0.018	0.130
Subjective norm item 2	**0.962**	0.030	0.128
Perceived behavioral control item 1	–0.025	**0.907**	0.147
Perceived behavioral control item 2	0.070	**0.910**	0.106
Extract method: Principal Component Analysis, Rotation method: Quartimax with Kaiser Normalization			

CORPORATE DEBT FINANCING IN THEPHILIPPINES: EXAMINING THE ROLE OF FIRM-LEVEL FACTORS THROUGH BINARY CHOICE MODEL

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ABSTRACT

The Pecking Order Theory, first introduced by Donaldson in 1961, states that companies prefer to raise funds, in the order of priority, through internal sources, debt and then equity.

While clearly debt is the next best option to internally raised funds, it's not clear whether debt should be in the form of either bank loan or bond issuance and if there is an order of preference between the two.

This study will investigate if certain firm-level factors contribute in determining that choice. Logit estimation will be used to process the cross-sectional data gathered from listed Philippine companies in identifying which firm-level factors significantly affects the choice of debt financing..

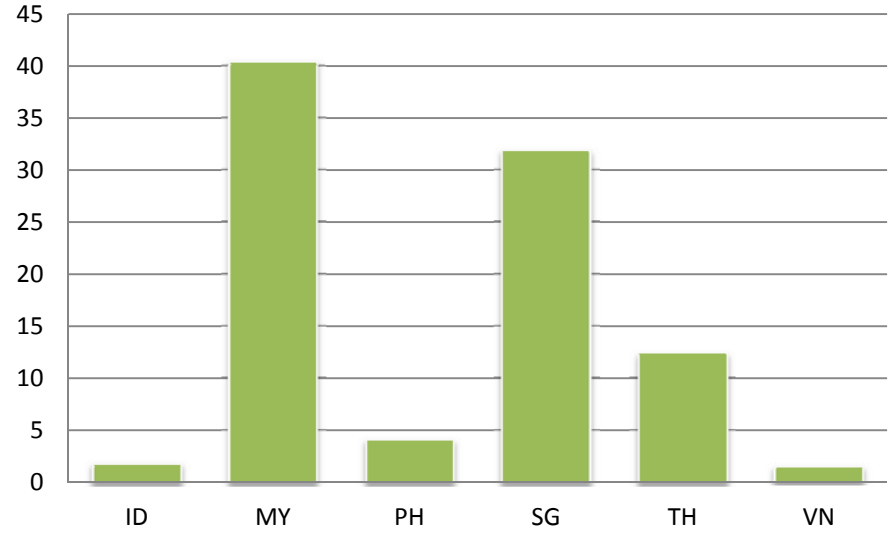
INTRODUCTION

Most corporations in ASEAN countries are heavily reliant on bank credit for their funding despite of the restrictive covenants associated with it. On top of this, the reliability of bank lines of credit diminishes in times of financial crises because the banking sector becomes the most susceptible to significant loss of equity capital which purposely determines the bank's ability to provide funds to borrowers (Chava & Purnanandam, 2009).

As such, the urgency for financial reform towards a deeper and more efficient system has surfaced. Plummer and Click (2003) argues that a financial system that is dominated by banks limits the alternatives available to investors and borrowers and may allow markets to become more susceptible to efficiency losses. This has challenged institutions to adopt financing means that are less reliant on banks and are more diversified towards alternative markets such as equities and fixed-income instruments.

In the Philippines, while corporate bond issuance is available to firms as an alternative financing vehicle to bank loans, firms' willingness to issue bonds is hampered by legal and cost impediments, as well as transparency concerns associated with the weak infrastructure of the market. This contributes to the country's inability to hasten the growth and development of the corporate bond market thereby causing it to lag behind fellow ASEAN members such as Singapore and Malaysia in terms of expansion in bond volume.

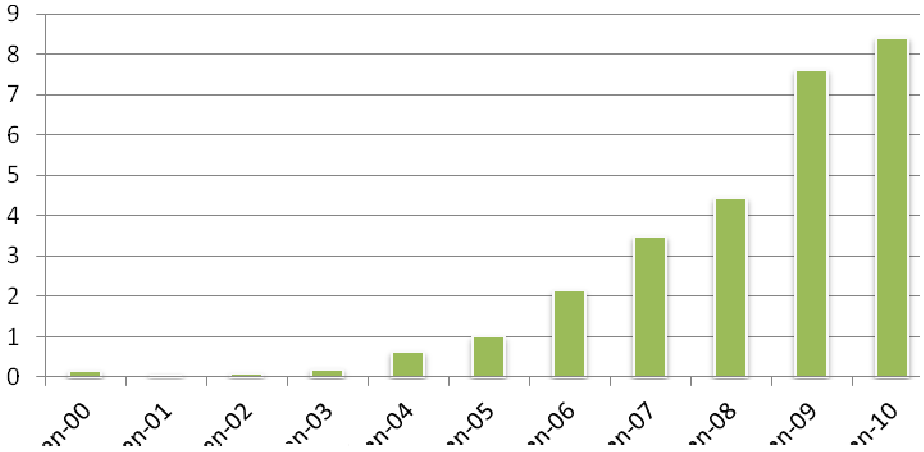
Figure 1: Local Currency Bond Market Size (in % GDP) in Select ASEAN Countries



Source: AsiaBondsOnline

Relative to the Philippine government bond market, the local corporate bond market is small and underdeveloped. In 2000, local currency (LCY) corporate bond obligations as a proportion of nominal GDP was at 0.2 percent, much lower when compared to the 31.1 percent of government bonds. In 2010, while this ratio grew to 4.6 percent for the corporate classification, this number remains dwarfed when compared to the share of government bonds. Despite having low volumes in the bond market, corporate bonds have shown continuous growth via increases in volumes over a 10-year span.

Figure 2: Local Currency Bond Market Size (in USD billions) in the Philippines



Source: AsiaBondsOnline

Factors that are inherent to individual firm may have been playing a role in the preference between bank financing and bond issuance. Specifically, Mizen and Tsoukas (2010) claimed that

profitability, leverage, liquidity and growth are firm-specific variables that primarily influence a firm's decision to issue bonds over acquiring bank loans. The variables that were mentioned are generally those that measure a firm's performance, which consequently determine the firm's ability to establish investor confidence that the firm can service its obligations when the bonds mature. A firm's age may also contribute to investor confidence since longer existing firms become more reputable plus the fact that it indirectly implies proven track record, assuming that the weaker firms are likely to fold up earlier in the game. In addition, given the fact that debt offers tax benefits, tax levels may also influence a firm in its decision to source its debt. This study aims to understand the impact that each of the mentioned variables has on the decision of firms to source debt financing either through bank loans or through bond issuance.

ASSUMPTIONS

The basic assumption is that firms can do source their funds externally through debt financing. Thus, companies who rely on financing through equity issuance only will be removed from the samples. Additionally, periods when the corporation did not source any debt financing will also be removed as samples from the study.

The study will also assume that firms have operational and administrative indifference with regard to debt financing through bank loans or bond issuances. This means that, facilities to access either funding methods are readily available for all firms in the sample and that no legal, operational or transactional hindrances exist to firms from accessing either of the two options. Since this is currently the case in the Philippines, isolating the marginal effects of the variables that need to explore will not be problematic in this study.

Firms may need to borrow through both facilities mentioned but on different time periods which will be used as different observations in this paper. In such cases, the study will also try to identify why the firms had different funding preference for various time periods. Hence, the study assumes independence of decision of firms in different time periods.

REVIEW OF RELATED LITERATURE

Corporate Debt Financing

Historically, corporations have engaged in using bank loans as a source of funds. According to Luengnaruemitchai and Ong (2005), bank loans are being used by the corporation because of existing relations of firms with banks. It also indicates the incentives that the firm gets from getting a bank loan as a source of funding. If corporations were to depend on bank loans for long-term funding, it makes the economy more vulnerable. It is indicated that there are past studies that promotes that if using debt financing, bond issuance would be optimal for long-term funding and bank loans for short-term funding. This means that in general, firms are likely to issue bonds if they are to acquire fixed assets while bank loans are likely to be used to fund inventories and current assets. On a separate study, Endo (2000) discussed the attractiveness of bank loans and corporate bonds when looking at the financial statements.

Various firms will be face different situations in their business operations which may lead to variations in firm-level factors and thereby leading to the difference in the debt acquisition preference. For instance, Hale and Santos (2005) defends that liquidity of the firms can discourage the issuance of the bond given the fact that while investors prefer firms that can pay the debt, highly liquid firms may not need to seek external funding as internal sources may be sufficient.

A study done by Altunbaş, Kara, & Marqués-Ibáñez (2009) for large debt financing of firms in Europe that used a logistic model which takes into account the size, leverage, financial stress, liquidity, growth opportunities and profitability of the firms. The results of the study showed that firms tend to engage with syndicated loans when the firm is large in terms of assets, posses high debt, high operating profit and has relatively high fixed assets to total assets. As for the bond issuance, when the firm possesses more short-term debt, the firms tend to issue bonds which can also introduce more growth opportunities.

Capital Structure Theories

The pecking order theory, states that 'there is a strict ordering or hierarchy of preference for sources of finance' (Myers, 1984; Myers and Majluf, 1984). Companies usually prioritize their sources of financing according to the law of least effort, or of least resistance. Rationally, this means that when internal financing (i.e. retained earnings) is depleted, debt issuance is preferred to equity financing.

The static tradeoff model of capital structure is based on the hypothesis that, "Companies try to equate the marginal benefit of an additional unit of debt with the associated marginal cost, holding constant the firm's assets and investment plans" (Benito, 2003). Note that the main burden of additional debt is bankruptcy risk and the deadweight costs associated with such bankruptcy (Frank and Goyal, 2008). On the other hand, the marginal benefit of additional bond issuance refers to the tax benefits of debt.

