Measuring the Degree of Internationalization

of Chinese Companies

Santosh Kumar Ghimire

Candidate Number

4735

Supervisor

Prof. Ilan Alon

ACKNOWLEDGEMENT

DECLARATION

I, Santosh Kumar Ghimire, hereby confirm that this study "Measuring the Degree of Internationalization of Chinese companies" has not been previously submitted, either in whole or in part for the degree at this University or any other institution of higher learning. To the best of my knowledge this thesis is original and contains no materials previously published or written by any other persons except as acknowledged in the text and reference list.

Signed

…………… …………..…….

Santosh Kumar Ghimire

1st June, 2018

Kristiansand, Norway

List of Abbreviations

DOI	-	Degree of Internationalization
UNCTAD	-	United Nations Conference on Trade and Development
FSTS	-	Foreign Sales to Total Sales
FATA	-	Foreign Assets to Total Assets
GTA	-	Goodwill to Total Assets
OSTS	-	Overseas Subsidiaries to Total Subsidiaries
FETE	-	Foreign Employees to Total Employees
TNCs	-	Transnational Corporations
TMIE	-	Top Management International Experience
PDIO	-	Psychic Dispersion of International Operations
AS	-	Accounting Standards
FSE	-	Number of listings in foreign stock exchanges
FOTO	-	Foreign Owners to Total Ownership
TMT	-	Top Management Team
MNCs	-	Multinational Companies
OFDI	-	Foreign Direct Investment
MOFCOM	-	Ministry of Commerce
ODI	-	Outward Direct Investment
WTO	-	World Trade Organization
SOEs	-	State Owned Enterprises
IJV	-	International Joint Venture
MNEs	-	Multinational Enterprises
OEM	-	The original equipment manufacturer
R&D	-	Research and Development
ROS	-	Return on Sales
OCTS	-	Operating Costs to Total Sales
ROA	-	Return on Assets
ROE	-	Return on Equity
EBITDA	-	Earnings Before Interest Tax Depreciation and Appreciation

OPSAL	-	Operating Costs to Sales
OPSALINV	-	Operating Costs to Total Sales
M&A	-	Merger & Acquisition
LEBITDA	-	Log. Earnings Before Interest Tax Depreciation and Amortization

MEASURING THE DEGREE
OF INTERNATIONALIZATION OF CHINESE COMPANIES

Santosh Kumar Ghimire

Universitetet i Agder

Abstract. This thesis is intended to measure the degree of internationalization along with the performance of Chinese Companies. The construct of measures is done based on previous studies, whereas a new variable has been introduced both in Degree of Internationalization (DOI) measures and performance measures. This thesis discusses the significance of DOI measures in the overall performance of the company and finds that the activities of the companies in foreign country affect the performance of the company.

The term Internationalization has remained a hot topic in international business over decades. Generally, the cross-border activities of the firm are known as internationalization. There are several researches done and literature written on this topic. But, the major question arises when it comes to the methods and models that measure the degree of internationalization of a multinational company. This thesis develops a model based on existing models of internationalization index. This model will be applied in the context of Chinese Companies to measure the degree of internationalization as well as analyse the impact of the model on the overall financial performance.

"*A multinational or transnational enterprise is an enterprise that engages in foreign direct investment (FDI) and owns or, in some way, controls value-added activities in more than one country*" (Dunning & Lundan, 2008, p.3). It is rather hard to find companies that do not comply with this definition. It is also interesting to know, how companies are different in respect to their internationalization rather than finding out if companies are internationalized or not (Dörrenbächer, 2000). It has always been argued that the internationalization of a company occurs only by the means of international production sites or revenue accumulated in the overseas markets (Hassel, Höpner, Kurdelbusch, Rehder & Zugehör, 2003). But Internationalization of companies may take place via

several modes such as export, franchising, greenfield investments, outward foreign direct investment (OFDI), Merger and Acquisition (M&A) etc.

Existing literatures identified several models and indicators that measure the degree of internationalization. To mention some, the composite indicators: Transnationality Index (UNCTAD 1995), Transnational Activities Spread Index (Ietto-Gillies, 1998) and Degree of Internationalization Scale (Sullivan, 1994) can be regarded as the most prominent indicators to measure the internationalization. These indices are however derived from the individual indicators of internationalization that includes: Structural Indicators, Performance Indicators, Attitudinal Indicators (Dörrenbächer, 2000). Ietto-Gillies (1998) argues that it is important to capture the significant patterns and aspects of the internationalization along with the relevant variables to access the DOI.

The process of internationalization includes the flow of exchange of raw materials, semi-finished and finished products and resources between two or more countries (Petrella, 1996, p.63). Internationalizing is dynamic because it is always in a changing state (Buckley & Ghauri, 1999). Bartelson (2000, p.184) states that *"the concept of globalization is ontologically individualist while being logically open to the possibilities of methodological structuralism, since the concept of globalization refers to observable change at the unit level as well as to the observable yet sometimes unintended outcomes of interaction between units"* . Previous studies researched on many issues and tried to give a definite conclusion in the context of internationalization. Some of the major questions researched upon were: *"Do firms internationalize by a gradual and incremental process going through a number of definite stages? Is this 'stages of internationalization' model valid for established multinational firms or only for naive, small firms with little international experience? How far can firms use their experience to miss out stages in this process and move directly to a deep form of involvement in the foreign market? On how many fronts can a firm pursue internationalization? Should it proceed step by step, going first to nearby countries in terms of physical and cultural distance? Do established multinational firms need to obey any such rules?"* (Buckley & Ghauri, 1999, p.ix). Meanwhile, the investigation of these questions has found an interaction between the internationalization and the situation in which companies decide to choose from exporting, licensing or foreign direct investment (Buckley & Ghauri, 1999).

Internationalization index of a firm consists of attributes that helps to measure the rate and direction of the internationalization. According to Sullivan (1994, p.325), previous studies used the instrumental approach that were loosely structured and unstructured inductive frameworks to assess the DOI. Whereby the scholars then examined the evolution, structure and processes of relationships among its demographic, strategic, market, organizational, product, and attitudinal characteristics of international expansion.

Sullivan (1994) used data from the 74 largest American MNCs companies and based his study on the basis of previous studies conducted by Stopford and Dunning (1983), Daniels and Bracker (1989), and Stopford and Wells (1972). Where Sullivan (1994) claims that these researchers used the positivistic principles to measure DOI by relying on an unidimensional index. The ratios used in these unidimensional indices were the ratio of foreign sales to total sales (FSTS), ratio of foreign assets to total assets (FATA) and the number of foreign subsidiaries. They studied the relationship between the single independent and dependent variables, based on deductive frameworks to structure analysis Sullivan (1994).

However, Sullivan (1994) found that, such studies were found to have not included all the aspects of DOI and failed to establish a standard criterion. Moreover, the measures failed to document the reliability of measurement and the validity of interpretation. In order to cover up and develop the indicators that help to assess the internationalization index, Sullivan (1994) developed a model using an integrated approach of both the positivistic principles and the instrumental principles. This lead to the development of the composite five-dimensional index that relied on the ratios of: sales, profit, assets, alongside with international experience of top-managers, and the psychic dispersion of international operations (Ietto-Gillies, 1998).

Later, in 1995, United Nations Conference on Trade and Development (UNCTAD) developed a composite index called transnationality index in order to examine the degree of internationalization. This index used the activities of transnational companies based on foreign activities compared to their total activities (Ietto-Gillies, 1998). The author, further adds up that the transnationality index establishes the relationship between home and foreign activities for any particular company. Thus, the output is that a company is considered to be highly globalized if the ratio of its foreign operation to total operation are

very high, independent of foreign countries or regions. The transnationality index is the summation of ratios of foreign sales to total sales (FSTS), foreign assets to total assets (FATA) and the foreign employment to total employment (FETE). The result is then divided by 3, to determine the degree of internationalization (Dörrenbächer, 2000).

UNCTAD's transnationality index is a concept based on foreign and home activities. It takes into account the only activities of Transnational Corporations (TNCs) that take place outside its home country. Ietto-Gillies (1998), is of the view that this index is relevant to study in order to reveal the extent to which TNC (Transnational Corporation) business and interests are outside the home country at the micro level. There can be numerous factors for higher projections of foreign activities, but the most relevant reason is supply and/or demand conditions. On the other hand, Ietto-Gillies (1998) considers the fact that some countries are chosen as convenient locations for holdings because of their simple or similar regulatory framework and fiscal structures in relation to companies as an important element of foreign-home dichotomy. Similarly, at the macro level, the higher the average index of transnationality, the higher the propensity for home-based TNCs (Transnational Corporations) to invest abroad. This can have a considerable structural impact and can also have policy implications, some of which can be the effects on the balance of payments, some to the structure of trade, and some to the effectiveness of the industrial policies (Ietto-Gillies, 1998).

