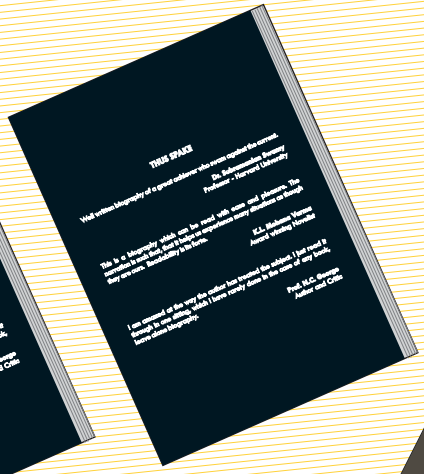
ISSN 0973 - 3167

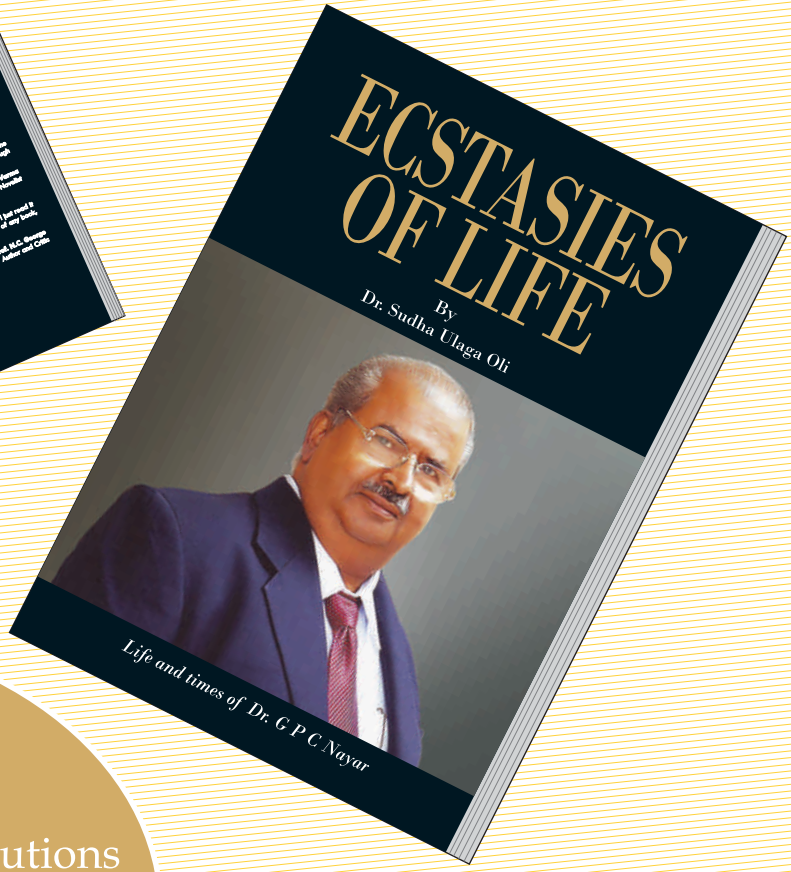
SCMS JOURNAL OF INDIAN MANAGEMENT

Volume XVII Number 2
April - June 2020

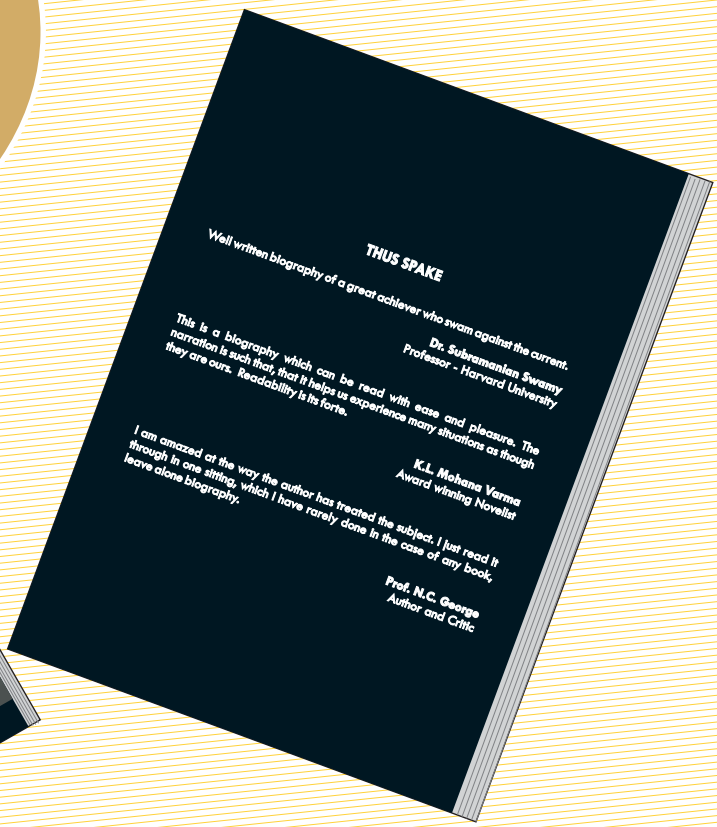
In UGC Care A list

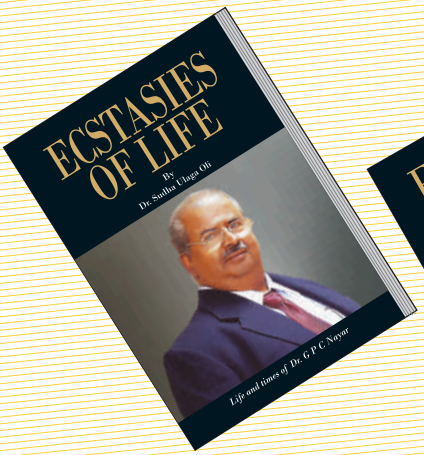
SCMS COCHIN SCHOOL OF BUSINESS, INDIA

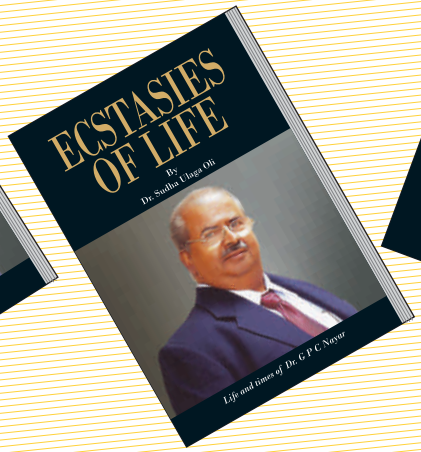




Here's an entrepreneur
who has created
some excellent academic institutions
in an unfriendly environment.
It is a saga of trials and tribulations
in an extremely readable manner
by a consummate
writer in English.







Copies can be had from the Publication Department, SCMS Group of Educational Institutions, Cochin-683106.

Contents

April - June 2020, Vol. XVII, Issue No. 2

Articles

Chairman's Overview

Negativa is the far east wisdom which attempts to approach objects indirectly by defining something by negation and by what it is not. Negation provides alternative fundamental access to the knowledge of equal. Positivity aims to radically avoid and overcome the status of not-knowing by producing additional knowledge. A positive approach aims to remove ambiguity and complexity in addressing reality by fixing the identity of an object. Negation builds upon and utilises not-knowing as a source of approaching an object. Our lead article introduces a different way of looking, understanding and influencing organisations.

The development of the capital market is important for fostering economic growth of a nation. It depends on the market liberalisation, increasing supply of capital, improved allocation of funds, and efficient use of financial resources. We have a study report, as our second lead, which examines the trend patterns of the equity market indicators such as market size, liquidity, volatility and stock return to judge the stability of ASEAN equity markets and the degree of their integration.

The third article in this issue investigates the impact of Demonetisation on the equity market. The study reveals the nature and extent of the impact on the returns of the sectoral indices of the Indian equity market and its volatility during the announcement of Demonetisation.

We also feature a number of research articles in this issue on a wide range of topics such as Capital Adequacy Compliance Issues for Banks, Digital Marketing Strategies, Identifying Destination Branding Using Twitter Data, Export Potential of India and China with Ethiopia, Trends of Social Entrepreneurship and the like.

I am confident that this issue will be truly informative and educative to our readers.

Dr. G. P. C. NAYAR
Chairman, SCMS Group of Educational Institutions.

SCMS Journal of Indian Management

A Quarterly Publication of

SCMS-COCHIN

Editorial

Education in the time of Corona

Many educational institutes are considering COVID-19 pandemic as an opportunity to be more productive and efficient. The technological innovation in education has led to an unprecedented transformation from teacher-centric education towards student-centric education. There is a need to revamp the current pedagogy to integrate online learning into mainstream education. A multi-dimensional approach is necessary to manage the crisis and to build a resilient education system in the long term.

The COVID-19 pandemic has worsened inequalities in education systems across the world. According to a UNESCO report 2020, about 40% of low- and lower-middle-income countries have not supported learners at risk of exclusion during this crisis, such as the poor, linguistic minorities and learners with disabilities.

The pandemic will adversely impact over 290 million students across 22 countries due to the closure of schools. "The challenge was too large for any education system to respond effectively. School closures placed unprecedented challenges on governments, teachers, students, and parents aiming to ensure learning continuity," according to the report.

Covid-19 has forced education institutions across India, and the world indeed, to suspend physical classrooms and shift to online classes. They adopted online modes of education to continue the teaching-learning process during the global pandemic. In India, around 32 crore students have been affected by this. As digital transformation has become a new norm with educational institutes across the country, the Indian government has encouraged educational institutions to engage with students and provide counselling support during this period.

However, lack of preparedness and infrastructure have made distance learning during COVID-19 "imperfect substitutes for classroom instruction"; especially for the economically disadvantaged students. We have to develop inclusive learning solutions, mainly for the most vulnerable and marginalized.

The pandemic has transformed the traditional classroom teaching methods to the technology-driven education system. Even though online education cannot replace classroom education due to the personalized nature of attention and face to face interactions, it can be considered as an effective supplement.

Dr. Radha Thevannoor

Change Management by Negation: Exploring the Power of the Rejected

Ralf Wetzel
Associate Professor for Organisation & Applied Arts
Department People & Organisation
Vlerick Business School, Avenue du Boulevard 21
B-1000 Brussels, Belgium
Email: ralf.wetzel@vlerick.com

Abstract

Organisation and management science has been, ever since its inauguration, overly desperate to find the 'one best way of organising'. The basic fundament of that quest was the attempt to define an organisation positively, namely by what it *is*. Until today, this starting point has not proven to be successful; this way has not decided to disclose its ability to instruct the theory and practice of organisation yet. This article argues that this positive, ontological way to define organisations and its major results like change management has led Organization and Management Theory (OMT) into a rather blurry state. OMT and especially change management would become much more instructive again if it started defining its objects negatively, by what they are *not*. After showing the pitfalls of the positive fiction in OMT, the article presents a negative way to instruct, especially change management. This profit will be demonstrated by introducing the concept of the tetralemma.

Keywords: *Organisation Theory, Change Management, Negativity, Tetralemma, Cybernetics*

Negativity is the most general form in which meaning is available."

Niklas Luhmann (Luhmann, 1995, p. 432)

The paper questions the one-sided thesis that organisations can be described, managed and especially changed by applying positive access to the organisation. Positivity stands here for the attempt to comprehensively describe and define any given object by what it *is*. It was the inaugurating and overarching hope of Organization and Management Theory (OMT) to find the one best way of organising. Accordingly, the hope was to find a positive description of the organisation and of intervention, a hope that still iridescences today. The evolution of OMT throughout the last century has remarkably shown that this hope is not more than a fiction. From Herbert Simon (1957) over Nils Brunsson (2006) to post-modern organisation theory (Hassard & Cox, 2013), organisational scholars have become more and more aware that positive descriptions have low validity. Such descriptions and principles are like proverbs (Herbert A. Simon, 1946) since they are difficult to falsify and full of contradictions. Furthermore, they are able to misguide practical action, as the low success rate of positively guided organisational change and positively operating industry of consulting shows. A positive definition of organisation and positive understanding of intervention in and into organisation could withstand this rising of theoretical scepticism. It could dominate the instruction of managers in both, management education (like in business schools) and management instruction by consulting.

Against this 'hegemony of the positive', we introduce a way to understand organisations by focussing on what they are *not, by* rejecting and negating this classic positivism, by exploring the unmarked state of what this positivism has left aside as a source to instruct management, eventually by what *not* to do. We argue that negation provides alternative fundamental access to knowledge of equal, if not supreme value. While positivity aims to radically avoid and overcome the status of not-knowing by producing additional knowledge, negation builds upon and utilises not-knowing as a source of approaching an object. The *knowing-what-not* shifts the description of any given object from a finite number of features of its identity, to a finite number of *boundary-creating* features that distinguishes the object from anything else. It opens up space not only to explore the not-known and the rejected, but it also helps to inform as well about the way this distinction between something and something else is drawn. This shift releases and maintains a still undetermined space for speculations about the identity of the object and keeping it flexible, while a positive approach tends to determine the presumed identity and leaves the non-identity flexible instead. A positive approach aims to remove ambiguity and complexity in addressing reality by finitely fixing the identity of an object.

Furthermore, by removing ambiguity, the positive path creates the impression of a comprehensively identifiable world. It lulls the strive to further speculate about the object as quick as a positive description has been developed. It supports cognitive paralysis. On the contrary, the 'Via Negativa' capitalises on ambiguity and complexity by avoiding identity determinations and by sustaining the on-going exploration of the un-known instead. Accordingly, negative thinking is the more 'robust' approach since it allows us to keep being open to surprise while providing anchors for description and instruction. This being said, the comfort of the 'Via Negativa' is in the removal of insecurity by informing about what something is not and by enabling to determine what not to do. It, therefore, is instructive while stimulating further active exploration. It allows us to deal with an object even "when there is no name for it" (Taleb, 2012, p. 301ff.).

Viewed that way, OMT was set at risk by building upon positivistic foundations. By trying to determine what organisations are and what the right way to manage is, it was on the path to developing not more than a bunch of easily falsifiable and highly contradictory hypothesises. This heuristic failure prevented the discipline from developing a validated, reliable and canonical corps of knowledge and the professionalisation of managers (Grey, 2013).

In this paper, we will introduce the Via Negativa to gain another access to organisation and change management and will present its fundamental strengths. We will do so in three parts. In part one, we will explain the basic foundations of the Via Negativa and in which way it can be instructive to OMT. After that, we will explore which traits of negative thinking can already be found in the field of OMT and which relation it could develop to positive thinking. Eventually, we will apply the Via Negativa to the subject of change management to exemplify its relevance for tackling current challenges in OMT, and to demonstrate how thought-provoking and revealing such access to the 'burning platforms' of organisational change could be.

Roots and accesses to negation

To find access to the subject and core of negation, a few historical developments have to be sketched, combined with some definitory fixings. Beforehand, it is necessary to state that negation is not about the ‚nothing', the emptiness or the social meaning of zero (Rotman, 1987). Instead, it is about the ‘not’, about distinguishing and rejecting. Classic sources of negative thinking in this respect can be found in Buddhist (Shaw, 1978) and Chinese philosophy (Butzenberger, 1993) and theology, which influenced western theology (Milem, 2007), pedagogy (Zembylas, 2005), philosophy (Lock, 1999; Mortley, 1982; Vicente, 2011), and physics (Montero & Papineau, 2005). Especially aesthetics understood arts as the negation of and to society (Adorno, 2013). Linguistics used negation as access to the language since signs could be understood as differentiated, which is negatively imagined elements (de Saussure, 1972). In psychoanalysis eventually, negation stands for suppression, which has been taken as being constitutive for perception and behaviour (Freud, 1995). In this respect, almost everything in modernity has been subject and influenced by negation.

Two accesses to negation

In occidental philosophy, negation is mainly referring to the experience that the Greek ontology (Matthen, 1983; Poster, 1996) known as 'positive languages'. To use the 'No' and 'not' mainly indicates errors (Baecker, 2010, p. 2; Shrader, 1992). Based on that, negation became relevant as an attempt to make sure that what is indicated is not contaminated with something else. This attempt was grounded on the ambition to control something meant while indicated but not selected (Baecker, 1996, p. 93). This ambition is based on the image of an essentialist, ontologically and comprehensively definable world, in which identification of something is possible by indicating what something is and what not (Saury, 2009). Such an ontological understanding is embedded in calculus of identification, of a comprehensive description of something, struggling with incompleteness (Dummett, 1963). However, negation requires two cognitive activities before it can work. Negation essentially needs firstly to *draw a distinction* between something and something else and to choose what it is not and therefore *making a selection* from the created divide. Indication usually refers to this selection, while the distinction is made at the same moment of time. Whenever something is indicated, it is selected and distinguished from something else (Spencer Brown, 1967). In this respect, negation "always comes late" (Baecker, 1996, p. 95), after a distinction and a selection of one side of the distinction has been made. Far-eastern, especially Buddhist approaches to negation confirm the relevance of a distinction to be drawn before negation comes into play. They are not necessarily interested in ontological access to the indicated and selected. Such an *epistemological* perspective (following Baecker, 1996, p. 94) is more interested in how problems are constructed by, how distinctions are set, instead of aiming to identify something comprehensively. This approach became very inspirational, especially for constructivist and cybernetic epistemology (Luhmann, 1995; Luhmann & Fuchs, 1988; von Foerster, 1992). From this view, a distinction as such does not need a negation at first hand, since the distinction is of primary interest (Baecker, 1996, p. 97). So, if 'draw a distinction!' (Spencer Brown, 1967) is the basic logic operation for the creation of meaning, which role does negation play in such a scenario? Negation provides both generalisation and reflexivity by which a situation gains an increased scope for continuation (Luhmann, 1975). Negation provides a generalisation since it allows a statement about something determined (the rejected) which nonetheless remains undetermined (everything else but not what has been affirmed). By means of negation, conditions or situations can be determined before the situation is fully explored. Negation here works as an indirect hint, helping to implicitly develop the subject of inquiry (Varga von Kibed, 1990). The absence of expression for God in Buddhist theology, for example, does not necessarily stand for the absence of God. Terms like transcendence, mercy and justice refer negatively, meaning: indirectly to God and therefore generalise something undeterminable (Butzenberger, 1996; Schuon, 1975).

Furthermore, and building on that, negation works as "the introduction of a reflexive value ("Reflexionswert") to the situation in which someone is located. ‚I don't drink tea ' could stand for plenty of references like ‚thanks, I am already filled up!', 'this situation calls for champagne!', 'they don't know how to serve tea', … Negation brings the observer into circumstances in which he/she has to choose, at least *either* against tea or *for* something else (Baecker, 1996, p. 98f.). Especially the distinction between active and passive negation (Elster, 1984) clarifies here, whether someone raises a statement about him/herself or the situation. Negation forces a decision among different references: "Both, the possibility of different options and the resulting decision amongst them informs a situation about itself in a way it could not along with its simple affirmation. "

(Baecker, 1996, p. 99). Negation reflects context from the perspective of an observer. A 'No' rejects and enables the rejected, the rejecting, the addressee of the rejection and possible alternatives of continuation first of all – to become visible. Negation, in this respect, is the memory of a situation. It informs a situation about the boundaries and distinctions resting in itself and implicitly made by itself. Negation is a form of self-observation" (Baecker, 1996, p. 99), since it indicates what it rejects, which is the distinction drawn beforehand. And it includes, for overcoming the self-claimed blockade, the context of the situation into the situation: "Each negation can enrich what it rejects, even if it destroys, it memorises." (Baecker, 1996, p. 100). Negation allows reflecting on the drawn distinction and the context of it. In this respect, the language of negativity is not claiming expressions of ontology or necessity, not even of probability. It's *a language of possibility* (Baecker, 2010, p. 8; Luhmann, 1975, p. 206). This alone opens up a rather different perspective on core topics of organisational change already. Change management can be seen as a 'No!', as a rejection of any given state and informs the current state about possible but undetermined alternatives. Furthermore, resistance to change, from this angle, can be viewed as a 'No!' to intended deviation from the status quo, is more than just a simple counter force. It serves as a counter-representation of the former state in the making of the new, it is the memory of the distinction between stability and change. The 'No!' of resistance is a reflection value of new differences about to be created linked to the undetermined, which has the power to re-inform the planned ambitions.

Negation as a reflexive value: The example of the tetralemma

The first introduced, ontological understanding referred to a somewhat bivalent and classic logic. It is like a map divided into two fields, on which someone can switch from this to that, while both, almost 'Manichaean' exclude each other. The latter, epistemological understanding of negation, contradicts this paradigm by assuming that there are more values than only the two mutually exclusive. While a bivalent logic assumes something of either being 'true' or 'false', a polyvalent logic assumes there is more around. Here, the case of the Buddhist *Catuskoti* (Priest, 2011; Matthias Varga von Kibéd & Sparrer, 2011), the tetralemma becomes instructive. Originally, the tetralemma was used in Indian jurisdiction for the categorisation of possible positions a judge could take in a case. It takes positions about an object as not being necessarily mutually exclusive but instructive to gain a deeper understanding of this object. To deepen this understanding, the tetralemma consists of one affirmation and three negations. Trying to find out which nationality my neighbour has, could stand as an example here. He could be Italian (affirmation) or he could be Bulgarian (first negation). A second negation comes to the fore by accepting negations of both: the affirmation ('true'): 'non-true' and its negation ('false'): 'non-false'. The shift from saying 'this is false' to saying 'this is not true' indicates a shift in what is meant. Stating that my neighbour is Italian or Non-Bulgarian creates a difference as much as saying he is Non-Italian. And it creates the possibility of combining 'both', meaning that something can be perceived as not false and not true at the same moment of time. My neighbour is then Non-Italian and Non-Bulgarian, so actually, a bit of both, for example, and among other options: from the Balkans, or more specifically - Greek. This 'both' establishes the third *cotis*, the third corner in the tetralemma, given that 'true' and 'false' are the first two, and it is the second negation. To find this 'tertium' position, thinking able to extend hidden boundaries of the former positional thinking is already needed, partly by rethinking the primary positions and their relations, partly by re-interpreting the effects of possible actions. This second negation can become subject of a third negation, in which the context becomes extended "to the outside" (Varga von Kibed, 1990, p. 586), and reaches the value of 'neither nor' (Raju, 1954). Then, the background and path of the primary distinction between this and that is brought to the fore and intensively questioned. In the example, the reason why nationality is important compared to other ways of indicating and distinguishing can be introduced and brought up against other possibilities (gender, status, profession, age, religion, nutrition preferences etc.). As trivial as this last negation sounds, as important and pre-conditional it is, since it usually highlights the unrevealed preconditions of a drawn distinction and what this distinction excludes (meaning: silently negates). This is a "context extension" (Matthias Varga von Kibéd & Sparrer, 2011, p. 89), providing inside into what the original distinction made meaningful at all. The question of 'when do position 1 and 2 do make sense and when they don't?' inquires this unmarked state. Accordingly, Taleb strongly recommends to "embrace what does not make sense" (Taleb, 2012, p. 335), since it is this moment when the hidden and excluded conditions of sensemaking of a specific situation become tangible.

In management science, such an approach is extremely relevant. Given the tension between centralisation and

decentralisation, these two options indicate the first two copies of the dilemma. Centralisation could be an affirmation; decentralisation, therefore, would be the negation. Based on an extensive understanding of negativity, there are other conclusions possible. Additional to the classic 'either-or', there is a 'both' and a 'neither-nor' option. A 'both'-option could be exemplified by the formation of an ambidextrous organisation, the 'neither-nor'-option by the change of the business focus towards a small niche, where a simple organisation would fulfil all requirements. This almost hierarchical negation from one ('not') to three negations ('both' and 'neither-nor') illustrate the playfulness and the gained flexibility introduced by negation, especially beyond a bivalent, classic logic. A tri- or polyvalent logic is less focussed on indicating what something is and what it is not, though eager to play with and explore what is created by the distinction as such. By distinguishing something from something else from what both could be together from neither nor of both options draws a space of options. Negation, in this respect, is a fundamental strategy of information processing, of a generation of alternatives and providing selection, although it cannot directly be compared to the process of selection in biological systems (Luhmann, 1975). For change and change management, this approach can be used to challenge not only the classic distinction between top-down and bottom-up approaches, but generally, all relevant dichotomies that discipline has created, like long vs. short-termed, gradual vs. transformational, single vs. double loop and so on. It is much more beyond these distinctions, the change discussion has overseen so far.