However, up to a certain level, as the company increases its debt issuance, the marginal benefit received in the future will decline while the marginal cost would continue to increase. This means that there is an optimal level of debt and equity to each firm based on the marginal cost and benefit of each firm. In general, the theory argues that firms choose their financing instruments at any particular point in time to move their capital structure closer towards its optimum.

While there will come a point in a company's operations where debt financing is optimal, there is no recommendation as of yet whether the debt should be in a form of bank loan or bond issuance. The arguments that somehow theorize the delineation in deciding between the two options are (i) flotation costs argument, (ii) information asymmetry and moral hazard, (iii) renegotiation and liquidity.

Flotation Cost Argument

The flotation costs argument cites that the use of public debt consists of substantial issuance costs, which includes fixed-cost components. These typically include investment banker fees, filing and legal fees and other transaction costs. One of the studies cited in Fernández, et al. (2006), proved that although interest rates of bonds are lower, the fixed issue costs of public debt issues are generally much higher when compared to the fixed costs of a bank loan or private placement, which is why only the larger firms are more likely to issue public debt (Altunbaş, Kara, and Marqués-Ibáñez, 2009; Pessarossi and Weill, 2011) due to the size of the financing need. Furthermore, smaller firms tend to have relatively smaller debt offering and it would not necessarily be cost efficient when issuing large amounts of debt to benefit from economies of scale (Altunbaş, Kara and Marqués-Ibáñez, 2009; Arena, 2010).

Information-Monitoring Costs

The models based on information-monitoring costs point out that information required for public debt financing is more expensive than in the case of bank debt because of the need for higher level of information disclosure standards (Fama, 1985; Yu, Johnson and Hsieh, 2008). When creditors are faced by the problem of being unable to monitor the firm's behavior carefully, they would demand higher yield to compensate for such risk and firms face a higher contraction costs in the public market. This is why larger firms that are presented with a lower degree of asymmetric information, face lower risk and prefer to issue corporate bonds instead. On the other hand, smaller firms who face a higher degree of information asymmetry and have more growth options in their investment opportunity, are more likely to borrow from banks and creditors because they mitigate adverse selection problems (Arena, 2010; Titman and Wessels, 1988).

The main implication of this theory is that public debt issues are heavily related to the firm's size and or to the level of debt. Moreover, the firm's reputation or age is related to the decision of firms to issue bonds or to go to banks. Diamond (1991) points out that banks act as a monitor for young firms or older firms with medium reputation on the capability of repaying loans. Older firms with established or high reputation use public debt.

Renegotiation and Liquidation

This hypothesis is concerned with the flexibility of firms to change their debt structure in the event of financial distress. The argument states that borrowers with the expectation of a poor financial outlook in the future would prefer to borrow from banks rather than borrowing publicly (Altunbaş, Kara, and Marqués-Ibáñez, 2009; Arena and Howe, 2007). Given that it is more difficult to negotiate the terms of debt arrangements, banks are able to provide greater flexibility in the event of financial distress through re-contracting.

Given these analytical concepts, we should note the importance of the firm's tangibility in relation to their external financing decisions. Theory states that tangible assets are easier to

collaterize, thus there is a smaller loss in the value of the assets that firms hold when there is an adverse shock in the system. Thus, the tradeoff theory suggests that tangibility has a significant effect on the costs of financial distress; investors would have a harder time substituting the high-risk assets for low-risk ones (Krishnaswami et al, 1999). The implication of this is that firms with greater likelihood of financial distress would prefer bank debt. Another implication is that firms with a high tangible assets-to-total assets ratio would likely issue public debt.

METHODOLOGY

The objective of the study is to identify the factors that influence a Philippine firms' choice of long-term debt financing. The firm-level characteristics are hypothesized to affect the probability of the firm's choice of debt financing, either through loans or through bond issuance. Knowing this, the independent variables, firm size, growth, firm's age, leverage, profitability, liquidity, collateral and tax, are all governed by the theoretical basis of the behaviors of firm managers.

Variable Specification

Firm's Size (*SIZE*)

Larger firms have less asymmetric information and thus can take on higher risks. On the other hand, smaller firms face more problems with regard to information about the bond market, and thus prefer to finance their capital through bank loans and other private placements (Jensen and Smith, 1984). Size in this study will be measured as total assets using natural logarithmic transformation to reduce the effects of outliers and the variance of firms' assets.

Firm's Growth (*GROWTH*)

Growing firms have a tendency to seek external funding and firms with high growth will capture a relatively higher debt ratio (Abor and Biekpe, 2005). The hypothesis follows that growing firms are more likely to issue bonds.

Most studies related to the capital structure of firms use growth of sales as a proxy of the firm's growth which will also be the case for this paper.

$$Growth = \frac{Sales_t - Sales_{t-1}}{Sales_{t-1}} \qquad (1)$$

where $Sales_t$ = Sales at time *t*
$Sales_{t-1}$ = Sales at time *t-1*

Firm's Age (*YEARS*)

Age will be defined as the number of years since the firm's incorporation. This will account for the reputation of the publicly-listed firm which, in a way, is somehow related to the level of information asymmetry associated with the firm.

Firm's Leverage (*LEVER*)

Leverage, defined as the ratio of total debt over total assets, signals to investors the amount debt that the company currently has with respect to its operations which may give a picture on the riskiness of the firm. Investors usually demand higher returns for investments in firms that are highly leveraged.

$$LEVER = \frac{Total\ Debt}{Total\ Assets} \quad (2)$$

Firm's Profitability (*PROF*)

Profitability, for the purpose of this study will be measured as the ratio of earnings before interest and taxes relative to total assets. Mizen and Tsoukas (2010) uses this ratio as a measure of the firm's ability to generate profits. Firms that are highly profitable are more likely to pay its debt obligations, reducing the riskiness and increasing the attractiveness of investments to that firm.

$$PROF = \frac{EBIT}{TA} \quad (3)$$

Firm's Liquidity (*LIQUID*)

Liquidity will be proxied by the quick ratio which is measured as current assets net of inventories over current liabilities Hale and Santos (2008) found out that firms with more liquidity take longer to enter the public bond market due to the fact that these liquid firms have substantial internal funds. While The bid-ask spread is also a good measure for the liquidity of the firm as used by Bao et al. (2008), the problem is that the lack of depth may be unable to capture the full aspect of liquidity. In addition, this measure will be biased for bond issuers as compared to bank loan acquirers.

$$Quick\ Ratio = \frac{Current\ Assets - Inventories}{Current\ Liabilities} \quad (4)$$

Firm's Tangibility of Assets (*FTA*)

Fixed assets may be used as collaterals for debt. Thus, tangible assets may also be viewed as a source of funding in times of distress, next to liquid assets. For the purpose of this

study, tangibility of assets will be measured as the ratio of inventory plus net property plant and equipment to the total assets.

$$COLL = \frac{Inventory+Net\ Plant\ Property\ Equipment}{Total\ Assets} \quad (5)$$

Previous issue of bonds by the firm (*Prev.Issue*)

The past experiences or decisions of the firm when issuing bond affects the decision of the firm to either issue bonds again or acquire bank loans. This will be included as a dummy variable with a value of 1 if the firm had issued a bond before and 0 otherwise.

Marginal Tax Rate applied to Interest Deductions (*TAX*)

This is the effective marginal tax rates on interest deductions from debt enjoyed by a firm which could significantly affect financing decisions. The level of marginal tax rates on interest deductions depends on the firm's non-debt tax shields – its proxy for this analysis. Tax shields include Tax Loss Carry Forwards or the use of past losses to offset current taxable income; and Investment Tax Credits which are tax incentives.

Sector Affiliation

The study will also use as a dummy variable the classification of firms based on their sector affiliation as assigned by the PSE. Of all the mentioned sectors, the Financial Sector obviously has information asymmetry advantage over others and thus are likely to issue more bonds than those in the other sectors.

The Model

The study would employ a binary choice model known as logistic regression analysis or *logit*. The Logit regression allows for the dependent variable to account for two choices for the firm's decision to finance its debt. We start from the basic qualitative response model, the Linear Probability Model (LPM), the dependent variable, y^*_{it}, is to be influenced by a set of variables, X_{it}, which are essentially determinants of corporate debt financing. The relationship of these determinants with the dependent variable is denoted by its slope β with an intercept represented by a_i and a normally distributed error term, ε_{it}. Thus:

$$y^*_{it} = \sum X_{it}\beta + \varepsilon_{it} \quad (6)$$

Where y^*_{it}, due to its unobservable nature, is represented by a dummy variable, y_i, which takes on the value of 1 if a firm decides to issue corporate bonds to the public, and 0 if the firm decides to acquire long term loans as sources of credit such as bilateral bank loans or syndicated loans for the year:

$$y_i = \begin{cases} 1 & \text{, if the firm finances through bond issuances for the year} \quad y_i = 1\left(y_i^* > 0\right) \\ 0 & \text{, if the firm finances through long term loans for the year} \quad y_i = 0\left(y_i^* = 0\right) \end{cases} \tag{7}$$

However one fundamental problem with LPM is that it is not logically acceptable because it assumes that $P_i = E(Y=1|\ X)$ increases linearly with *X*, which means that the marginal or incremental effect of our dependent variables remains constant throughout. Which is why our study would have to adopt a *logistic distribution function*, that the probability of firms choosing to issue bonds is nonlinear and not only in *X* but we can now look at the impact to likelihood through our odds ratio:

$$Odds\ Ratio\ in\ favor\ of\ issuing\ bonds = \frac{P_i}{1-P_i} \tag{8}$$

Taking the log of the odds ratio, we come up with our *logit* model and look at the impact to likelihood of issuing bonds:

$$L_i = \ln\left(\frac{P_i}{1-P_i}\right) = \beta_0 + \beta_1 X_{1t} + \cdots + \beta_k X_{kt} + \varepsilon_{it} \tag{9}$$