An alternative to foreign-home dichotomy that Ietto-Gillies (1998) suggested is the number of foreign countries in which the company operates. Per the author, this have both micro and macro level effects that relates to the geographical spread of activities. Though this might have extra managerial costs, it is considered to have many advantages. Some of the advantages can be the radiation of risk in between many countries, room for acquiring the locational advantages, ownership advantages, and the opportunity to learn. Similarly, the spread of activities across the globe provides the company with bargaining power in regard to governments and labour. Ietto-Gillies (1998), comes to the point that this approach gives the company the ability to build up its specific advantages over its competitors.

Thus, after analysing the two different frameworks, Ietto-Gillies (1998) finds that UNCTAD's transnationality index lacks to visualize the stretch of foreign activities, and also that network spread index ignores the amount of overseas activities and therefore,

developed her own composite index after reconciling UNCTAD's transnationality index and network spread index which she calls the *transnational activities spread index*. This index is calculated as the summation of the average of ratios of FSTS, FATA and FETE multiplied by the number of foreign countries in which a company owns affiliates as a proportion of total number of countries in which foreign direct investment has occurred minus one (Dörrenbächer, 2000, p.123).

Hence, Sullivan's work on DOI scale, UNCTAD's transnationality index and Ietto-Gillies's transnational activities spread index can be tabulated below as composite indicators:

Table 1

Composite Indicators Used to Measure Corporate Internationalization

Transnationality Index (UNCTAD 1995)	Transnational Activities Spread Index (Ietto-Gillies, 1998)	Degree of Internationalization Scale (Sullivan, 1994)
Ratio of foreign sales to total sales+Ratio of foreign assets to total assets+Ratio of foreign employment to total employment Divided by 3	Ratio of foreign sales to total sales+Ratio of foreign assets to total assets+Ratio of foreign employment to total employment Divided by 3 Multiplied by Number of foreign countries in which a company owns affiliates as a proportion of total number of countries in which foreign direct investment has occurred minus one (= home country of the company)	Ratio of foreign sales to total sales+Ratio of foreign assets to total assets+Ratio of foreign affiliates to total affiliates+international experience of top management+Psychic dispersion of international operations.

Source: (Dörrenbächer, 2000, p.122)

Later, Ramaswamy, Kroeck, & Renforth (1996) criticized the Internationalization Index developed by Sullivan in 1994. The researchers here doubt that the use of five major variables viz: FSTS, FATA, OSTS, TMIE and PDIO as a means to assess DOI do not align with theoretical as well as statistical view. To analyse it further, the authors used the same 74 companies as Sullivan and found out that the result did not seem conclusive, provided that the low score in one of the five variables can be covered up by the high score in other variable to increase its degree of internationalization. For example, low investments in assets abroad can be substituted with higher turnover abroad or any other variables. Thus, the researchers here question whether the five variables (FATA, FSTS, TMIE, OSTS and PDIO) are interchangeable. Another major criticism they made is with the use of TMIE as a measure of DOI. The authors argue that the number of overseas experience of a manager might not be necessarily positively correlated with the internationalization orientation of the company. Moreover, their work finds that the approach of Sullivan (1994) lacks enhancement of construct validity and totally lacks criterion-related validity.

Similarly, Hassel, Höpner, Kurdelbusch, Rehder & Zugehör (2003), described the two spheres of internationalization; first, the production sphere and second, corporate governance. The researchers exemplified and described the types of internationalization based on various studies. Based on which the researchers developed two major internationalization indices, the real and the finance. The researchers referred to the share of foreign activities of companies as the real dimension, and the orientation of companies towards international capital market as the finance dimension. The researchers hereby developed own indices including the variables such as FSTS, FETE, SPREAD (geographical spread of activities of firms abroad), AS (Accounting Standards), FSE (Number of listings in foreign stock exchanges) and FOTO (Foreign Owners to Total Ownership). The researchers took the cases of the 100 largest German firms and found that the correlation between REAL and FINANCE dimensions increased when they excluded the cases where the access to capital markets were restricted, but the possibility to internationalize their activities was not restricted. Moreover, the researchers depicted that the concept of real and finance dimension has both theoretical and empirical sound ground. Furthermore, Hassel, Höpner, Kurdelbusch, Rehder & Zugehör (2003) presented the view

that financial internationalization does not follow the same patterns and motives as real internationalization does by following the syllogism of stages of product life cycle.

Similarly, Caligiuri, Lazarova, & Zehetbauer (2004) analysed the attitudinal indices in detail, developed by Sullivan (1994). The authors seem to be more concerned in two operational indicators: first, the years of international experience of top managers and second the psychic dispersion. The authors here claim that the attitudes are individual characteristics that have a significant effect on a person's values, behaviours, interests, decisions etc. and are likely to influence the organizational activities as well. The focus should be given to the quality of international assignments rather than counting the numbers of international experience of TMT (Top Management Team). This would positively enhance the individuals' global attitudes. Therefore, the authors find it unseemly to sum up the years of international experience to indicate a firm's international acclimatization. Hence, the authors believe that the national diversity of TMT is an important component of a firm's internationalization. They, moreover, believe and describe this argument and highlight that the variation in the nationality in TMT brings cultural capital, different skills and information and attitudes. The authors also believe that the national diversity in TMT of a firm have a significant impact in decision making and complexity handlings processes derived from different skills, information and attitudes towards the description of the firm's objective. On the contrary to psychic dispersion, the authors suggest an alternative index as geographic dispersion. Hence, per the authors, greater the number of countries of operation, the greater is the cognitive complexity. Thus, the inclusion of these parameters in Sullivan's (1994) individual attributes would reflect internationalization.

China: Steps to Internationalization

Globalization has been termed in many contexts by scholars; but one of the major driver of internationalization, *Foreign Direct Investments,* has remained on top of any empirical studies focusing on internationalization. It is a common phenomenon that developed countries invest in developing or emerging markets to exploit their resources. And many researches have been done on different context on this phenomenon. Over the decades, the direction of studies has been changed. It has now been observed that huge investments are pouring from emerging economies to the developed economies. This trend has attracted

the attention of many scholars. One of such emerging economy is China, which used to be a big market platform for developed economies to invest in. On the context of Chinese companies, many researches have been done on its internationalization process and motives. The history of Chinese economic development is not long dated. Hence, it is referred to as *latecomer* in terms of its cross-border activities. Recent trends and activities of Chinese companies have drawn the attention of not only the business sectors but also the academics.

Chinese Outward Foreign Direct investments
(millions of dollars)
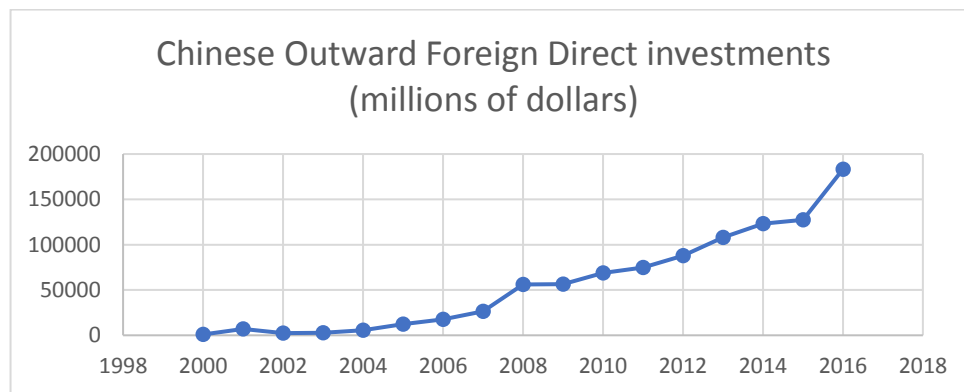
Source: UNCTAD statistics on World Investment Report 2017

Fig. 1. China's total OFDI around the world.