Management by negativity: basic principles

Initially, the use of negation and negativity is about gaining knowledge about an object by what it is not, instead of what its properties are. It is knowing and building upon what one does not know. In this respect, the understanding of such an approach was founded on an ontological understanding of negation. It is about contrasting what is unclear against a set of entities that are supposed to be clearer, better defined. Later, it stimulated epistemology (Watzlawick, 2004; Watzlawick, Beavin Bavelas, & Jackson, 2011), logics, (Spencer Brown, 1967), sociology especially organisation sociology (Bakken & Hernes, 2003), and family therapy (Matthias Varga von Kibéd, 2006). In the course of this thinking, especially further developed by so-called "second-order cybernetics" and constructivists like Gregory Bateson (Bateson, 1972), Heinz von Foerster (1992), Karl Weick (1995) and systems theory thinkers like Niklas Luhmann (1995), it was used as a qualified way to use negation as a strategy to taking not-knowledge into account for intelligent action and to use negation as a reflexive strategy to generate alternatives for perception and action. According to these streams of discussion, the sheer possibility to gain full and true knowledge about what something is fundamentally (epistemologically) not given. Instead, not-knowledge and the operativity of distinction generating systems (as the basic operation of meaning processing systems) was considered as a source for appropriate and intelligent operation.

According to these foundations, a negative approach has three basic implications.

- It is often an ode to not-knowing, though it is not about wilful ignorance or wilful blindness (Abbott, 2010; Heffernan, 2011; Ungar, 2008), which involves a deliberate refusal to be informed. The appreciation of not-knowing is a realisation of failure to understand, to know, to come to a comprehensive understanding. As 'knowing what one does not know' is important in decision making, the Via Negativa invites the decision-maker to be prudent.
- The second element refers explicitly to the power of negation, considering what a phenomenon is not might lead to more robust knowledge. The Via Negativa focusses on what is excluded by any given situation and by any distinction that defines a situation. It aims to investigate this unmarked and unexplored, rejected state by using negations repetitively to gain deeper insights by shifting and switching between different levels of cognition.
- A third implication is that it corrupts bivalent thinking and opens up space beyond (Spencer Brown, 1967). A reliance on negativity here is meant as a plea for experiment beyond clear and bivalent, mutual exclusive knowledge, based upon an appreciation of paradox possible in any social situation. It furthermore is a plea to drop ontologic notions of knowledge and cognition, since sometimes is not possible or necessary to know what something "is."

The negative approach offers in this respect three different strategies to inform and intervene into OMT and to support pragmatic action:

1. The first strategy is the exploration of the unmarked state of any given situation, to the negative side of a problem, to all which has been rejected in favour of the selection of exactly this chosen problem. That remarkably enlarges the space for alternatives to problem description and therefore for a finding (instead of searching) a solution.
2. The second strategy highlights negation. Classically, this is informed by solution-focused individual and family therapy (Rothwell, 2005).
3. The third strategy aims to shift the profile of intervention, from positive affirmation to negative avoiding. It provides another way of guiding actions by determining what not to do instead of what to do.

Negation and negativity in OMT discourses

Almost all keywords of modern management instruction contain normative and, with that, a euphemistic notion. Beyond the sheer rhetoric of management fashion (Abrahamson, 1996; Kieser, 1997), it indicates a preference for a positive and affirmative notion of organisation. Management instruction emphasises something, and by doing so, it rejects something else. It draws a distinction between a favourable organisation and a messy one, the latter containing all features managers aims to suppress or erase from being. Total Quality Management denounces bad quality, Lean Management discredits organisational slack, Business Process Reengineering fights hierarchical interruptions of processes, Organizational Learning tries to overcome organisational stupidity and Change Management aims to overwrite discontinuity and coincidence of organisational evolution. Managerial guidance draws a clear line between good and bad features of organisations and addresses a clear 'no' to the bad ones. The territory of the 'good' features is clearly marked while leaving the 'bad' rather undetermined. This tendency of managerial instruction literature indicates two things about the organisational and managerial science behind this literature. Since its inauguration, OMT has been in favour of a positive and affirmative description of the clear and rational organisation; it has always followed the "hope" (Brunsson, 2006) of an affirmative blueprint of organisation. This hope was established to fight all the inconvenience of contemporary society and economy and to find the "one best way of organising" (du Gay & Vikkelsø, 2013). This hope might have been contested and relativised across the course of OMT by casuistic and situative approaches (Jonsen & Toulmin, 1988; Lawrence & Lorsch, 1969; March, 2006a), though it could not be 'exorcised'. Only the ideology ingrained in this 'one best way' was subject to change, after highlighting stability and standardisation in Weberian times to the well-known praise of innovation, flexibility and, very recently, ambidexterity. The core feature of this quest for the 'one best way' was not surprisingly a positive and affirmative description of the organisation. OMT, therefore, was entirely in line with the mind-set of ancient Greek philosophy. It was written as a positive language, addressing its negative counterparts as failures and errors to be avoided. In this respect, OMT used negation widely to mark the undetermined land of the erratic, crude, stubborn, wasteful, irrational reality of organisations, seemingly present daily in a mundane world. With this bias, a scientific or managerial description of organisations was bound to be formulated in terms of improvement and of re-design. In this respect, the appearance of deliberate change management by the mid 20th century is no surprise, since it was born out of this paradigmatic stance. It represents the attempt to remove and hide all emergent, irrational and 'stupid' incidents occurring in everyday organisational life. Change management is the result of positivity.

However, the positive bias in OMT across its history does not necessarily imply the full absence of negative thinking. On the contrary. In line to the rising pluralism in organisation theory and scepticism in the understanding of management starting from (epistemologically) positivist to interpretative/constructivist, symbolistic, critical and eventually post-modern discourses (Hassard, Wolfram Cox, & Rowlinson, 2013; Hatch & Cunliffe, 2006; Tsoukas & Knudsen, 2003), negative thinking has already found access to organisation theoretical debates. Terms and concepts like bounded rationality (Herbert A. Simon, 1957), skilled incompetence (Argyris, 1986), a garbage-can model of organising (Cohen, March, & Olsen, 1972), organisational culture (Schein, 1985), organisational foolishness (March, 2006b), mindfulness (Karl E. Weick, Sutcliffe, & Obstfeld, 1999) and organisational stupidity (Alvesson & Spicer, 2012) depart already from the rational, highly identifiable and solely positive description of the organisation and explore the undetermined terrain, created by an ontologically oriented negative operation of classic OMT. Although these concepts explore the other side, the "unmarked state" of the classic distinction, almost all of them fall under the verdict of positivism and affirmation, since all generated orientations and recommendations remain in affirmative positivistic claims, lacking a

sensibility for the generation of alternatives by means of rejecting affirmation and by playing with instead of just fixing distinctions.

Prototypical for such an inversion or 'positivization' of the undetermined negativity can be observed on the theoretical treatment of organisational culture. Originally, this concept was discovered as informality being complementary to and independent from formalism in 1950 (Coch & French, 1948; Luhmann, 1964; Roethlisberger & Dickson, 1939). In this classic notion, organisations appear by means of the distinction formality and informality, in which the side of formality indicates the positive side, where the influence and control of managerial action are addressed. On the side of the informal, a sublime part of the organisation was drawn, which could support, contradict or undermine the rational intention of the positive side. Formality whatsoever was the preferred, selected state. Informality appeared as an unmarked state beyond the formal, establishing a bivalent, complementary and comprehensive indication of organisation. The later re-appearance of informality in the debate about organisational culture led to the distinction between culture as being manageable and designable (Schein, 1985) or not (Smircich, 1983). This debate occurred in an economic situation where new sources of competitiveness were researched, and the researcher, with a new sort of theory and theoretical resource to (organisational culture), increasingly became a sort of a supplier for managers (Alvesson, 1990) providing positive advice on how to turn the formerly rejected informal phenomenon into a production factor. The debate oscillated between extending formality to a formal control of the informal on the one side or keeping culture as being the unknown and un-designable. This debate missed the opportunity to apply the negation of informality and culture as a reflective value for a.) the definition of the boundaries of formality, b.) for the definition of the organisation (the way the distinction is and was drawn), c.) for a play about what the third and fourth value ('both': formal and informal; 'neither nor': neither formal nor informal) could mean for OMT and d.) for the development of negative advice for influencing culture (indicating what not to do). All of that would mean to investigate how to manage culture and organisation negatively, how to manage by inverting and avoiding. However, these debates kept emphasising the positive side and rejecting the negative of the distinction as an error. The reflective part of a negation exercise would have led to a necessary negation of the formality and informality-distinction, raising the confrontation with the "zero-methodology" (Fuchs, 2010) of organisation. Such a zero-methodology refers to the other side of the indication of organisation, the unmarked state, marking what cannot be organised while as being part of organisations. In meaning processing systems like organisations, a zero-methodology stands for a symbol used in the area of the marked state (here: the organisation) which inhibits "something that appears in a system and has to be taken care of but *must not* occur and *should not* be handled in a system" (Fuchs, 2010, p. 91). It is a signified emptiness, comparable to the number zero in mathematics, "a symbolisation of a not-number, which nonetheless allows calculation" (Fuchs, 2010, p. 91; Luhmann, 2012, p. 232f.). This methodology is needed for a system to become operative. Each system has to provide a symbolisation for what it cannot cope with, what it necessarily has to exclude. This exclusion (which is a rejection, a negation in itself) needs to be inhibited by an internal symbol.[i] Such a zero-methodology of the organisation has not been researched yet, given that negations to organisation inside of many organisation theoretical debates could address but not reflect this issue yet. Yannis Gabriel's suggestion of the un-managed organisation (Gabriel, 1995, 1999) can be understood as an attempt to address what organisation excludes inside the organisation, though it could not cross the negation of the informal, it only managed to escape this distinction by shifting to individual desires and wishes as being unorganizationable, unmanageable part of organisations. Such restricted reflexivity of organisational analysis can be performed with almost all above-mentioned concepts and proposals, leading to either a sustained rejection (i.e March's foolishness) or to a positive reframing of formerly negative values (Weick's mindfulness, or latest Alvesson/Spicer's stupidity).

We will try to use and explore the reflective value of negation and negativity in the next two sections, now explicitly focussed on the subject or organisational change.

Negativity applied theoretically: Insights about the hidden role of change management

"The solution of a problem becomes remarkable

by the disappearance of the problem"

Ludwig Wittgenstein (Tractatus 6.521)

Organisational change is a subject of organisational inquiry which deeply and almost iconographically reflects the "Via Positiva" of modern OMT. Like no other managerial concept, it represents the desire to find the 'true' organisation

rejecting and fighting all the messy appearance of everyday organisations. Nearly all modern concepts of change management are based on a recipe-like version of Kurt Lewin's classic (1947) unfreeze, move, re-freeze instruction. Interestingly, models and guidelines of organisational change are deeply engrained by an affirmative and interventionist attitude leading to a somehow limited number of affirmative actions in a "do-this-and-do-that" style. Why this has been and still is the case becomes clearer when the Via Negativa in the form of a tetralemma experiment is applied to this subject. Among the characteristic basic distinctions of organisational change like transformational, gradual change or 1st order , 2nd order change, the most constitutive and consequential seems to be the distinction of deliberate, emergent change (Mintzberg, 1985; Pettigrew, Woodman, & Cameron, 2001; Karl E. Weick & Quinn, 1999). Broadly acknowledged, organisations seem to be moving mostly in an emergent, undirected and coincidental way. This perception, however, contradicts the steering intention of management, which is driven by the distinction of target, performance. Management aims to adjust the organisational operations to the target line. Accordingly, we set 'deliberate' as the first position of the tetralemma, which is the preferred one while 'emergent' is the second and the refused one. In terms of action guidance, the majority of concepts focus on the positive, affirmative side of deliberate action. To focus on the negative side is perceived as the failure of both the organisation and the management as not being capable of exerting guidance. Taken the remarkable amount of failure of intended, deliberate change efforts into account (Beer & Nohria, 2000; Sorge & van Witteloostuijn, 2007), conceptual change management is trapped in a dilemma. A "more of the same" in terms of enforcing deliberate, positive action is not expected to produce a fundamental difference in the outcome, while relying on the emergent nature of organisations and reducing positive affirmative action contradicts the basic programming of change management, and, in fact, its heroic constitution. In that respect, change management is in a classic double-bind situation (Watzlawick, et al., 2011). A first move to further clarify and instruct the situation is to explore possibilities of a *tertium* position, a "both" consisting of a "non-deliberate" and "non-emergent" condition. "Non-emergent" would combine both deliberate formal and deliberate informal actions. Deliberate informality refers especially to political gaming in organisational change. It is beyond being fully emergent, since interests of different internal groups play a considerable role, though it cannot reach a direct formal impact like official and formally legitimated action. By contrast, the stake of "non-deliberate" would include emergent developments and non-intended side-effects of formal and explicit actions. The "both" position of organisational change would therefore mainly refer to organisational informality, where deliberate actions encounter uncontrollable alienation and emergent occasions influence political negotiations of colliding interests. According to an aspect of intended change would then emphasise a direct play with informality as an addressable though not a fully controllable reality in organisations. The third negation and most challenging negation now would consist of a "neither-nor" position, indicating the conditions that turn the constitutive distinction of change management into relevance and meaningfulness. Such a third negation would reveal what actually is excluded in organisations by the fundamental distinction of deliberate and emergent. This distinction sets one core feature of modern formal organisations into sharp light: goal orientation. Goal orientation seems to be one of the last uncontested features of organisations. Other core features of organisation have been strongly contested like hierarchy (de Jong & Van Witteloostuijn, 2004) or formal membership (Haugh & McKee, 2003). However, the existence of a goal always makes the fundament of an organisation, if there is no goal, there is no organisation. From this perspective, the distinction of deliberate and emergent is only meaningful if there is a goal to be reached. Both sides of the distinction can be read as two more or less accepted factors influencing the accomplishment of organisational goals. However, the existence of a goal does not necessarily imply that all organisational operations are goal-driven or even goal reflecting. The unmarked state beyond the fundamental distinction of change management refers to something that exists in organisations but actually cannot be accepted: aimlessness or purposelessness. There is a reasonable amount of undirected action in organisations which is free of (managerial) orientation[ii]. The neither-nor of change is therefore: what happens though could not be related to aims. While the distinction of deliberate and emergent cannot cover all of organisational action, it is a symbol able to cover and hide the purposelessness. Change management is set to regulate aimless communication without being fully able to reach it, given the boundary of its distinction. Since purposeless action is apparent in organisations, unreachable by managerial intention, a symbol is needed to cover this problem. Accordingly, change management stands for the zero-methodology of organisation. It is set to bring all organisational action into relation to goals and purposes by

shifting between deliberate and emergent action. However, since aimlessness is beyond its own access, it cannot address but only cover this restriction. This third negation brings something to the fore, which is a comparable feature to non-scarce money in the economy. Purposelessness occurs in organisations but contradicts its fundamental constitution. Therefore, it happens though it must not happen, and it should be addressed, although it cannot be reached.

In the above section, we reflected on how OMT deals with negation and how far the application of negativity is executed. The introduction of the Via Negativa on the level of OMT raised the question for the *zero-methodology* of organisations. This symbol hides what happens in organisations but cannot happen. According to the above line of argument, the application of the Via Negativa to the subject of organisational change answers this question: *Change management is the zero-methodology of organisation.* It is the symbol that hides what *must not* occur in organisations but is permanently present, which cannot be treated accordingly but has to be treated for exactly this purpose. Change management stands for the endless and self-enforcing attempt to regulate the factual aimlessness of a big part of organisational reality and a big portion of (ineffective) managerial action. The affirmative and positive bias of change management so far shows the trap of organised and planned change (Schwarz & Huber, 2008; Sturdy & Grey, 2003) sharply. If scientific reflection used negation more intensively as a reflexive mode of its operations, it quickly would reveal hidden functions. Furthermore, it would reveal that failure – instead of success, seems to be the medium it needs to continue, although it deals with inaccessibility (Brunsson, 2009; Wetzel & Dievernich, 2014). Success would allow (or even force) change management to stop, leaving the inaccessible (the aimless) uncovered. Accordingly, the developments in change management concepts (Lewin, Senge, Weick, Kotter) throughout the last 50 years read more like a shift, a dislocation of symptoms ("Symptomverschiebung") rather than an effort to solve the core problem of failure. Organisations seem to have a sublime interest in maintaining the problem of failure to cover aimlessness. That not only sheds a different light to the 'emotionally perceived' high level of everyday failure in attempting organisational change, it explains why the development of more appropriate models for change is stuck (Wetzel & Van Gorp, 2014). In a way, it exemplifies why failure in running organisations is deeply functional like stupidity is an ineradicable and necessary feature of any organisation (Alvesson & Spicer, 2012). The fact that the 'burning platform' of change management - visible in the dissatisfying performance combined with a conservative change industry reapplying classic theories and toolboxes - has not disappeared points to the fact that the problem as such is functional, that represents already a solution for something else. This 'something-else-problem' is the symbolic covering of something unavoidably excluded.[iii]

The Via Negativa applied pragmatically: how to instruct the front line

Although walking the Via Negativa on a theoretical and conceptual level revealed quite discomforting insights about the symptom construction of change management, the problem construction of OMT and the functionality of perceived failure, the Via Negativa nonetheless can instruct managerial practice in coping with especially stuck change efforts. We want to show how this can be instructive by following two of the three above mentioned strategies of the Via Negativa:

1. The first strategy is the exploration of the unmarked state of any given situation, to the negative side of a problem.
2. The second strategy is to shift the profile of intervention, from positive affirmation to negative avoiding. It provides another way of guiding actions by determining what not to do instead of what to do.

Let's explore these two strategies one by one.

a.) The tetralemma of radical change and the visibility of hidden alternatives

There are instructive ways to apply the tetralemma not on a theoretical but on a very pragmatic level to instruct the management of operational problems to drive for change. We here introduce and explain an approach to radical change, developed by Matthias Varga von Kibed (1995) with five different steps to tackle stuck change management situations:

1. Take a position (draw a distinction and make a selection). This is meant to cease situations of uncertainty and of vagueness by taking a clear position. Taking a position is closely related to the explication of own boundaries and "no-go's", of required conditions of collaboration, what is needed to stop the efforts for accomplishment and for collaboration. Remaining vague blocks change, aiming to improve the quality of decisions. Jumping

into uncertain situations by making a decision can unlock energy while facing the risk of being criticised for immature decisions. However, this will happen anyway.

2. Realise the power of the rejected and let the selected take benefit of it. Taking a position includes necessarily rejecting something else. However, rejected alternatives contain value. Otherwise, they would not have been taken into account. This value does not disappear after a selection has been taken, though two ways exist to cope with. Either the rejection is lamented and the taken selection undermined, or the rejection is appreciated. An appreciated rejection could fuel the selection by prompting a perceived surrender as a revaluation of the selected. The fact of rejecting something acknowledged precious turns the selected even more precious. Here, the power of the rejected can strengthen the selected.

3. Change perspective in a way that the selected and the rejected become compatible. This call aims to address the 'both' in the tetralemma and the second negation. A powerful blockade against a movement usually stems from an antagonistic contradiction between two alternatives. However, at another level, a paradox reconcilability can be reached. Such reconcilability can be found in ways to conserve values which formerly became precious *by means of changing* and by fostering dynamics *by* unfolding *existing* strengths.

4. Challenge the chosen frame (the distinction). This reflection addresses the 'neither-nor' position and turns to the background of the perceived necessity of change. It raises the question about what the need for change made occurring, why it is perceived as such and which different description of this point of departure would make this question disappear.[iv] This calls for a re-assessment of the necessity of change, with both possible options to a.) reduce the amount of executed change (Stensaker, Falkenberg, Meyer, & Haueng, 2002) or to b.) check how much the environment instead of the organisation can be made adaptable (Contu, Grey, & Örtenblad, 2003).

5. Change your mode of change and possibly change even that. This is eventually a call for an variation in the way change is decided upon, executed and evaluated. Although plenty of variation is available, only a very limited amount is in fact in use. Necessarily, this changing the mode of change must include its opposite: the rejection of change and the highlighting of unusual and usually devaluated ways of approaching change – like a bureaucratic way of doing it (du Gay, 2001).

b.) Focus on what it is not

Here, we want to provide a first and inexhaustive list of principles which aims to instruct a negative way to change management as such. It is a collection of principles we found in different debates and streams of thinking with the expectation to become fruitful. Four overall principles we want to highlight:

- Don't work with what is addressed only, involve what is excluded.

This is taking the Via Negativa literally and might be the biggest challenge for contemporary change management. Such a negative approach would not simply turn the infinite lists of to-do-actions into finite lists of what to avoid. A negative approach would realise the unmarked state, the somehow paradox nature of organisations and would try to involve this in finding solutions. Examples of such a negative methodology sound like:

- uncover the 'protective and sheltering effects' of obstacles which you will only find when you try to explore the other, the resourceful side of obstacles
- remove the hidden benefit of the existing problem for the system, which is actually the same move as before, though with another target
- remove the profits of failed, delayed solutions
- include what comes after the solution as part of the problem
- invert the frame of perception for resisting as using it as information and energy
- avoid to kill the 'hygienic factors' of organisational change, like the reputation of the protagonist, the pride of the affected and the value of the past
- don't focus on the impact of any solution, focus on whether the problem has disappeared

Such recommendations target consciously what usually is excluded in organisational change. It is not about rejecting but about taking the rejected account, giving it a voice and going with the hidden energy locked in the excluded, it is about working indirectly and by doing what usually is not done.

- Don't manage the object, manage its context.

This principle has become the classic intervention principle of systemic family therapy and systemic consulting: don't focus on a subject's intentions, focus on the relations they are embedded in. By changing the social context, the subject's cognition and emotion will follow automatically through autonomously. It is an emphasis on a context which produces the problem and less on a problem's solution, which only would address symptoms, not causes.

- Don't remove, but prescribe the symptoms

Again, this is a classic tool of systemic therapy. It is extraordinarily helpful when positive approaches to ignite a difference in behaviour have proven not to be fruitful. By asking a client to do what was expected from him to suppress, usually enforces dynamics in justifying and stonewalling behaviour (O'Connell, 1983). By enforcing behaviour that is prohibited, the benefit of resisting is actually undermined. This move allows to make hidden benefits of problems visible and accessible. This principle is actually an example for inverting and negating directions of tools used and overused in organisational change. Other examples to use this principle would be to allow purposeless actions, to invert hierarchy for a restricted time (which is carnivalizing an organisation, comparable to the societal effect of Carnival in medieval times) and to install organisational fools as formal positions.

- Don't avoid conflict but be ready to say "yes, and …!"

Negation does not necessarily mean to reject and to negate the "yes". On the contrary, to cross-resistance and conflict, a negation of conflict is necessary which calls for a "going with the force" and adding a little. This principle stems from improvisational theatre (Crossan, White, Lane, & Klus, 1996) and has impressively proven to crack stuck frames of mind and to melt both, conservative and progressive forces in organisations.

- Focus on what does not make sense

This is the only positively formulated principle since it is directly addressing what is not accessible at all. However, in what is inaccessible to us, contains an undisclosed resource able to be set free. The application of this principle can be realised by trying to understand any given settings (like organisational procedures or political games) as to whether they would be completely meaningless. An exploration of what would happen when these settings would be without meaning (or ambition or purpose) could reveal that they might indeed be meaninglessly followed by insights of why nonetheless this setting produces results. Furthermore, the deliberate instalment of purposeless action can support an organisational reflection about why it does, what it does in the way it does and can, therefore, indirectly, stimulate energy for self-reflection.

Conclusion

In this article, we introduced another, from our perception a stronger way of looking, understanding and influencing organisations, exemplified by the subject of organisational change management. The classic ambition to define the 'true' organisation has impressively shown not to fulfil its promise. It only could create a fiction of an organisation impossible to be accomplished, though able to attract sufficient energy to strive even harder. To develop a more realistic and humble view, we relied on the far east wisdom of the Via Negativa, which attempts to approach objects indirectly by defining something by negation and by what it is not. We introduced a technique following this attempt, the tetralemma, which in fact is a processual suggestion to approach the rejected and unmarked state produced by any given distinction. By means of such access, we could show how negation is already present on OMT exemplified by the subject of organisational culture and where the reflection of this negativity usually stops. We could extend this reflection by applying the tetralemma approach to the subject of change management and could clarify two things. Firstly, a negative approach to change management revealed the hidden functionality of failure for the organisation as such. Change management stands for a zero-methodology, organisations need to cover the inaccessible and unacceptable in organisations, which is general purposelessness. Secondly, we could show how the Via Negativa could instruct the practical front line of organisational change. It remained open what the insights into the hidden functions of failure in organisational change mean for both, the future of organisational change research and for the development of concepts for directing practitioners. Furthermore, additional research is required to demonstrate whether and how a negative approach to change could make a difference in empirical terms.

References

Abbott, A. (2010), "Varieties of Ignorance", *The American Sociologist,* Vol. 41 No. 2, 174-189.

Abrahamson, E. (1996), "Management Fashion", *Academy of Management Review,* Vol. 21 No 1, 254-285.

Adorno, T. (2013), *Aestetic Theory,* London: Bloomsbury.

Alvesson, M. (1990), "On the Popularity of Organizational Culture", *Acta Sociologica,* Vol. 33 No 1, 31-49.

Alvesson, M. and Spicer, A. (2012), "A Stupidity-Based Theory of Organisations", *Journal of Management Studies,* Vol. 49 No. 7, 1194-1220.