We first control for the separate influence of the firm-specific variables on the probability of corporate bond issuance as opposed to bank loans and other sources of credit. Applying equation 9, we arrive at the baseline model:

$$\begin{aligned} Choice\ of\ debt_{it} = \quad & \beta_0 + \beta_1 lnSIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 YEARS_{it} \\ & + \beta_4 LEVER_{it} + + \beta_5 PROF_{it} + \beta_6 LIQUID_{it} + \beta_7 FTA_{it} \\ & + \beta_8 Prev.Issue_{it} + \beta_9 Tax_{it} + \varepsilon_{it} \end{aligned} \tag{10}$$

Choice of debt is a dummy variable which equals 1 if firm *i* decided to issue bonds to the public and 0 if the firm entered into a long-term loan agreement during time *t*. As specified by the model, the probability of the firms' choice of debt is mutually exclusive and is influenced by the firm-specific attributes, in terms of the firm's size (*lnSIZE*), the firm's growth potential (*GROWTH*), its age (*YEARS*), leverage (*LEVER*), profitability (*PROF*), liquidity (*LIQUID*), tangibility of its assets (*FTA*) and previous issue of bonds (*Prev.Issue*). The estimates of the slope coefficient are interpreted as the log of odds in favor of issuing bonds. On the other hand, the marginal effects or odds interpretation gives us the percentage change in the odds for a unit increase in independent variable (Gujarati and Porter, 2009).

It is also important to note that since we are dealing with 52 listed firms, the model should also include six sectoral dummies to control for differences across sectors. The sector classification: Financials, Industrial, Holding Firms, Properties, Services and Mining & Oil, follows the classification set by the Philippine Stock Exchange (PSE). To avoid the dummy variable trap, we drop the dummy for properties sector. Hence the relevant model:

$$\begin{aligned} Choice\ of\ debt_{it} = \quad & \beta_0 + \beta_1 lnSIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 YEARS_{it} \\ & + \beta_4 LEVER_{it} + + \beta_5 PROF_{it} + \beta_6 LIQUID_{it} + \beta_7 FTA_{it} \\ & + \beta_8 Prev.Issue_{it} + \beta_9 Tax_{it} + \beta_{10} DFINANCIAL \\ & + \beta_{11} DINDUSTRIAL_{it} + \beta_{12} DHOLDING_{it} \\ & + \beta_{13} DSERVICES_{it} + \beta_{14} DMININGOIL_{it} + \varepsilon_{it} \end{aligned} \tag{11}$$

Post-Estimation Testing

The Wald test assesses the significance of the explanatory variables in the specification. It basically tests whether the parameters of the explanatory variables are zero, that is:

$$H_0: \beta_1 = \beta_2 = \cdots = \beta_k = 0 \tag{12}$$

If the Wald test generates a significant F-statistic then it can be inferred that the group of explanatory variables should be included in the model specification; otherwise, such variables should be omitted.

To test for the logistic model's goodness-of-fit, the Hosmer-Lemeshow test is appropriate in this case. Its statistic is derived from the Pearson goodness-of-fit statistic:

$$X^2 = \sum \frac{w_i(y_i - \hat{\mu}_i)^2}{v(\hat{\mu}_i)} \tag{13}$$

Where y_i are observations, w_i are weights, μ_i are fitted means, $v(\mu_i)$ is the variance function with $\varphi = 1$ dispersion. If there is no evidence of lack of fit and y_i are normal, then X^2 is distributed as chi-squared (Smyth, 2003).

Data Collection and Transformation

Secondary sources of annual cross-sectional data are used for our firm-specific variables: *SIZE*, *GROWTH*, *YEARS*, *LEVER*, *PROF*, *LIQUID*, *FTA*, *Prev.Issue* and *TAX*. The time period spans within the years 2000 to 2010 period due to data availability. Firms considered in this study are publicly listed in the Philippine Stock Exchange (PSE). The data on bond issues will mostly be drawn from the various published annual reports that are accompanied with their respective notes to financial statements, while firm-specific characteristics that include the computation of ratios, will be drawn from OSIRIS and from individual annual financial statements (balance sheet and consolidated income statement) of publicly listed firms. Observations that have not undergone debt financing for a particular year are filtered out. The remaining observations were left to be included in the study's cross-sectional sample.

The companies that are listed in PDEx as bond issuers are Ayala Corporation (AC), Ayala Land (ALI), Energy Development Corporation (EDC), and Filinvest Land Incorporated (FLI), among others. Only thirteen companies have participated in the bond market within 2007 to 2010 and such companies are also publicly listed through the PSE.

Table 1: List of Firms Covered in the Study	
Financials	**Industrial**
1. ATR Kim Eng Financial Corporation	1. Alsons Consolidated Resources Inc.
2. Metropolitan Bank and Trust Company	2. Alphaland Corporation
3. Rizal Commercial Banking Corporation	3. Aboitiz Power Corporation
	4. Cosmos Bottling Corporation
	5. Energy Development Corporation
	6. First Gen Corporation
	7. Jollibee Foods Corporation
	8. Liberty Flour Mills Inc.
	9. Manila Electric Company
	10. Manila Water Company Inc.
	11. PNOR Exploration Corporation
	12. Pancake House Incorporated
	13. Petron Corporation
	14. Roxas and Company Inc.
	15. San Miguel Pure Foods Company Inc.
	16. San Miguel Brewery
	17. Splash Corporation
Holdings	**Properties**
1. Abacus Consolidated Resources and Holdings Inc.	1. Arthaland Corporation
2. Ayala Corporation	2. Anchor Land Holdings Inc.
3. Aboitiz Equity Ventures Inc.	3. Ayala Land Inc.
4. Alliance Global Group Inc.	4. Araneta Properties Inc.
5. A. Soriano Corporation	5. A Brown Company
6. JG Summit Holdings Inc.	6. Cebu Holdings Inc.
7. SM Investment Corporation	7. Eton Properties Philippines Inc.
8. Tanduay Holdings Inc.	8. Ever-Gotesco Resources and Holdings Inc.
9. Universal Robina Corporation	9. Filinvest Land Incorporated
	10. Highland Prime Inc.
	11. Megaworld Corporation
	12. Robinson's Land Corporation
	13. Shang Properties Inc.
	14. SM Development Corporation
	15. SM Prime Holdings
Services	**Mining and Oil**
1. ABS-CBN Corporation	1. Atlas Consolidated Mining& Development Corp.
2. Aboitiz Transport System Corporation	2. Philex Mining Corporation
3. Cebu Air Inc.	
4. Globe Telecom Inc.	
5. Manila Jockey Club Inc.	

RESULTS AND DISCUSSION

Logistic Regression Results

For the simple logit model, the estimated coefficients are presented Table 2. The results in column A however, does not account for change in likelihood on the choice of the firm. Thus another regression has to be simulated to check for the marginal effects of the logistic regression which results to column B. By doing so, the impacts of the factors with regards to the likelihood of the choice can be seen.

Table 2: Logistic Regression Results (A) Logit Regression and (B) Marginal Fixed Effects Logit Regression		
Logit	**(A)**	**(B)**
Dependent Variable: *Choice of Debt Market*	*Bonds 1, Loans = 0*	
Firm Size (lnSIZE)	0.1080599 (0.167)	0.0144482 (0.145)
Firm Growth (GROWTH)	-0.1843145 (0.410)	-0.0246438 (0.408)
Firm Age (YEARS)	0.0060844 (0.581)	0.0008135 (0.570)
Leverage (LEVER)	5.758468 (0.021)**	0.7699369 (0.009)***
Profitability (PROF)	4.676382 (0.316)	0.6252564 (0.281)
Liquidity (LIQUID)	0.1627097 (0.051)*	0.0217551 (0.053)*
Tangible Assets (FTA)	-0.2802381 (0.786)	-0.0374693 (0.788)
Previous Issue (Prev. Issue)	1.388006 (0.017)**	0.2354319 (0.051)*
Tax (TAX)	-1.95294 (0.191)	-0.2611181 (0.150)
Financial Sector Dummy	Significant* (+)	Significant* (+)
Industrial Sector Dummy	Not Significant (+)	Not Significant (+)
Holdings Sector Dummy	Not Significant (+)	Not Significant (+)
Services Sector Dummy	Not Significant (+)	Not Significant (+)
Number of Observations	148	148
Number of Firms	51	51
[a] * indicates 10% significance level, **5% significance level, ***1% significance level [b] p-values are given in parenthesis		

The four factors that that appear to encourage bond issuance are indeed reflective of the firms' reputational characteristics. The logistic results show that the significant factors in the model are the leverage ratio, liquidity ratio and the experience of previous issuance. The latter of these appear to be the most influential factor as it has shown to improve the likelihood of issuing a bond by 0.2354319%. This is due to the experience of the firm in the bond process. When firms issue corporate bonds, the announcement has to undergo several processes under the Securities and Exchange Commission. Furthermore, the trading details for public bonds would have to be registered with the PDEx electronic system. It is possible for the firm to be adept in issuing another bond for funding due to the marginal reduction in issuance costs and gain from information-monitoring.

The most influential in the sense of the impact is the leverage ratio (0.7699369%). It follows the perspectives of the experts' opinions based on the qualitative interview with regards to the credit exposure. The more the firms' credit line is exposed, the more likely the firm leans towards bond issuances. Assuming there is a firm that possesses high leverage ratio, the company could not exhaust the credit line further thus it issues bonds for its debt funding.