Since 1980s, globalization has rapidly increased the growth of foreign direct investment (OFDI) all over the world (Zhang & Daly, 2011). It is now being observed that the Chinese firms are making global presence via loans provided, investments made, and other types of flows (Kolstad & Wiig, 2012, p.26). The motive behind such investments from Chinese companies has always remained debatable. The evolution of Chinese OFDI geared up with the formulation of open door policy in the late 1970s. This was further supported by the visit of Deng Xiaoping to the South of China in 1992 and the initiation of *zou chu qu* 'Go Global Strategy' in 1999 (Kolstad & Wiig, 2012). There have been many stages followed by the development of Chinese internationalization footprint until today but to be precise, Buckley, Clegg, Cross, Liu, Voss, & Zheng (2007, p.504) and Buckley, Cross, Tan, Xin, & Voss (2008, p.723) summarized the five key stages of Chinese outward investments in brief that is considered to be the blue print and is tabulated below:

Table 2

Key stages in Chinese ODI policy development

1979–1985	Stage 1: Cautious internationalization
	With the 'open-door' policy, Chinese ODI is identified by government as one means of opening and integrating China into the world economy. Chinese state-owned firms start to set up their first international operations. Only state-owned trading corporations under MOFERT (later MOFCOM or the Ministry of Commerce) and provincial and municipal 'economic and technological cooperation enterprises' under the State Economic and Trade Commission (now part of the National Development and Reform Commission [NDRC]) are allowed to invest abroad. Some 189 projects are approved, amounting to around US$197m in value.
1986–1991	Stage 2: Government encouragement
	The government liberalizes restrictive policies and allows more enterprises to establish foreign affiliates, provided they have sufficient capital, technical and operational know-how and a suitable joint venture partner. Approval is granted to 891 projects, totaling some US$1.2bn.
1992–1998	Stage 3: Expansion and regulation
	Encouraged by domestic liberalization, initiated by Deng Xiaoping's journey to the South and the incorporation of enterprise internationalization into the national economic development policy, subnational-level authorities actively promote the international business activities of enterprises under their supervision, especially in Hong Kong to engage in real estate and stock market speculation. The Asian crisis in 1997 and the subsequent collapse of some enterprises slow down this development. Latterly, concerns about loss of control over state assets, capital flight and 'leakage' of foreign exchange lead to a tightening of approval procedures, notably for projects of US$1m or more. Individual ODI project activity declines, despite an increase of total ODI of US$1.2bn in value terms.
1999–2001	Stage 4: Implementation of the 'go global' policy
	Contradictory policies characterize this period. Further measures to control illicit capital transfers and to regularize ODI towards genuinely productive purposes are introduced. By

contrast, ODI in specific industries is actively encouraged with export tax rebates, foreign exchange assistance and direct financial support, notably in trade- related activities that promoted Chinese exports of raw materials, parts and machinery and in light industry sectors like textiles, machinery and electrical equipment. In 2001 this encouragement is formalized in the 10th five-year plan which outlines the 'going global' or zou chu qu directive. Total approved ODI rises by US$1.8bn, with an average project value of US$2.6m.

Since 2001	Stage 5: Post-WTO (World Trade Organization) period (included here for completeness) Heightened domestic competitive pressures, owing to the opening of once protected industries and markets to foreign and domestic competitors, forces some Chinese firms to seek new markets abroad. In the 11th five-year plan the Chinese government stresses again the importance of zou chu qu for Chinese firms and the Chinese economy. Although the approval system is decentralized and streamlined to become less burdensome, contradictory regulations still prevail. Direct, proactive support of ODI continues to be limited, aimed mainly at preventing illegal capital outflows and loss of control of state assets.

Source: Buckley, Clegg, Cross, Liu, Voss, & Zheng (2007, p.504)

Furthermore, Buckley, Cross, Tan, Xin, & Voss (2008) put the view, that the Chinese companies internationalized during 1980s and 1990s to fulfil some national and provincial economic and policy objectives. The authors pointed that, the Chinese companies internationalized i) to support the export function of their SOEs (State Owned Enterprises) ii) to have access to natural resources and iii) to create a learning opportunity and to gather information so as to create a platform for domestic firms. However, the motives gradually changed, and after late 1990s their intention seems i) to have access to the high-end technology, strategic assets and capabilities located in the foreign land ii) exploitation of market and iii) development of competitiveness through the diversification of business activities.

In addition to this, Buckley, Cross, Tan, Xin, & Voss (2008, p.722) articulate the standard models of developing country FDI as follows: a) developing country's firms have home country-embeddedness b) developing country ODI is generally directed towards other developing countries in the early stages c) prefers to invest in psychically and geographically close locations where relational assets can be exploited most effectively d) developing country's firms over time increasingly target investment opportunities in more advanced economies e) IJVs (International Joint Ventures) are preferred entry mode especially in the early stage and f) home country government has a strong influence on the level and direction of ODI (Outward Direct Investment) . Relying on which, the study of the patterns of Chinese ODI resulted that a) Chinese companies entertain financial advantages b) Chinese firms from the very early stage and still continues to direct towards advanced and distant countries c) they prefer both IJV and wholly-owned affiliates as a mode of entry. Per the researchers, there existed the dominating role of the SOEs over the private investments until the "go global policy" was adapted. Their study is also concerned with the geographical and sectoral division of investments made by Chinese companies. The authors are of the view that the inefficient domestic capital markets and budget constraints to purchase foreign assets opted Chinese companies and SOEs to undertake IJV alternative. As an advantage, this form of entry mode allowed Chinese companies to enjoy a degree of control over the local operations while avoiding outright ownership and the adjuvant exposure to political and commercial risk.

11-20 Overseas Direct Investment by Sector

(USD 10 000)

Sector	Net Overseas Direct Investment		Overseas Direct Investment Stock at the End of 2016
	2015	2016	
Total	**14566715**	**19614943**	**135739045**
Agriculture, Forestry, Animal Husbandry and Fishery	257208	328715	1488502
Mining	1125261	193020	15236959
Manufacturing	1998629	2904872	10811271
Production and Supply of Electricity, Heat, Gas and Water	213507	353599	2282141
Construction	373501	439248	3241975
Wholesale and Retail Trades	1921785	2089417	16916820
Transport, Storage and Post	272682	167881	4142202
Hotels and Catering Services	72319	162549	419407
Information Transmission, Software and Information Technology	682037	1866022	6480151
Financial Intermediation	2424553	1491809	17734245
Real Estate	778656	1524674	4610471
Leasing and Business Services	3625788	6578157	47399432
Scientific Research and Technical Services	334540	423806	1972019
Management of Water Conservancy, Environment and Public Facilities	136773	84705	357469
Service to Households, Repair and Other Services	159948	542429	1690188
Education	6229	28452	72372
Health and Social Service	8387	48719	92137
Culture, Sports and Entertainment	174751	386869	791284
Public Management, Social Security and Social Organization	160		

Source: National Bureau of Statistics of China, China Statistical Year Book (2017)

Table 3: Sectors of investment by Chinese companies

Buckley, Cross, Tan, Xin, & Voss (2008), Kolstad, & Wiig (2012) and many other scholars identified the following basic determinants or motives of Chinese outward investment via different routes: a) Natural resources seeking FDI b) Market seeking FDI c) Strategic asset seeking FDI and d) Efficiency seeking FDI.

Child & Rodrigues (2005) identifies three major ways of being international that are in practice within Chinese companies. These are a) the partnership route through OEM or joint venturing b) the acquisition route c) the organic expansion route.

a) The original equipment manufacturer (OEM)/joint venture (JV) route: This is the most favored route of internationalization whereby the business enterprises from the mainland of China form a partnership or JV with foreign counterparts to go abroad via original equipment manufacturing or licensing their technology. Child & Rodrigues, (2005, p.390) point that "*this route amounts to inward internationalization where there is a close, continuing, operational and organizational relationship with one or more MNEs of a kind that permits the transfer of competencies and knowledge relevant to eventual outward internationalization through exporting and or investment abroad*".

b) The acquisition route: In the recent years, the number of Chinese acquisitions abroad has increased rapidly. It is found that the large state material processing corporations are the major players in acquisition with the motive of securing raw material supplies. The main reason behind undertaking this route is to assess the market strength, gain access to technology, for R&D purposes, and to acquire international brands.

c) The organic expansion route: This route basically involves the greenfield investments subsidiaries and facilities in the target market. This route is chosen in order to adopt differentiation advantages to cope up with local market needs and tastes. This mode therefore increases the level of managerial control and also increases the possibilities of global alliance.

Position of Chinese outward direct investment

With the full implementation of its "go global policy" in 2001, China has remained successful in surpassing the giant economies in terms of its outward investment activities. Per the "World Investment Report, 2017" published by the United Nations Conference on Trade and Development (UNCTAD), China alone constituted the outward Foreign Direct Investment (OFDI) of $183100 million and FDI stocks of $1280975 million in the year 2016. Similarly, Financial Times (June 26, 2015) projects that "*China will triple its offshore assets to $20tn by the turn of 2020 from $6.4tn in 2015*".