Argyris, C. (1986), "Skilled Incompetence", *Harvard Business Review,* Vol. 65 No. 5, 74-79.

Baecker, D. (1996), Was leistet Negation?", In F. Balke and J. Vogl (Eds.), *Gilles Deleuze - Fluchtlinien der Philosophie* (pp. 93-102). Muenchen: Fink.

Baecker, D. (2010), *Negativsprachen aus soziologischer Sicht*, Friedrichshafen.

Bakken, T. and Hernes, T. (Eds.), (2003), *Autopoietic Organization Theory. Drawing on Luhmann's Social Systems Perspective*, Copenhagen: abstract forlag.

Bateson, G. (1972), *Steps to an Ecology of Mind*, New York: Routledge.

Beer, M. and Nohria, N. (Eds.), (2000), *Breaking the Code of Change*, Boston, MA.: Harvard Business School Press.

Brunsson, N. (2006), *Mechanisms of Hope. Maintaining the Dream of the Rational Organization*. Copenhagen: Liber.

Brunsson, N. (2009), "*Reform as Routine. Organisational Change and Stability in the Modern World*," Oxford: Oxford University Press.

Butzenberger, K. (1993), "Some general remarks on negation and paradox in chinese logic", *Journal of Chinese Philosophy,* Vol. 20 No. 3, 313-347.

Butzenberger, K. (1996), "On doubting what there is not: The doctrine of doubt and the reference of terms in Indian grammar, logic and philosophy of language", *Journal of Indian Philosophy,* Vol. 24 No. 4, 363-406.

Coch, L. and French, J. R. P. J. (1948), "Overcoming resistance to change", *Human Relations* Vol. 1, 512-532.

Cohen, M. D., et al. J. P. (1972), "A Garbage Can Model of Organizational Choice", *Administrative Science Quarterly,* Vol. 17 No. 1, 1-25.

Contu, A., Grey, C. and Örtenblad, A. (2003), "Against learning", *Human Relations,* Vol. 56 No. 8, 931-952.

Crossan, M. et al. (1996), "The improvising organisation: Where planning meets opportunity", *Organizational Dynamics,* Vol. 24 No. 4, 20-35.

de Jong, G. and Van Witteloostuijn, A. (2004), "Successful corporate democracy: Sustainable cooperation of capital and labor in the Dutch Breman Group", *Academy of Management Executive,* Vol. 18 No. 3, 54-66.

de Saussure, F. (Ed.). (1972), *Cours de linguistic générale*, Paris: Payot.

du Gay, P. (2001), *In Praise of Bureaucracy. Weber, Organization, Ethics*, Thousand Oakes et al.: Sage.

du Gay, P. and Vikkelsø, S. (2013), "Exploitation, exploration, and exaltation: Notes on a metaphysical (re)turn to 'one best way of organising'", *Research in the Sociology of Organisations,* Vol. 37, 249–279.

Dummett, M. (1963), "The Philosophical Significance of Gödel's Theorem", In M. Dummett (Ed.), *Truth and Other Enigmas (1978)* (pp. 186-214): Duckworth.

Elster, J. (1984), "Active and passive negation", in P. Watzlawick (Ed.), *The Invented Reality* (pp. 174-205). New York: Norton.

Freud, S. (1995), "Verneinung, die", In S. Freud (Ed.), *Metaphysische Schriften* (pp. 319-325). Frankfurt: Fischer.

Fuchs, P. (2010), *Diabolische Perspektiven: Vorlesungen zu Ethik und Beratung*, Berlin et al.: LIT Verlag.

Gabriel, Y. (1995), "The Unmanaged Organisation: Stories, Fantasies and Subjectivity", *Organization Studies, Vol. 16 No.* 3, 477-501.

Gabriel, Y. (1999), "Beyond Happy Families: A Critical Reevaluation of the Control-Resistance-Identity Triangle", *Human Relations,* Vol. 52 *No.* 2, 179-203.

Grey, C. (2013), *A Very Short, Fairly Interesting and Reasonably Cheap Book about Studying Organisations* (3rd ed.), London: Sage.

Hassard, J. and Cox, J. W. (2013), "Can Sociological Paradigms Still Inform Organizational Analysis? A Paradigm Model for Post-Paradigm Times", *Organization Studies,* Vol. 34 No. 11, 1701-1728.

Hassard, J., et al. (2013), "Where Are the Old Theories of Organization? Prospects for Retrospection in Organization Theory", *Academy of Management Review,* Vol. 38 No. 2, 309-313.

Hatch, M. J. and Cunliffe, A. (2006), *Organisation Theory: Modern, Symbolic, and Post-modern Perspectives*, Oxford: Oxford University Press.

Haugh, H. M. and McKee, L. (2003), "'It's just like a family'--shared values in the family firm", *Community, Work & Family,* Vol. 6 No. 2, 141-158.

Heffernan, M. (2011), *Willful blindness*, New York: Simon & Schuster.

Jonsen, A. and Toulmin, S. (1988), *The abuse of casuistry*, Los Angeles: University of California Press.

Kieser, A. (1997), "Rhetoric and Myth in Management Fashion", *Organization,* Vol. 4 No. 1, 49-74.

Lawrence, P. R. and Lorsch, J. W. (1969), *Developing Organisations: Diagnosis and Action*,

Lewin, K. (1947), "Frontiers in Group Dynamics: Concept, Method and Reality in Social Science; Social Equilibria and Social Change", *Human Relations,* Vol. 1 No. 1, 5-41.

Lock, C. (1999), "Michel de Certeau: Walking the via negativa", *Paragraph,* Vol. 22 No. 2, 186-198.

Luhmann, N. (1964), *Form und Funktion formaler Organisationen*, Berlin: Duncker & Humblot.

Luhmann, N. (1975), „Über die Funktion von Negation in sinnkonstitutiven Systemen",. In H. Weinrich (Ed.), *Positionen der Negativität* (pp. 201-218). Muenchen: Fink.

Luhmann, N. (1995), *Social Systems*, Stanford: Stanford University Press.

Luhmann, N. (2012), *The Theory of Society Volume 1*, Stanford: Stanford University Press.

Luhmann, N. and Fuchs, S. (1988), "Tautology and Paradox in the Self-descriptions of Modern Society", *Sociological Theory,* Vol. 6, 21-37.

March, J. G. (2006a), "Exploration and Exploitation in Organizational Learning", In B. Nooteboom (Ed.), *Knowledge and Learning in the Firm. Volume 2. Knowledge and Learning in Organisations* (pp. 301-317): An Elgar Reference Collection. Critical Studies in Economic Institutions, vol. 9. Cheltenham, U.K. and Northampton, Mass.: Elgar.

March, J. G. (2006b), "Rationality, foolishness, and adaptive intelligence", *Strategic Management Journal,* Vol. 27 No. 3, 201-214.

Matthen, M. (1983), "Greek Ontology and the 'Is' of Truth", *Phronesis,* Vol. 28, 113-135.

Milem, B. (2007), "Four theories of negative theology", *Heythrop journal,* Vol. 48 No. 2, 187-204.

Mintzberg, H. (1985), "Of strategies deliberate and emergent", *Strategic Management Journal,* Vol. 6, 257-272.

Montero, B. and Papineau, D. (2005), "A defence of the via negativa argument for physicalism", *Analysis,* Vol. 65 No. 3, 233-237.

Mortley, R. (1982), "The Fundamentals of the Via Negativa", *American Journal of Philology,* Vol. 103 No. 4, 429-439.

O'Connell, D. S. (1983), "Symptom prescription in psychotherapy", *Psychotherapy: Theory, Research & Practice,* Vol. 20 No.1, 12-20.

Pettigrew, A. M., Woodman, R. W. and Cameron, K. S. (2001), "Studying Organizational Change and Development: Challenges for Future Research", *Academy of Management Journal,* Vol. 44 No. 4, 697-713.

Poster, C. (1996), "Being and Becoming: Rhetorical Ontology in Early Greek Thought", *Philosophy & Rhetoric,* Vol. 29 No. 1, 1-14.

Priest, G. (2011), "Four Corners—East and West", In M. Banerjee & A. Seth (Eds.), *Logic and Its Applications* (pp. 12-18): Springer Berlin Heidelberg.

Raju, P. T. (1954), "The Principle of Four-Cornered Negation in Indian Philosophy", *The Review of Metaphysics,* Vol. 7 No. 4, 694-713.

Roethlisberger, F. and Dickson, W. J. (1939), *Management and the worker*, Cambridge.

Rothwell, N. (2005), "How brief is solution focussed brief therapy? a comparative study", *Clinical Psychology & Psychotherapy,* Vol. 12 No. 5, 402-405.

Rotman, B. (1987), *Signifying nothing. The semiotics of zero*, New York: St. Martin's Press.

Saury, J.-M. (2009), "The phenomenology of negation", *Phenomenology and the Cognitive Sciences*, Vol. 8 No. 2, 245-260.

Schein, E. H. (1985), *Organizational Culture and Leadership,* London: Routledge.

Schuon, F. (1975), *Logique et transcendence*, London. Routledge.

Schwarz, G. M. and Huber, G. P. (2008), „Challenging Organizational Change Research", *British Journal of Management,* Vol. 19, S1-S6.

Shaw, J. L. (1978), "Negation and the Buddhist theory of meaning", *Journal of Indian Philosophy,* Vol. 6 No. 1, 59-77.

Shrader, D. W. (1992), "The Logic of Negation in Early Greek and Buddhist Philosophy", In J. T. H. Martin (Ed.), *Philosophies of Being and Mind: Ancient and Medieval* (pp. 87--102): Caravan Books.

Simon, H. A. (1946), "The Proverbs of Administration", *Public Administration Review,* Vol. 6 No. 1, 53-67.

Simon, H. A. (1957), *Administrative Behavior. A study of decision making processes in administrative organisations*, New York: Free Press.

Smircich, L. (1983), "Concepts of Culture and Organizational Analysis", *Administrative Science Quarterly,* Vol. 28 No. 3, 339-358.

Sorge, A. and van Witteloostuijn, A. (2007), "The (Non)sense of organisational change continued: A rejoinder to Armbruster and Gluckler", *Organization Studies,* Vol. 28 No. 12, 1887-1892.

Spencer Brown, G. (1967), *The Laws of Form,* London: Allen & Unwin.

Stensaker, I., Falkenberg, J., Meyer, C. B. and Haueng, A. C. (2002), „Excessive Change: Coping Mechanisms and Consequences", *Organizational Dynamics,* Vol. 31 No. 3, 296-312.

Sturdy, A., and Grey, C. (2003), "Beneath and Beyond Organizational Change Management: Exploring Alternatives", *Organization,* Vol. 10 No. 4, 651-662.

Taleb, N. N. (2012), *Antifragile. How to live in a world we don't understand*, London: Penguin Books.

Tsoukas, H. and Knudsen, C. (Eds.) (2003), *The Oxford Handbook of Organization Theory. Metatheoretical Perspectives*, Oxford: Oxford University Press.

Ungar, S. (2008), "Ignorance as an under-identified social problem", *The British Journal of Sociology,* Vol. 59 No. 2, 301-326.

Varga von Kibed, M. (1990), "Aspekte der Negation in der buddhistischen und formalen Logik", *Synthesis Philosophica,* Vol. 10, 581-591.

Varga von Kibéd, M. (1995), *Fünf Arten radikalen Wandels,* Blickpunkte 1:5, München: Graphic Consult.

Varga von Kibéd, M. (2006), "Solution-Focused Transverbality: How to Keep the Essence of the Solution-Focused Approach by Extending it", In G. Lueger & H.-P. Korn (Eds.), *Solution-Focused Management* (Vol. 2006, pp. 41-55). Mering: Hampp.

Varga von Kibéd, M. and Sparrer, I. (2011), *Ganz im Gegenteil. Tetralemmaarbeit und andere Grundformen Systemischer Strukturaufstellungen* (Vol. 7), Heidelberg: Carl-Auer-Systeme.

Vicente, A. (2011), "Current Physics and 'the Physical', *British Journal for the Philosophy of Science,* Vol. 62 No. 2, 393-416.

von Foerster, H. (1992), "Ethics and Second-order Cybernetics", *Cybernetics and Human Knowing,* Vol. 1, 9-19.

Watzlawick, P. (2004), "We only know what reality is not", In B. Pörksen (Ed.), *The Certainty of Uncertainty. Dialogues Introducing Constructivism* (pp. 173-191). Exeter: Imprint Academy.

Watzlawick, P., Beavin Bavelas, J. and Jackson, D. D. (2011), *The Pragmatics of Human Communication. A Study of Interactional Patterns, Pathologies, and Paradoxes*, New York: Norton & Co.

Weick, K. E. (1995), *Sensemaking in Organisations,* Thousand Oaks: Sage.

Weick, K. E. and Quinn, R. E. (1999), "Organisational change and development", *Annual Review of Psychology,* Vol. 50.

Weick, K. E., Sutcliffe, K. M. and Obstfeld, D. (1999), „Organising for High Reliability", In B. M. Staw & R. I. Sutton (Eds.), *Processes of Collective Mindfulness. Research in Organisational Behavior*. New York: JAI Press.

Wetzel, R. and Dievernich, F. E. P. (2014). "Mind the Gap. The Relevance of Postchange Periods for Organizational Sensemaking", *Systems Research and Behavioral Science,* Vol. 27 No. 1, 280-300.

Wetzel, R. ancd Van Gorp, L. (2014), "Eighteen shades of grey? An explorative literature review into the theoretical flavour of organisational change research", *Journal of Organizational Change Management,* Vol. 27 No. 1, 115-146.

Wittgenstein, L. (2007), *Tractatus Logico-Philosophicus*, New York: Cosimo Classics.

Zembylas, M. (2005), "A Pedagogy of Unknowing: Witnessing Unknowability in Teaching and Learning", *Studies in Philosophy and Education,* Vol. 24 No. 2, 139-160.

[I] Such a Zero-Methodology is visible in the system of economy and the medium of money (Luhmann, 2012, p. 385f. dt). Money here stands for the observation of scarcity and for the transformation of scarcity into money. Money, therefore has to be scarce too, although in each economy none-scarce money is apparent. The zero-methodology of economy in this respect are central banks (organisations, sic!), which can regulate the scarcity of money. An organisation symbolises something the system necessarily must exclude (none-scarcity in the currency of money) inside economy.

[ii] This is not about resistance since resistance would refer to managerial intention and imposition. Aimless action lacks any reference to deliberate action.

[iii] It would be worth to apply techniques of systemic intervention to change concept development so explore what happens, when the underlying problem is addressed instead of symptoms. The techniques are there though ignored.

[iv] This is actually the question for triggers of change and possible alternatives to meeting these triggers. Classically, change is perceived as being necessary because either the formal or informal problems are perceived. However, isomorph demands from outside observers act as triggers too, which do not refer to internal problems but to colliding expectations with regard to the official self-description. The dynamics of internal change management driven by external observation have been fully ignored by the relevant change literature, although theoretical descriptions, based on neo-Institutionalism are available since long.

****

Integration of ASEAN-5 Equity Markets: Implications

P. K. Mishra
Associate Professor
Department of Economic Studies,
Central University of Punjab, Bathinda
Email: pkmishra1974@gmail.com

S. K. Mishra
Associate Professor,
Department of Humanities and Social Sciences,
Siksha 'O' Anusandhan (Deemed to be University)
Bhubaneswar, Odisha
Email: skmtite@gmail.com

Abstract

The study examines the trend patterns of the equity market indicators such as market size, liquidity, volatility and stock return to judge the stability of ASEAN equity markets and the degree of their integration. The ARDL model-based bounds test approach to cointegration is used to explore the long-run dynamics of equity market integration. The results reveal that the emerging equity markets of ASEAN-5 nations are not completely integrated to benefit the investors in the short-run and long-run. The convergence of market risk and price in ASEAN-5 equity markets is yet to be attained. Thus, the findings suggest the scope for portfolio diversification.

***Key Words**: Equity Market, Market Integration, Market Risk, Economic Groth, ASEAN, ARDL*

It is often argued that the development of the capital market is both necessary and sufficient condition for fostering economic growth of a nation (Chaisrisawatsuk, 2016). The development of the capital market in particular and the financial market in general, however, depends on the market liberalization, increasing supply of capital, improved allocation of funds, and efficient use of financial resources (Phuan *et al*. 2009; Chaisrisawatsuk, 2016). The development of financial markets in a particular region, in turn, is pre-conditioned by the extent to which these are integrated for availing the benefits of cross-border diversification of investment portfolios (Phuan *et al*. 2009). It is through deregulation of domestic financial markets and the relaxation of restrictions on cross-border capital flows; the financial integration is carried out at the international level (Marston, 1995; Sehgal *et al*. 2018a). Financial market integration is the state of an economy where there are little legal barriers, no transactions costs, taxes and tariffs on trading in foreign assets and on equity flows (Marashdeh & Shrestha, 2010).

Economies have become more integrated due to improvements in mobility and communication technology, the development of trade regionalism, liberalization of cross-border transactions, free flow of capital and reduction in the cost of trade (Ethier, 2001; Sehgal et al. 2018b). At the same time, international equity markets have become perceived to become more integrated as well (Lee & Goh, 2016). In the last few years, the cross-border capital flows among the emerging markets of Asia and other regions have increased at a faster rate which has arguably contributed to the capital market integration having implications for the investors.

Integrated capital markets provide the benefits of risk-sharing (Marashdeh & Shrestha, 2010; Mahmood & Rehman, 2017), lower cost of capital, and smaller price volatility (Tai, 2007). It ensures stability in the financial sector by increasing market competition, inducing market discipline, enhancing informational efficiency, and efficiently allocating investible resources (Trichet, 2005; Assidenou, 2011). This market integration encourages innovation and cost-effective intermediation to improve the access of financial services (Giannetti et al. 2002), promotes domestic savings and investment thereby positively influencing the total factor productivity and economic growth (Levine, 2001). On the other side of the coin, negative consequences of financial market integration have also been observed as reflected in the Asian crisis, sub-prime crisis, increased private and public sector debts, and larger volatilities in the flow of foreign capital (Shimizu, 2014). Such outcomes infer that the benefits of financial market integration have not entirely achieved between economies.

In Asia, the recent years' policy efforts concerning financial sector development have been focusing more on the financial market integration among ASEAN member countries, particularly since the inception of ASEAN Economic Community in 2015 (Shimizu, 2014). In this direction, this paper purports to contribute significant implications of the capital market integration for investors in the long-run perspective. We consider only the original five countries of ASEAN - Indonesia, Malaysia, Philippines, Singapore, and Thailand. These countries have heterogeneous economic and financial characteristics reflected in the divergent growth rate of national income, and varying degrees of the development of financial markets (Chaisrisawatsuk, 2016). Particularly, the capital market integration is reflected in the degree to which capital market liberalization has been in place (Do & Konya, 2013). The ASEAN-5 capital markets were liberalized by early 1990s (Indonesia in Sept-1989, Malaysia in Dec-1988, The Philippines in June-1991, Singapore in June-1978, and Thailand in Sept-1987 (Phuan et al. 2009; Lee & Goh, 2016). As a consequence, foreign investments were allowed in the domestic stock markets, and also domestic investors were allowed to make transactions in the foreign equity markets. This resulted in the capital market development of ASEAN-5 economies.

Many observed that the ASEAN-5 markets were relatively smaller in size and prone to external shocks, despite the significant reforms in their financial markets (Sheera & Bishnoi, 2013; Park, 2014; Lee & Goh, 2016). Particularly, the controls on capital transactions have been a crucial barrier in the path of complete regional financial integration. So the process of regional financial integration in comparison to economic integration has been relatively slow in ASEAN economics (Shimizu, 2014). Thus, considerable policy effort is warranted in making regional financial integration a success. This necessitates the relaxation of their financial services, capital transactions, and through the practices of well-coordinated regulations. In ASEAN-5 economies, the respective financial markets are relatively small, and the efficiency in the market liberalization approach can benefit these economies on a larger scale. This is likely to result in a healthy market competition within the region, which can strengthen their financial systems. This

can ensure the availability of better financial services required for bringing efficiency in the allocation of investible funds. In all these, the primary objective is to optimally allocate regional savings among regional investment avenues, thereby reducing the country's dependency on foreign capital (Shimizu, 2014). In this context, the paper examines the dynamics of equity market integration among the original ASEAN-5 economies to generate implications for the investors.

Literature Review

It has long been argued that a higher level of financial integration can strengthen the domestic markets involved, which is essential for the creation of a congenial domestic corporate environment, increasing domestic capital accumulation and technological innovation, and thus, critical for long-run economic growth (Maghyereh, 2006; Bhaduri & Samuel, 2009; Poshakwale & Thapa, 2010; Matos et al. 2015; Bong & Premaratne, 2018). So, the study of the issue of the degree of equity market integration has been a focus among the researchers. A cursory look at the extant literature reveals the presence of a good number of studies on this issue in the context of the financial markets of developed economies (Joy et al. 1976; Hilliard, 1979; Eun & Shim, 1989; Becker et al. 1990), but there are a small number of studies available in the context of ASEAN countries. Another important point is that the results of the existing studies concerning ASEAN economies are highly inconsistent. Some studies conclude that the ASEAN capital markets are integrated while some other studies conclude about either partial or no integration of these markets.

The research works conducted on this issue during and after the Asian financial crisis of 1997, conclude a mixed outcome. For example, Barus (1997), Palac-McMiken (1997) and Sharma & Wongbangpo (2002) provide evidence of incomplete and weak cointegration among the capital markets of ASEAN countries before the 1997 crisis. Contrary to this, Roca et al. (1998), Hee (2000), Hee (2002) and Cheng et al. (2003) observed that these capital markets were having no cointegration relationship before and during the said crisis. Adding to this finding, Goh *et al*. (2005) pointed out that the capital markets of ASEAN-5 countries have undergone a structural change in the aftermath of Asian financial crisis. Thus, the markets were cointegrated in the pre-crisis era, but not during the turmoil period. However, Daly (2003) and Lim (2009) argued that the degree of integration of ASEAN-5 markets has increased in the post-Asian crisis era. In a study, Majid et al. (2009) put forward that the stock markets of ASEAN have become more integrated within the group, and with that of US and Japan in the aftermath of 1997 crisis. Caporale et al. (2019) also supported this finding of cointegration of ASEAN five and US markets. Phuan et al. (2009) provide evidence that the degree of integration among ASEAN-5 capital markets has increased due to the liberalization policies implemented through the financial reforms of the early 1990s.

Regarding the degree of integration among the ASEAN-5 equity markets, Chai & Rhee (2005) and Click & Plummer (2005) found that there exists regional integration to some extent in the economic sense. Janor et al. (2007) and Janor & Ali (2007) also found incomplete integration among ASEAN-5 equity markets, and thus argued that certain degrees of portfolio diversification opportunities exist in these markets to benefit the investors. Contrary to these findings, Ibrahim (2006) put forward that the emerging capital markets of ASEAN-5 are not cointegrated.

Karim & Karim (2012) observed that the emerging capital markets of ASEAN-5 were integrated during the pre-1997, post-1997 and post-global financial recession. Taun et al. (2014) found a lower but increasing degree of financial integration between ASEAN-5 and China. Similarly, Chien et al. (2015) also found that the degree of regional financial integration of China and the ASEAN-5 is gradually increasing. Lee & Goh (2016) found that the linkages between ASEAN-5 stock markets are relatively weaker and tend to react more strongly towards international shocks. Lean & Smyth (2013) found the existence of certain degrees of cointegration between the equity markets of ASEAN-5 and China, which offer a limited international portfolio diversification opportunity across these markets. Overall, the existing studies suggest that the opportunities for portfolio diversification within the ASEAN-5 are limited and these opportunities are decreasing over time. However, the debate of equity market integration in ASEAN-5 emerging equity markets is yet not settled, thereby justifying the need for re-examining the issue over a different time scale, and deploying a different method of observation. As such, the present research work is an attempt in this direction.

Data and Methodology

In line with Bekaert et al. (2002), we argue that bigger market size, greater liquidity, smaller stock price volatility and a higher degree of association between equity market returns signify stronger market integration. Thus, we

investigate these features using the annual time series data on market capitalization to GDP ratio, stock market turnover ratio, stock price volatility, and the correlation between stock returns. These data were compiled from the Global Financial Database and WDI of World Bank for the period 1995-2017. Besides, we deployed Autoregressive Distributed Lag (ARDL) Bounds Test approach to cointegration as suggested by Pesaran et al. (2001) to judge the dynamics of equity market integration among ASEAN-5 in the long-run. The monthly share price indices of Jakarta Stock Exchange Composite Index, Kuala Lumpur Composite Index, Philippines Stock Exchange Composite Index, Straits Times Index, and Stock Exchange of Thailand Index have been collected from the respective stock markets in their currency denominations for the period from July-2003 to May-2019 and taken in their natural logarithms to avoid the likely problems of heteroskedasticity (Maghyereh, 2006; Gujarati & Sangeetha, 2007). The natural log-transformed monthly time-series variables of these share price indices are denoted by *IDN, MYS, PHL, SGP* and *THA* respectively for Indonesia, Malaysia, Philippines, Singapore and Thailand. As reported in section 4 below, these time series are either stationary at the level or at first differences. So, the ARDL Bound test is considered appropriate for this study (Pesaran & Shin, 1999; Pesaran *et al*. 2001). The ARDL model in a long-run perspective is specified as below:

Indonesia: (1)

Malaysia: (2)

Philippines: (3)

Singapore: (4)

Thailand: (5)

The bounds test is performed by comparing the position of F-statistic with the lower and upper bounds of critical values provided by Pesaran et al. (2001). The null hypothesis of no equity market integration among the ASEAN-5 economies is not rejected when the estimated F-statistic is found smaller than the lower bound critical value and is rejected F-statistic is found greater than the upper bound critical value. However, no conclusive inference can be drawn when the estimated F-statistic falls in between lower and upper bound critical values. In the end, the robustness of the ARDL models has been checked by Ramsey's RESET test for stability/correctness of model specifications, Breusch-Pagan-Godfrey F-test for Heteroskedasticity, and Breusch-Godfrey LM test for autocorrelation.