The liquidity impact (0.0217551%) also makes sense due to the fact that when the company has internal funding, it will not need immediate cash so the company could take its time in the debt funding. The company can afford to wait for the bond to be bought by an investor when it comes to using debt as a tool for funding. Lastly, another significant factor is the *dfinancials* sector dummy. The corporate debt structure is not necessarily dependent on the industry characteristics, but rather on the nature of the projects.

There was only one sector in which issuance of bonds appear to be significant, which is the financial sector, which suggests that banks are more likely to issue bonds. Truthfully, the characteristics of the financial sector appear to be more unique than other firms. As bank size increases, there is a greater need to borrow larger amounts. Thus tapping the bond market appears to be attractive to the financial sector looking to borrow large amounts. Also, the lower level of information asymmetry for firms in the financial sector may have also played a role in being active bond issuers.

Post-Estimation Tests

We perform a Wald test to examine whether the predictor variables of the logistic model fits significantly better when only the four significant variables are considered as predictors. The list of constraints generated by the Wald test show that all their p-value is less than the general criterion of 0.05, thus we are able to reject the null hypothesis as well as the p-value associated with the F-statistic. As our results would indicate, all variables can be included in the regression and the test shows significance using the F-statistic of 0.0001.

The results of the regression model contain the log likelihood chi-square and pseudo R-square for the model, which will be used in the following test. In general, the test gives us an idea on how well the model fits the data. We initially adopt the Pearson goodness-of- fit test in which the p-value of 0.18 tells us that the model is a good predictor. However, in this test, number of observations equal the number of covariate patterns. As a remedy, we use the Hosmer-Lemeshow goodness-of-fit test in lieu of the Pearson test. This test shows that the model has a good fit as well with a p-value of 0.78.

Comments from Practitioners

Practitioners in the field provided 3 simple criteria considered by the companies in the manner of raising debt. These are (i) amount, (ii) availability of credit lines and (iii) urgency. Amount refers to the company's plan to raise funds. If the size of the issue is only P500 million, it would be economical to get the funds via bank loan due to the administrative expenses involved in publicly offering of bonds such as register with the SEC. Due to such process, the company already incurs extra cost if it were to issue bonds. Also, in the market as of 2010, bond offerings are normally at a minimum of P5.0 billion in issue size.

Additionally, the presence of existing credit lines may also influence the decision on the mode of debt funding. If the company is concerned with its credit line, it would be better to

issue bonds. The issue here is whether or not the credit lines are being utilized or maxed out, then the company could consider bond issuance since this doesn't consume credit lines.

Lastly, the urgency or need of funds may also affect the decision of the firm. If it is in dire need of funds, it would be wise to get a bank loan due to its fast processing, assuming that the firm has existing credit lines with banks. The problem with bond issuance is that it has to go through a process where it incurs costs and is very much time-consuming.

While the suggestions from the practicing community prove to be valid and logical, the quantification of such factors prove to be difficult at the moment, which therefore limits the use of such factors for empirical studies. It is recommended to pursue another study similar to this whenever these data become available.

CONCLUSION

This paper determined several firm-level factors that can contribute to the attractiveness of issuing corporate bonds as a financing option versus the acquisition of bank loans. Particularly, internal factors of firms such as the leverage, liquidity and previous experience of bond issuance, proves to be significant in determining a firm's funding mix.

Additionally, other theories that were initially perceived by the authors to be important aspects in this decision proved to be untrue for the Philippine markets. Firstly, the more that the firm is leveraged on debt, the more likely it is to issue bonds as the firm is also likely to be concerned with the exhaustion of its credit lines. Secondly, the test on firms' proved to be inconclusive the need for immediate financing is less for more liquid firms.

Furthermore, practitioners in the field suggested that the issuer itself has to evaluate the urgency of the funding, the amount needed and the probable exposure of its credit when it comes to choosing between the issuance of bonds or the acquisition of bank loans. The advantage of bank loans is that when approved, the funding will be given immediately without much delay while bond issuance proves to be more costly for small debts due to the administrative expenses involved plus the fact that it is more time-consuming.

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THE DETERMINANTS OF CORPORATE CAPITAL STRUCTURE: EVIDENCE FROM JAPANESE MANUFACTURING COMPANIES

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ABSTRACT

The debates regarding determinants of corporate capital structure have been progressing for a few decades since the first capital structure theory was found by Modigliani and Miller in 1958. Their theory evolved into two main theories; static trade off theory by Krauz & Litzebnerger (1973), and pecking order theory by Myers & Majluf (1984). The studies related to corporate capital structure often use firms in developed countries as their sample data. Japan, which is one of the largest economies in the world, regularly becomes a part of these studies.

In this study, we aim to determine the relations between the firm specific experience and debt level in Japanese firms. We choose manufacturing companies as the subject of study because the sector is vital to the Japanese economy. Moreover, Japanese manufacturing companies are also very influential in the global economy. With this study, we intend to contribute to the literature by examining the determinants of corporate capital structure in Japan, one of the major developed markets.

We use panel data and multiple regression to analyze the relationships between the dependent variable, namely leverage, and the independent variables, tangibility, profitability, non-debt tax shield, size, growth in fixed assets, and growth in total assets. We find that size, growth in fixed assets, and growth in total assets are not significant. However, we also reveal that the variable tangibility, profitability, non-debt tax shield are statistically significant. Tangibility has a positive relation with debt level while profitability and non-debt tax shield have negative relation with debt level. These relationships are predicted in either static trade off theory and pecking order theory but none of the theories show a more dominant predictive capability over the other. Therefore, we propose the Trade-off adjusted Order Theory, which combines the elements of the latter theories, as a possible explanation for this behavior.

INTRODUCTION

A firm's capital structure is the combination of a firm's equity, debt, and hybrid securities which finances the whole business operation. A capital may be composed of equity, debt or even hybrid securities. The comparison ratio between the equity and the debt is usually known as the leverage.

The pioneers of the determinants of corporate capital structure are Modigliani & Miller (1958), which published their work almost half a century ago. Their main theory, widely known

as the Modigliani-Miller Theory, explains that the value of a firm is unaffected by how that firm is financed. This simple theory is probably quite acceptable fifty years ago when the business environment and condition, especially the finance and capital market, was not as complex and as complicated as the current capital market. This theory said that the capital structure of the company hold no importance or relevancy to the company's value at all. That is why this theory is also known as capital structure irrelevance principle.

Following on from the pioneering work of Modigliani and Miller (1958), capital structure has aroused intense debate in the financial management arena for the last fifty years.

Even though there are other theories that tried to explain the determinants of capital structure, the number of factors that have the possibility to influence the decision making process is overwhelmingly large that a single theory is not able to explain the whole capital structure. Moreover, in spite of the continuing theoretical debate on capital structure, there is relatively little empirical evidence on what factors could influence the firm's capital structure.

As the capital structure becomes more complex, the factors that influenced the determination of a capital structure have been studied thoroughly by the researchers over the years. Japan, as one of the most developed economics in the world, has often been included in such research as a comparison to other industrialized countries, but the researches that focus on Japanese firms are rarely found.

This paper aims to provide a more focused perspective on what factors influence the financing decision on Japanese Manufacturing Companies, to compare the result to earlier studies, and to seek the possibility of a theory that best explains the result of the research. We choose Manufacturing Industry in Japan because its importance to the national and global economy. The research studies 21 top Japanese Manufacturing companies listed in Tokyo Stock Exchange for the period of 2001 – 2010 inclusive.

LITERATURE REVIEW

The theory that becomes a base for modern thinking of capital structure is Modigliani & Miller's (1963) hypothesis of capital structure irrelevance.

Perfect market conditions are the fundamental conditions for this theory. It means that the arbitrage is unrestricted; there is no possibility of bankruptcy, and no tax. In this conjectural market condition, the total market value of a firm is independent of the amount of debt it issues.

There are two main parts in this theory, which tried to prove that the value of firms with equity capital, debt capital, or mixed capital is actually the same. First part of the theory does not take tax into account while the second part does. The main point of this theory is that debt and equity are perfect substitutes for each other. In short, there is no opportunity cost in choosing between using debts or using equity as the source of the capital.

This theory was later criticized by scholars and researchers as hypothetical. Angelo & Masulis (1978) argue that Modigliani & Miller's theory is very sensitive to the change in the corporate tax code which can offer the firm a unique interior optimum leverage decision. The traditional models used by Modigliani and Miller require unrealistically large expected marginal

bankruptcy costs to offset the expected marginal corporate tax savings of debt at observed debt-equity ratios.

Added by Scott (1976), Modigliani & Miller actually recognize the tax deductible property of interest payments, but it fails to capture the fact that increasing debt will increase the probability of bankruptcy itself. By this process, the debt is overvalued and the equity is undervalued, making the decision of optimal capital structures somehow inaccurate.

Two main capital structure theories which later evolved from Modigliani & Miller's theories also reject the idea that the value of a firm is not related to its capital structure. (Kraus & Litzebnerger, 1973; Myers & Majluf, 1984)

As stated above, in the modern era, there are two basic schools of thoughts regarding firms and their capital structure. The first theory is the *static trade off theory*. This theory was developed by Kraus & Litzebnerger (1973). This theory suggests that firms choose their optimal capital structures by trading off the benefits and costs of debt and equity. Using debt to finance a firm's operation has its own advantages (such as its tax benefit) and disadvantages (such as its agency costs). Firms always calculate the marginal profit of loss for utilizing debt to decide its optimal capital structure. In short, the firm is a 'black box' operated so as to meet the relevant marginal conditions with respect to inputs and outputs thereby maximizing profits or more accurately present value. (Jensen & Meckling, 1976)

Agency costs explained by Jensen & Meckling (1976) consist of: (1) the opportunity costs caused by the impact of choosing debt on the investment decisions of the firm; (2) The monitoring and bonding costs expended by the principal and agent; (3) The bankruptcy and reorganization costs.