Net Overseas Direct Investment (USD 10 000)
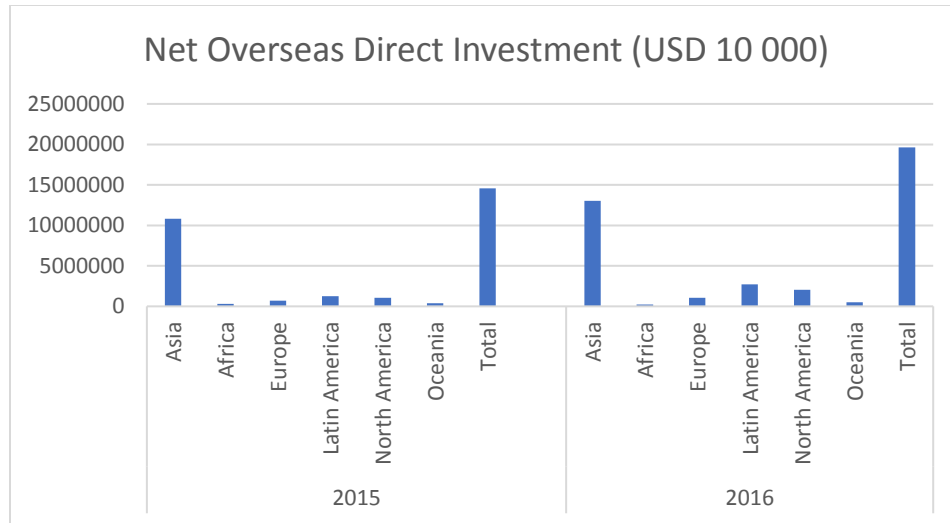
Source: National Bureau of Statistics of China, China Statistical Year Book 2017

Fig. 2. Chinese investments by regions

A Case in Point

It has always been disputable if the diversification of firms internationally has positive impacts on the financial performance of the company. Many literatures suggest a positive result but in contrary there are some studies which shows that this assumption is not true. Though there are many studies carried out which verify the relationship between DOI and the financial performance of the company, this thesis, however, summarizes eight recent empirical studies categorically where care has been taken to include the companies from various regions and from various sectors of operation. The summarization of these empirical studies is indicative of ubiquity to deploy FSTS as a measure of DOI, and ROS (Return on Sales) or ROA (Return on Assets) as a measure of performance. However, in recent trends, researches are not only confined to the use of FSTS, but also other measures such as R&D intensity, advertising intensity or marketing intensity as well. Whereas, few studies show inferring OCTS (Operating costs to Total Sales), along with ROA and ROS as a performance measure. For the purpose of this thesis various DOI measures such as FSTS, GTA, FATA and OSTS have been taken into consideration to analyze the impacts and consequently the direction of impacts on the performance measures namely ROE, ROA and EBITDA in the context of Chinese companies. Also, this thesis tends to compare the findings with

previous findings. Thus, the table below exhibits the variation in the relationship between the measures of DOI and the financial performance of the companies.

Table 4

Relationship between measures of DOI and financial performance

Study	Sample	Measure of DOI	Measure of Performance	Report
Ruigrok & Wagner (2003)	84 German companies from Germany's Top 500, Frankfurter Allgemeine Zeitung Information Services 1999	FSTS	ROA & OCTS (Operating Costs to Total Sales)	ROA depicts an increasing positive slope (concave upward) and OCTS exhibited inverted -U shape
Riahi-Belkaoui (1998)	100 US companies from Forbes 1987-1993	FRTR (Foreign Revenues/Total Revenues)	ROA	nonmonotonic relationship between ROA and DOI
Tallman & Li (1996)	192 US MNCs, from 3rd edition of *Directory of Multinationals*	Product diversity and international diversity	ROS (Return on Sales)	MNEs performance increases as product diversity index increases, international diversity has a positive but weaker impact on performance
Lu & Beamish (2004)	1,489 Japanese firms from in between 1986-97	Geographic diversification	ROA	Non-linear relationship between geographic diversification and ROA

Lu & Beamish (2001)	164 Japanese firms, listed on the 1st and 2nd section of Tokyo Stock Exchange	R&D intensity, product diversification, firm size, advertising intensity, exchange rate, exporting, FDI and alliance activities	ROA & ROS	Positive relation between R&D intensity, exchange rate and performance, negative relationship between product diversification, firm size, exporting and performance, no significance between advertising intensity and performance, non-linear relationship (U shape) between FDI and performance, JV activity with local firms had a positive relation with performance whereas JV with other Japanese firms exhibited negative relation to performance
Contractor, Kumar & Kundu (2007)	142 Indian MNCs and 127 Indian non-MNCs	FSTS	ROA, ROE & ROS	Statistically U shape between DOI and performance in manufacturing industries, positive and linear relationship between the DOI of service sectors and performance

Gomes & Ramaswamy (1999)	95 US MNEs	FSTS, FATA and number of foreign countries with subsidiaries	ROA & OPSAL (Operating costs to sales)	Moderate levels of internationalization are beneficial in terms of reducing cost and enhancing ROA
Kotabe, Srinivasan & Aulakh (2002)	49 US companies	Foreign income to total income, R&D intensity and marketing intensity	ROA & OPSALINV (Operating costs to total sales)	Impact of foreign diversification on firm's performance is not unequivocal, rather it is highly dependent on various firm specific factors among such factors are R&D intensity and Marketing Intensity

THE RESEARCH ISSUE

This thesis does not focus on finding out the flaws of the existing studies and findings. Rather, it is focused on enriching scope of construction of model, thus developing a new model including the previously used indicators and finding a new variable and then apply them to measure the DOI of Chinese companies. Based on these available data, this thesis made an attempt to construct the composite indices and analyze its behavior on financial performances of Chinese companies.

RESEARCH METHODS

Sample

Social scientists use various methods for collection of data. Among them, the popular methods are experiments and quasi-experiments, structured questionnaires, in-depth interviews etc. (Hox & Boeije, 2005). Most importantly, there are two types of data: Primary data and Secondary data. The data that are collected for when the research problem is known using the procedures that best suit the research problem is called primary data, they often add the new data in the existing data set and when such data are made available to the research community then it is referred to as secondary data (Hox & Boeije, 2005).

For the purpose of this thesis, a random sample of companies are listed from the secondary sources. This thesis lists out the sample of 40 companies in China from Zhang & Alon (2010) and from the lists of "The World's Biggest Public Companies" published by Forbes in 2017 according to the global ranking based on market value, on which the DOI will be measured.

The sample of the companies were taken on a random basis. Upon analyzing the sources of sample thoroughly, it is found that ten industries – banking, insurance, construction, airlines, energy, computer/IT, telecommunications, manufacturing, iron and steel and automobile – have dominated the Chinese economy. Hence, the majority of samples in this thesis are from these sectors.

Moreover, while assessing and calculating the data for the variables used in this thesis *Hong Kong* and *Macau* are assumed to be overseas land and the entities operating there have been treated same as any other entity operating in a foreign land. The sample

companies here have various modes of entry to international market, that may be via export, M&A (Merger & Acquisition), greenfield investment, FDI, franchising or licensing.

Since this thesis tends to analyze panel data and also because of the non-availability of the data to construct other variables of internationalization such as FETE, TMIE, PDIO, multiple regression analysis is conducted using SPSS statistical tool to see the relationship between DOI and performance measures.

Research Variables

For the purpose of this thesis, variables (indices) are chosen from the existing models of Transnationality Index (UNCTAD, 1995), Transnational Activities Spread Index (Ietto-Gillies, 1998) and Degree of Internationalization Scale (Sullivan, 1994). Whereas, a new variable has been added upon to testify the DOI of the sample Chinese companies.

Sullivan (1994) put forth the view that there are three sets of attributes on which the indices of DOI of a firm is established: Performance, Structural and Attitudinal. As a first attempt to measure the DOI of a firm the proxy to DOI, such as foreign sales as a percentage of total sales (FSTS) as a single criterion based on performance attribute was used (Daniels & Bracker 1989; Geringer, Beamish & DaCosta 1989). Similarly, it has been observed that the higher goodwill relative to total Assets (GTA) indicates higher success rate of M&A (Merger and Acquisition) and international franchise networks of many fast-food chains, thus strong brand image and goodwill determines foreign investment (Kling & Weitzel 2011; Buckley, Pass & Prescott 1992). GTA is a new variable which has not been used by any previous study to access the DOI of a firm. This is a major input of this thesis which has helped to increase the research periphery. For structural attribute, foreign assets as a percentage of total assets (FATA) (Daniels & Bracker 1989; Ramaswamy 1993) and overseas subsidiaries as a percentage of total subsidiaries (OSTS) from the work of Sullivan (1994) are used. Whereas, on the context of conceptualizing performance, in order to provide enough validity for the study and comparability, ROA is taken into consideration as an operating performance measure (Ruigrok & Wagner, 2003). The other reason to take ROA in the study is the