Results

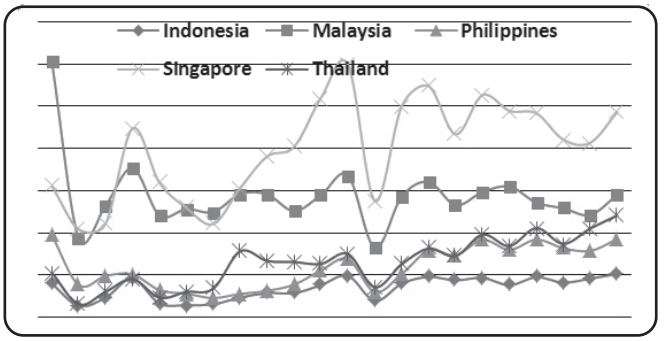
The complete financial integration among a set of nations presupposes the presence of financial deepening and developed stock markets in those economies. Thus, we resorted to the *prima facie* investigation of the capital market integration among ASEAN-5 economies using Bekaert et al. (2002) approach to financial development. Therefore, the trend patterns of the equity market capitalization to GDP ratio1, stock market turnover ratio2, stock price volatility3, and stock market returns4 in ASEAN-5 economies have been observed by creating the time-series plots (see Fig.1, Fig.2, Fig.3 and Fig.4). The Fig.1 indicates that the market capitalization to GDP ratio is very high in Malaysia and Singapore; moderate in the Philippines and Thailand, and very low in Indonesia. This means the equity markets of ASEAN-5 economies have not yet fully deepened. The Fig.2 shows a declining trend of the liquidity in all these equity markets in recent years. The Fig.3 indicates that the stock price volatilities in these equity markets were relatively higher during 1997-2000 and 2008-10, but declining afterwards. The Fig.4 reveals that the stock market returns are not highly correlated over the years. In order to support this observation, we estimated the correlation coefficient between the monthly stock market returns (see Table-1). The coefficients are positive, but all are not statistically significant to conclude a perfect association between the equity markets of ASEAN-5 nations. All these imply incomplete equity market integration among the ASEAN-5 nations in the short-run.

Table 1: Association between Stock Returns Series (ASEAN-5)

Return Series	Indonesia	Malaysia	Philippines	Singapore
Malaysia	0.624* (0.000)	-	-	-
Philippines	0.669* (0.000)	0.513* (0.000)	-	-
Singapore	0.712* (0.000)	0.655 (0.402)	0.629* (0.000)	-
Thailand	0.202* (0.005)	0.127 (0.078)	0.115 (0.107)	0.179* (0.012)

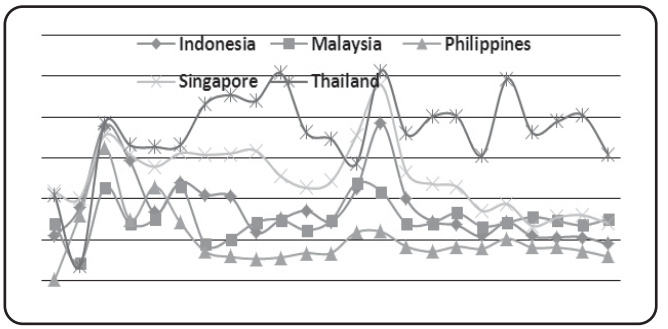
Source: Authors' Estimation ** Correlation is sig. at 0.01 level; p-values in parentheses*

Figure 1: Market Capitalization to GDP Ratio (%)



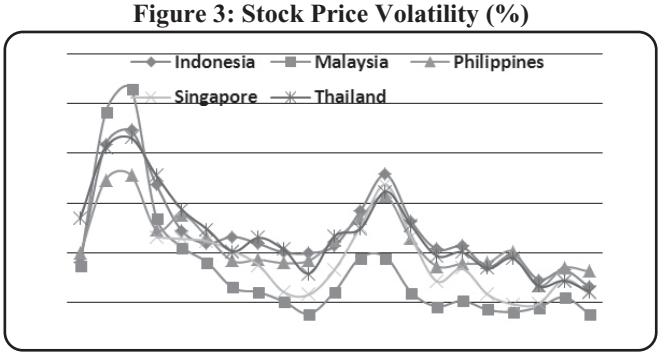
Source: Authors' Own Plot of World Bank Data

Figure 2: Stock Market Turnover Ratio (%)



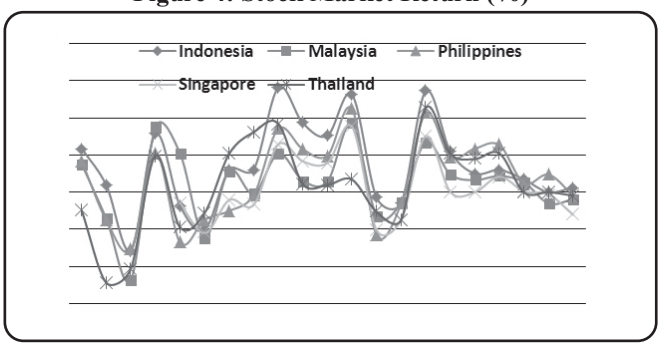
Source: Authors' Own Plot of World Bank Data

Figure 3: Stock Price Volatility (%)



Source: Authors' Own Plot of Global Financial Database

Figure 4: Stock Market Return (%)



Source: Authors' Own Plot of Global Financial Database

Further, to have knowledge about the long-run dynamics, we used the ARDL bound test approach on the basis of the justification that all the time series of stock price indices except SGP are stationary at their first differences and SGP is stationary at the level (see Table-2).

Table 2: Stationarity of Stock Return Series

Return Series	ADF Statistic (at level)	p-value	ADF Statistic (at 1st Difference)	p-value	Decision
Indonesia	-2.429	0.134	-10.975	0.000*	I(1)
Malaysia	-2.432	0.134	-12.233	0.000*	I(1)
Philippines	-2.134	0.231	-13.532	0.000*	I(1)
Singapore	-3.325	0.015*	NA	NA	I(0)
Thailand	-1.633	0.463	-6.556	0.000*	I(1)

*Source: Authors' Own Estimation * significant at 1% level; ** significant at 10% level;*

Table 3: Results of ARDL Bounds Test for Cointegration

ARDL Model Specification	Dependent Variable	F-Statistics	Decision
ARDL(1,1,1,5,5)	**Eq.1**: IDN	2.404	No Cointegration
ARDL(2,3,0,2,0)	**Eq.2**: MYS	1.902	No Cointegration
ARDL(1,1,0,7,8)	**Eq.3**: PHL	4.731	Cointegration
ARDL(4,1,6,1,0)	**Eq.4**: SGP	2.123	No Cointegration
ARDL(1,2,6,2,3)	**Eq.5**: THA	3.541	Inconclusive
Lower bound I(0) = 2.86 and Upper bound I(1) = 4.01 at 5% significance level			
Results of Model Diagnostic Tests			
ARDL Model Specification	**BG LM-statistic (p-value)**	**BPG Heteroskedasticity test (p value)**	**Ramsey RESET Test (p - value)**
ARDL(1,1,1,5,5)	1.539 (0.217)	1.947* (0.017)	0.038 (0.845)
ARDL(2,3,0,2,0)	0.245 (0.782)	1.518 (0.128)	0.223 (0.637)
ARDL(1,1,0,7,8)	0.886 (0.414)	1.142 (0.310)	0.023 (0.879)
ARDL(4,1,6,1,0)	0.277 (0.758)	2.187* (0.007)	2.297 (0.131)
ARDL(1,2,6,2,3)	1.916 (0.150)	1.665** (0.050)	0.251 (0.616)

*Source: Authors' Estimation * indicates sig. at 1% level**indicates sig. at 5% level*

The ARDL bounds test was applied on each of the five equations specified in section-3, and the results are summarized in Table-3. Since the F-statistics of equation (3) lies above the upper bound critical value, the share price movements in Indonesia, Malaysia, Singapore and Thailand likely to influence that of in the Philippines. This implies that the equation (3) predicts the existence of a long-run equilibrium relationship or cointegration between the ASEAN-5 markets when the share price index of the Philippines is considered as the dependent variable. In other words, the equity market integration is indicated by equation. (3) However, there is no evidence in support of the existence of cointegration or long-run equilibrium relationship indicating the equity market integration when the share price indices of Indonesia, Malaysia, Singapore and Thailand are considered as the dependent variables respectively in equations (1), (2), (4) and (5) as the estimated F-statistic either lies below the lower bound critical values or between, the lower and upper bound values. Furthermore, all these ARDL model estimates have been justified on the basis of the significance of LM test for autocorrelation, F-test for Heteroskedasticity, and RESET test for stability and

correctness. Thus, it is accepted that these models do not have problems of serial autocorrelation, and are stable and correctly specified. Moreover, in the case of equation (4) & (5), the ARDL estimations do not satisfy the F-test for Heteroskedasticity.

Table 4: Estimated Long-Run Relationship

Regressor	Coefficient	Std. Error	t-statistic	p-value
ARDL (1,1,0,7,8) is selected based on AIC: -3.819 (optimum)			***Dependent Variable: PHL***	
IDN	0.5054*	0.1090	4.6347	0.0000
MYS	0.3254	0.2739	1.1883	0.2364
SGP	-0.2489	0.1739	-1.4313	0.1542
THA	0.5172*	0.0911	5.6741	0.0000
C	0.3709	1.1940	0.3106	0.7565

*Source: Authors' Estimation * indicates sig. at 1% level;*

The long-run coefficients w.r.t the equation (3) was estimated in the ARDL framework (see Table-4) which indicates that the estimated coefficients of the long-run relationship are significant for IDN and THA, but not for MYS and SGP. The stock price movements in IDN have a statistically significant positive impact on that of PHL at 1% level. It means 1% increase in the stock price index of IDN can lead to approximately 0.505% increase in that of PHL, *ceteris paribus*. It is also revealed that the stock price movements in THA have a significant statistically positive impact on that of PHL at the 1% level. It means 1% increase in the stock price index of THA can lead to approximately 0.517% increase in that of PHL, *ceteris paribus*. Other long-run coefficients are not statistically significant. Therefore, on the basis of these findings, it can be said that the complete equity market integration and interdependency have not yet been achieved in ASEAN-5 economies.

Discussions and Implications

In Asia, the growth of countries is primarily driven by their financial liberalization policies (Arslanalp et al. 2016). This financial liberalization, along with technological advancements, has also made the investments seamless and borderless thereby motivating the investors to diversify their portfolios to earn excess returns and reduce risks (Srivastava et al. 2015). However, this opportunity is contingent upon the degree of stock market integration in Asia. If the financial liberalization surfaces a complete integration of equity markets, the international portfolio diversification becomes less beneficial (Srivastava, 2007) and the other way around. Precisely, the incomplete or partial capital market integration carries with it the opportunities for portfolio diversification in new and emerging markets for maximizing excess returns.

Our findings of incomplete equity market integration in ASEAN-5 economies implies the possibility of international portfolio diversification by investors for the purpose of reaping excess returns and optimize the risks of investments. Specifically, it is found that the equity markets of Indonesia and Thailand have causal effects on that of the Philippines. So the investors of the Philippines have little diversification opportunity in these countries. However, they can invest in the emerging capital markets of Malaysia and Singapore for optimizing risk and return. Furthermore, the investors of Indonesia, Malaysia, Singapore and Thailand have opportunities available to choose international investment portfolios in ASEAN-5 nations. But the caution should be exercised w.r.t the regulatory differences, investor protection norms, bankruptcies etc. Another implication of partial equity market integration is the possibility of increasing the efficiency of capital allocation mechanism, lowering down the cost of capital, and reducing information asymmetry and transaction cost to investors. Besides, the international portfolio diversification opportunity can also make the markets more competitive and innovative. As a consequence, cross-border investors are likely to get the benefits of better financial services and innovative financial products, having balanced risk-return features.

Conclusion

This paper examined the dynamics of equity market integration in ASEAN-5 economies. It has been found that the equity market integration in these economies has not yet been complete, thereby providing certain degrees of portfolio diversification opportunities for making abnormal gains in these markets. In order to reap the macroeconomic benefits of market integration, it is essential to have better policy coordination among the ASEAN-5 nations. The

policy-makers should focus on the enrichment of the economic and trade relationships between these countries. It is required to ensure favourable external and fiscal positions. It is also essential to manage cross-border portfolio investments effectively. In addition, the harmonized development of equity market infrastructure, installation of regional surveillance mechanisms for strengthening macroeconomic fundamentals, and bringing into use the international best practices concerning effective governance can help in achieving a complete capital market integration among ASEAN-5 nations in the long-run.

End Notes

1. The greater the market capitalization to GDP ratio (50 percent or more) in ASEAN-5 economies, larger is the market size and higher is the degree of market integration.
2. The larger the stock market turnover ratio in ASEAN-5 economies, better is the market liquidity and higher is the degree of market integration.
3. The greater the stock price volatility in ASEAN-5 economies, larger is the stock returns volatility, and lesser is the degree of market integration.
4. The greater the correlation between stock market returns in ASEAN-5 economies, larger is the risk-sharing and higher is the degree of market integration

References

Arslanalp, M. S., et al. “China's growing influence on Asian financial markets.” *Working Paper No. 16/173*, Asia Pacific Department, International Monetary Fund, 2016.

Assidenou, Komlavi Elubueni. "Cointegration of major stock market indices during the 2008 global financial distress." *International Journal of Economics and Finance* 3.2 (2011): 212-222.

Barus, Alexander. “An investigation of the dynamic behavior and characteristics of Indonesian capital markets.” University of New Orleans, 1997. P.526

Becker, Kent G., et al. "The intertemporal relation between the US and Japanese stock markets." *The Journal of Finance* 45.4 (1990): 1297-1306.

Bekaert, Geert, et al. "Dating the integration of world equity markets." *Journal of Financial Economics* 65.2 (2002): 203-247.

Bhaduri, Saumitra N., and Ashwin Andrew Samuel. "International equity market integration: The Indian conundrum." *Journal of Emerging Market Finance* 8.1 (2009): 45-66.

Bong, Angkeara, and Gamini Premaratne. "Regional integration and economic growth in Southeast Asia." *Global Business Review* 19.6 (2018): 1403-1415.

Caporale, Guglielmo Maria, et al. "Stock market linkages between the ASEAN countries, China and the US: a fractional cointegration approach." CESifo *Working Paper No. 7537, Category 7: Monetary Policy and International Finance*, Center for Economic Studies and the ifo Institute, Ludwigs-Maximilians University, Germany (2019).

Chai, Hee-Yul, and Yeongseop Rhee. "Financial integration and financial efficiency in East Asia." *Kyonggi University. Paper presented at the Claremont-KIEP international Conference in November*. 2005.

Chaisrisawatsuk, Santi. "Capital market development in ASEAN Economic Community: issues and opportunities for other sub-regions of the Asia-Pacific region." *Discussion Paper No.08*, *Macroeconomic Policy and Financing for Development Division*, United Nations Economic and Social Commission for Asia and the Pacific, Thailand (2016).

Cheng, W. K., et al. "Financial crisis and intertemporal linkages across the ASEAN-5 stock markets." *FEA Working Paper* 2003.4 (2003): 1-30.

Chien, Mei-Se, et al. "Dynamic Asian stock market convergence: Evidence from dynamic cointegration analysis among China and ASEAN-5." *Economic Modelling* 51.C (2015): 84-98.

Click, Reid W., and Michael G. Plummer. "Stock market integration in ASEAN after the Asian financial crisis." *Journal of Asian Economics* 16.1 (2005): 5-28.

Daly, Kevin James. "Southeast Asian stock market linkages: evidence from pre-and post-October 1997." *ASEAN Economic Bulletin* 20.1 (2003): 73-85.

Do, Hung Quang, and László Kónya. “Capital Market Integration of ASEAN-6 Countries and Investment Implication.” *Financial Markets & Corporate Governance Conference*. 2013

Ethier, Wilfred J. "The new regionalism in the Americas: A theoretical framework." *The North American journal of economics and finance* 12.2 (2001): 159-172.

Eun, Cheol S., and Sangdal Shim. "International transmission of stock market movements." *Journal of financial and quantitative Analysis* 24.2 (1989): 241-25

Giannetti, Mariassunta, et al. *Financial market integration, corporate financing and economic growth*. European Economy – Economic Papers No. 179. Directorate General Economic and Financial Affairs (DG ECFIN), European Commission, 2002.

Goh, Kim-Leng, et al. "Financial crisis and intertemporal linkages across the ASEAN-5 stock markets." *Review of Quantitative Finance and Accounting* 24.4 (2005): 359-377.

Gujarati, D. and N. Sangeetha. *Basic Econometrics*. Fourth Edition, Tata McGraw-Hill, New Delhi, 2007.

Hee Ng, Thiam. "Stock market linkages in South-East Asia." *Asian Economic Journal* 16.4 (2002): 353-377.

Hee Ng, Thiam. *Economic integration in South East Asia*, Ph.D. dissertation, The University of Wisconsin, Madison, WI, UMI Dissertation Services, A Bell & Howell Company, Ann Arbor, MI, 2000.

Hilliard, Jimmy E. "The relationship between equity indices on world exchanges." *The Journal of Finance* 34.1 (1979): 103-114.

Ibrahim, Mansor H. "Financial integration and international portfolio diversification: US, Japan and ASEAN equity markets." *Journal of Asia-Pacific Business* 7.1 (2006): 5-23.

Janor, Hawati, and Ruhani Ali. "Financial integration of the ASEAN-5 markets: financial crisis effects based on bivariate and multivariate cointegration approach." *Investment Management and Financial Innovations* 4.4 (2007): 144-158.

Janor, Hawati, et al. "Financial integration through equity markets and the role of exchange rate: Evidence from ASEAN-5 countries." *Asian Academy of Management Journal of Accounting and Finance* 3.1 (2007): 77-92.

Joy, O. M., et al. "Comovements of major international equity markets." *Financial Review* 11.1 (1976): 1-20.

Karim, Bakri Abdul, and Zulkefly Abdul Karim. "Integration of ASEAN-5 stock markets: A revisit." *Asian Academy of Management Journal of Accounting & Finance* 8.2 (2012): 21-41.

Lean, Hooi Hooi, and Russell Smyth. "Stock market co-movement in ASEAN and China." *Emerging Markets and The Global Economy* (2014): 603-622.

Lee, Stan Shun-Pinn, and Kim-Leng Goh. "Regional and International Linkages of the Asean-5 Stock Markets: A Multivariate GARCH Approach." *Asian Academy of Management Journal of Accounting & Finance*12.1 (2016): 49-71

Levine, Ross. "International financial liberalization and economic growth." *Review of international Economics* 9.4 (2001): 688-702.

Lim, Lee K. "Convergence and interdependence between ASEAN-5 stock markets." *Mathematics and Computers in Simulation* 79.9 (2009): 2957-2966.

Maghyereh, Aktham. "Regional integration of stock markets in MENA countries." *Journal of Emerging Market Finance* 5.1 (2006): 59-94.

Mahmood, Mazhar, and Kashif ur Rehman. "Did Financial Integration Provide Financial Depth to ASEAN Countries?." *Business & Economic Review* 9.1 (2017): 89-102.

Majid, M. S. A., et al. "Dynamic linkages among ASEAN-5 emerging stock markets." *International Journal of Emerging Markets* 4.2 (2009): 160-184.

Marashdeh, Hazem, and Min B. Shrestha. "Stock market integration in the GCC countries." *International Research Journal of Finance and Economics* 37(2010): 104-114.

Marston, R. C. *International Financial Integration: A Study of Interest Differentials between the Major Industrial Countries*, (ed.), New York, Cambridge University Press, 1995.

Matos, Paulo, et al. "Integration and contagion of BRIC financial markets." *NCF Researching Paper Series* 02 (2015): 2-22.

Palac-McMiken, Evanor D. "An examination of ASEAN stock markets: a cointegration approach." *ASEAN Economic Bulletin 13.3* (1997): 299-311.

Park, C.Y." Asian Capital Market Integration: Theory and Evidence," Asian Development Bank and Korea Capital Market Ins titute, *Oxford University Press*, New Delhi, 2014.

Pesaran, M. H. and Y. Shin. “An Autoregressive Distributed Lag Modelling Approach to Cointegration Analysis,” *Econometrics and Economic Theory in the 20th Century: The Ragnar Frisch Centennial Symposium*, Strom, S. (ed.) Cambridge University Press, 1999.

Pesaran, M. et al. "Bounds testing approaches to the analysis of level relationships." *Journal of Applied Econometrics* 16.3 (2001): 289-326.

Phuan, Sew-Ming, et al. "Financial liberalization and stock markets integration for ASEAN-5 countries." *International Business Research* 2.1 (2009): 100-111.

Poshakwale, Sunil S., and Chandra Thapa. "Foreign investors and global integration of emerging Indian equity market." *Journal of Emerging Market Finance* 9.1 (2010): 1-24.

Roca, Eduardo D., et al. "Are the ASEAN equity markets interdependent?." *ASEAN Economic Bulletin* (1998): 109-120.

Sehgal, Sanjay, et al. "Stock market integration dynamics and its determinants in the East Asian Economic Community Region." *Journal of Quantitative Economics* 16.2 (2018b): 389-425.

Sehgal, Sanjay, et al. "Time varying integration amongst the South Asian equity markets: An empirical study." *Cogent Economics & Finance* 6.1 (2018a): 1-26

Sharma, Subhash C., and Praphan Wongbangpo. "Long-term trends and cycles in ASEAN stock markets." *Review of Financial Economics* 11.4 (2002): 299-315.

Sheera, Ved Pal, and Ashwani Bishnoi. "Financial deepening of selected ASEAN nations." *Malaysian Journal of Economic Studies* 50.1 (2013): 79-100.

Shimizu, Satoshi. "ASEAN financial and capital markets: Policies and prospects of regional integration." *Pacific Business and Industries* 14.54 (2014): 1-36.

Srivastava, Aman, et al. "Financial crisis and stock market integration: An analysis of select economies." *Global Business Review* 16.6 (2015): 1127-1142.

Srivastava, Aman. "Cointegration of Asian markets with US markets: international diversification perspectives." *Global Business Review* 8.2 (2007): 251-265.

Tai, Chu-Sheng. "Market integration and contagion: Evidence from Asian emerging stock and foreign exchange markets." *Emerging Markets Review* 8.4 (2007): 264-283.

Taun, T. K., et al. “Financial Market Integration of ASEAN-5 with China and India.” *Emerging Markets and the Global Economy* (eds.), (2014): 825-859

Trichet, J. C. “European Financial Integration.” Speech at the 10th Symposium on Finance, Banking, and Insurance, University of Karlsruhe, Karlsruhe, 16 December, *Bank for International Settlements Review, No. 86/2005*, (2005):1-8

****

Impact of Demonetisation on the Volatility and Returns : NSE Sectoral Indices

Dr R. Amudha
Associate Professor,
Dept. of Management Studies,
Karunya Institute of Technology and Sciences,
Coimbatore
Email: amudha@karunya.edu

Dr M. Muthukamu
Associate Professor & Head,
Department of Business Administration,
A.P.S.A. College, Thiruppattur630211, India.
Email:mmuthukamu@gmail.com.

Abstract

The research paper investigates the influence of 'Demonetisation' announced by the Indian Prime Minister Narendra Dass Modi, after the marketing hours of the Indian equity market on 8th November 2016. Though demonetisation is not new to the Indian equity market, this announcement had severe hiccups on the day- to- day life of the citizens of India and the same reflected in the Indian equity market too. This study reveals the nature and extent of the impact on the returns of the sectoral indices of the Indian equity market and its volatility that occurred around the announcement of Demonetization. Price movements of Nifty index and other sectoral indices of NSE were taken into account to know its impact on the announcement. The data pertaining to the price movements for 30 trading days pre and post announcement were used for analytical purpose. The results revealed that the volatility was extremely high, post-event compared with the level of volatility prior to the demonetisation announcement. The sectoral indices too were found to have delivered negative returns during the post-demonetisation event.