The existence of agency costs, which is caused by asymmetric information, is considered important by quite a few of researchers. If investors have less information than equity holders, there is a tendency that the interest rate will go up because they are more pessimistic. (Robichek & Myers, 1966; Baumol & Malkiel, 1967; Baxter, 1967; Bierman & Thomas, 1972; Rubinstein, 1973; Stiglitz, 1972).

Kayhan & Titman (2003), however, doubted the importance of optimal capital structure. They argue that even if the tradeoffs between the costs and benefits of debt financing can lead to an optimal capital structure, there is a possibility that the relation between the debt ratio and corporate value is weak, so that the cost deviating from the optimum is quite small.

The second theory is the *pecking order theory*. Contrary to the *static trade off* model, this theory developed by Myers & Majluf (1984) assumes that there is no target level of leverage, and companies use debt only when their internal funds are insufficient.

Most research models use both *pecking order theory* and *static trade off theory* to gauge the result of their researches. The results were divided strictly into *the pecking order theory* or *the static trade off theory* but none of the results fall into the category between the two theories. Consequently, a new theory that merges the elements of the two main theories might be found.

A study by Rutherford (1998) regarding firm's capital structure evidence from Organization for Economic Co-operation and Development (OECD) countries, suggests that Japan has high level of leverage. They argue that the main reason to the high level of leverage in Japan is caused by crossholding between companies. Due to crossholding, there is a small risk of

hostile takeover between Japanese companies and Japanese firms can easily raise external capital without the fear of being forcedly occupied by other firms. Related to the results from Rutherford (1998), Berger & Udell (1994) suggest that firms with close relationship with its creditors need to provide less collateral because the relationship can substitute for physical collateral. The results of their research also suggest that the size of the firm is important in Japan and strongly positively related with leverage while profitability is negatively related to leverage.

Some scholars find that profitability and industry effects are the major determinants on Japanese Company debt ratios (Kester, 1986 and Titman & Wessels, 1988). In a study which examines the different between the use of short term and long term debt, it is found that Japan makes heavier use of short term debt in their capital structures than firm from other countries (Khrisnan & Moyer, 1996).

Lastly, in a research observing the relations between the ownership structure and debt level in Japanese Firms, Kim & Piman (1998) suggest that equity ownership of the financial and foreign institutions has a significant negative effect on the debt level. Consequently, in Japan the distant relation between the shareholders and the management side and may create greater asymmetric information between the two parties. (Deesomsak et al, 2004)

DATA AND METHODOLOGY

Hypotheses

1. Effect of tangibility on leverage

Supporting the *static trade off theory*, Rajan & Zingales (1995) and Titman & Wessels (1988) stated that assets tangibility will have a positive relationship with debt ratio because greater collateral may alleviate the agency costs of the debt itself. While according to *pecking order theory*, Debt ratio and assets tangibility have a negative relationship because firms holding more tangible assets will be less prone to asymmetric information problems.

Rajan & Zingales (1995) use public firms in major industrialized countries as their unit of analysis, while Titman & Wessels (1988) use manufacturing companies in United States as their sample data. In conclusion, we think the results of their researches are applicable to my study because the sample data are quite similar in nature.

Japanese Companies, in this case, have been under the scrutiny of both local and international investors for their non-transparent stance toward the stockholders and this caused a large asymmetric information problem even in large companies. Japanese companies showed low level of disclosure in a disclosure level survey results (Radebaugh, Gray and Black, 2006). This problem may later cause a forced takeover, often by foreign institutional investors, such in the case of Steel Partners (an American based institutional investor) and Aderans Holding (a Japanese Manufacturing Company) (Harding, 2009). So, Japanese Companies may issue more debt instead of equity because there is little incentive to issuing equity.

Therefore, we hypothesize:

H1 Asset tangibility positively impacts leverage.

2. Effect of profitability on leverage

According to the *static trade off theory*, firms will acquire more debt to prevent managers from wasting cash free flows gained from profits. High level of profit will also allow firms to have higher debt capacity and further easing the obtainment of debt. So, a positive relationship between Profitability and debt level can be expected. However, according to *pecking order theory*, profitable companies will choose to use internal financing because it is cheaper than borrowing from external sources. Profitable companies tend to issue their stock repeatedly to reduce the divergence between the book value and the market value of their stock (Allen & Mizuno, 1989). This will results in the negative relationships between the profitability and debt level. Negative relationships have been confirmed by Titman & Wessels (1988) in manufacturing companies in United States.

Therefore, we hypothesize:

H2 Profitability negatively impacts leverage.

3. Effect of non-debt tax shield on Leverage

According to the *static trade off theory*, non-debt tax shield provided by depreciation expense can serve as a substitute for debt tax shield so the tax reducing property from debt is no longer needed. A negative relationship between non debt tax shields was confirmed Bradley, Jarrel and Kim (1994) on firms classified according to the two-digit SIC code.

Therefore, we hypothesize:

H3 Non-debt tax shield negatively impacts leverage.

4. Effect of size on leverage

Rajan & Zingales (1995) supporting *static trade off theory* stated that bigger companies have lower chance of bankruptcy. Thus, the company will be able to borrow more money because the creditors are also willing to lend money. Moreover, in most cases large companies have the luxury of government safety net which allows them to take more risk by increasing debt. According to *pecking order*, however, the incentives for issuing equity are bigger because the asymmetric information will be smaller between the companies and the investors. A positive relationship between size and leverage was confirmed by Sayilgan et al (2006) on Turkish manufacturing firms.

Therefore, we hypothesize:

H4 Size positively impacts leverage.

5. Effect of growth on leverage

According to research supporting *static trade off theory*, the leverage of companies with high growth level will be smaller because both the company and creditors are unwilling to lend and borrow money. Growing companies may feel that their maneuverability will be limited if they use debt as their source of funding. Creditors, for the similar reason, want to limit companies to invest only in safe projects to lower the chance of bankruptcy and may be reluctant to lend to growing companies which undertake a lot of risky projects. On the other hands, according to the supporters of *pecking order theory*, growing companies need a huge amount of funding and may turn to creditors to gain more fund. In Japanese companies' situation, the risk of borrowing is lessened with the close relationship nature between the creditors and the firms. So, in case the needs of funding arise, Japanese companies will be expected to increase their debt. Sayilgan et al (2006) confirmed positive results on Turkish manufacturing firms.

Therefore, we hypothesize:

H5 Growth positively impacts leverage.

Measurement of Variables

The dependent variable in this study is leverage level. The leverage as the dependent variable is calculated as follows:

$$LEVf,t = \frac{Total\ debt}{Total\ equity}$$

Following the hypotheses above; size, profitability and growth opportunities in plant, property and equipment, growth opportunities in total assets, non-debt tax shields and tangibility serve as independent variables in this study.

The proxies for the independent variables are:

$TANG_{f,t}$= Total Fixed Assets divided by Total Assets of company *f* at year *t*
$PROF_{f,t}$= Earnings before Interest and Tax divided by Total Assets of company *f* at year *t*
$NDTS_{f,t}$= Total Depreciation Expense divided by Total Assets of company *f* at year *t*
$SIZE_{f,t}$= Natural log of the Total Revenues of company *f* at year *t*
$GR_{1f,t}$= Percentage Change in Total Fixed Assets of company *f* at year *t*
$GR_{2f,t}$= Percentage Change in Total Assets of company *f* at year *t*

The six independent variables above are consistent with those used by Sayilgan et al (2006), except that we modify some proxies to be able to accommodate the information available in the data set. It is impossible to obtain the complete information for particular proxies, because the complete information is not available in the database. Those proxies might not be as representative as those used by Sayilgan et al (2006), but they are the best available.

Sample Selection Methods

We obtain the data in this study from the Business Industry Compustat Database. This study covers a sample of 21 Japanese Manufacturing Companies selected from the compilation of 34 top Japanese Manufacturing companies listed in the Tokyo Stock Exchange. First, we make a compilation of 60 companies listed in 50 Most Actively traded stock from Tokyo Stock Exchange Factbook 2007, 2008 and 2009. After that, we take only Japanese Manufacturing Companies from the list. We choose Japanese manufacturing company due to its size and relevance to the global market. The final sample consists of 21 companies because some companies were omitted because of the lack of available data. Table 1 summarizes sample statistics of the companies covered by the data set.

Table 1. : Business Industry Compustat Data Set Summary Statistic

Panel A. Initial Data Sample	
Type Of Companies	Number of Companies
Banks, securities and financing	7
Automotive	4
Electric appliance	15
Wholesale & Retail Trade	8
Information and Communication	4
Manufacturer & Machinery	11
Pharmaceutical & Chemical	3
Marine Transportation	1
Real Estate	3
Transportation	1
Electric power & gas	1
Insurance	1
Foods	1
Total	60
Panel B. Sample after imposing Manufacturing Companies requirement	
Automotive	4
Electric appliance	15
Manufacturer & Machinery	11
Pharmaceutical & Chemical	3
Foods	1
Total	34

Table 1. : Business Industry Compustat Data Set Summary Statistic	
Panel C. Final Sample after the elimination of companies with missing data	
Automotive	3
Electric appliance	10
Manufacturer & Machinery	4
Pharmaceutical & Chemical	3
Foods	1
Total	21

Notes: Table 1 summarizes the Compustat data set with the sample used in this study. Panel A summarizes sample statistics of 60 Companies listed in 50 Most Actively traded stock list from Tokyo Stock Exchange Factbook 2007, 2008 and 2009. Panel B summarizes sample statistics of the companies after eliminating companies with SIC Codes with first digit other than 2 or 3. Panel C is the final sample and it summarizes the sample statistics of the companies after eliminating companies which are missing the data needed for empirical analysis. *Type of Companies* represents the type of business each companies belong to according to their SIC code. *Number of Companies* represents the number of companies belong to each group.