previous use of ROA in various researches done for DOI and performance measures of the firm (Gomes & Ramaswamy, 1999; Kotabe, Srinivasan & Aulakh, 2002). In the same manner, ROE is also found to be used commonly in many studies of the business (Contractor, Kumar & Kundu, 2007). But there is no evidence that the DOI-Performance relationship researches have ever used Earnings before interest, tax, depreciation and amortization (EBITDA) as a measure for financial performance, where EBITDA is a pure estimator of firm's operating income. This thesis includes EBITDA along with ROA and ROE as a construct of performance measure. As a whole, the model can be shown in the figure below:
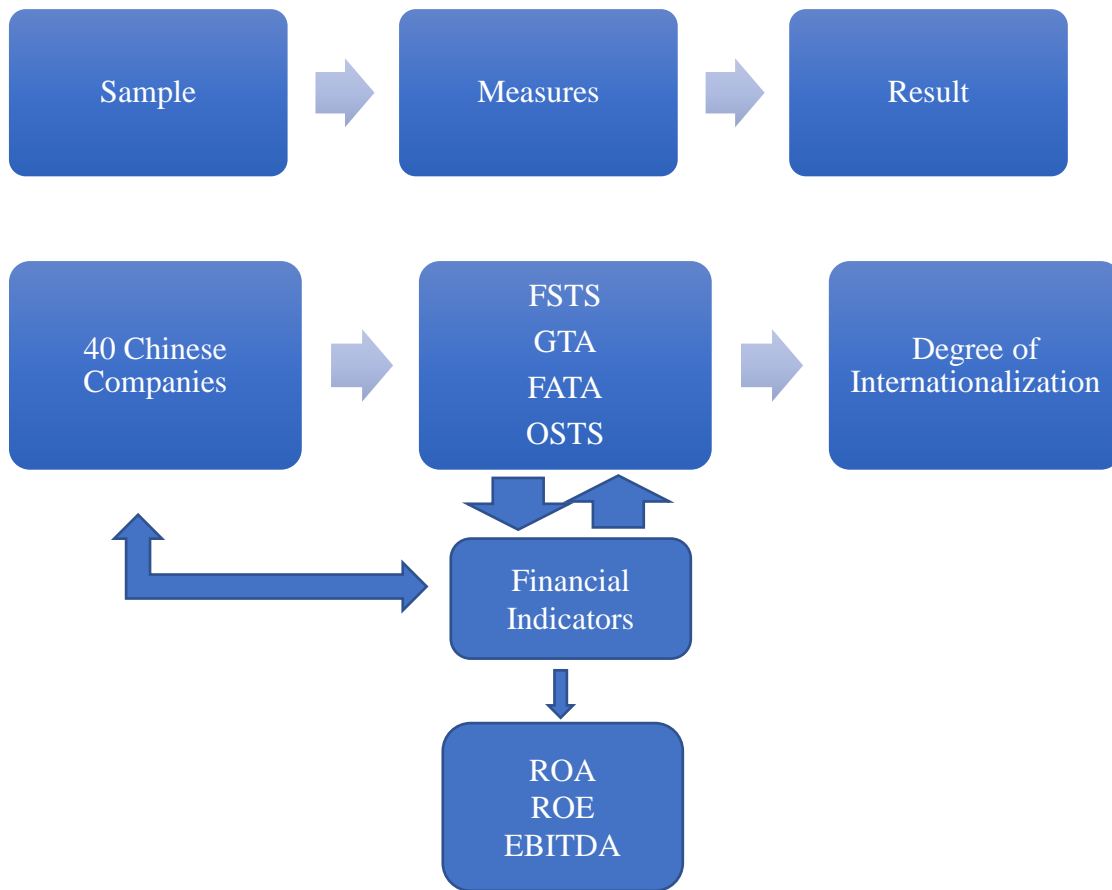
Fig. 3. Relationship between DOI measures and Financial performance

Data Sources

Figures for foreign sales, goodwill, foreign assets and overseas subsidiaries are extracted from the audited annual reports of the respective companies. All these figures are expressed in the Chinese currency Reminbi (RMB) except for the number of overseas subsidiaries, and thus the ratios are then calculated by dividing them by their respective totals. Hence, the four DOI variables used in this thesis comprise of FSTS, GTA, FATA and OSTS. This thesis has obtained the data for DOI measures for three consecutive years i.e. 2014, 2015 and 2016. But to minimize the foreign exchange risk the average of each variable has been taken into consideration. However, taking into account the low probability for changes that may occur in the number of overseas subsidiaries, the data for OSTS are taken only for the year 2016. In addition, the variables for financial indicators ROE, ROA and EBITDA are derived from the database Thomson Reuters Eikon for three consecutive years i.e. for 2014, 2015 and 2016. Since the data of EBITDA is large in number, logarithm is used to transform it into natural log, and a separate log variable has been defined called LEBITDA. Also, the average of these variables has been taken while calculating the result.

Data Analysis and Results

The pattern of data presented here measures the same subject based on the panel data for three consecutive years. The plot of the distribution of DOI measures are not normally distributed because the values of skewness and kurtosis do not fall between +2 to -2 which is shown in the Appendix 2. Also, while testing the reliability, the *alpha value* is 0.456 which is below the standard of 0.70. Thus, does not satisfy the data standardized distribution. However, multi linear regression model can be applied to test the significance of each DOI measures in relation to the performance measures. In addition, this thesis presents the correlation matrix where the relationship among the research variables has been displayed. Hence, below is the exhibition of the relevancy of DOI measures against performance measures.

Table 5

Correlation Matrix for the research variables

	FSTS	GTA	FATA	OSTS	ROE	ROA	EBITDA
FSTS	1.000						
GTA	.017	1.000					
FATA	.419	.137	1.000				
OSTS	.160	-.057	.386	1.000			
ROE	-.073	.011	.361	.257	1.000		
ROA	.083	.083	.380	-.038	.736	1.000	
EBITDA	-.081	-.138	.135	.659	.156	-.102	1.000

The above table.4 exhibits the one to one correlation coefficients as by following the Pearsonian correlation coefficient technique, which reveals a moderate to high degree of interrelationship among each DOI measure and performance measures. As the correlation ranges between +1 and -1 for strong to weak relations, here the assumption is made that the relationship is strong when correlation coefficient is above 50%, moderate when the correlation coefficient is in between 30% to 50% and the relationship is weaker when the correlation coefficient ranges below 30%. Hence, here the relationship between FATA and FSTS at 0.419, OSTS and FATA at 0.386, ROE and FATA at 0.361, ROA and FATA at 0.380 have moderate relationship among each other. It is seen that allocation of resources helps the company to generate significant amount of sales through their overseas subsidiaries. On one hand, it is observable that the investors get satisfactory returns resulted from the allocation of resources in the foreign countries, while on the other hand, results in earning profit with the help of deployed resources. Similarly, a high degree of correlation can be observed between EBITDA and OSTS at 0.659 and ROA and ROE at 0.736. This is because of the companies´ increasing involvement in international operations and earnings by overseas subsidiaries, which in turn gives higher return to its shareholders. On the contrary, the result also exhibits that there is weaker relationship between FSTS, ROE and EBITDA at -0.073 and -0.081 respectively, where the role of sales from foreign country do not seems significantly important in providing returns to the shareholders,

and the contribution of foreign sales to overall profit seems negligible. However, the result exhibits insignificant but positive relationship between FSTS and ROA at 0.083. This depicts that the significant amount of sales revenue accumulated in overseas countries is significantly related to all the resources deployed towards profit earning. On one hand, the positive relationship between GTA, ROE and ROA can be observed at 0.11 and 0.083 respectively. Here, it is observable that the brand and image of the company also play the role to generate profit by the optimum utilization of the available resources and thereby increasing the shareholder's wealth. On the other hand, a negative relationship is depicted between GTA and EBITDA at -0.138, the major reason behind this observation might be the investments made by the company to acquire a new subsidiary which resulted in contemporary diminishing profitability. Moreover, there exists positive correlation between FATA a DOI measure and the financial performance though the relation with EBITDA at 0.135. It portrays that the role of resources allocated outside the home country alone cannot contribute much to profit for the company. Though the relationship is insignificantly positive between OSTS and ROE, it shows that the activities of overseas subsidiary companies are able to provide returns to their investors. Whereas, the relation between OSTS and ROA shows that the overseas subsidiaries may not be that able to utilize the available resources to generate profit. In the same manner, it is observable through the relationship between ROE and EBITDA that the companies through their international activities are able to provide returns to the shareholders whereas, the resources allocated in overseas countries do not seem effective alone to generate profit as seen from the relations between ROA and EBITDA in the table above. This result is further elaborated and supported by the regression analysis.

While deriving the results from the application of multiple regression analysis the variables of DOI and performance measures are divided into two groups. First, group consists the measures of DOI: FSTS, FATA, GTA and OSTS as independent variables and the second group consists the financial performances ROE, ROA and EBITDA as dependent variables. Furthermore, three different models have been developed in order to show the interaction between independent and the dependent variables. In the first model, the interaction of DOI measures is analyzed over Return on Equity (ROE). The

second model analyses the relationship of DOI measures with respect to ROA. The third model exhibits the interaction between DOI measures and natural log of EBITDA denoted by LEBITDA.