Keywords: *Volatility, Returns, Demonetization, Equity Market, NSE*

Stock market and volatility is an inseparable combo that tends to dance for every micro and macro events ensuing in the home country, subsequently affecting across the globe. The Indian equity market is also not an exceptional one for this universal phenomenon. The sudden policy shock unnerved by the Government of India on 8th November 2016, at 20.15 IST made by the Indian Prime Minister Narendra Das Modi. On the unexpected announcement that, from the midnight of the day, the 500 and 1000 denominated Indian currency notes would no longer be the currency with legal tender values. This announcement has sent shockwaves to the entire nation and even parts of the world. The rationale put forth by the Government officials for such a sudden and shocking move was that it would help them to tackle and curb black money, have a check on the terror funding (or Red Money), eliminate money laundering and fake money issues and motivate people to adapt on the online financial transactions. This artificial disruption to the flow of money has developed severe hiccups in the day to day transactions of the business. Though demonetisation event is not new to the country which had two earlier experiences (the first was on 12th January 1946 and the second one on 16th January 1978), the scale of this announcement was quite staggering, as these notes represented roughly 86 per cent of the total value of the currency which was in the circulation of the country(as per the RBI press release, the total banknotes in circulation valued to Rs16.42 trillion, of which Rs 14.18 trillion were 500 and 1000 notes which were declared as currencies with no legal tender values), an economy in which it is estimated that more than 90 per cent of the transactions are dealt in cash. The RBI announced the citizens of India to deposit their demonetised currencies in the banks and post offices, by following some protocols to exchange their currencies like showing their valid ID proof and with a restricted limit on the exchange of currencies for their withdrawals. The individuals were initially allowed to withdraw only INR 2000 per day and subsequently increased to INR 4000 per day with the weekly limit of INR 20000 per week during the initial phase of the demonetisation. This added more shock and had developed a severe impact on the day to day life of the residents on their purchases and business activities in the country. The purchasing power of the people has been affected due to the non- availability of cash and led to a sharp decline in the demand for goods and services in the country. This shock has extended its waves to equity markets too. Reacting to this economic disruption, the Indian equity market has shown its displeasure on the very next trading day of the event since the announcement was made after the market trading hours on 8th November 2016. Due to the frantic selling in the equity market, the Sensex has nosedived by 6 per cent, crashed by 1689 points and the Nifty had lost 541 points with high volatility movement. On marking of the 100 days of demonetisation, the governor of Reserve Bank of India Urjit Patel has commented that the impact of the event is going to be a sharp "V", resulting in a downgrade of growth for a short period of time. This situation has urged both the practitioners and the academicians to have an insight into the impact of this event in the Indian equity market.

Literature Review

Researches, only scanty in numbers, have been conducted on this demonetisation aspect. NithinKumar and Sharmila (2016) had studied demonetisation and its impact on the Indian economy and found that demonetisation has a short term negative impact on the various sectors of the Indian economy and such impacts will be addressed when the new currency notes were heavily injected into the circulation. They concluded that the government should focus on all the issues developed due to demonetisation and trigger the economy to work smoothly. Bharadwa et al., (2017) have analysed the impact of demonetisation in the Indian equity market. They have applied the Sharpe model to construct the optimum portfolio and to assess the risk-return values of the selected stocks listed in NSE. They have found that the demonetisation event has presented a significant negative impact on the Indian equity market. Chauhan and Kaushik (2017) have conducted a study to examine the impact of demonetisation by applying the event methodology. They found that the stock prices were not significantly affected by demonetisation. The result of their study found a short period of downfall in the stock price and noted a very fast recovery in the medium term, and they argued that this could have happened due to the influence of some other micro or macro factors. Masood and Ali (2017) have analysed the nature and extent of volatility that occurred in the Indian stock market due to the implementation of demonetisation in India. Daily closing values of Sensex and Nifty for the period of three months pre and post-event were taken into account for the analytical purpose, and it was found that the volatility has increased considerably during the post-demonetisation period. Rajnish (2017) has conducted a study to know the effect of demonetisation on the estimates of earnings per share (EPS) of the Indian corporate sector. The researcher found that the demonetisation delivered the adverse effect on the EPS estimates for the immediate period, i.e. December 2018 quarter. But he did not find any

negative impact on the EPS estimates for the long term period. Sathyanarayana and Sudhindra (2017) have undertaken a study to know the short term impact of demonetisation on the Indian stock market using SENSEX, NIFTY and BSE100 Index. The study period lasting for only 26 trading days, i.e. from 26/10/2016 to 31/11/2016 and they found a significant impact on the event day on all the three selected indices. They have concluded with a note that the rare event – demonetisation has delivered a negative impact on the returns of the market with an elevated level of volatility during the study period. An attempt was made by Sunil and Shenoy (2017) to understand the medium-term impact of demonetisation on the price behaviour of the selected stocks of the Indian equity market. The closing prices of the selected stocks for a period of two months prior to the event and four months post-event were considered for the study and CAPM method of calculation was used to calculate the returns of the selected stocks. They found that the impact of demonetisation was purely temporary and did not deliver a significant impact on the performance of the stocks selected for the study from the medium-term perspective. A study conducted by Padmavathy et al. (2017)also delivered findings supporting to this point of view. They have examined the demonetisation impact on the stock prices of selected companies listed in NSE. They have employed an event study method and concluded that the execution of demonetisation did not show any negative sentiment in the market from the medium-term perspective and thus did not have any significant impact on the performance of the stocks during the study period. Manpreet Kaur (2017) conducted a study on demonetisation and impact on a cashless payment system and expressed that the cashless system in the economy has many fruitful benefits like less time-consuming, less cost; paperless transaction etc. and he expected that the future transaction system in all the sectors is going to be cashless. Deepika and Swetha (2018) have done a study to know the impact of demonetisation on the price behaviour of 30 top trading stocks of Bombay Stock Exchange and SENSEX by using the event study method.The daily closing prices of selected stocks for both pre and post-demonetisation period were considered for the study. They concluded that there was no significant impact on the price movements of the stock during the post-announcement period when compared with the pre-announcement period. Rao and Kotian (2017) have studied the impact of demonetisation on the Indian economy. They found that the demonetisation has delivered short term negative impact on the Indian economy. They argued that the short term negative impact will fade away as early as possible and will show the pathway for better structural reforms. Lawrence and George (2018) analysed the impact of demonetisation on the Indian retail sector and found that the selected sector had a short run negative impact and proved that the losses in the short run would outweigh the benefits from long run. Harpreet Kaur and Ravinderjit Singh (2018) have attempted to examine the impact of demonetisation on the Indian banking sector by applying the event study methodology on the stock prices of selected Indian banking stocks. They found that the demonetisation has a significant impact on the share prices of sample stocks which represent the Indian banking industry and the Indian stock market was not so efficient for the demonetisation announcement in terms of the information because the average abnormal returns on the event day were not equal to zero and it has been statistically proved. Pranjal and Sangetha (2019) have conducted a study to analyse the impact of demonetisation on Indian equity market by comparing the performance of the Nifty index during pre and post-demonetisation event. The daily closing values of the Nifty index for the period of six months during the pre and post-event were considered for the study. They concluded that the blow of demonetisation brought a short term downfall in the market because of the negative sentiments among the investors and the demonetisation did not deliver a significant impact in the performance of Nifty index during the medium and long term period. A study by Jawed et al., (2019) found the highest negative abnormal returns on the event day and during the event window period. They also found that the Indian banking sector is the worst hit in the early days of the demonetisation. But Jincy K John et al., (2019) have delivered contradictory findings in their study. They found that the Indian banking sector has delivered a positive return during the post-demonetisation period with a high level of volatility. Sohail and Shahzad (2020) have analysed the short term impact of a shocking episode of "2016 demonetisation" in India by using the estimation window ranges from one week after the announcement to 60 days and have employed ordinary least square method (OLS), Fixed-Effect (FE), Random – Effect (RE) estimation techniques to know the impact. They found that the announcement effect of demonetisation sharply declined the stock prices of the Indian firms during the short term period.Based on our scrutiny, to the best of our knowledge; no study has considered all the sectoral stocks listed in the Indian equity market to know the impact of demonetisation. Among the studies conducted so far in India to know the impact of demonetisation, few of them have taken either NIFTY or SENSEX alone as a parameter for

their study purpose and some of them have taken the stocks which are the constituent stocks of either NIFTY index or SENSEX index for their calculation purpose without giving due importance to the sector-specific impact of the demonetisation event. Hence, in order to fill this gap, we have considered the behaviour of various sectoral indices (which represent the behaviour of respective sectoral stocks) of the National stock exchange of India, to understand the impact of demonetisation event on every specific sectoral index.

Data and Analytical Discussions of the Study

The primary objective of this study is to find out the short term impact of the rare macro event – 'Demonetisation' on volatility and the returns of the various sectoral indices of NSE. In order to achieve this objective, the data relating to the daily closing values of all the eleven sectoral indices of NSE and the broader market index - NIFTY for 30 trading days, pre and post-demonetisation event were taken into account. The NSE sectoral indices taken for the study purpose are NIFTY Bank Index, Nifty Auto Index, NIFTY Financial Services Index, NIFTY FMCG Index, NIFTY IT index, NIFTY Media Index, NIFTY Metal Index, NIFTY Pharma Index, NIFTY PSU Bank Index, NIFTY Private Bank Index and NIFTY Reality Index. Since the demonetisation announcement was made after the working hours of Indian stock exchanges on 8th November 2016, the data was collected from 26th September 2016 to 8th November 2016, to know the impact of pre-demonetisation process and the closing values of the selected sectoral indices were collected from 9th November 2016 to 21st December 2016, to know the impact of the post-demonetisation process. To achieve accuracy and reliability of research analysis, the data has been extracted from the official website of the National Stock Exchange (www.nseindia.com). The effect on the closing values of the selected sectoral indices was observed from Rt = (log Pt – log Pt-1) x 100 (where Rt is the logarithmic daily returns on the selected index for time T, Pt is the closing value of the selected index at time T and Pt-1 is the corresponding closing value at time T-1).

To understand the distributional properties of the indices selected for the study, descriptive statistics like Average, Standard deviation, Skewness and Kurtosis were used. Any financial time series data should be stationary in nature for further analysis. Hence, to test the stationarity of the selected financial time series, the Augmented Dickey Fuller (ADF) Test (Dickey, D.A and Fuller, W.A .1979) and Phillips- Peron Test (Phillips, P.C.B and Perron, P.1988) were employed. The earlier literature by Banumathy and Ramachandran (2015), Amudha and Muthukamu (2018), Anwar et al., (2019), Tarek and Abdelkader (2019) and Jincy k John and Amudha (2019) revealed that GARCH (1,1) is the best fit model to specify the volatility pattern of the financial time series. Hence, as proved, we have also opted the GARCH (1,1) model (Bollerslev.T 1986) to understand the level of symmetric volatility of the selected sectoral indices. Before applying the GARCH family models to understand the level of volatility, it is important to identify whether substantial evidence of heteroskedasticity exists or not in the data set, selected for the study. Hence, in order to test the presence of ARCH effects in the selected data set, Lag range Multiplier Test method was applied. The mean reversion i.e. the average number of the time period for the volatility to revert to its long-run level, is measured by the half-life of volatility shock and has been calculated by applying: Lhalf= (ln (1/2)) / (ln ($\alpha + \beta$)), where α and β are the calculated ARCH and GARCH coefficients and the calculated mean reversion value was used to find out the average number of days taken by the index to revert to its average normal value.

Results of the Study

Table 1 presents the descriptive statistics of the mean return values of all the selected indices of NSE and the NIFTY during the pre and post-demonetisation event. It is interesting to note that except PSU Bank Index, all the selected sectoral indices and NIFTY have delivered lesser returns during the post-demonetisation event when compared with the returns of the pre-demonetisation period and the PSU bank is the only index (0.020601) that was able to deliver positive returns during the post-demonetisation period. The calculated standard deviation values of all the sectoral indices and Nifty during the post-demonetisation period are relatively high when compared with the pre-demonetisation period, indicating that the selected sectoral indices and Nifty were more turbulent after the demonetisation event. The skewness values of all the indices and Nifty were negative except the indices relating to banking sector like Bank Nifty Index, PSU Bank Index and Private Bank Index stating that these sectoral indices were negatively skewed, indicating that more frequently they have delivered a negative performance during the post-demonetisation period. The Kurtosis values of all the selected indices and Nifty during both pre and post-demonetisation period are greater than 3, indicating that

they are leptokurtic in nature and explains that they do not follow a normal distribution. The calculated Jarque –Bera values during both pre and post-demonetisation events are significant at 5 per cent level, also confirmed that the selected series are not normally distributed.

Before applying any statistical tool for analysing the financial time series data, it is necessary to check whether the selected time series data are stationary in nature. Hence, to understand whether the return series of selected sectoral indices and Nifty are stationary in nature, we have applied the ADF test and PP Test to verify the same. Table 2 expresses the calculated test statistic values (Mackinnon one-sided P values) –'At Level' for all the selected sectoral indices of NSE and Nifty during both pre and post-demonetisation period by using the Augmented Dickey Fuller Test (ADF) and Philips Peron Test (PP). The test critical values at 5 per cent level (Test critical values at 5 per cent level – For ADF is 2.981038 & PP is -2.971853 during the pre-demonetisation period and for ADF is -2.976263 and PP is -2.971853 during the post-demonetisation period) are compared with the calculated values. As per the decision rule to confirm that the time-series data of the selected sectoral indices of NSE and Nifty are stationary in nature, it is necessary that the calculated absolute test statistic values must be higher than the absolute test critical values. The calculated values obtained during both pre and post-event of demonetisation at 5 per cent level are compared with the test critical values and found that they are much higher than the respective calculated absolute test critical values at 5 per cent level. Hence, it is confirmed that the sectoral indices of NSE and Nifty selected for the study are free from unit root problem and was observed that they are stationary in nature during both pre and post-demonetisation periods.

Before finding out the level of volatility of the selected sectoral indices of NSE and Nifty by applying the GARCH (1,1) model, it is important to check whether there is substantial evidence for the presence of heteroskedasticity (ARCH effect) in the return series of Nifty and its sectoral indices selected for the study. In order to test whether the ARCH effect exists or not in the residuals of the return series of the indices selected for the study, we have conducted a residual diagnostics test by using the ARCH – LM test in the residuals and the results found are displayed in Table 3. The rule of the game to reject the return series having no ARCH effect is that the calculated F statistic values and observed R squared values must be statistically significant (below 0.05), and the calculated F statistic value must be greater than the calculated observed R squared values. All the calculated F statistic values of the selected sectoral indices and Nifty during both pre and post-demonetisation event were compared with the respective observed R squared values and found that all the calculated F statistic values are greater than their respective observed R squared values and the probability values in all the cases are below 0.5, which means that they are statistically significant at 5 per cent level. Hence, it is concluded that the return series of the selected sectoral indices and Nifty are showing substantial evidence for the presence of heteroskedasticity (ARCH effect) effect, which demands the application of GARCH family models to specify the symmetric volatility.

As it was demanded, we have applied the GARCH (1,1) model to specify the volatility pattern of the sectoral indices of NSE selected for the study and the results are displayed in Table 4. The sum of calculated coefficient values of lagged squared residuals (a) and the calculated coefficient values of lagged conditional variance (b)for all the selected sectoral indices and Nifty index were positive during both the selected pre and post events and the calculated values of both a and b were found significant at 5 per cent level. The sum of a and b values (the value used to denote the level of volatility) found positive during both the periods (pre and post event). The volatility level was very high in Pharma Index (0.885637) followed by Nifty (0.87753) and IT index (0.819082) during the pre-demonetisation period. Their sum of a and b values was closer to the unity (1) indicating that these indices were more volatile than the remaining selected series. Their mean reversion values, Pharma Index (5.707352) Nifty (5.305613) and IT index (3.473185), confirm that these indices took a longer period to settle down its volatility. The same scenario was repeated during the post-event also. The Pharma index (0.89510) and Nifty index (0.881409) were more volatile, followed by FMCG index (0.868649). Their calculated sum values of a and b is closer to unity (1) indicating that they took more time period to settle down its volatility. The mean reversion values of these indices have (Pharma index: 6.254721, Nifty index: 5.490992and FMCG index: 4.922356) confirmed that these indices were more vulnerable during the post-demonetisation when compared to other selected indices. But it is interesting to note that the sum of calculated a and β values for all the selected indices during the post-event was higher than the pre-demonetisation period indicating that these indices were more volatile during the post-event than the pre-demonetisation period. The demonetisation event has delivered deeper shocks to the market and rattled down

almost all the sectors, witnessed more volatility and took much longer time to settle down during the post period of this rare event.

Conclusion

The selected indices have delivered the worst performance during the post-demonetisation period when compared with the pre-event performance. Except the PSU bank index, almost all the indices have delivered negative returns during this period. This indicated that the traders in the Indian equity market might have had a perception that public sector banks, being the Government undertakings, would be shielded by the severe liquidity crunch since they were deputed to collect the notes which have been declared as the currencies with no legal tender values during the post-demonetisation period. This index was able to manage the worst cash crunch situation, and the equity traders were not so sceptical about the performance of the PSU bank index with respect to the medium term. The calculated standard deviation values of all the selected indices during the post-event were higher than the previous one, which confirmed that the indices were more turbulent during the post-event. The skewness values of all the selected indices were negative except the banking sector index indicating that more frequently the selected indices have delivered the negative performance during the post-demonetisation period. In the process of finding out the volatility of the selected indices, first, we have applied the Augmented Dickey Fuller Test (ADF) and Philips Peron Test (PP) to verify whether the selected time series data were stationary in nature. It was found that the selected indices were free from the unit root problem and confirmed that they were stationary in nature during both pre and post-demonetisation event. In continuance of the process of finding out the volatility, we have checked for substantial evidence existing for the presence of ARCH effect in the return series of the indices by using ARCH - LM test, a lag range multiplier test and we found the presence of heteroskedasticity (ARCH effect) effect in the selected financial time series data and to address it, as demanded; we have applied the GARCH family models to specify the symmetric volatility. The application of GARCH (1,1) model has delivered the results that the selected indices have been volatile during the study period. But it is interesting to note that the sum of a and b values of all the selected indices during the post-event was higher than the pre-demonetisation period indicating that these indices were more volatile during the post-event than the pre-demonetisation period. The mean reversion values of all the selected indices during the post-event were higher than the corresponding values during the pre-demonetisation period, which confirmed that the demonetisation process has delivered deeper shocks and caused additional volatility in the market, which has demanded longer time period to settle down its fluctuations when compared with the pre-event.

Hence, we conclude that the rare event of demonetisation has delivered negative impact to Nifty index and all other selected sectoral indices of NSE except the PSU banking sector index. Among the selected indices, the PSU banking sector index alone has given positive returns during the post-demonetisation event when compared with the pre-event. We also confirm that the demonetisation has given deeper shocks to the Indian equity market since almost every sectoral index of NSE and the Nifty index have experienced more volatility during the post-demonetisation event as compared with the pre-demonetisation period. This negative shock given by the Indian government by announcing the demonetisation has negatively influenced the Indian equity market during the short run and has considerably increased the asymmetric volatility in the Indian equity market.

Scope for further Research

Research of this kind would help the traders, investors and individuals showing keen interest in developing their financial literacy to fulfil their business and academic requirements. Since we have taken the closing values of the selected indices for 30 trading days before and after the demonetisation this could only explain the short term impact of the event and will not give clarity on the long term effect of the demonetisation event. Similar research with the data for a longer period like 90 or 365 days would address the medium and long term effect of our study.

References

Amudha.R, and Muthukamu.M (2018). 'Modeling Symmetric and Asymmetric Volatility in the Indian Stock Market', *Indian Journal of Finance*, Vol. 12, Issue.11.

Anwar Hasan Abdullah Othman, et al. (2019). 'Cryptocurrencies, Fiat money or gold standard: an empirical evidence from volatility structureanalysis using news impact curve'. International Journal of Monetary Economics andFinance,Vol.12No.2, pp.75–97

Banumathy, K and Ramachandran, A. (2015), 'Modeling stock market volatility: Evidence from India', *Spring, Managing Global Transitions*, Vol.13, No.1, pp.27-42

Bharadwa.R, et al. (2017), "Impact of demonetization on Indian stock market", *International Journal of Management*, vol. 8, issue.3, pp.75-82.

Bollerslev.T (1986), "Generalized auto regressive conditional heteroskedasticity", *Journalof Econometrics*, vol. 31, issue.3, pp.307-327.

Chauhan.S and Kaushik.N (2017), "Impact of demonetization on stock market: Event study methodology", *Indian Journal of Accounting*, XLIX (1), pp.127-132.

Deepika. U and Swetha.W.S, "Impact of demonetization on the Indian stock exchange : With special reference to Bombay stock exchange", Paradigm, Vol.22, No.2,pp.175-184.

Dickey. D.A., and Fuller.W.A (1979), "Distribution of the estimators for auto regressive timeseries with a unit root", *Journal of American Statistical Association*, Vol.74, issue.366, pp.427-431.

Harpret Kaur and Ravinderjit Singh (2018), "Impact of demonetization on the return of the selected Indian banking stocks", *Indian Journal Research in Capital Markets*, April-June 2018, pp.36-45.

Jincy K John, and R. Amudha (2019), 'Asymmetric Volatility Modeling and Leverage Effect of Nifty Stocks', *International Journal of Innovative Technology and Exploring Engineering(IJITEE),* Volume-8 Issue-6.pp. 564-573.

Jincy K John, et al.(2019). 'Demonetization Upshot On TheVolatility And Returns Of Banking Sector Stocks Of National Stock Exchange', *InternationalJournal of Monetary Economics and Finance,* Volume-12 numbr-5, page 426-444.

Lawrence, D. A., and George, M. M. A. (2018). "A study on the impact of demonetization on retail sector." *International Journal of Current Research in LifeSciences*, 7(02), 1025–1028.

Manpreet Kaur (2017), "Demonetization: Impact on Cashless payment system",*International Conference on Recent Trends in Engineering, Science and Management.*ISBN:978-93-86171-21-4. 8th January, 2017.

Masood.S and Ali. M (2017), "Volatility in Indian stock market – Pre and post demonetization" *Airo International Research Journal,* Vol.9, Feb 2017.ISSN :2320-3714.

Mohammad Shameem Jawed, et al. (2019), "The sectoral effect of demonetizationon the economy: Evidence from early reaction of the Indian stock markets," *Cogent Economics and Finance*. https://doi.org/10.1080/23322039.2019.1595992.

Nithin Kumar A and Sharmila (2016). " Demonetization and Its Impact on Indian Economy." *International Journal of Humanities, Arts, Medicine and Science.* ISSN (P):2348-0521. ISSN(E): 2454-4728. Vol. 4. Issue12, pp 23-26.

Padmavathy S, et al. (2017), "Share price behaviour around demonetization", *International Journal of Management Research & Review,* Vol.7, No.6,pp.665-673.

Phillips,P.C.B and Perron. P (1988), "Testing for a unit root in time series regression", *Biometrika,* Vol.75, issue.2, pp.335-346

Pranjal A and Sangeetha R (2019)," Impact of demonetization on Indian stock market",*Research Review-International Journal of Multidisciplinary*, Vol.4, issue 2, pp.633-638.

Rao, D. K., and Kotian, R. R. (2017)." A study on impact of demonetisation of currency notes on the functioning of Indian economy." *Journal Advances in Business Management*, 3(2), 99–101. doi:10.14260/jadbm/2017/22.

Rainish, K.(2017), "Effect of Demonetization on Analysts' Estimats : A Natural Experiment," April 2010. Available at SSRN: http://ssrn.com?abstract=294989.

Sathyanarayana S and Sudhindra G (2017), "The impact of policy announcement on stock market volatility : Evidence from currency demonetization in India", *IOSR Journal of Business and Management,* Vol.19, No.1.,pp.47-63.

Sohail.R and Shahzad M (2020), "Did demonetization affects Indian stock market? A short term analysis", Available on http://dx.doi.org/10.2139/ssrn.3522052.

Sunil,T and Shenoy S.V (2017), "Impact of demonetization on Indian equity market –An event study", *International Journal of Research in Finance and Marketing*, Vol.7, No.5, pp.29-38.

Tarek Chebbi, and Abdelkader Derbali (2019). 'US monetary policy surprises transmission toEuropean stock markets'. *International Journal of Monetary Economics and Finance,* Vol.12 No.1, pp.3 – 14.

https://en.wikipedia.org/wiki/Stock_market_crashes_in_India#:~:text=On%209%20November%202016%2C%20crashed,by%20541%20points%20to%208002.