Research Method

In this research, we use quantitative approach as our main analysis tool. In this part of the research, a set of sample data from 2001-2010 periods will be evaluated using correlation coefficient model. Panel data Regressions are run in order to test the strength of the relationship between capital structure and its potential determinants. The Data are grouped into their respective source (Panel Variable: Company) and listed according to their respective time period (Time Variable: Years)

The panel data regressions will take the following form:

$$LEV_{f,t} = \beta_1\ TANG_{f,t} + \beta_2\ PROF_{f,t} + \beta_3\ NDTS_{f,t} + \beta_4\ SIZE_{f,t} + \beta_5\ GR1_{f,t} + \beta_6\ GR2_{f,t} + \varepsilon_{f,t}$$

Afterward, we use a qualitative approach to analyze the statistical results according to Japanese business conditions in those periods.

RESULTS AND DISCUSSIONS HYPOTHESES

We summarize the regression coefficients with their respective *t*-statistics as well as the number of observations, adjusted R^2, and *F*-statistics in Table 2. We present the result of panel data regressions for 10 year period from year 2001 to year 2010. Additionally, to capture the effect of the economic recessions in 2008, we also present the results of panel data regressions from the period before the economic recessions, namely year 2001 to year 2007, and after the economic recession, namely year 2007 to year 2010.

Table 2: Panel Data Regression Coefficients				
Variables	**Predicted Sign**	**Year**		
		2001-2010	**2001-2007**	**2007-2010**
TANG	+	0.7689084 (4.93) [0.000] *	1.105501 (5.93) [0.000] *	.1717752 (-1.33) [0.000] *
PROF	-	-1.110607 (-4.50) [0.000] *	-.6113205 (-1.84) [0.067]	-1.393406 (-4.40) [0.000] *
NDTS	-	-4.211084 (-4.69) [0.000] *	-4.178837 (-3.59) [0.000] *	-3.998178 (-3.47) [0.000] *
SIZE	+	-0.0062695 (-0.43) [0.669]	-.0096518 (-0.55) [0.582]	.0255615 (1.22) [0.233]
GR_1	+	-0.1091282 (-0.96) [0.339]	.025118 (0.11) [0.916]	-.0689437 (-0.60) [0.198]
GR_2	+	-0.3138373 (-1.49) [0.139]	-.8863475 (-2.45) [0.015]*	-.0803814 (-0.34) [0.783]
No. of obs.		210	147	84
Adj. R^2		0.2677	0.3236	0.2629
***F*-statistic**		13.73*	12.64*	5.93*

Notes: Table 2 summarizes the results of panel data regressions, estimated during the 2001-2010, 2001-2007, and 2007-2010 sample period. Coefficient values are reported as percentages with *t*-statistics at the second row and the P value at the third row. The dependent variable is *LEV*. *LEV* =Total debt divided by total equity. *TANG* = Total Fixed Assets divided by Total Assets. *PROF* = Earnings before Interest and Tax divided by Total Assets. *NDTS* = Total Depreciation Expense divided by Total Assets. *SIZE* = Natural log of the Total Revenues. GR_1 = Percentage Change in Total Fixed Assets. GR_2 = Percentage Change in Total Asset. * shows that coefficient is significant at 5% level.

The coefficients for *SIZE*, GR_1, and GR_2 are not statistically significant in the ten year period. We see some possible explanations for this finding. Firstly, our study focuses on Japanese Manufacturing companies, while Sayilgan et al (2006) studies Turkish Manufacturing Companies. Secondly, I use a different sample period. Our model is estimated between 2001 and 2010, while the model used by Sayilgan et al (2006) is estimated between 1993 and 2010. Thirdly, we use different calculation method for several proxies compared to calculation method used by Sayilgan et al (2006) in calculating proxies.

The variable *TANG* is significant and positively related to the dependent variable leverage. According to this model, it means that if a company has more tangible assets, it is more likely for them to acquire more debt. This result is consistent with Titman & Wessels (1988), Harris & Raviv (1991), and Rajan & Zingales (1995). This behavior is explained by Leland (1974), Jensen & Meckling (1976), and Myers (1977). They theorize that greater number of fixed assets or collateral may lessen the agency cost of debt. Less costly debts may stimulate the company to utilize more debt and conserve internal equity for urgent situation.

The variable *PROF* is significant and negatively related to the dependent variable leverage. According to this model, it means that the more profit a company gains, the less debt it will use to finance its operations. This result is coherent with Titman & Wesssels (1988), Rajan & Zingales, (1995), Khrisnan & Moyer (1996), and Bevan & Danbolt (2000). This behavior is explained by Donaldson (1961), Titman & Wessels (1988), and Myers (1989). They theorize that equity is less costly than debt, so company may choose equity over debt if the profit is abundant. Another view related to this result is that a profitable company may choose to issue their equity repeatedly to reduce the difference between their market value and their book value.

The variable *NDTS* is significant and negatively related to the dependent variable leverage. According to this model, it means that the more depreciation expense a company has the less debt it will utilize. This result is coherent with Sayilgan et al (2006). This behavior is explained by Angelo & Masulis (1980). They theorize that depreciation expense can substitute interest expense offered by debt as a tax shield. Therefore, if depreciation expense is bigger, the incentive for the company to utilize interest expense from debt as a tax shield will be smaller.
The F statistic for the period 2001 to 2010 is significant, which means that the model for period 2001 to 2010 has a predictive capability as a whole. However, the adjusted R^2 value is quite low at 26.77 percent which means only 26.77 percent of the variations in the leverage is explained by this model. This indicates that this data set may not be the most compatible data set to predict leverage level in Japanese Manufacturing companies.

If we take a look at results of regression variables prior to economic recessions and after the economic recessions, we can notice several differences. Before the economic recessions, variable *TANG*, *NDTS*, and GR_2 are significant. We think that in this period, most companies were having considerable growth and investing in numerous projects, both risky and not risky. That is why the *TANG* variable is significant, because if a company wants to finance their investment through debt, the company needs to provide more collateral to gain the trust of debtors, thus lessening the agency costs of debts. However, we can see that variable GR_2 is negative. That means, as the company grows, it uses less debt. I conclude that in a healthier economic period like this, companies and investors were more optimistic about the future. Since the stock market was more optimistic, the demand and price of stock are higher and companies may want to exploit this condition by issuing more equity.

After, the economic recessions variable *PROF* and *NDTS* become significant. We think that in this period, debtors naturally become more cautious to lend their money. Thus, the agency costs of debt become high in economic recessions. That is why, even though a company possess a great deal of tangible asset as collaterals, it will not reduce the costs of debts that are naturally high in economic recessions. So, the variable *TANG* in economic recessions become insignificant. Subsequently, companies that want to finance their business with debt in the economic recessions have to consider whether they will be able to generate enough profit to cover the high cost of debt. Hence, the variable *PROF* becomes more significant. Lastly, as most companies stop expanding their business and become more conservative in economic recessions, the variable GR_2 become insignificant.

The results from both models show us that external variables such as macroeconomic conditions may influence the financing decision of a company, especially in extreme condition

such as economic recessions. The influencing capacity of external variables has been confirmed by Demirgue-kunt & Maksimovic (1996), La porta et al (1998), Gleason et al (2000), and Korajczyk & Levy (2003).

The F statistic for both model; 2001 to 2007, and 2007 to 2010, are significant, showing that both of this model have predictive capability as a whole. However, both models have low level of adjusted R^2, at 32.36 percent for period 2001 to 2007 and 26.29 percent for period 2007 to 2010, meaning the data set in this model is not the strongest data set to predict leverage in Japanese Manufacturing Companies.

We can see from the results of this study that both trade off theory and the pecking order theory are able to explain the relation between firm specific experience and debt level in Japanese Manufacturing companies. We can also see from table 3 that none of both theories are more dominant than the other. Accordingly, both theories may be used to explain the phenomena.

Table 3: Comparison Of Test Results With The Expectation Of Theories

Variables	Expected Relationships		Test Results for Japanese Manufacturing Companies
	Trade off	Pecking Order	
Tangibility (*TANG*)	+	-	+
Profitability (*PROF*)	+	-	-
Non-debt tax shields (*NDTS*)	-		-
Size (*SIZE*)	+	-	Insignificant
Growth in Fixed Assets (GR_1)	-	+	Insignificant
Growth in Total Assets (GR_2)	-	+	Insignificant

CONCLUSION

The panel data regressions results reveal that not all of the independent variables of the study; namely Tangibility, Profitability, Non Debt Tax shield, Size, Growth in Fixed Assets, and Growth in Total assets, are significant. We notice that Tangibility, Profitability, and Non Debt Tax shield are showing significant results. The dependent variable leverage increases as Tangibility increases but decreases as Profitability and Non Debt Tax Shield Increases.

We assume that the set of variables used by Sayilgan et al (2006) is still applicable to predict the leverage level of Japanese Manufacturing Companies but somewhat weak in explaining it, because of the high level of F statistic and low level of adjusted R^2.

However, this study may still be able to provide a slightly better understanding to what factors are capable of influencing the capital structure decision in Japanese Manufacturing decisions.

According to the result of this study, in which none of both concepts are more dominant than the other, we want to suggest a new theory as a combination of the two ideas. In our model, companies will keep comparing the cost of the debt and the equity such as in the *static trade off theory*. But, if the difference between the cost of equity and the cost of debt does not reach a certain level, even if the cost of the equity is higher, companies will keep using equity as their main source of fund such as in the *pecking order theory*. We name this theory *Trade-off Adjusted*

Order theory because the order of the use of equity is still the same but it is subject to a change if the difference between the cost of debt and the cost of equity passes a certain threshold.