Table 6

Regression Analysis of DOI measures with ROE

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
1	(Constant)	9.123	2.099		4.347	.000
	FSTS	-.155	.073	-.335	-2.126	.041
	GTA	-.087	.389	-.034	-.225	.823
	FATA	.326	.121	.450	2.696	.011
	OSTS	.049	.062	.126	.791	.434

a. Dependent Variable: ROE

The table of coefficient regression can be also presented in equation as below:

Model 1:

ROE = 9.123 - .155 FSTS − 0.087 GTA + 0.326 FATA + 0.049 OSTS … (i)

(0.041)   (0.823)   (0.011)   (0.434)

The results as obtained from multiple regression analysis between ROE and FSTS, GTA, FATA and OSTS shows that there exists significant relationship between ROE and two independent variables: FSTS and FATA at 5% and also FATA is almost significant at 1%. On the contrary, there do not exist significant relationship between ROE and GTA and OSTS. To explain it more precisely, one unit increase in FSTS results in 0.155 unit decrease in ROE while keeping FATA as constant. Similarly, one unit increase in FATA tends to increase ROE by 0.326 unit keeping FSTS as constant value.

Table 7

Regression Analysis of DOI measures with ROA

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
2	(Constant)	2.976	.808		3.684	.001
	FSTS	-.022	.028	-.129	-.799	.430
	GTA	.005	.150	.005	.034	.973
	FATA	.138	.047	.506	2.963	.005
	OSTS	-.030	.024	-.206	-1.266	.214

b. Dependent Variable: ROA

The table of coefficient regression can also be presented in equation as below:

Model 2:

$$ROA = 2.976 - 0.022 \ FSTS + 0.005 \ GTA + 0.138 \ FATA - 0.030 \ OSTS \ \ldots \ (ii)$$
$$(0.430) \quad (0.973) \quad (0.005) \quad (0.214)$$

The results as obtained from multiple regression analysis between ROA and FSTS, GTA, FATA and OSTS exhibits that there exists significant and positive relationship only between ROA and FATA at 1%. Whereas, no significant relationship is observed between ROA and FSTS, GTA and OSTS. Being the only significant variable, one unit increase in FATA results in 0.138 unit increase in ROA.

Table 8

Regression Analysis of DOI measures with EBITDA

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	t	Sig.
3	(Constant)	23.429	.341		68.693	.000
	FSTS	-.024	.013	-.297	-1.889	.068
	GTA	-.093	.062	-.217	-1.496	.144
	FATA	.005	.020	.040	.234	.816
	OSTS	.031	.010	.468	3.002	.005

c. Dependent Variable: LEBITDA

The table of coefficient regression can also be presented in equation as below:

Model 3:

$$\text{LEBITDA} = 23.429 - 0.024\ \text{FSTS} - 0.093\ \text{GTA} + 0.005\ \text{FATA} + 0.031\ \text{OSTS} \dots \text{(iii)}$$
$$(0.068) \qquad (0.144) \qquad (0.816) \qquad (0.005)$$

The result as obtained from multiple regression analysis between LEBITDA and FSTS, GTA, FATA and OSTS provides that there exists significant and positive relationship between LEBITDA and OSTS at 1%. On the contrary, it is observable that LEBITDA do not possess significant relationship between FSTS, GTA and FATA. This can be interpreted as one percentage point increase in OSTS leads to increase in the value of LEBITDA by 0.031 percentage point.

The next part of the result deals with the issue of to what extent the companies comprising the samples are internationalized? Based on the study of Sullivan (1994) a scoring variable i.e. a result variable indicated by "DOI_{INT}". has been developed. The four variables comprising DOI_{INT}.. FSTS, GTA, FATA and OSTS are ratio variables. The scores of DOI_{INT}. ranges between 0 to 1, where 0 denotes no internationalization and 1 represents absolute internationalization. Hence, the sample firms here ranges

between these two scores of $DOI_{INT.}$.. Here, the process of estimating the $DOI_{INT.}$ score includes following steps:

a) Finding the largest estimator from the FSTS, GTA, FATA and OSTS each.

b) Dividing each of the FSTS, GTA, FATA and OSTS for each company with the respective chosen maximum estimator.

c) The result thus obtained by dividing provides the weightage of each variables.

d) Next the average of resulted weightage provides the DOIINT.

To exemplify, the $DOI_{INT.}$ of 0.425 for Bank of China Ltd. is calculated as:

$$(0.238FSTS + 0.001GTA + 0.463FATA + 1OSTS)/4 = 0.425$$

Table 9

Sampled Company's Value on the Measurement Scale of $DOI_{INT.}$

S.N.	SAMPLE COMPANIES	$DOI_{INT.}$
1	China Molybdenum Co. Ltd.*	0.562
2	Weichai Power Co. Ltd.	0.495
3	Bank of China Ltd.*	0.425
4	Tencent Holdings Ltd.	0.396
5	Huwaie Investment & Holding Co. Ltd.	0.348
6	Fosun International Ltd.*	0.333
7	Industrial and Commercial Bank of China Ltd.*	0.309
8	China International Marine Containers Group Co. Ltd.	0.308
9	ZTE Corporation*	0.292
10	GOME Electrical Appliances Holding Ltd.*	0.287
11	PetroChina Co. Ltd.	0.227
12	Midea Group Co. Ltd.	0.223
13	China Eastern Airlines Corporation Ltd.*	0.217
14	Air China Ltd.*	0.201
15	Wanhua Chemical Group Co. Ltd.	0.199
16	China National Materials Co. Ltd.	0.173

17	China CITIC Bank Corporation Ltd.*	0.170
18	China Merchants Bank Co. Ltd.*	0.155
19	Gree Electric Appliances, Inc. of Zhuhai	0.154
20	Baoshan Iron & Steel Co. Ltd.	0.148
21	Huaneng Power International, Inc.*	0.144
22	China Petroleum & Chemical Corporation (Sinopec Group)	0.141
23	BOE Technology Group Co. Ltd.*	0.137
24	China Communications Construction Co. Ltd.	0.105
25	Dongfang Electric Corporation Ltd.*	0.102
26	Shanghai Electric Group Co. Ltd.*	0.087
27	Guangzhou R&F Properties Co. Ltd.*	0.081
28	CGN Power Co. Ltd.*	0.072
29	Metallurgical Corporation of China Ltd.	0.071
30	Maanshan Iron & Steel Co. Ltd.	0.066
31	BYD Company Limited	0.058
32	China Shenhua Energy Co. Ltd.	0.049
33	Aluminum Corporation of China Ltd.	0.047
34	Sinopharm Group Co. Ltd.	0.042
35	Angang Steel Co. Ltd.	0.041
36	China Railway Group Ltd.*	0.036
37	China Vanke Co. Ltd.*	0.022
38	China Coal Energy Co. Ltd.	0.014
39	Guangzhou Automobile Group Co. Ltd.*	0.011
40	Huadian Power International Corporation Ltd.	0.008

*Note: * represents the usage of data from Hong Kong. Whereas for Air China Ltd. Macau is also considered in the calculation.*

The above table exhibits the ranking of the companies according to the DOI$_{INT.}$ score. As stated earlier, the DOI$_{INT.}$ is the summation of weightage of all the DOI variables. As a result, the variation in the value of one of the variables can impact significantly in the DOI$_{INT.}$ scores. From the table 8, it can be observed that China Molybdenum Co. Ltd. is highly internationalized with the score

0.562. This is followed by the companies ranging scores between 0.495 to 0.287 which are moderately internationalized. Similarly, companies scoring between 0.227 to 0.087 are tending to have less internationalization pattern. Whereas, companies falling between the score of 0.081 and 0.008 can be classified insignificantly internationalized companies.