APPENDIX

Table 1
Descriptive statistics for the selected Sectoral Indices and NIFTY

	Pre Demonetization process					Post Demonetization process				
Name of the Index	**Mean Return**	**Standard deviation**	**Skewness**	**Kurtosis**	**Jarque-Bera**	**Mean Return**	**Standard deviation**	**Skewness**	**Kurtosis**	**Jarque-Bera**
Nifty	-0.009247	0.085145	0.086698	3.765156	0.743765	-.0.017126	0.116271	-0.0403468	3.39251	0.979413
Auto index	0.001228	0.123811	0.033147	3.571929	0.226731	-.0.032113	0.200957	-1.039609	4.163130	6.858526
Bank index	-0.001570	0.106019	-.0.335204	3.360157	0.699818	-0.026638	0.138484	0.574309	5.466362	18.56989
Financial Service Index	-0.004151	0.116189	0.047625	3.969171	1.145940	-0.031093	0.132772	-0.133453	3.952723	8.88780
FMCG Index	-0.001140	0.074853	0.564484	3.367499	1.703294	-0.026959	0.126938	-0.366929	3.852061	6.771891
IT Index	-0.011779	0.090596	0.602188	3.952499	1.755442	-0.020601	0.1308177	-1.308177	7.159762	29.17995
Media Index	-0.010942	0.225826	0.601140	3.915901	2.760255	-0.044772	0.242088	-0.392078	3.329572	1.286120
Metal Index	0.033356	0.206329	-0.156065	3.757773	1.886201	-0.001524	0.270833	-0.325870	4.387835	2.840612
Pharma Index	-0.034391	0.153496	-1.090374	4.655469	9.057960	-0.037773	0.130020	-0.608649	3.168093	1.824665
PSU Bank Index	-0.009385	0.231200	-0.150872	3.626581	0.278510	0.020601	0.1308177	1.308177	7.159762	29.17995
Private Bank Index	0.000667	0.111535	-0.321896	3.378918	0.0364787	-0.033737	0.148385	0.065779	3.929149	0.056247
Realty Index	-0.022908	0.392615	-1.133650	5.928959	16.57768	-0.028651	0.424895	-1.112506	3.851131	6.857415

All the Jarque- Bera probability values are significant at 5 per cent lvel.

Table 2

Tests for Unit Root Problem for the selected Sectoral Indices and NIFTY

Name of the Index		Pre Demonetization process				Post Demonetization process			
		ADF	Prob	PP	prob	ADF	prob	PP	prob
1	**NIFTY**	-5,882018	0.0000	-9.180123	0.0000	-2.19456	0.0000	-5.595690	0.0001
2	**AUTO INDEX**	-6.381431	0.0000	-6,6661842	0.0000	-4.411630	0.0018	-4.601648	0.0011
3	**BANK INDEX**	-5.363520	0.0001	-5.958050	0.0000	-2.685994	0.0089	-7.270579	0.0000
4	Financial Service Index	-5.404886	0.0001	-6.416506	0.0000	-5.137546	0.0003	-6.265765	0.0000
5	FMCG Index	-4.766062	0.0007	-5.125483	0.0003	-2.820755	0.0069	-5.136621	0.0003
6	IT Index	-4.885170	0.0005	-4.879419	0.0005	-4.637563	0.0010	-4.631286	0.0010
7	Media Index	-5.720860	0.0001	-5.764786	0.0001	-5.314548	0.0002	-5.502322	0.0001
8	Metal Index	-4.614992	0.0011	-11.38170	0.0000	-5.472579	0.0001	-5.389657	0.0001
9	Pharma Index	-5.875444	0.0000	-5.874099	0.0000	-1.860353	0.0034	-6.145757	0.0000
10	PSU Bank Index	-5.937030	0.0000	-6.600045	0.0000	-4.637563	0.0010	-4.631286	0.0010
11	Private Bank Index	-5.217435	0.0002	-5.288207	0.0002	-5.368184	0.0002	-6.482383	0.0000
12	Realty Index	-6.442142	0.0000	-6.522943	0.0000	-1.976236	0.0029	-4.774332	0.0007

Test critical values at 5 per cent level – For ADF is 2.981038 & PP is -2.971853 duringpre demonetization period and for ADF is -2.976263and PP is -2.971853 during post demonetization period.

Table 3

Testing the Heteroskedasticity Effect for the selected Sectoral Indices and NIFTY

	Pre Demonetization process				Post Demonetization process			
Name of the Index	***F*-statistic**	**Prob.F**	**Obs*R-squared**	**Prob.chi-square**	***F*-statistic**	**Prob.F**	**Obs*R-squared**	**Prob.chi-square**
NIFTY	4.66882	0.0050	4.53927	0.0048	3.636236	0.0057	3.57478	0.0054
AUTO INDEX	1.86168	0.01841	1.850931	0.0187	1.039088	0.0085	1.038810	0.0084
BANK INDEX	8.10261	0.0077	8.05917	0.0076	2.312235	0.0014	2.286735	0.0013
Financial Service Index	11.9503	0.0074	11.74328	0.0073	13.12462	0.0264	13.57381	0.0247
FMCG Index	14.0067	0.0071	14.00331	0.0069	6.86341	0.0081	6.30023	0.0081
IT Index	2.32941	0.0088	2.22913	0.0087	1.80807	0.0068	1.75303	0.0067
Media Index	3.72092	0.0054	3.65061	0.0052	2.57616	0.0061	2.54711	0.0060
Metal Index	1.242626	0.0027	1.227172	0.0025	4.40052	0.0051	4.36015	0.0049
Pharma Index	7.94201	0.0039	7.84234	0.0037	9.40051	0.0035	9.36855	0.0033
PSU Bank Index	6.40365	0.0044	6.31955	0.0042	1.83807	0.0068	1.75303	0.0067
Private Bank Index	1.039403	0.0085	1.034853	0.0085	1.738039	0.0198	1.714453	0.0185
Realty Index	1.298184	0.0027	1.282623	0.0025	1.19451	0.0076	1.10141	0.0075

Table 4
Volatility Estimation by Using GARCH (1,1) Model for the selected Sectoral Indices and NIFTY

Name of the Index	Pre Demonetization process				Post Demonetization process			
	α	β	α + β	Mean Reversion	α	β	α + β	Mean Reversion
NIFTY	-0.034761	0.912291	0.87753	5.305613	-0.074483	0.955892	0.881409	5.490992
AUTO INDEX	-0.006246	0.527241	0.520995	1.063085	-0.125431	0.970444	0.845013	4.115996
BANK INDEX	-.0.011119	0.522495	0.511376	1.033545	-0.032260	0.813022	0.780762	2.800765
Financial Service Index	-0.016468	0.515614	0.499146	0.99754	-0.035439	0.577475	0.542036	1.131811
FMCG Index	-0.012931	0.520689	0.507758	1.022718	-0.184773	1.053422	0.868649	4.922356
IT Index	-0.260603	1.079685	0.819082	3.473185	-0.101118	0.941973	0.840855	3.998863
Media Index	-0.015090	0.515313	0.500223	1.000644	-0.250230	1.013429	0.763199	2.564965
Metal Index	-0.550462	1.038113	0.487651	0.965177	-0.006945	0.526978	0.520033	1.06008
Pharma Index	-0.369065	1.254702	0.885637	5.707352	-0.164756	1.059856	0.89510	6.254721
PSU Bank Index	-0.015768	0.515758	0.49999	0.999971	-0.201118	0.991973	0.790855	2.95408
Private Bank	-0.018002	0.515218	0.497216	0.992009	-0.410428	0.940441	0.530013	1.091822
Realty Index	-0.008218	0.521340	0.513122	1.038825	-0.044960	0.572373	0.527413	1.08343

*All the values are significant at 5 per cent level

****

Capital Adequacy Compliance: Adoption of Basel I, II and III

Manu Dogra
Research Scholar,
University Business School (UBS)
Guru Nanak Dev University, Amritsar
Email: dogramanu212@gmail.com

Dr Jasveen Kaur
Head & Associate Professor,
University Business School (UBS)
Guru Nanak Dev University, Amritsar
Email: jasveenkaurgndu@gmail.com

Abstract

The paper examines the existence of relationship between the capital adequacy ratio (CAR) and various variables for all public, private and foreign banks in India across four Phases: Pre-Basel, Basel I, Basel II and Basel III. The results show that capital adequacy ratio is an important determinant of earnings in private sector banks when measured in terms of Return on Equity (ROE) during Pre-Basel Phase. It is interesting to note that for Basel I Phase (2002-2006), the results demonstrate that bank's profitability i.e. Return on Assets (ROA) is positively related to CRAR. Besides, business per employee (BPE), profit per employee (PPE) and advances are also found to be statistically significant. For Foreign banks, both advances and deposits are found to be statistically significant. The econometric model results of Basel II phase (2006-2010) demonstrate that while for public sector banks, capital and profit per employee (PPE) variable is significant on the other hand, private bank's profitability (ROA and ROE) is positively related to CRAR. Basel III (2010-17) results demonstrate that more loan disbursement by public sector banks has negatively affected capital adequacy ratio.

Keywords: *Capital Risk; Basel III; Censoring; Non-performing assets; Profitability, Credit-deposit ratio*

Banking plays an important role in the economic system of a country by acting as intermediary collecting funds from public as savings and distributing to the public in the form of credit. Bank regulation has become burning topic in the light of innumerable challenges and problems faced in many Asian countries (Half 2016; Yong, 2018). The Banks were exposed to a more competitive environment by the deregulation of 1970s and 1980s. These concerns led to the establishment of Basel committee on banking supervision (BCBS) in 1974 and a new regime of a new capital requirement developed (Terry, 2009) which led to the development of Basel Accord, 1988 as a financial standard although originally developed by G-10 countries but later gradually adopted by more than 100 countries all over the world (Powell, 2002). The capital regulation accord helped in improving the link between bank capital and the associated risk. A bank which is well capitalized can very well withstand sudden losses and can safeguard itself from bankruptcy (Posner, 2015; Kalifa and Bektas, 2017).

Basel committee on banking supervision

The Basel committee on banking supervision provides a platform for cooperation on supervisory matters relating banking with an aim of improving the quality of banking supervision worldwide (Swamy, 2013)

Basel I

In late 1980s, Basel I accord was issued by BCBS aimed at reducing systemic risk by posing a minimum capital requirement for banks, to be maintained against risks. It required banks to hold a capital ratio at a minimum level of 8 per cent of their Risk Weighted assets (RWAs). Initially, the Basel I accord treated only 'credit risk' but in 1996 by issuing an amendment 'market risk' was also included (Miskovic, 2011). Basel I proved to be quite successful because of its simplicity and brought uniformity in banking regulations worldwide. It required banks to maintain capital requirements above the minimum stipulated level to create cushion against state of insolvency. But one of the biggest shortcomings of Basel I accord was its insensitivity towards risk measurement. It failed to differentiate between various levels of risk as it is more centred towards credit risk ignoring other important type of risks like market risk and operational risks. As it proved to be a 'one size fits all' model, it failed to provide incentives to banks to improve their risk management functions (Swamy, 2013)

Basel II

The Basel II accord, as presented in 2004, came out with prudential regulations to overcome shortcomings of Basel I accord. It provided more risk-sensitive approaches while maintaining the overall level of regulatory capital (Swamy, 2013). It has three pillars.

Pillar I is a regulatory mandate for minimum capital requirements. The computation of regulatory capital has been revised. A more refined approach to credit risk weights has been used whereby operating risk has been incorporated into the capital requirement (Swamy, 2013).

Pillar II is related to supervisory review process. Banks are expected to assess their overall risk profile. It mandates that the supervisors should assess the overall risk profile and expects that the supervisors should be able to require banks to keep capital in excess of the minimum.

Pillar III emphasizes upon market discipline which expects the banks to disclose information relating their risk profile and capital adequacy (Gordy and Howells, 2006). The suggested measure is to ensure disclosure of information regarding the calculation of bank capital (Terry, 2009).

Indeed, Basel II presented a better approach comparative to Basel I but the assumptions taken by Basel II model are more restrictive and as a result, are less general (Swamy, 2013).

Basel III

Excessive consumer lending in the US and the UK led to subprime crisis (Arner, 2009). So, with a primary goal to reach at a more risk sensitive capital requirement, Basel III came into picture. Basel III has been developed due to the financial crisis of 2007-08 so as to increase the stability of international banking sector. Swamy (2013) has rightly said that Basel III is an evolution not a revolution in banking regulation area. The key steps undertaken are an increase in the required quantity and quality of regulatory capital, an inclusion of requirement of a capital conservation buffer of 2.5 percent to alleviate the pro cyclical effect of regulation, an introduction of leverage ratio requirement to limit leverage in the banking sector and certain other regulatory measures for risk coverage and liquidity management in the form of introduction of two ratios namely liquidity coverage ratio (LCR) and net stable funding ratio (NSFR) (Gatzert and Wesker, 2012).

The Indian Banking Sector

India has a huge financial system consisting of various financial institutions. It is characterized by the existence of state-owned banks, private sector banks and foreign banks. The Apex organization Reserve Bank of India (the Central bank of India) acts as a prudential supervisor of banks and various non-bank financial institutions as well (Sathye, 2005). Keeping in mind financial stability objective, RBI has devised regulatory framework for banks. Recognizing the importance of Basel norms, RBI initiated the reform process by adopting Basel norms for scheduled commercial banks in 1992 and its implementation was spread over the forthcoming years (Swamy,2013).Some of the norms of Basel I were implemented from the year 2000. In 2002, the market risk amendment was brought, marking end of Pre-Basel era (Roy, 2014). In 2004, the risk insensitive Basel I was replaced by Basel II.

Capital Adequacy Requirement

Capital adequacy is the most significant tool to maintain financial stability in the economy. It helps in protecting the banks from the state of financial turmoil (Kalifa and Bektas, 2017). Capital act as a cushion to absorb losses and thus helps in dealing with risks and uncertainties. In short, Capital requirement is the ratio of bank's capital (numerator) to its risk-adjusted assets (Denominator) (Terry, 2009).

The study aims at examining the existence of relationship between the capital adequacy ratio (CAR) or capital risk adjusted ratio (CRAR) and various variables for all public, private and foreign banks in India (ownership-wise) across four Phases: Pre-Basel, Basel I, Basel II and Basel III. The major focus of central bank is always on ensuring maintenance of minimum CAR by all commercial banks. Considering its phenomenal importance, various parameters having impact on CAR have been studied for Basel I phase (2002-2006), Basel II Phase (2006-2010) and Basel III Phase (2010-2017). Also, a Pre-Basel era (1999-2002) has been taken in the study to check the preparedness of banks in India for showing compliance to Basel mandates. The various independent variables taken are Deposits, Advances, Return on Assets (ROA), Return on Equity (ROE), Credit-deposit ratio (CDR), Capital, Net non-performing assets (NNPAs), Business per Employee (BPE), Profit per Employee (PPE) and number of offices and branches. CAR or CRAR has been taken as dependent variable and the results have been analyzed using random effects regression model. Past literature review gives evidence of application of generalized method of moments dynamic panel data model (Kalifa and Bektas, 2017), generalized method of moments technique (Lee and Hsieh, 2013), Random effects model (Banerjee, 2012) and Multivariate panel regression model (Ahmad et al, 2008).

This study brings about one of the first attempts to examine various variables having impact on CAR of all scheduled commercial banks in India over a long period of time 1999-2017.

The rest of the paper is organized as follows: Part II provides literature review. Database and econometrical model methodology is presented in Part III. Part IV is devoted to empirical results for all fours phases: Pre-Basel, Basel I, Basel II and Basel III and Part V concludes.

Literature Review

Considering the phenomenal importance of capital adequacy in maintaining sound financial health of a bank, numerous studies have investigated the impact of capital adequacy ratio (CAR) on banks. Banerjee (2012) has divided the study in two phases: Basel I and Basel II and has used a censored regression model on panel data over a period of nine years, i.e. from 2002 to 2010. The study depicts that in case of public sector banks, the Basel compliance is influenced by Return on Assets, credit-deposit ratio, capital and credit risk weighted assets. The Business per employee has great influence on both public and private sector banks. Besides the private sector and foreign banks are more guided by the risk in their loan portfolios.

Similarly, Kalifa and Bektas (2017) have verified the relationship between capital adequacy ratio (CAR) and various variables and the subsequent impact of these variables on CAR. On a sample of 28 Islamic banks, a dynamic panel data regression has been applied over a period of ten years i.e. 2005-14. The results demonstrate that return on Assets, return on equity, leverage, credit risk and size show strong association with CAR.

Since BCBS (Basel committee on banking supervision) has confirmed that the risk based capital requirements are procyclical (Ghosh and Nachane, 2003), most of the literature has focused on the procyclical nature of Basel capital standards. Ghosh and Nachane (2003), Illing and

Paulin (2005) and Repullo, saurina and Trucharte (2010) have focused upon the procyclicality of bank's capital. While Ghosh and Nachane (2003) concentrated upon the role of loan loss provisions as a component of bank regulatory capital and have examined that the state owned banks tend to postpone provisioning when faced with favourable cyclical and income conditions, until negative situation sets in. Similarly, Illing and Paulin (2005) have focused on the minimum capital requirement of Canadian banks by using a simulation methodology on Canadian bank's data over the period from 1984-2003. The results indicate that the minimum required capital for corporate exposures could be more volatile then under Basel I. Also, Repullo, Saurina and Trucharte (2010) have developed an empirical model by focusing on loans to firm's data for time period 1984-2008. The study concludes that the lenders try to mitigate risks by requiring collateral to those firms that they consider riskier. Also, it opines that the big firms are safer than the smaller ones.

There is a growing body of literature relating to study the response of banks to changes in capital requirements. For instance, Furfine (2000) has developed a dynamic model of a banking firm in an environment where a bank faces leverage and a 'risk based' capital requirement. The study demonstrates that changes in bank's capital requirement are an essential requirement to explain the documented changes in US bank portfolios.

Posner (2015) has conducted a study to investigate how bank regulators determine capital adequacy requirements. The study concludes that the government under regulated the financial industry. Also, Ediz, Michael and Perraudin (1998) have studied the impact of regulatory pressure on capital changes, for which a dynamic, multivariate panel regression model has been used. The study summarised that the capital requirements do seem to affect bank behaviour.

Also, Nag and Das (2002) have attempted to find empirical evidence for the credit crunch that got aggravated by the application of capital standards. A simple decomposition analysis of growth in assets portfolio has been done. The study concludes that in the post-reform period, public sector banks have shifted their portfolio in a manner that reduced their capital requirements. Nachane, et al. (2000) have also identified the significant variables that have an impact upon the capital adequacy of banks. For this, several periods of cross section data of commercial banks is taken in a simultaneous equation framework to estimate the effect of capital changes on risk.

Database and Methodology

The study has examined the impact of various variables on Capital adequacy ratio (CRAR) in banks in India (ownership wise) using annual data covering period 1999-2017 in four phases Pre-Basel, Basel I, Basel II and Basel III. The entire period of study is divided in four phases by taking one year overlap: the first phase is Pre-Basel era (1999 to 2002), the second phase relates to Basel I in India (2002-2006), third phase relating Basel II (2006-2010) and the last phase relates to Basel III era (2010-2017). The data has been taken from various sources like statistical tables relating to banks in India, profile of banks, bank-wise tables and Indian banking Association (IBA) data on banking. The sample is not balanced because of opening of new banks over a period of time and execution of various mergers in banking industry. The variables used are deposits, business per employee, profit per employee, number of branches, log of advances, return on assets, return on equity, net non-performing assets, capital and credit-deposit ratio as independent variables. The profitability of banks can very well be reflected by return on assets and return on equity variables. Deposits and credit deposit ratio can capture the size of business activity. Similarly, net-nonperforming assets reflect an indicator of risk. For operational risk in specific, business per employee, profit per employee and number of branches or offices have been taken into consideration. Table 1 (given in appendix) lists down the variables used in the study. Since the dependent variable (CRAR) has a lower limit of 8 per cent (as per Basel mandate), a Tobit regression model has been used to take account of censoring. Past literature review like Tobin (1958), Chay et al. (2001) and Banerjee (2012) have highlighted the importance of using censored regression models. Considering country wide concerns about the possible stress on asset quality and the resultant impact on profitability, RBI has provided some lead time to banks to show compliance to minimum capital requirement standards. Hence, the censored regression model has been used for Basel II and Basel III phase database. Moreover, it is neither mandatory nor sufficient for a country, to follow Basel I, to show compliance towards capital adequacy core principle (Powell and Majnoni, 2005).

Empirical Results

To identify the variables influencing CRAR, a panel data regression model with random effects has been applied to the data of three samples separated by ownership type: Public, Private and Foreign for the four phases: Pre-Basel, Basel I, Basel II and Basel III.

The below given is the random effect model carried out in the study:

$$CRAR = \beta_o + \beta_1 (Dep) + \beta_2 (Adv) + \beta_3 (ROA) + \beta_4 (ROE) + \beta_5 (NNPA) + \beta_6 (CDR) + \beta_7 (CAP) + \beta_8 (NOF) + \beta_9 (BPE) + \beta_{10} (PPE) + \varepsilon_{i,t}$$

Pre-Basel Phase

The results of Pre-Basel have been reported in Table 2 (Descriptive statistics) and Table 3(Random Effects Model) (Given in Appendix). The results reported in Table 3 show that for public sector banks not even a single variable, out of the ten independent variables selected for the study, has been found to be statistically significant. While for private sector banks, only ROE is found to be statistically significant (at 1% significance level). Further, both the ROE and CRAR are positively related. The First Narsimham committee (Committee on Financial systems) was set up in India in 1991 and the second one (Committee on Banking sector reforms) in 1997. The Narsimham committee II aimed at further strengthening financial institutions of India. Its major focus was on issues like size of banks and capital adequacy ratio. To strengthen the system, the committee recommended a raise in CAR norms, which will inadvertently improve their risk taking ability. Reserve Bank of India aimed at bringing the CAR to 9 percent by March, 2001 *(*Narasimham Committee on Banking Sector Reforms*)*. Return on Equity (ROE) measures the earning power of shareholders investment. This shows that capital adequacy ratio is an important determinant of earnings in private sector banks when measured in terms of ROE during Pre-Basel Phase (1999-2002). The results suggest that higher capital is reciprocated by higher earnings over the period 1999 to 2002 for private sector banks (Berger, 1994). This may point out a fact that an increase in capital may increase expected earnings by reducing the cost of distress i.e. bankruptcy (Mathuva, 2009).

Similarly for Foreign banks, six variables are statistically significant out of ten independent variables identified for the study: advances, capital and return on assets are significant at 1 per cent level and business per employee (BPE), return on equity (ROE) and net non-performing assets (NNPA) at 5 per cent level. Deposits stand insignificant for all bank types during Pre-Basel era. Foreign bank's data reveal a significant relationship between net non-performing assets and capital adequacy ratio indicating sensitivity of foreign banks towards credit worthiness of borrowers. The negative sign associated with advances, BPE and ROE show that more advances and more ROE has led to capital erosion. This may be on account of the fact that excessive growing of loan portfolio can carry certain adjustment costs as banks may be forced to bring down their credit standards to accommodate more existing applicants (Furfine, 2000).Also, at times more business per employee tend to create operational risk.

Basel I Phase

The results have been demonstrated in Table 4 (Descriptive Statistics) and Table 5 (Random effects Model) (Given in Appendix). The results reported in Table 4 shows that for public sector banks, only one variable i.e. return on assets (ROA) is statistically significant at 1 per cent for Basel I Phase (2002-2006). As ROA is a proxy of bank's profitability, the results finds that bank's profitability is positively related to CRAR. Even for private sector banks, ROA is found to be statistically significant at 1 per cent level. Sabbagh and Magableh (2004) hypothesised a significant positive relationship between capital adequacy ratio and profitability giving reason that banks are profit making organizations and they are interested to have high returns for their shareholders and hence tend to optimize their capital levels to earn higher return on their assets. Therefore, when return on assets increases, capital adequacy ratio should also increase (Abba et al, 2018).

Also, business per employee (BPE) and profit per employee (PPE) are found to be statistically significant at 5 per cent level and advances at 10 percent. The best explanation lies in the nature of the industry. Banking is a labour intensive industry and demands skilful human capital, hence it is very much expected that the managers and staff members at different levels tend to contribute towards capital adequacy ratio (Banerjee, 2012).For Foreign banks, advances are statistically significant at 1 per cent and deposits are significant at 10 per cent level. Since deposits are liabilities for banks, banks tend to maintain higher capital adequacy ratio to ensure financial stability.

Basel II Phase

Basel II results are given in Table 6 (Descriptive Statistics) and Table 7 (Random effects Model) (Given in Appendix). The results demonstrate that for public sector banks, capital variable is significant at 5 per cent level, as per both uncensored and Tobit censored regression model. Similarly, Tobit regression model shows that for Basel II Phase i.e. 2006-2010 time periods, for public sector banks, profit per employee (PPE) is also significant at 10 per cent showing contribution of human capital.

For private sector banks, return on assets (ROA) is statistically significant at 1 per cent in uncensored regression model and at 5 per cent in Tobit censored regression model. Tobit regression model also shows significance of Return on equity (ROE) at 10 per cent, advances at 1 per cent and credit deposit ratio (CDR) at 1 per cent significance level. Credit-deposit ratio is an indicator of health as it tells us how much a bank is lending (the main business activity) out of the deposits it has collected.