We find some limitations on our study. Firstly, because we focus on Japanese Manufacturing Companies only, the size of the sample data become small. The size of final data becomes 65% smaller compared to the initial sample. So, the results of this study may not be comparable to studies with large number of samples. Also, because of the limitation of the data available on the database, we have to modify the calculation of few proxies for the variables. These modified proxies may not be well representative, but they are the best available. Lastly, the results of this study may not be comparable to other studies with different data set or variables.

From these limitations, we can expand the potential for future studies. Future studies may utilize larger sample size to fully capture the correlation between the independent variables and the dependent variables. Another possible future study is by using a different set of proxies that are more compatible with the object of the study.

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ENTREPRENEURIAL OPPORTUNITY RECOGNITION THROUGH A MARKET SEGMENTATION OF A SELECTED FILIPINO YOUTH MARKET

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ABSTRACT

Youth travel is of special interest because a considerable number of Filipinos belong to the youth population. By focusing on the youth market, tourism enterprises can maximize considerable business opportunities. This study, using several known motivations and activity preferences of travellers, identified major push motives of young students.

Factor analysis of responses from 117 students revealed four push motives, namely, nature and wellness, education, meeting people and relaxation and unique experience. Young students have been found to travel from the hustle and bustle of city life and contemplate nature, learn, rest, interact with other people and acquire a different kind of experience.

Cluster analysis of responses from 95 students resulted to two market segments, the "enthusiasts" and the "moderates". The "enthusiasts" score higher in the motivations and activity preferences used in the study. The two groups can also be distinguished in terms of age, gender and monthly family income.

The young Filipino traveller is at least "midcentric" using Plog's typology. Product development efforts can be carried out using the findings of the study.

INTRODUCTION

Throughout the years, tourism has emerged as a major national income earner for the Philippines. Since the creation of the Ministry of Tourism in the 1970s, it has become a major contributor to the Philippine economy starting in the 1990s. It currently accounts for 4-5% of the nation's Gross Domestic Product and employs more than three million Filipinos.

Experts of world tourism say that consumers are no longer the same consumer decades ago. The Fordian paradigm of mass tourism with its standardized vacations and rigid packages is becoming obsolete. It has been in force immediately after the Second World War until the early part of the 80s. We are now in what is dubbed as "the New Age of Tourism". Consumers have transformed from being homogenous, having basic motivations and without previous experience to heterogeneous consumers who are experienced, unpredictable and more demanding. Suppliers are realizing that the Fordian paradigm is no longer adequate to address the challenges of competition.

This change in the nature of the consumer of tourism products can lead to many entrepreneurial opportunities. In terms of personality types, consumers can be classified as

allocentrics, psychocentrics and midcentrics. Allocentrics, psychocentrics and midcentrics are personality types in Plog's psychographic typology (Weaver & Oppermann, 2000). The model is used for psychographic segmentation. Allocentrics and psychocentrics are extremes in Plog's bell curve. Allocentrics and near-allocentrics satisfy their intellectual curiosity by seeking adventures that allow them to immerse themselves in other cultures. In contrast, psychocentrics minimise risk by patronizing familiar destinations where usual goods and services are available. Midcentrics are between the psychocentric and allocentric characteristics. Today's traveller has been observed to be allocentric.

An understanding of the tourism market is vital to the growth of the industry. The tourism market has to be understood if it is to be served well and its profit potentials are to be realized. Among the different tourism markets, the youth population of the Philippines is a good target market. There are more than 20 million Filipinos included in this market.

Opportunity recognition, which consists of identifying possibilities for new profit potentials, is a critical task for tourism entrepreneurs. It usually entails significant improvements in product offerings. However, for product development to be effective, there is a need to understand the characteristics of the Filipino youth market. There is a need to look into their motivation and preferences on which their purchase of tourism products depends. Moreover, market segmentation is a powerful marketing tool to identify homogenous groups among the selected Filipino youth market in terms of their motivation and activity preference. The demographic characteristics of these markets can be further used as basis for a more focused product development.

STATEMENT OF THE PROBLEM

Why do the selected Filipino youth market travel? What are their activity preferences? What market segments can be identified on the basis of motivation and activity preferences? How are these market segments characterized in terms of age, gender and monthly family income?

OBJECTIVES

The researcher aims to understand the needs of the Filipino youth as a traveler by identifying factors, in terms of motives, that could affect the travel choices of students. The study seeks to enhance the knowledge of tourism entrepreneurs with regard to experiences sought by the Filipino youth when they travel. The researcher also aims to identify market segments among the selected Filipino youth market based on motivation and activity preferences. The study also aims to identify the demographic characteristics of these market segments. It is hoped that the task of entrepreneurial opportunity recognition among tourism entrepreneurs through the results of the market segmentation will be facilitated and translated to specific product development directions.

SIGNIFICANCE

Youth travel is of special interest because a considerable number of Filipinos belong to the youth population. By focusing on the youth market, tourism enterprises can maximize considerable business opportunities. The results of the market segmentation will have important implications in product development.

SCOPE AND LIMITATIONS

The study will be limited to the identification of major factors, in terms of motives, affecting travel choices of a selected Filipino youth market as well as market segments in terms of motives and activity preferences. The demographic characteristics that will be used to define the market segments will only be limited to age, gender and monthly family income. The study covers students in one particular university. The results serve to provide preliminary insights with which to subsequently understand the Filipino youth market at large.

REVIEW OF RELATED LITERATURE

There have been previous research done on travel motives to help identify factors that affect travel choices of consumers. These motives are either push or pull motives. The decision as to "whether to go" pertains to push motivation while the question of "where to go" is addressed by pull motivation (Kim, Jogaratnam & Noh, 2006).

Kim, Jogaratnam & Noh (2006), in a study they made regarding travel decisions of students at a US university, identified seven push factors , namely "escape", "seeing and learning", "adventure and thrill", "VFR", "indulgence", "nature" and "fun and entertainment". In a separate study on college student travel, Kim, Oh, Jogaratnam (2006) identified seven factors or push motivational dimensions associated with US college student travelers. These are labeled as "Knowledge", "Sports", "Adventure", "Relax", "Lifestyle", Travel bragging and Family.

The first comprehensive study on Filipino travel behaviour was made by the Department of Tourism in relation to the National Youth Travel Program of the government in 1976. The study is based on a survey aimed to measure the attitudes and practices of students towards domestic travel. Findings of the study indicate that travel behavior is a function of income and gender. The high income vs. low income and male vs. female differ in motivations. Those who belong to low income families travel to gain friends and to see places, whereas, those who belong to high income families travel to see places and for status and prestige. Males travel primarily because of status and prestige while females travel to see places and have little concern with status and prestige. In general, the youth was found to have the following motivations, as ranked:

1. to experience travelling
2. to see places

3. to see places for its historical and cultural value
4. to relax
5. to gain friends

Nolasco (2002), in her study of the Filipino youth travel market, identified the Filipino youth's motives for traveling as : visiting friends, to experience traveling and to relax and learn.

The World Tourism Organization (WTO) as the only intergovernmental technical body dealing with all aspects of tourism has come up with numerous publications on a regular basis. These publications, as well as the activities of the organization, cover all sectors of tourism on a worldwide basis. Their studies support the view that mass tourism is getting to be obsolete as a business framework. In a monograph identifying major tourism trends in Asia Pacific, WTO explained that the basis of travel is no longer the destination but the activity. Mihelj (2010) cites experiential learning as key to today's travel experience. The consumer has evolved to being an experienced traveler, with more complex needs and wants.

Allocentrics, psychocentrics and midcentrics are personality types in Plog's psychographic typology (Weaver & Oppermann, 2000). The model is used for psychographic segmentation. Allocentrics and psychocentrics are extremes in Plog's bell curve. Allocentrics are adventurous and intellectually curious travelers who immerse themselves in other cultures. Psychocentrics are not willing to take risk and go for familiar, extensively developed destinations. Midcentrics are in between. According to Weaver & Oppermann (2000), today's traveler, has become allocentric.

According to Tibon (2011), the young Filipino traveller is midcentric. Some have basic motivations while some others have the "adventure or a different kind of experience type" of motivations. He has tried various modes of transport, have gone to several destinations, both here and abroad. Though not largely pronounced, he has developed a liking for novel destinations and flexible travel arrangements that require more personalized service on the part of travel agents or tour operators.

Dotson, Clark and Dave (2008) segmented the youth market into two age groups, 18-23 and 24-30. They found out that these two age groups differ in what they want to do when traveling. The younger group tend to be "hedonistic" while the older group is more "family-oriented".

Kim and Jogaratnam (2003) was able to identify two homogeneous groups among 514 college students surveyed in the US. They called these groups as "moderates" and "enthusiasts" based on the latter's higher ratings for all the 16 activity items used in the study. They also found that characteristics such as gender, age, source of income, length of stay, marital status and travel group size differentiate these two groups.

METHODOLOGY

A questionnaire was designed using the research instruments based on past studies as guides. It is composed of 17 motivational and attitudinal statements. The respondents were asked to specify their level of agreement to each item by using a five-point Likert-type scale ranging

from"1-srongly disagree to 5- strongly agree". A sample of 117 business students of a college in Manila was used. Non-probability judgement sampling was employed. It is purposive in nature. These were administered to the students in between their classes. To reduce the number of dimensions and identify the major factors affecting travel choices of the student market, the 17 motivational and attitudinal statements were subjected to factor analysis.