Table 10

Company Rankings on Four Estimators of the Degree of Internationalization of a Firm

SAMPLE COMPANIES	DOI$_{INT.}$	FSTS	GTA	FATA	OSTS
China Molybdenum Co. Ltd.*	1	72.83	0.42	43.35	40
Weichai Power Co. Ltd.	2	42.54	9.25	30.83	31.57
Bank of China Ltd.*	3	17.34	0.01	25.35	92.3
Tencent Holdings Ltd.	4	6.53	3.94	54.8	26.31
Huwaie Investment & Holding Co. Ltd.	5	58.13	0.09	0	54.54
Fosun International Ltd.*	6	37.1	2.26	12.86	43.33
Industrial and Commercial Bank of China Ltd.*	7	6.57	0.04	11.1	86.95
China International Marine Containers Group Co. Ltd.	8	56.44	1.75	10.52	15.87
ZTE Corporation*	9	46.44	0.04	19.15	16.67
GOME Electrical Appliances Holding Ltd.*	10	0	18.85	1.55	11.11
PetroChina Co. Ltd.	11	32.8	1.37	11.1	16.67
Midea Group Co. Ltd.	12	36.83	2.54	0.01	23.07
China Eastern Airlines Corporation Ltd.*	13	34.43	4.81	3.82	6.67
Air China Ltd.*	14	35.51	0.51	1.93	23.52
Wanhua Chemical Group Co. Ltd.	15	25.04	0.4	1.88	36.67
China National Materials Co. Ltd.	16	34.18	1.17	5.42	5.88
China CITIC Bank Corporation Ltd.*	17	3.75	0.02	4.77	50
China Merchants Bank Co. Ltd.*	18	1.3	0.19	2.75	50
Gree Electric Appliances, Inc. of Zhuhai	19	12.62	0	19.88	7.27
Baoshan Iron & Steel Co. Ltd.	20	12.37	0	3.27	33.33
Huaneng Power International, Inc.*	21	9	3.96	8.97	7.24

China Petroleum & Chemical Corporation (Sinopec Group)	22	23.9	0.43	6.28	9.09
BOE Technology Group Co. Ltd.*	23	35.93	0.09	0.95	3.13
China Communications Construction Co. Ltd.	24	18.6	0.57	4.07	5.4
Dongfang Electric Corporation Ltd.*	25	13.38	0	3.88	14.28
Shanghai Electric Group Co. Ltd.*	26	11.33	0.29	6.06	6.25
Guangzhou R&F Properties Co. Ltd.*	27	3.47	0.26	1.9	21
CGN Power Co. Ltd.*	28	18.53	0	1.74	0
Metallurgical Corporation of China Ltd.	29	6.24	0.06	5.68	8.33
Maanshan Iron & Steel Co. Ltd.	30	7	0	0.98	13.89
BYD Company Limited	31	10.33	0.06	0.45	7.14
China Shenhua Energy Co. Ltd.	32	1.66	0.17	1.73	12.12
Aluminum Corporation of China Ltd.	33	2.03	1.22	1.94	5.56
Sinopharm Group Co. Ltd.	34	0	2.77	1.08	0
Angang Steel Co. Ltd.	35	11.98	0	0	0
China Railway Group Ltd.*	36	3.2	0.12	2.86	4
China Vanke Co. Ltd.*	37	0.04	0.03	1.76	4.87
China Coal Energy Co. Ltd.	38	1.41	0	0.09	3.33
Guangzhou Automobile Group Co. Ltd.*	39	0.02	0.47	0.93	0
Huadian Power International Corporation Ltd.	40	0	0.63	0.02	0

Note: The zero values in the internationalization measures is because of two reasons:

a) *Firms do not report any foreign involvement in their annual reports if they do not have the significance more than 10%.*

b) *Data are not available.*

Similarly, table 9 is the ranking of companies based on DOI$_{INT}$. scores along with respective values of DOI measures. As can be observed, and as stated earlier the variation in the values of DOI measures have significant impact on scoring the companies. Higher the DOI measures higher is the chance that the company is highly internationalized and vice versa. Furthermore, it is observable that the volume of FSTS, FATA and OSTS is dominating in the overall ranking process. On the contrary, a newly introduced variable "GTA" seems to have fluctuating but significant impact on DOI$_{INT}$..

DISCUSSION

Statistically, the data sets failed the reliability test and also the datasets are not normally distributed because of the limitations in construction of variables due to the lack of data availability. Hence, the DOI INT. scores were derived only by utilizing the values from the average of available four DOI variables that could be constructed. Moreover, as the rule of thumb for the minimum requirement for applying the regression analysis model is to have 30 cases and 1 predictor and the available datasets of construction of this thesis fulfilled this criterion. Hence, the multilinear regression analysis was applied with the use of SPSS statistical tool.

To discuss briefly, the correlation matrix of the DOI measures and the performance measures in table 4, exhibited the one to one relationship among each variable which ranged from +1 to -1 indicating strong to weak relationship. Whereas, it also clarified that the relationship among the DOI measures and financial performances are fluctuating. This was also supported by the results of regression analysis, which depicted the relationships with individual dependent variable and four DOI measures.

As noted earlier, the extensive use of single criteria to determine the DOI along with the few performance measures do not give the clear picture of a firm's overall health. Thus, the use of other DOI measures GTA, FATA, OSTS along with FSTS gives a wide picture of internationalization footage of Chinese companies. Inclusion of ROE, ROA and EBITDA to measure the profitability of the company which is widely in practice in today's accounting system of the companies, provides a clear picture of financial performance.

The study of Ruigrok & Wagner (2003) finds that the relationship between FSTS and ROA is positively significant, whereas, the findings of this thesis do not support this relationship being FSTS insignificant with ROA. Similarly, the study carried out by Riahi-Belkaoui (1998) exhibits that there is nonmonotonic relationship between FRTR (FRTR can also be refered to as FSTS) and ROA, so this finding is not even supported by the result of this thesis since FSTS have no significant relationship with ROA. In the same manner, Gomes & Ramaswamy (1999) in their study finds the varying relationship between DOI measures (FSTS & FATA) and ROA whereas, the result of this thesis finds no significant relationship between FSTS and ROA.

Overall, the impact of GTA is not significant in all models of regression with respect to the dependent variables whereas, the negative but significant relationship between ROE and FSTS is

observed in table 5. Similarly, the impact of FATA on ROE is found to be positive and significant. However, the result in table 6 depicted the significant and positive relationship only between ROA and FATA. In the same way, the relationship between OSTS and the log of EBITDA is observed to be significant and positive.

Similarly, on the basis of weightage provided to the DOI measures exhibits the lists of companies ranked according to their extent of internationalization. Further the result has been elaborated on the basis of the values of the DOI measures of respective 40 sample companies.

CONCLUSION

The main purpose of this thesis was to analyze the relationship between DOI measures and financial performances of Chinese companies.

Studies analyzing the relationship between the internationalization and the performance of the company have been carried out by various scholars with respect to the companies of different regions and industries. To mention some, Ruigrok & Wagner (2003) in their study have drafted the relationship between the DOI measure as measured by FSTS and the performance measures ROA & OCTS (Operating Costs to Total Sales) of 84 German companies. Similarly, Contractor, Kumar & Kundu (2007) exhibited the impact of internationalization over the performance of the Indian manufacturing and non-manufacturing companies.

On the context of this thesis, the samples of 40 Chinese companies were selected randomly based on the lists of "The World's Biggest Public Companies" published by Forbes in 2017 and from Zhang & Alon (2010). The measures of DOI were based on the previous studies like Transnationality Index (UNCTAD, 1995), Transnational Activities Spread Index (Ietto-Gillies, 1998) and Degree of Internationalization Scale (Sullivan, 1994). Whereas, with the view of enriching the existing studies of accessing the DOI of the firm a new variable was introduced namely GTA. Likewise, the financial measures were conceptualized with the inclusion of measures such as ROE, ROA and EBITDA. Many other literatures had previously used ROE and ROA as a measure of financial performance; while, again this thesis made an attempt to widen the scope of the study by introducing EBITDA as a measure of financial performance.

As a newly introduced measure of DOI, GTA is found to have insignificant impact on the performances of the company whereas, the relationship between DOI measures such as FSTS,

FATA and OSTS, and performance measures ROE, ROA and EBITDA varies widely from negative to positive points at different intervals but at significant level.

Lastly, based on the study of Sullivan (1994), DOIINT. score is obtained to measure the degree of internationalization of each of the sample Chinese companies.

Limitations

Like many studies, this thesis is also not free from the limitations and biases. The Chinese states are centrally controlled, and so are the Chinese companies. Owing to which it is very difficult to obtain the data as they are rarely publicized. One might have to go through various sources in search of the data and many a times get stranded at a dead end. Furthermore, the data collected for the purpose of accessing the result do not meet the standard reliability value. In the same manner, the dataset is also not normally distributed. In addition to this, the limitations of data sources lacked the data availability, which in turn limited the formulation of other possible measures of DOI.

The results obtained in the context of Chinese companies might be different if the same measures are used for the companies of other countries. The results obtained from the sophisticated data statistical tool used in this thesis might be somewhat different if used a different statistical tool.

FUTURE RESEARCH

As, the DOI of Chinese firms increases as a result of increase in their FATA, FSTS, OSTS, the likelihood that these firms will make the information pertaining to overall management and operation of the firm are made widely available. This will help future researchers to build more robust measures to analyze the relationship between DOI and financial performances based on the individual attributes (Dörrenbächer, 2000) such as attitudinal measures, structural measures and performance measures.