Similarly, for foreign banks advances are significant at 1 per cent for both censored and uncensored regression model. Also, Tobit censored regression model shows significance of profit per employee (PPE) at 1 per cent, net non-performing assets (NNPAs) at 5 per cent for foreign banks in Basel II Phase. Even in Pre-Basel era, such a sensitivity of foreign banks towards borrower's creditworthiness was observed.

One important observation is the significance at 5 per cent and 1 per cent (with negative sign) level of 'Number of offices' variable, as reported by censored regression model and Tobit uncensored regression model for foreign banks. Not surprisingly, the results of Tobit censored model are stronger. This may be on account of certain unviable branches which are unnecessarily contributing towards operating costs. Offices are not significant determinant of CRAR for public and private sector banks. Further, the negative sign associated with profit per employee (PPE) indicate that higher PPE can at times lead to higher operational risk. Similarly, more NNPAs have eroded the CRAR significantly.

Basel III Phase

The results of Basel III (2010-2017) are reported in Table 8 (Descriptive Statistics) and Table 9 (Random effects Model) (Given in Appendix) reveals that for Public sector banks, advances and return on assets (ROA) are found to be statistically significant at 1 per cent and 5 per cent respectively as per uncensored regression model. The important point to be noted is the negative sign associated with advances which shows that during 2010 to 2017, more loan disbursement by public sector banks has negatively affected capital adequacy ratio. ROA as a profitability indicator shows a positive significant relationship with CRAR at 5 per cent level. Tobit uncensored model shows negative relationship between advances and CRAR which gives an indication of surmounting risk weighted assets triggering fear of non performing stressed assets. Also, number of branches is positively significant at 1 per cent showing their contribution in operating income.

For private sector banks, both censored and uncensored regression model show advances at a significance level of 1 per cent with a negative sign showing impact of high loan disbursement on capital. In uncensored regression, even number of offices and credit-deposit ratio are found to be statistically significant at 5 per cent level. Similarly, censored regression model reported that return on assets (ROA); number of offices and credit deposit ratio (CDR) are statistically significant at 1 per cent.

For Foreign banks, advances are statistically significant at 1 per cent with a negative sign showing that high advances had negative impact on CRAR. Also, censored regression reported a statistically significant return on equity (ROE) at 5 per cent with a negative sign showing that higher returns of investment holders had negative impact on CRAR.

Conclusion

Capital adequacy has always been regarded as an indicator of the soundness and strength of financial system in India. Since liberalization in 1991, the banking sector reforms in India made the way for gradual implementation of Basel norms in India. This study has the verified the existence of relationship between Capital adequacy ratio (CAR) and various variables, as well as the degree of their impact on CAR, for all public, private and foreign banks operational in India, using annual data covering period 1999-2017 in four phases Pre-Basel, Basel I, Basel II and Basel III. To examine this, a random effect panel data regression has been used. For Pre-Basel Phase (1999-2002), it is interesting to note that for private sector banks; only ROE is found to be statistically

significant. Return on Equity (ROE) measures the earning power of shareholders investment. This shows that capital adequacy ratio is an important determinant of earnings in private sector banks when measured in terms of ROE during Pre-Basel Phase. In case of Basel I Phase (2002-2006), the results demonstrate that bank's profitability (ROA) is positively related to CRAR. Even for private sector banks, ROA is found to be statistically significant at 1 per cent level. For foreign banks, advances are statistically significant at 1 per cent and deposits are significant at 10 per cent level. Since deposits are liabilities for banks, banks tend to maintain higher capital adequacy ratio to ensure financial stability.

The econometric model results of Basel II phase (2006-2010) demonstrate that for public sector banks, capital variable is significant at 5 per cent level, as per both uncensored and Tobit censored regression model. Similarly, Tobit regression model shows that for Basel II Phase i.e. 2006-2010 time period, for public sector banks, profit per employee (PPE) is also significant at 10 per cent showing contribution of human capital. On the other hand, Private bank's profitability (ROA and ROE) is positively related to CRAR. Offices are not significant determinant of CRAR for public and private sector banks. While for Foreign banks, number of offices is significant at 5 per cent and 1 per cent (with negative sign). This may be on account of certain unviable branches which are unnecessarily contributing towards operating costs.

Basel III (2010-17) results demonstrate that more loan disbursement by public sector banks has negatively affected capital adequacy ratio. For private sector banks, both censored and uncensored regression model show advances at a significance level of 1 per cent with a negative sign showing impact of high loan disbursement on capital. For Foreign banks, advances are statistically significant at 1 per cent with a negative sign showing that high advances had negative impact on CRAR. The result of this study has important regulation policy and bank-related implications. The management of banks should aim at improving upon their ROA and ROE to ensure effective improvement in their performance. Moreover, considering the impact of net non-performing assets on bank's capital adequacy ratio, effective measures should be undertaken to bring down the surmounting level of stressed assets and to strive at keeping buffer capital to meet unforeseen exigencies in future. Moreover, proper procedures, methods of sound appraisals, regular and timely documentation and regular credit audits should be incorporated in the system to ensure timely and full realization of loan disbursements.

References

Abba, G. O., et al. (2018). "Determinants of capital adequacy ratio of Deposit money banks in Nigeria." *Journal of Accounting and Marketing , 7* (2), 1-7.

Ahmad, R., et al. (2008). "The Determinants of Bank capital ratios in a developing economy." *Asia Pacific Financial Markets* , 255-272.

Arner, D. W. (2009). "The Global credit crisis of 2008: Causes and Consequences." *The International Lawyer , 43* (1), 91-136.

Ayuso, J., et al.2002). "Are capital buffers pro-cyclical?: Evidence from Spanish Panel data." *Journal of Financial Intermediation , 13* (2), 249-264.

Banerjee, S. (2012). "Basel I and Basel II compliance issues for banks in India." *Macroeconomics and Finance in Emerging Market Economies , 5* (2), 228-245.

Berger, A. (1994). *The Relationship Between Capital and Earnings in Banking.* Philadelphia: Centre for Financial Institutions working papers94-17.

Chay, Y.K. and Powell, J.L. (2001). "Semi parametric censored regression models." *Journal of Economic Perspectives,* 15(4), 29-42.

Ediz, T., et al. (1998). "The Impact of Capital requirements on U.K. Bank behaviour." *Economic Policy Review , 4* (3), 15-22.

Estrella, A. (2004)." The cyclical behaviour of optimal bank capital." *Journal of Banking and Finance , 28* (6), 1469-1498.

Furfine, C. (2000). *Evidence on the response of US Banks to changes in capital requirements*. Bank for International settlements, Monetary and Economic department. Basel: BIS.

Gatzert, N., and Wesker, H. (2012). "A Comparative assessment of Basel II/III and Solvency II." *The Geneva papers on Risk and Insurance-Issues and Practice , 37* (3), 539-570.

and Solvency II." *The Geneva papers on Risk and Insurance-Issues and Practice , 37* (3), 539-570.

Ghosh, S., and Nachane, D. (2003). "Are Basel Capital standards Pro-cyclical? Some empirical evidence from India." *Economic and Political Weekly , 38* (8), 777-778+780-784.

Gordy, M. B., and Howells, B. (2006). "Procyclicality in Basel II: Can we treat the disease without killing the Patient?" *Journal of Financial Intermediation , 15* (3), 395-417.

Half, R. (2016, November 29). *What do you need to you about banking trends in Asia.* Retrieved March 13, 2019, from Robert Half : https://www.roberthalf.com.sg/blog/jobseekers/what-you-need-know-about-banking-industry-trends-asia

Illing, M., and Paulin, G. (2005). "Basel II and the Cyclicality of Bank capital." *Canadian Public Policy/ Analyse de Politiques , 31* (2), 161-180.

Jose, T. (2015, May 25). *What is Capital to Risky Asset Ratio (CRAR)?* Retrieved March 14, 2019, from Indian Economy: https://www.indianeconomy.net/splclassroom/what-is-capital-to-risky-asset-ratio-crar/

Kalifa, W., and Bektas, E. (2017). "The impacts of bank-specific and macroeconomic variables on the capital adequacy ratio:evidence from Islamic Banks." *Applied Economics Letters* , 1-5.

Kleff, V., and Weber, M. (2003). *How do banks determine capital? - Empirical evidence for Germany.* Mannheim: Centre for Eurpoean Economic Reserach.

Lee, C. C., and Hsieh, M. F. (2013). "The impact of Bank capital on profitability and risk in Asian banking." *Journal of International money and Finance , 32* ©, 251-281.

Mathuva, D. M. (2009). "Capital Adequacy, Cost Income Ratio and the Performance of Commercial Banks: The Kenyan Scenario." *The International Journal of Applied Economics and Finance , 3* (2), 35-47.

Miskovic, B. (2011). *Regulation of Banks under Basel Frameworks.* University of Economics. Prague: University of Economics.

Nachane, D., et al. (2000). "Capital adequacy requirements and the behaviour of Commercial banks in India:An analytical and empirical study" Mumbai: Development Reserach Group.

Nag, A. K., and Das, A. (2002). "Credit growth and response to capital requirements." *Economic and Political Weekly , 37* (32), 3361-3368.

Narasimham Committee on Banking Sector Reforms. (n.d.). Retrieved as on March 16, 2019,: https://en.wikipedia.org/wiki/Narasimham_Committee_on_Banking_Sector_Reforms

Powell, A. (2002). *A Capital accord for emerging economies.* Washington DC: THe World Bank.

Powell, A., & Majnoni, G. (2005). "Reforming Bank capital requirements: Implications of Basel II for Latin American countries." *Economia , 5* (2), 105-140.

Posner, E. A. (2015). "How do Bank regulators determine capital adequacy requirements?" *The University of Chicago Law Review , 82* (4), 1853-1895.

Repullo, R., et al. (2010). "Mitigating the Procyclicality of Basel II." *Economic Policy , 25* (64), 659-702.

Roy, D. (2014). "Performance of Indian Banking sector in the Basel Regime". Indore, India

Sabbagh, A., et al.. (2004). *Determinants of capital adequacy ratio in Jordanian Banks.* Irbid.

Sathye, M. (2005). "Privatization, Performance and Efficiency: A study of Indian Banks." *Vikalpa: The Journal for Decision Makers , 30* (1), 8-16.

Swamy, V. (2013). *Basel III: Implications for Indian banking.* Hyderabad: IBS Finance.

Tobin, J. (1958). "Estimation of relationships for limited dependent variables." *Econometrica,* 26(1), 24-36.

Terry, C. (2009). "The new Basel capital Accord: A major advance at a turbulent time." *Agenda: A Journal of Policy analysis and Reform , 16* (1), 25-43.

Yong, H. K. (2018, April 19). *The biggest challenges Southeast Asian banks are facing today.* Retrieved March 13, 2019, from Banking & Finance: https://asianbankingandfinance.net/retail-banking/commentary/biggest-challenges-southeast-asian-banks-are-facing-today

****

APPENDIX

Table 1: List of Variables

Variable	Acronym	Explanation
Capital Risk adjusted Ratio or Capital Adequacy Ratio	CRAR	CRAR or CAR is the ratio of capital of bank to its risk.
Deposits	Dep	can capture the size of business activity
Advances	Adv	Indicator of loan portfolio
Capital	Cap	Degree of contribution from owners (Jose, 2015)
Return on assets	ROA	A reflect of profitability of banks
Return on equity	ROE	A reflect of profitability of banks
Credit deposit ratio	CDR	can capture the size of business activity
Net-nonperforming assets	NNPA	reflect an indicator of risk
Business per employee	BPE	reflect an indicator of operational risk
Profit per employee	PPE	reflect an indicator of operational risk
Number of offices/Branches	NOF	reflect an indicator of operational risk

Table 2: Descriptive Statistics Pre-Basel Era

	Public Sector Banks				Private Sector Banks				Foreign Banks			
	Mean	StdDev	Max	Min	Mean	StdDev	Max	Min	Mean	StdDev	Max	Min
CRAR	11.373	2.482	23.11	0	12.604	4.204	28.9	-1.99	27.056	34.814	236	0.27
Deposits	48.5	27.856	96	1	93.74	401.902	4257.43	1	47.5	27.279	94	1
ADV	9.147	1.02	11.7	3.044	7.127	1.097	8.858	4.195	5.731	1.939	10.711	1.175
CAP	37.385	20.582	72	1	42.54	28.038	152.47	1	38.351	23.534	78	1
Bus_per_emp	44.916	25.94	90	1	358.392	374.783	2004.7	6.14	752.948	448.182	2581	54.79
Prof_per_emp	0.89	0.733	3.06	-0.2	3.112	7.88	66.82	-36.2	46.712	26.989	93	1
NNPA	47.833	27.471	95	1	55.002	31.263	108	1	45.574	26.149	91	1
CDR	47.99	6.673	64.16	26.48	50.319	8.987	71.61	22.28	90.489	48.672	243.78	4.1
ROA	0.609	0.384	1.6	-0.36	1.288	2.356	11.9	-6.5	0.494	3.195	7.57	-17.99
ROE	13.131	9.284	34.58	-33.11	15.243	10.842	42.96	-39.35	4.717	19.542	43.54	-96.05
Office	1784.88	1782.44	9102	341	153.11	125.23	437	2	5.648	10.402	70	1

Table 3: Random effects Model in Pre-Basel Era

	Public Sector Banks	Private Sector Banks	Foreign Banks
Deposits	0.001 (0.007)	0.001 (0.000)	0.012 (0.051)
Advances	-0.280 (0.311)	-0.995 (0.701)	-9.461*** (2.365)
Number of Offices	0.000 (0.000)	-0.000 (0.005)	0.445 (0.404)
Capital	0.008 (0.011)	-0.003 (0.011)	0.191*** (0.066)
Business per employee	0.000 (0.007)	0.000 (0.001)	-0.017** (0.007)
Profit per employee	0.700 (0.575)	0.0124 (0.034)	-0.015 (0.070)
Return on Assets	0.379 (1.287)	-0.101 (0.188)	3.528*** (0.815)
Return on Equity	0.057 (0.038)	0.123*** (0.030)	-0.317** (0.135)
Net non performing Assets	0.000 (0.007)	0.0063 (0.009)	0.127** (0.062)
Credit-deposit ratio	-0.012 (0.049)	0.025 (0.044)	0.067 (0.045)
Number of Observations	96	110	93
Number of Groups	26	32	47
R square Within = **Between=** **Overall=**	0.060 0.454 0.328	0.261 0.087 0.090	0.503 0.603 0.508
Sigma_μ	1.721	3.238	26.970
Sigma_e	1.518	2.016	8.374

***, **,* significant at 1%, 5% and 10% level respectively.
Standard error in brackets.

Table 4: Descriptive Statistics Basel - I

	Public Sector Banks				Private Sector Banks				Foreign Banks			
	Mean	Std Dev	Max	Min	Mean	StdDev	Max	Min	Mean	StdDev	Max	Min
CRAR	12.40	2.05	20.12	1.7	12.83	4.49	30.43	-1.99	32.92	32.38	138.51	9.28
ROA	0.97	0.43	2.01	-0.45	46.92	23.73	86	1	1.23	1.92	7.19	-5.8
CDR	58.04	26.15	300.7	34.79	56.43	14.20	110.61	8.81	80.79	54.61	271.97	2.13
ROE	19.04	9.23	40.31	-15.67	62.68	36.25	125	1	6.34	14.03	35.87	-70.06
Number of offices	1806.45	1746.95	9632	173	228.59	155.87	713	2	10.24	18.64	87	1
Business per employee	281.82	180.72	1718.24	112.15	55.30	32.58	113	1	47.28	27.21	94	1
Profit per employee	2.13	1.55	12.45	-0.74	48.34	27.47	97	1	10.57	20.92	85.82	-45.9
Depreciation	67	38.53	133	1	63.5	36.51	126	1	48	27.56	95	1
Advances	9.88	0.83	12.47	8.32	7.84	1.40	11.89	4.48	5.87	2.49	10.7	0.83
Capital	63.94	37.00	127	1	55.22	32.31	110	1	34.02	18.87	67	1
Net NPAs	64.04	38.46	130	1	59.57	36.38	122	1	39.77	26.51	86	1

Table 5: Random effects Model in Basel-I Era

	Public Sector Banks	Private Sector Banks	Foreign Banks
Deposits	-0.001 (0.003)	0.0058 (0.0053)	0.086* (0.047)
Advances	-0.338 (0.493)	-1.070* (0.616)	-9.692*** (1.712)
Business per employee	0.004 (0.003)	0.013** (0.006)	0.0657 (0.0656)
Profit per employee	-0.337 (0.320)	0.030** (0.015)	-0.047 (0.117)
Credit-deposit ratio	0.001 (0.011)	-0.027 (0.024)	-0.015 (0.031)
Capital	0.001 (0.003)	0.009 (0.006)	-0.001 (0.059)
Return on Assets	3.662*** (0.889)	0.066*** (0.013)	0.988 (1.119)
Return on equity	-0.031 (0.031)	-0.006 (0.006)	-0.103 (0.104)
Net NPAs	0.0027 (0.0036)	-0.002 (0.005)	0.023 (0.048)
Number of offices	0.0001 (0.0002)	0.004 (0.003)	0.278 (0.252)
Number of Observations	133	126	95
Number of Groups	28	31	35
R square **Within =**	0.2561	0.494	0.2152
Between=	0.5181	0.526	0.5082
Overall=	0.3814	0.456	0.5020
Sigma_μ	1.088	3.416	22.046
Sigma_e	1.349	1.684	7.999

***, **,* significant at 1%, 5% and 10% level respectively.
Standard error in brackets.

Table 6: Descriptive Statistics Basel-II

	Public Sector Banks				Private Sector Banks				Foreign Banks			
	Mean	Std Dev	Max	Min	Mean	StdDev	Max	Min	Mean	StdDev	Max	Min
CRAR	12.591	1.047	15.37	10.09	14.272	6.367	49.15	0	31.582	25.746	157.86	9.58
ROA	0.938	0.311	1.67	0.16	42.990	23.456	84	-2	1.318	3.298	8.29	-21.45
CDR	71.266	14.965	202.84	31.71	68.352	11.817	106.27	15.47	93.164	99.746	781.53	1.04
ROE	17.214	5.401	30.64	3.26	51.247	30.704	103	-39	8.626	10.039	31.37	-21.8
Deposits	69.5	39.981	138	1	53	30.454	105	1	41	23.526	81	1
Advances	10.740	0.857	0.857	8.782	8.996	1.400	12.326	5.323	497.19	3685.8	32861.1	0.5822
Net NPAs	69.5	39.981	138	1	53	30.454	105	1	29.814	21.686	68	1
Business per employee	642.035	322.747	2346.4	240.46	573.0057	256.942	1526.7	101.08	41	23.526	81	1
Profit per employee	62.340	35.672	126	1	48.571	27.100	94	-3	21.14	34.57	153.77	-106.64
Number of offices	1952.239	1953.729	12437	173	354.285	265.505	1408	3	14.77	24.19	94	1
Capital	52.289	29.563	103	1	46.371	27.104	93	1	36.469	19.844	69	1

Table 7: Random effects Model in Basel-II Era

	Public Sector Banks		Private Sector Banks		Foreign Banks	
	Uncensored	Censored	Uncensored	Censored	Uncensored	Censored
Deposits	0.003 (0.002)	0.002 (0.001)	-0.008 (0.009)	-0.013 (0.017)	-0.124 (0.105)	-0.077 (0.106)
Advances	0.029 (0.228)	0.0695 (0.204)	-0.820 (0.738)	-3.138*** (0.796)	0.002*** (0.005)	0.0018*** (0.0006)
Business per employee	0.0005 (0.0005)	0.0002 (0.0005)	0.005** (0.002)	0.003 (0.002)	0.032 (0.103)	0.144 (0.104)
Profit per employee	0.008 (0.005)	0.009* (0.005)	-0.009 (0.0204)	0.300 (0.0298)	-0.119 (0.090)	-0.256*** (0.089)
Return on Assets	0.362 (0.637)	0.477 (0.553)	0.102*** (0.027)	0.072** (0.034)	-1.007 (1.351)	-0.114 (1.097)
Return on equity	-0.007 (0.025)	-0.012 (0.021)	0.0103 (0.0106)	0.034* (0.018)	0.538 (0.381)	0.498 (0.398)
Number of offices	0.000 (0.000)	-0.0000 (0.000)	-0.001 (0.002)	0.004 (0.002)	-0.525** (0.229)	-0.407*** (0.125)
Net NPAs	0.002 (0.001)	0.002 (0.001)	0.0195* (0.0110)	-0.016 (0.016)	-0.127 (0.107)	-0.287** (0.118)
Capital	0.006** (0.002)	0.006** (0.002)	-0.0112 (0.0119)	-0.016 (0.0187)	0.021 (0.123)	0.067 (0.126)
Credit-deposit ratio	0.006 (0.006)	0.005 (0.006)	0.067 (0.055)	0.172*** (0.056)	-0.008 (0.031)	-0.004 (0.0254)
Number of Observations	138	138	105	105	80	80
R square						
Within =	0.295		0.210		0.300	
Between=	0.289		0.341		0.274	
Overall=	0.298		0.205		0.251	
/Sigma		0.869		5.069		21.10
Sigma_μ	0.388		5.850		20.576	
Sigma_e	0.810		2.284		14.645	

***, **,* significant at 1%, 5% and 10% level respectively.
Standard error in brackets

Table 8: Descriptive Statistics Basel-III

	Public Sector Banks				Private Sector Banks				Foreign Banks			
	Mean	Std Dev	Max	Min	Mean	StdDev	Max	Min	Mean	StdDev	Max	Min
CRAR	13.311	11.969	138.89	9	15.027	4.649	56.41	7.51	33.436	29.433	210.13	11.05
ROA	0.452	0.713	1.67	- 2.8	65.429	34.978	122	1	0.936	2.494	5.58	-21.45
ROE	8.039	12.276	26.88	- 44.37	11.721	10.086	28.58	-34.01	5.181	7.559	20.7	-21.05
Deposits	106	61.054	211	1	77.602	45.018	155	1	86.5	49.79	172	1
Advances	11.646	0.974	14.077	6	10.300	1.253	13.23	7.065	7.436	2.449	11.14	0.582
Capital	92.488	53.148	187	1	72.910	42.320	147	1	65.372	39.733	133	1
Net NPAs	105.507	60.621	210	1	78.5	45.177	156	1	58.366	44.670	138	1
CDR	73.128	7.244	87.04	42.39	72.777	45.316	556.02	9.49	86.441	49.701	171	1
Business per employee	97.938	57.44	199	1	76.608	43.706	151	1	85	48.930	169	1
Profit per employee	64.962	32.123	127	1	53.14	27.771	104	1	83.034	47.725	166	1
Number of offices	2948.763	2916.451	18232	103	893.032	1051.364	4851	48	13.170	23.353	101	1

Table 9: Random effects Model in Basel-III Era

	Public Sector Banks		Private Sector Banks		Foreign Banks	
	Uncensored	Censored	Uncensored	Censored	Uncensored	Censored
Deposits	-0.0014 (0.001)	-0.010 (0.009)	-0.011** (0.005)	-0.000 (0.007)	-0.006 (0.025)	-0.130 (0.031)
Advances	-1.502*** (0.382)	-12.499*** (0.827)	-2.384*** (0.571)	-2.197*** (0.455)	-8.581*** (1.384)	-7.651*** (-3.119)
Return on Assets	0.610** (0.277)	1.633 (1.610)	0.006 (0.015)	0.058*** (0.015)	1.234 (1.125)	-2.164 (2.639)
Return on equity	0.009 (0.015)	0.066 (0.088)	0.022 (0.044)	-0.016 (0.053)	-0.495 (0.366)	-1.910** (-0.082)
Business per employee	0.001 (0.001)	0.007 (0.010)	0.000 (0.005)	0.003 (0.007)	0.003 (0.026)	-0.099 (0.063)
Profit per employee	-0.003 (0.004)	-0.038 (0.024)	0.0124 (0.011)	0.020 (0.014)	0.0163 (0.034)	-0.037 (0.168)
Number of offices	-0.000 (0.000)	0.002*** (0.000)	0.001** (0.000)	0.001*** (0.000)	0.0475 (0.213)	-0.133 (0.346)
Capital	-0.001 (0.001)	-0.031*** (0.010)	-0.006 (0.006)	-0.009 (0.007)	0.056 (0.035)	-0.034 (0.174)
Credit-deposit ratio	-0.017 (0.018)	-0.038 (0.089)	0.0132** (0.006)	0.026*** (0.007)	-0.021 (0.031)	-0.104 (0.066)
Net NPAs	-0.000 (0.001)	-0.015 (0.009)	0.005 (0.005)	0.006 (0.007)	-0.049 (0.030)	-0.144 (0.042)
Number of Observations	211	211	156	156	166	166
R square **Within =** **Between=** **Overall=**	 0.397 0.515 0.216		 0.150 0.189 0.039		 0.404 0.220 0.235	
/Sigma		7.954		4.007		24.887
Sigma_μ	10.653		3.650		26.922	
Sigma_e	1.017		2.595		11.067	

***, **,* significant at 1%, 5% and 10% level respectively.
Standard error in brackets

****

Digital Marketing Strategies: Effectiveness on Generation Z

Asma Anjum
Research Scholar
Department of Commerce
CHRIST (Deemed to be University)
Email: asma.anjum@mcom.christuniversity.in

Dr. Mary Rani Thomas
Assistant Professor
Department of Commerce
CHRIST (Deemed to be University)
Email: maryrani.thomas@christuniversity.in

Prestin K Prakash
Research Scholar
Department of Commerce
CHRIST (Deemed to be University)
Email: prestin.prakash@mcom.christuniversity.in

Abstract

The paper examines the constructs of digital marketing strategies on two aspects. Exploring the numerous digital marketing strategies related to Generation Z through a comprehensive desk review and archival research and confirming the explored factors to create a valid and measurable instrument.It is important to quantify and develop a scale to measure the effectiveness of digital marketing strategies on Generation Z. The first section of the study is exploratory factor analysis (EFA), establishing the effectiveness of digital marketing strategies on Generation Z. The second section deals with Confirmatory Factor Analysis (CFA), confirming the factors coined through exploratory factor analysis. The dimensions identified in the research can help marketers create exclusive digital marketing strategies to target Generation Z.