The same questionnaire was administered to a sample of 95 undergraduate and graduate business students of a university in Manila with additional entries on age, gender and monthly family income. Respondents were asked to check the monthly family income they belong to. The brackets include below Php20,000, Php20,000 to Php50,000, Php51,000 to Php100,000 and above Php100,000. Non-probability judgement sampling was likewise employed. Data gathered was subjected to cluster analysis. Cluster analysis was carried out to determine whether different groups of similar students could be grouped on the basis of their motivation and activity preferences. The goal of cluster analysis is to group individuals or objects with similar characteristics and differentiate them from other clusters on the basis of these characteristics (Hair, et al, 1998). The grouping was done through a hierarchical clustering procedure, specifically, Ward's method.

T-test was carried out between clusters to determine differences in motivation and activity preferences. Crosstab analysis of demographic characteristics such as age, gender and monthly family income were used to tease out the profile of the clusters.

RESULTS AND DISCUSSION

Of the 95 students surveyed, 51% are females while the rest are males. Fifty four students are between 16 to 23 years of age and the remaining forty five are within the 23 to 30 year old bracket. Majority, that is 62% of the sample, have family incomes exceeding Php100,000 a month.

The 17 variables representing motivations and activity preferences of students are as follows:

MOTIVATIONS	
Variable 1	To relax
Variable 2	To see places
Variable 3	To see a place for its historical/educational value
Variable 4	To experience travelling
Variable 5	For adventure
Variable 6	To get away from the city
Variable 7	To be nearer to nature
ACTIVITY PREFERENCES	
Variable 8	Going to beaches and marine areas
Variable 9	Going to mountains, deserts and geographical areas
Variable 10	Going to health spas
Variable 11	Visiting family and friends
Variable 12	Camping
Variable 13	Rapelling and backpacking
Variable 14	Learning new languages and culture

Variable 15	Going to aquariums and botanical gardens
Variable 16	Participating in cruise seminars and educational programs
Variable 17	Going to themeparks

A principal factor analysis using SPSS on these variables resulted to a Kaiser-Meyel-Olkin (KMO) measure of .790 – middling but close to meritorious. The four factors with eigenvalues greater than 1 that were extracted can be named as:

Factor 1	Nature and Wellness
Factor 2	Education
Factor 3	Meeting People and Relaxation
Factor 4	Unique Experience

These are the push factors that affect the travel choices of the Filipino youth, specifically students. The 17 motivations and activity preferences can be summarized into these four factors that more clearly define the profile of the Filipino youth in terms of motivations and activity preferences.

The first factor has to do with travelling to sites where they can escape from the hustle and bustle of city life and contemplate nature. The second factor has to do with learning while travelling. The third factor has to do with rest and social interaction while the fourth factor has to do with acquiring a different kind of experience while travelling.

The responses of the 95 students surveyed with regard to their motivations and activity preferences were subjected to a cluster analysis using Ward's method, a hierarchical clustering procedure. Square Euclidean distance was used for the similarity measure. To find out the optimal number of clusters, the dendogram and agglomeration schedule were used. Distance levels were considered as significant increases in cluster homogeneity because they provide an indication for a possibly optimal number of clusters. The dendogram and agglomeration schedule indicate a possible 2 cluster solution.

The two cluster solution identified two different groups of young Filipino students on the basis of their motivations and activity preferences. Group 1, the "enthusiast" group, similar to the groupings made by Kim and Jogaratnam (2003) comprises 58.95% of the respondents. This group has higher ratings on the motivation and activity preferences. Group 2, the "moderates" group, containing 41.05% of the respondents, have motivations and activity preferences lower than that of the "enthusiasts". Descriptive statistics can be found in Table 1.

Table 1: Descriptive Statistics of Two Cluster Groups

MOTIVATION/ACTIVITY	CLUSTER	N	MEAN	STD. DEV
V1 To relax	ENTH	56	4.59	.532
	MOD	39	4.54	.643
V2 To see places	ENTH	56	4.75	.513
	MOD	39	4.54	.643
V3 To see a place for its historical/educational value	ENTH	56	3.96	.894
	MOD	39	3.56	.912
V4 To experience travelling	ENTH	56	4.48	.738
	MOD	39	4.26	.715
V5 For adventure	ENTH	56	4.86	.353
	MOD	39	4.13	.894
V6 To get away from the city	ENTH	56	4.36	.773
	MOD	39	3.97	.932

Table 1: Descriptive Statistics of Two Cluster Groups				
MOTIVATION/ACTIVITY	CLUSTER	N	MEAN	STD. DEV
V7 To be nearer to nature	ENTH	56	4.36	.645
	MOD	39	3.15	.961
V8 Going to beaches and marine area	ENTH	56	4.50	.739
	MOD	39	3.90	.912
V9 Going to mountains, deserts and geographical areas	ENTH	56	4.09	.837
	MOD	39	2.56	.821
V10 Going to health spas	ENTH	56	3.20	.980
	MOD	39	3.49	.144
V11 Visiting family and friends	ENTH	56	4.23	.786
	MOD	39	4.26	.637
V12 Camping	ENTH	56	3.88	.955
	MOD	39	2.59	.880
V13 Rapelling and backpacking	ENTH	56	4.02	.798
	MOD	39	2.62	.990
V14 Learning new languages and culture	ENTH	56	4.18	.834
	MOD	39	3.62	.016
V15 Going to aquariums and botanical gardens	ENTH	56	3.82	.897
	MOD	39	3.28	.972
V16 Participating in cruise seminars and educational programs	ENTH	56	3.79	.847
	MOD	39	3.21	.174
V17 Going to themeparks	ENTH	56	4.30	.872
	MOD	39	4.03	1.11

The T-test conducted between the two cluster groups revealed differences in 11 out of 17 variables. Both groups have similar considerations with regard to traveling to relax, to see places, to experience traveling, going to health spas and visiting family and friends. They differ in all the remaining motivations and activity preferences used in the study. Table 2 gives the details of the t-test conducted.

Table 2: Results of T-Test					
MOTIVATION/ACTIVITY	CLUSTER	N	MEAN	t-value	Sig.
V1 To relax	ENTH	56	4.59	.420	.675
	MOD	39	4.54		
V2 To see places	ENTH	56	4.75	1.780	.078
	MOD	39	4.54		
V3 To see a place for its historical/educational value	ENTH	56	3.96	2.129	.036
	MOD	39	3.56		
V4 To experience travelling	ENTH	56	4.48	1.485	.141
	MOD	39	4.26		
V5 For adventure	ENTH	56	4.86	5.525	.000
	MOD	39	4.13		
V6 To get away from the city	ENTH	56	4.36	2.181	.032
	MOD	39	3.97		
V7 To be nearer to nature	ENTH	56	4.36	7.310	.000
	MOD	39	3.15		
V8 Going to beaches and marine area	ENTH	56	4.50	3.550	.001
	MOD	39	3.90		
V9 Going to mountains, deserts and geographical areas	ENTH	56	4.09	8.805	.000
	MOD	39	2.56		
V10 Going to health spas	ENTH	56	3.20	-1.327	.188
	MOD	39	3.49		
V11 Visiting family and friends	ENTH	56	4.23	-.160	.874
	MOD	39	4.26		
V12 Camping	ENTH	56	3.88	6.663	.000
	MOD	39	2.59		

Table 2: Results of T-Test					
MOTIVATION/ACTIVITY	CLUSTER	N	MEAN	t-value	Sig.
V13 Rapelling and backpacking	ENTH MOD	56 39	4.02 2.62	7.631	.000
V14 Learning new languages and culture	ENTH MOD	56 39	4.18 3.62	2.959	.004
V15 Going to aquariums and botanical gardens	ENTH MOD	56 39	3.82 3.28	2.786	.006
V16 Participating in cruise seminars and educational programs	ENTH MOD	56 39	3.79 3.21	2.802	.006
V17 Going to themeparks	ENTH MOD	56 39	4.30 4.03	1.364	.176

The crosstab results indicate that the "enthusiasts" is composed of individuals that are younger, more male-dominated and have a wider range of income. Thus, the "moderates" tend to be older, female and have a higher level of income. Details of the cross-tab procedure is indicated in Table 3.

Table 3: Cross-Tab Results			
		ENTHUSIASTS n=56	MODERATES n=39
AGE	Below 18 years old	15	5
	18-23 years old	28	19
	24-30 years old	13	15
GENDER	Male	30	16
	Female	26	23
INCOME	Below Php50,000	13	3
	Above Php 50,000	43	36

CONCLUSION

The Filipino youth make travel choices such as where and what to do while travelling influenced by four main push motives or factors, namely: nature and wellness, education, meeting people and relaxation and unique experience.

All in all, the study confirms that the Filipino young traveller is at the very least, midcentric, according to Plog's typology. Two groups of Filipino young travellers emerged from the study: the "enthusiasts" and the "moderates". The "enthusiasts" tend to be "allocentric" in activity preferences and motivations. The group is younger, male dominated and more diverse in terms of income. The "moderates", on the other hand, tend to be female, older and are in the higher income brackets. They are "midcentric" in motivations and activity preferences. Travel products should, therefore, match the profile of the "enthusiast" as more adventurous than a typical "moderate".

RECOMMENDATIONS

The researcher recommends that tourism entrepreneurs make use of these findings in order to come up with tourism products that would serve the needs of the Filipino youth. Several things can be looked into such as the identification of domestic destinations and what to include in product offerings. Packages can be made largely to address one or two of the factors identified

to affect travel choices of the student market with optional offerings addressing the other two. What is achieved is more focus in the marketing efforts directed to the Filipino youth.

The researcher also recommends that these factors be considered as themes to the domestic tourism promotions, not only of the private sector but more importantly, of the government, through the Department of Tourism.

With regard to the market segments identified and its characteristics, tourism entrepreneurs are encouraged to develop products for higher income, female and relatively older segment veering towards the "midcentric" type and the younger, male and middle income segment for the "allocentric" type.

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