Similarly, it might be the subject of interest for future researchers who would like to study the reasons behind impact and direction of the relationship between DOI measures and financial performance of the firms. Furthermore, this study can also be conducted for the companies of emerging countries.

REFRENCES

Bartelson, J. (2000). Three concepts of globalization. *International Sociology*, *15*(2), 180-196.

Buckley, P. J., & Ghauri, P. N. (Eds.). (1999). *The internationalization of the firm*. Cengage Learning EMEA.

Buckley, P. J., Clegg, L. J., Cross, A. R., Liu, X., Voss, H., & Zheng, P. (2007). The determinants of Chinese outward foreign direct investment. *Journal of international business studies*, *38*(4), 499-518.

Buckley, P. J., Cross, A. R., Tan, H., Xin, L., & Voss, H. (2008). Historic and emergent trends in Chinese outward direct investment. *Management International Review*, *48*(6), 715-748.

Buckley, P. J., Pass, C. L., & Prescott, K. (1992). The internationalization of service firms: a comparison with the manufacturing sector. *Scandinavian international business review*, *1*(1), 39-56.

Caligiuri, P., Lazarova, M., & Zehetbauer, S. (2004). Top managers' national diversity and boundary spanning: Attitudinal indicators of a firm's internationalization. *Journal of Management Development*, *23*(9), 848-859.

Child, J., & Rodrigues, S. B. (2005). The internationalization of Chinese firms: a case for theoretical extension?. *Management and organization review*, *1*(3), 381-410.

Contractor, F. J., Kumar, V., & Kundu, S. K. (2007). Nature of the relationship between international expansion and performance: The case of emerging market firms. *Journal of World Business*, *42*(4), 401-417.

Daniels, J. D., & Bracker, J. (1989). Profit performance: do foreign operations make a difference?. *Management International Review*, 46-56.

Dörrenbächer, C. (2000). Measuring corporate internationalisation. *Intereconomics*, *35*(3), 119-126.

Dunning, J. H., & Lundan, S. M. (2008). *Multinational enterprises and the global economy*. Edward Elgar Publishing.

Michael Geringer, J., Beamish, P. W., & DaCosta, R. C. (1989). Diversification strategy and internationalization: Implications for MNE performance. *Strategic Management Journal*, *10*(2), 109-119.

Gomes, L., & Ramaswamy, K. (1999). An empirical examination of the form of the relationship between multinationality and performance. *Journal of international business studies*, *30*(1), 173-187.

Hassel, A., Höpner, M., Kurdelbusch, A., Rehder, B., & Zugehör, R. (2003). Two dimensions of the internationalization of firms. *Journal of Management Studies*, *40*(3), 705-723.

Hox, J. J., & Boeije, H. R. (2005). Data collection, primary versus secondary.

Ietto-Gillies, G. (1998). Different conceptual frameworks for the assessment of the degree of internationalization: an empirical analysis of various indices for the top 100 transnational corporations. *Transnational corporations*, *7*, 17-40.

Kling, G., & Weitzel, U. (2011). The internationalization of Chinese companies: firm characteristics, industry effects and corporate governance. *Research in International Business and Finance*, *25*(3), 357-372.

Kolstad, I., & Wiig, A. (2012). What determines Chinese outward FDI?. *Journal of World Business*, *47*(1), 26-34.

Kotabe, M., Srinivasan, S. S., & Aulakh, P. S. (2002). Multinationality and firm performance: The moderating role of R&D and marketing capabilities. *Journal of international business studies*, *33*(1), 79-97.

Lu, J. W., & Beamish, P. W. (2001). The internationalization and performance of SMEs. *Strategic management journal*, *22*(6-7), 565-586.

Lu, J. W., & Beamish, P. W. (2004). International diversification and firm performance: The S-curve hypothesis. *Academy of management journal*, *47*(4), 598-609.

Petrella, R. (1996). GLOBALIZATION AND INTERNATIONALIZATION. *States Against Markets: The Limits of Globalization*, 62.

Ramaswamy, K. (1993, August). MULTINATIONALITY AND PERFORMANCE: AN EMPIRICAL EXAMINATION OF THE MODERATING EFFECT OF CONFIGURATION. In *Academy of Management Proceedings* (Vol. 1993, No. 1, pp. 142-146). Academy of Management.

Ramaswamy, K., Kroeck, K. G., & Renforth, W. (1996). Measuring the degree of internationalization of a firm: A comment. *Journal of International Business Studies*, *27*(1), 167-177.

Riahi-Belkaoui, A. (1998). The effects of the degree of internationalization on firm performance. *International Business Review*, *7*(3), 315-321.

Ruigrok, W., & Wagner, H. (2003). Internationalization and performance: An organizational learning perspective. *MIR: Management International Review*, 63-83.

Sullivan, D. (1994). Measuring the degree of internationalization of a firm. *Journal of international business studies*, *25*(2), 325-342.

Tallman, S., & Li, J. (1996). Effects of international diversity and product diversity on the performance of multinational firms. *Academy of Management journal*, *39*(1), 179-196.

Zhang, W., & Alon, I. (2010). *A guide to the top 100 companies in China*. World Scientific.

Zhang, X., & Daly, K. (2011). The determinants of China's outward foreign direct investment. *Emerging markets review*, *12*(4), 389-398.

Websites:

Financial Times

https://www.ft.com/content/5136953a-1b3d-11e5-8201-cbdb03d71480

Retrieved on 10.10.2017

UNCTAD

http://unctad.org/en/pages/PublicationWebflyer.aspx?publicationid=1782

Retrieved on 10.10.2017

China Statistical YearBook 2017

http://www.stats.gov.cn/tjsj/ndsj/2017/indexeh.htm

Retrieved on 10.10.2017

UNCTAD

http://unctad.org/en/Pages/DIAE/World%20Investment%20Report/Annex-Tables.aspx

Retrieved on 10.10.2017

Forbes Magazine

https://www.forbes.com/global2000/list/#country:China

Retrieved on 06.11.2017

APPENDICES

Appendix 1: Reflective note

Internationalization

With the introduction of *go global policy* in 1999, the Chinese companies started expanding across the globe via several modes of entry. Based on the several studies some of the major modes of internationalization preferred by Chinese companies are OFDI, IJVs, greenfield investments etc. among which the most popular entry mode is OFDI. It has always been a topic of interest on the motives of internationalization of Chinese companies. Literatures finds that their motives of internationalization have been targeting the advanced economies mainly for the access of scared natural resources and to exploit the new market. In addition, Chinese companies also enters the international markets to get access to high-end technologies and also to seek efficiency.

In the recent decade, Chinese economy is surpassing the giant economies in terms of ODI. The internationalization footage of Chinese companies is thus a topic of interest to many researchers. Revolving around the concept of internationalization, this thesis widens the scope of existing study by accessing the degree of internationalization of Chinese companies and analyzing the impact on the financial performances.

In the modern business world, Internationalization is something that one should be knowledgeable of, to get associated with the emerging trends in global economies. Since, it is relevant to the area of my specialization, I understood that to get affiliated in the global business organization and benefit them by the use of my learned skills which can enable the businesses for higher productivity, mastering the field of internationalization is a must.

Innovation

Discovering something new is not an innovation but, the new ideas and methods to discover a new thing is something we call innovation. The new ideas or models thus, implied should not impact the findings negatively. The attempt made by Sullivan (1994) to measure the DOI of the US firms by developing various measures than what was done before is taken as an innovative procedure of accessing DOI. His innovation on the methods of developing DOI measures opened the door for

many researchers after him to develop more and more robust measures. Stepping on this concept, this thesis while measuring the DOI of Chinese companies and analyzing the financial performances new concepts has been materialized without deteriorating the core concept of DOI.

Responsibility

One of the important task in my thesis was to collect correct and complete information that would indicate the internationalization of Chinese companies. Here I found that the lack of complete information hinders the formulation of the models that would measure the DOI. It is therefore the responsibility of the companies to provide such information crucial to a researcher by audited annual reports or by any other academic databases. Further, it is also the responsibility of the companies to make the audited report available in English language as well.

Appendix 2:

[Excel icon: Collected data set.xlsx]

Reliability Statistics

Cronbach's Alpha	N of Items
.456	4

Descriptive Statistics for Normality Test

N	Minimum	Maximum	Mean	Std. Deviation	Skewness		Kurtosis		
	Statistic	Statistic	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Std. Error
FSTS	40	.00	72.83	18.7706	18.82305	1.074	.374	.483	.733
GTA	40	.00	18.85	1.4699	3.35091	4.110	.374	19.353	.733
FATA	40	.00	54.80	7.8934	11.99580	2.532	.374	6.685	.733
OSTS	40	.00	92.30	19.9339	22.26302	1.773	.374	3.163	.733
Valid N (listwise)	40								