Keywords: *Generation Z, Digital Marketing Strategies ,Personalized Marketing, Content Marketing, Push Notification, Social Media Marketing*

Digital marketing refers to the method of advertising and promoting products and services through internet means (Alexander, 2019). It helps in marketing one's product or services and connects with the target audience, which may not be possible with traditional marketing. Promoting, advertising and automation have majorly influenced the growth of digital marketing, and it is important for businesses to include digital marketing in business in accordance with the present trends pertaining to the growing technology. Digital marketing plays a significant role in the development of the country by improving the country's economy and gaining worldwide recognition for the businesses (Zhi-Wang, 2018). Based on the statistics given by (Kemp, 2019) it was found that there are 7.6 billion population in the world among which 57% of the population, which is approximately 4.3 billion users rely upon the internet which gives the business a huge audience to digitally market the products and services. It is also evident in the statistics that 3.4 billion users, around 45% of the population are active on social media. This enhances the growth of marketers as social media platforms are an extremely effective way to market online. Thus it is significant to go digital among the masses, resulting in the growth of the businesses. Hutchinson (2019) states that 55% of the marketers feel content marketing boosts up the sales of the business as content generates traffic to the business. 28.2% of marketers worldwide feel that revenue increases majorly through social media marketing. Therefore it is depicted that by the year 2021, the global E-commerce sales of businesses will boost up to 4.5 trillion USD.

Generation Z and Digital Marketing Strategies

Based on the generational classification (Williams, Page, Petrosky and Hernandez, 2010; Thomas,2019), Generation Z as of 2019 are in the age bracket of 9 years to 24 years. Generation Z are mostly the children of Generation X. There is also the possibility of Generation Z being the children of the millennials; hence, when a business focuses on Generation Z, it is influencing a mass audience. As Generation Z spends most of their time online and gets influenced easily, the idea of implementing the right digital marketing strategies is vital for marketers as this generation becomes the potential customers who can influence the other two-generation to invest in the company. In the study of Horton (2016), it was found that Generation Z are a set of multi-taskers : they shop, surf, and text all at the same time.

They instantly shop for products they come across on social media ads, especially if there is a sale. Generation Z is the most-targeted group, and it is very important to study the behaviour and responsiveness of this generation to grow substantially. Di grande (2013) has suggested that in this tech-savvy world, businesses are working hard to ensure that customers get a seamless experience while they shop online. Businesses face various challenges in their pursuit of aiding a better customer experience, and use various techniques and strategies in doing so. However, not all strategies show outstanding results. The nature of this generation is that it finds anything productive as long as it is benefiting them in some or the other way.

Dobin (2015) has examined that generation Z are eminently attracted by various offers and strategies used by the companies, and these offers not only lead Generation Z to be a segment of the business but also a trustworthy assured partner, helping the business grow. Therefore, it is of utmost importance to focus on Generation Z while implementing a digital marketing strategy. Artemova (2018) in his study explicates Generation Z as the epitome for changing the marketing world and leading businesses to higher standards of operation and points how no previous generation has done this so efficiently in the past. A digital marketing strategy helps in brand building and influences the customer. It leads to the enrichment, not just for the business owners but also for the customers who purchase products online, but its constant and rapid changes will affect the businesses in the long run, and for this reason, businesses should adopt various upcoming digital marketing strategies to stay on top. A digital marketing strategy, when rightly implemented in a business, can either make or break the business. Hence it is imperative to execute the right digital marketing strategies aiming at the right perspective segment.

Review of literature

Dimensions of Digital Marketing Strategies

(1) Personalised Marketing: Personalised marketing refers to marketing and providing product and services catering to the needs of the customer. Personalisation is also known as "one to one marketing" as it personalises the products and services to the needs of every individual (Galetto, 2019). Mahoney (2015) proposed that personalisation is an important digital marketing strategy businesses should build upon. Generation Z prefers online personalisation instead of going out and purchasing. Generation Z does not believe in the concept of 'one product many uses' instead; they choose to go for unique and distinctive products. They demand the validation they deserve and crave for the most exceptional

outcome. Tirico (2016) interestingly found that generation Z is not very concerned about pricing; instead, they are very inquisitive about the experiences they could have. Thereby in the recent study of (Brown, 2018) Generation Z are stated to be born tech-savvy, and when this generation shops online, they expect more human experience while interacting. Personalised marketing, for this purpose, is an exceptionally prominent digital marketing strategy to win over Generation Z and galvanise them into the digital world. Generation Z is demanding the businesses to be very authentic in their interactions, in return are willing to trade their privacy for more personalised experiences. To win over them, personalised marketing is one of the most excellent digital marketing strategies businesses can use to stand out and flourish in the market. Also, in the recent study of (William, 2019), personalisation can engage this Generation as they are more involved in the website features. They sense more personalised experiences while interacting with the content of the website, and this is one of the most preferred digital marketing strategies used by businesses to attract this generation.

(I) Side Panel Ads: The significance of side panel advertisements is that it gives volume to the business and enhances the marketer's experience with the customers. Side panel advertisements help in finding the right customers, even if the customer is not searching for that particular product or service. McCormick (2017) found that businesses promote their products and services in less-trafficked websites because of costs, leading to lower sales. When side panel advertisements are marketed on high-traffic websites, it leads to higher sales. Telstra (2017) confirms that side panel advertisements also promote customer engagement and makes a brand more familiar and is an effective digital marketing strategy as it gives the exact data of the number of customers who viewed the advertisements and thereby visited the company's website. Through this, marketers can improve the brand more proficiently.

(ii) Recommendation Matching Purchase History: The growing use of internet has opened endless opportunities for businesses to trade online and these online platforms have made it more convenient to identify the purchase behaviour of the customers more effortlessly (Tomar, Sharma, & Pandey, 2018). Lu, 2014, argues that even before launching the products and services, it is essential to understand the purchasing behaviour of the customers else, the businesses will not nurture. Understanding each customers buying behaviour is very intricate and complex. Therefore (N.d, 2016), has depicted in the study, that recommendation of advertisements catering with the purchase behaviour of the customers is very important. It is suggested for the marketers to notify these customers with the new products as it influences the customers to indulge more in their businesses. This directs the customers to purchase a specific product resulting in the progress of the business.

(iii) Pop up Ads: Digital marketers find pop up advertisements as an extremely effective digital marketing strategy. Anderson (2017) has found that pop up advertisements are effective in attracting the attention of the customer and enhances the experiences of the customers who are surfing online; also it suggests advertisements related to the purchase pattern of the customer. The author states that pop up advertisements are an important digital marketing strategy that should be used by the businesses as it results in a positive outcome for the business. Approving to this (Alexandra, 2014) states that pop up advertisements pop when customers search for the related information and bring in traffic to the company's website, increasing the sales of the company. Therefore it is suggested to make use of pop up ads while marketing the products and services of the company.

(iv) Rewarding Customers: Rewarding customers on their frequent online purchases is a competent digital marketing strategy as it increases the sales of the company. Jamie (2017) also indicates that loyal customers to be the best marketers. As it is hard to find loyal customers, it is essential to retain these customers and invest in them, and this is the significant aspects a business should consider. Therefore, businesses should reward their loyal customers with credit points when frequent purchases are made by them on the company's website. They, in turn, will market not just your product but also the excellent customer service to another potential customer, leading to added sales.

(v) Cross-Selling: Cross-selling refers to recommending the customers with the related products according to the purchase pattern of the customer. It was found that when a business fosters cross-selling, prompts customers to buy more than one product and these customers end up buying more than one product; this undeniably leads to more profits to the businesses and increases sales (Roe, 2018). In contradiction to this (Heinl, 2017), states that when a customer is purchasing an additional product he finds no added value to his purchase though the businesses are

gaining profits, the customers are not. The author advises the businesses to propose an offer to the customers where the customers get a deal or a discount when an additional product is purchased, and this not only helps the businesses to grow but also sustains the customer in the long run.

(vi) Interactive Websites: Implementation of interactive websites is a very effective digital marketing strategy that the marketers have adopted lately. Standberry (2019) depicts the needs of the businesses to interact with the customer, be it in the form of, playing a game to get offers, be it displaying graphical models to check the way a dress looks like by modifying the height and weight of the model or trying different spectacles on the website by uploading images of the face. Every initiative taken by the businesses engages the customers on the website, and this leads the customers to invest in the brand. Belcher (2018) has found that when a customer's experiences on the website are enhanced, customers tend to share these experience to others; this will lead to an added growth to the business. Which also increases the customer's commitment towards the business and also maximises the Google ranking of the company website.

(2) Social Media Marketing: Social media marketing refers to the system of promoting the brand, products, and services via the social media platform. Social media marketing helps businesses to build brand awareness and reach their target audience. It is perceived to be the most influential platform to attract audiences (Berthold, 2018). Previous studies of (Shimpi, 2018) indicate that social media is a well-established platform to showcase the digital marketing strategies where the businesses market their brand and customers take it even longer way to connect the brand with the mass. Generation Z has always had access to the social media; information and connections were on their fingertips. Olenski (2018) emphasises that generation Z has endless opportunities in terms of technology since they have virtually grown up with phones and access to social media. Social media is continuously evolving and if brands want to stay at the forefront of what the Generation Z want and desire it is crucial for businesses to operate accordingly with the needs that cater to them in relevance with social media.
James (2018) found that Generation Z demand better mobile experiences as most of their digital interaction is on the phone. They expect all their online activities to be on the mobiles, and considering that most of the social media platforms are accessed more often through phones; marketers must make sure that their digital marketing strategies rely upon this and businesses should promote their brand and provide services through this platform for a streamlined experience. Therefore there is no doubt that social media marketing is an incredibly powerful tool of digital marketing strategies for the businesses.

(I) Instagram Story Marketing: Instagram is exceptionally successful in promoting products and services; it is a medium of interaction between the businesses and the customers. Ganta (2019) found that Generation Z are highly active on social media platforms and Instagram stories are a very effective digital marketing strategy that cannot be ignored by the marketers as this strategy never goes unnoticed. Marketers can target a broad audience through Instagram story, as users who do not follow the company's page can also view the story, which is an excellent opportunity to reach a new audience. This is an added benefit to the business. According to the latest study of (Blunt, 2019), it was found that Instagram does not only focus on sharing your information to the customer. The updated version has various new features such as asking questions which will give more information about the customer's preferences about a specific product or service. Measuring the effectiveness through polls will help the businesses to identify a certain percentage of customers who are ready to buy a particular product or service, swiping up the stories which take the user to the company website, and a whole new array of features which helps the businesses to increase the brand's reputation.

(ii) Facebook Post-marketing: Facebook is one of the oldest social media platforms and has a large number of customers and thus has the potential to reach many users. Facebook posts are used by brands to amuse and influence their customers. Facebook posts are the first thing customers notice when they open the website or the app, and it is more likely to get noticed. It is a must use, digital marketing strategy for the marketers as a way to boost sales (Sharma, 2019). Papagni (2019) suggests that marketers have to reach Generation Z to make a positive change in the business. Since they expect authenticity and transparency, marketers should keep this in mind before promoting their products as one wrong move might negatively impact the business.

(iii) Chatbots for Marketing: Toth (2017) found that with the continuous development of artificial intelligence, chatbots have great potential in businesses and personal lives. Chatbots have 24/7 interaction with the customer. Moreover, there are no errors made by chatbots, which makes it even more constructive to develop the business.

Chatbots are widely used, and it is still known as young technology. Chatbots represents the company's brand name and image. Therefore, it is the perfect embodiment of brand building. Vishnoi (2018)stated that chatbots have tremendous knowledge about the consumers' purchase behaviour through which it notifies these customers whenever a relevant sale arises. Thus Chatbots are very useful in solving the repetitive queries of the customers because of which customer care executives can handle more complex issues raised. Therefore Chatbots are an emerging digital marketing strategy, promoted through social media.

(3) Push Notifications: Push notification refers to businesses notifying the customers time to time about the updates and offers as per the customers' preferences (Sampat, 2019). Similarly, it was found that (Patel, 2019), the conveyance of information through push notifications is an ideal digital marketing strategy; businesses can utilise. However, at times, businesses overdo it and annoy Generation Z forcing them to turn off push notifications, and unsubscribing. It is still necessary to consider that Generation Z who are interested in communication from the business. They expect accurate and precise information from businesses so marketers should always provide them with the right information and not spam the customer's inboxes. (Kaur & Sharma, 2018) However when the products and services are marketed extensively, it has an inverse relationship on product promotion and influences the customers deliberately to invest in the business, and this is where push notification plays a major role.

In the study (Singh, 2018), it was found that Generation Z are passionate about technology, and prefer constant real-time updates about the things they are interested in. Generation Z are indifferent about the annual reviews that are not effective; therefore, to update in real-time, push notifications are one of the most proficient digital marketing strategies a business should hold. Generation Z are addressed as the notification generation, and every notification they receive never goes unnoticed. According to the research by (Jade, 2017), Push notification plays a significant role in implementing an effective digital marketing strategy. Generation Z are mostly on their gadgets, and it is very useful to send notifications and have the power to communicate on a personal level with the customer. Therefore push notifications have a positive impact on the businesses in building their brand and when used right, can improve sales vastly and hence is an effective digital marketing strategy.

(I) Email Marketing: People quit social media due to privacy issues, but no one quits emails therefore when it comes to connecting the users, email marketing is a highly effective digital marketing strategy and has the power to attract broader market compared to social media. However, Generation Z is more likely to open the messages received through notifications than through emails. Generation Z has perceived email marketing as an outdated communication medium (n.d, 2019). Agreeing to this, (Schultz, 2019) found in the research that Generation Z majorly does not respond to emails, as they feel it is outdated compared to other forms of communication and Generation Z does not consider noticing the emails and deletes the mails even before reading the mails. Contradicting to this (Horton, 2016) states Email as the currency of the web, even though every individual has a social media account or not, every individual has an email, as emails are the professional medium of exchange of information.

(ii) Message Notification: It was found by (Eric, 2019) that push notification is a digital marketing strategy that allows a user to send a notification through message, it can engage a user, and it has succeeded in creating an effective change in the digital environment. In message notification businesses can communicate with the user without asking for additional information such as email address. Anastasia (2018) addressed the importance of notification messages captivating as a digital marketing strategies of the business as they attract the user's attention and provide the users with timely reminders and offers. This medium maintains personal values and does not intervene in the privacy of a user. Thus, it is much likely to retain users for the long term

(4) Content Marketing: Content marketing is a digital marketing strategy that focuses on inventing and distributing relevant, valuable, and insightful information to retain customers. The definitive goal of content marketing is to be more precise in the communication with the customer and to drive profits into the business (Ruffolo, 2017). Baltes (2015) suggests that the essential digital marketing strategy businesses should reflect on is content marketing as the success of the business online communication depends on the quality of its content. To make the best of it, it is very important to consider the right way of promoting your content. Content marketing is the future of digital marketing, and every business is extensively affected by the content it produces. No digital marketing strategy can flourish unless it rightly promotes its content. Content marketing is a way to build a privileged relationship with the customer.

Bhattacharya (2019) in his recent work found content marketing as a very successful digital marketing strategy when implemented on Generation Z, As Generation Z do not prefer lengthy policies and information; therefore, to keep them intact, businesses should provide compelling and concise content that catches the customer's attention. Generation Z prefers authentic content, and every bit of the content should be accurate and correct to the values of the business. James (2018) has pointed out that, in order to make the content worthwhile, it is important for businesses to present advertisements and posts that reflect diversity and equality. If a business is missing out on this, there will not be any connection made with Generation Z. Harris (2018) Suggested that marketers engage Generation Z on a personal level. For this reason, it is very important to learn the expectations of the customers before presenting the content. It is necessary to learn about the opinions and ideas of this generation and listen to what they have to say about themselves to provide them with the best experience they deserve. Zimmerman (2018) also recommended content marketing to not rely upon the other aspects of building the brand; preferably, it should consist of creative content because that is a significant aspect Generation Z engages with. The businesses should build their content in such a way that they stand out amongst businesses both visually and verbally.

(I) Micro Moment Marketing: Micro-moments are the reflex action of the users, which directs them to buy a product or know more about a brand. Micro-moments arise in various forms such as seeing a product advertised on television or a billboard and purchasing it, subsequently. Micro-moments are also termed as 'I want to know moments,' 'I want to buy moments'' I want to go moments.' Micro-moments are game-changers for both customers and marketers - customers are attracted by the content they see in the advertisement, and marketers can grow business based on this behaviour (Ramaswamy, 2015).

(ii) Description Marketing: Rodriguez (2016) perceives that the primary determinant of success depends on the content marketing strategies that companies implement in their business. Content marketing strategy is a digital strategy which generates leads to the marketers. The effectiveness of content marketing strategy is that it enables even strangers to find the company's website through the informative and striking content the marketers have created and providing descriptions of the products are one of the very important aspects of a business. Descriptions should be creative, as many customers find creative description appealing. A well-formed description can answer the customer queries even before they could address it, considering this a marketer should form the content according to the needs of the customer. The online product description is a digital marketing strategy that goes a long way in building up a company's brand. The description brings in the value of the customer's inquisitive nature of knowing more, and this is one strategy that appeals a lot to the customer. Only a good description of the product can convince the customer to buy or not to buy a certain product, and this factor helps to build the brand (McVicke, 2018).

(iii)Influencer Marketing: Recent study by (Rolson, 2019) has found that the audience wants to know more about the information about the products which are not always available in the company websites. This is where influencers do the job of notifying the customers about all those features which customers did not know about. Influencer marketing is usually by social media influencers. It has grown exponentially and has shown increasing results in building up a brand's reputation. It is considered as an effective digital marketing strategy because when a customer follows an influencer, then the customer is influenced to buy that product. The latest study by (Wainwright, 2019) also supports that the above fact of influencer marketing sustaining the business in the long run. When influencers' mentions about a product or service, customers are pushed to visit the company websites, through which a company can strengthen their social reach, which in turn generates leads to the business.

(iv) Reviews and Ratings: A study by (Bookbinder, 2017) validates that certain businesses are uncertain about their marketing strategies, that's why reviews and ratings are considered to be the backbone of digital marketing as it acts as a strong customer-created content of the business. Reviews and ratings avoid sceptical customer's confusion over buying a certain product and turn them from passive buyers to a loyal customer. (N.d, 2018) Found that reviews build communication between the customer and business. It has a greater impact on the customer, which in turn increases the credibility of the business.

(v) Image Marketing: Reviews and ratings are not effective until businesses promote their product through image marketing. High-quality image content attracts and engages audiences (Minton, 2018). Wagner (2017) also, supports this argument that some customers do not prefer looking at a text, instead pay more attention to a visual. This is when it becomes a necessity of a business to promote its products through image marketing. Tailor (2017) has conveyed that

customers always want to make sure whether their product matches their expectation, be it the size, colour or any other specifications. Not including image marketing in the company's digital marketing strategy makes it hard for the brand to get recognised.

(vi) Attractive Graphic interface: Clarke (2015), in his study, found that an attractive and creative graphic interface of a website is always appealing than the static ones. It plays an integral role in establishing the business. Customers are impressed by the way a website looks and are more inclined to engage in the website. An excellent graphic interface not just creates an appealing website but communicates with the customers. Jof (2018) also supported that the interface conveys the message more precisely, which brings users closer to business time and again resulting in earning goodwill in the market, as users are more confident about the brand. Therefore when an interface is created thoughtfully, it has a higher impact on boosting sales because users are always attracted to creativity. Eventually, a striking design will help the businesses to win over the customers and turn these one-time customers into frequent purchasers.

Research Questions

1. To explore the dimensions of digital marketing strategies concerning Generation Z.
2. To construct a valid scale for measuring the digital marketing strategies effectiveness on Generation Z.

Data and Methodology

An extensive review of the literature was carried out to explore the constructs of Digital Marketing Strategies. A comprehensive desk review was conducted from various archival sources. Exploratory factor analysis (EFA) is a widely used statistical tool used to identify latent constructs. EFA should be carried out before conducting a Confirmatory Factor Analysis (CFA) in case of exploring and trying to establish a model. CFA helps in establishing a relationship between observed variables and the latent factors. SEM allows a single latent factor to be associated with multiple measures. The graphical representation, thus derived, will be a combination of the multiple regression and exploratory factor analysis. This method is also known as 'causal modelling.' The structural relationships between the variables are then identified through Structural Equation Modelling (SEM). The researchers have aimed at proposing and validating a tool for assessing digital Marketing strategies.

The study consist of (n=390) participants who fall under the category of generation Z. At present, this generation is in the age bracket of 9 to 24 years. A web-based survey was administered using Google forms with a five-point Likert scale. The sampling technique adopted was judgmental sampling under the non-probability method of sampling. In total, 18 questions were asked to assess the effectiveness of digital marketing strategies on Generation Z and based on the commonality was clustered into four groups. Face validity was carried out with the help of industry professional having expertise in the digital marketing field. The questionnaire was also validated from the academic field and a few subject expertise. An initial pilot study was conducted using 60 samples to establish the reliability and validity of the questionnaire. The scope of the study is limited to the city of Bangalore and generation Z who are well versed with technology. The period of study was from April – August 2019.

Table 1: Demographic Information of Respondents

Measure	Items	Frequency	Percentage
Gender	Male	207	53.08
	Female	183	46.92
Frequency of purchase	Occasionally	245	62.82
	Always	145	37.18

Note. n= 390

Empirical Results and Analysis

Exploratory factor analysis is used to study the dimensions of digital marketing strategies. The method of the principal component with varimax rotation is used to ensure all the items load on a given dimension (Hair, Gabriel, & Patel, 2014). Social science researchers suggest that Principle Component Analysis (PCA) is an appropriate method when there exists no prior model (Steenkamp and Baumgartner, 2000). The questions that have less than 0.50 loading are excluded from the study. The researcher identified a four-factor structure with the extracted factors explaining 71.025% of the total variance. The Kaiser–Meyer–Olkin test yields a value of 0.763, indicating that the data is adequate for sample adequacy. The study has incorporated the examination of composite reliability, and Cronbach alpha and Average Variance Extracted (AVE) was used to determine the validity of the constructs.

Table 2. Rotated Component Matrix

Component Matrix[a]

	Component			
	1	2	3	4
PM5	.703			
PM3	.664			
PM1	.642			
PM6	.629			
PM4	.609			
PM2	.530			
N3		.892		
N1		.859		
N2		.798		
SM3			.850	
SM1			.846	
SM2			.788	
CM6				.639
CM4				.635
CM5				.626
CM3				.613
CM2				.506
CM1				.499

Further, Table 2 shows the factor loadings determined through exploratory factor analysis. Four dimensions of digital marketing strategies were determined; the first important factor is personalised marketing, indicating how personalisation can generate more leads to the business — followed by the second important dimension that is social media marketing which indicates the exceptional ways of marketing through various means of social media platforms. The third dimension appeared to push notification marketing that relates the interaction between the business and organisation; The last important dimension is content marketing which depicts the need of the right content in the business.

Confirmatory factor analysis (CFA) is mainly carried out for checking the measurement model using Analysis of a Moment Structure (AMOS) software. Therefore, discriminant and convergent validity is established. The goodness fit of the model has been decided using various parameters. There are three types of indices that suggest the model fit. Firstly, absolute fit measure followed by incremental fit measure and parsimony fit measure. All these model values are found to be satisfactory based on the expert opinion (Byrne, 2012; Shaheen, Ahmad, Wagas, Waheed, Farooq, 2017) in the field of social science research for conducting SEM, and thus the further examination was carried out.

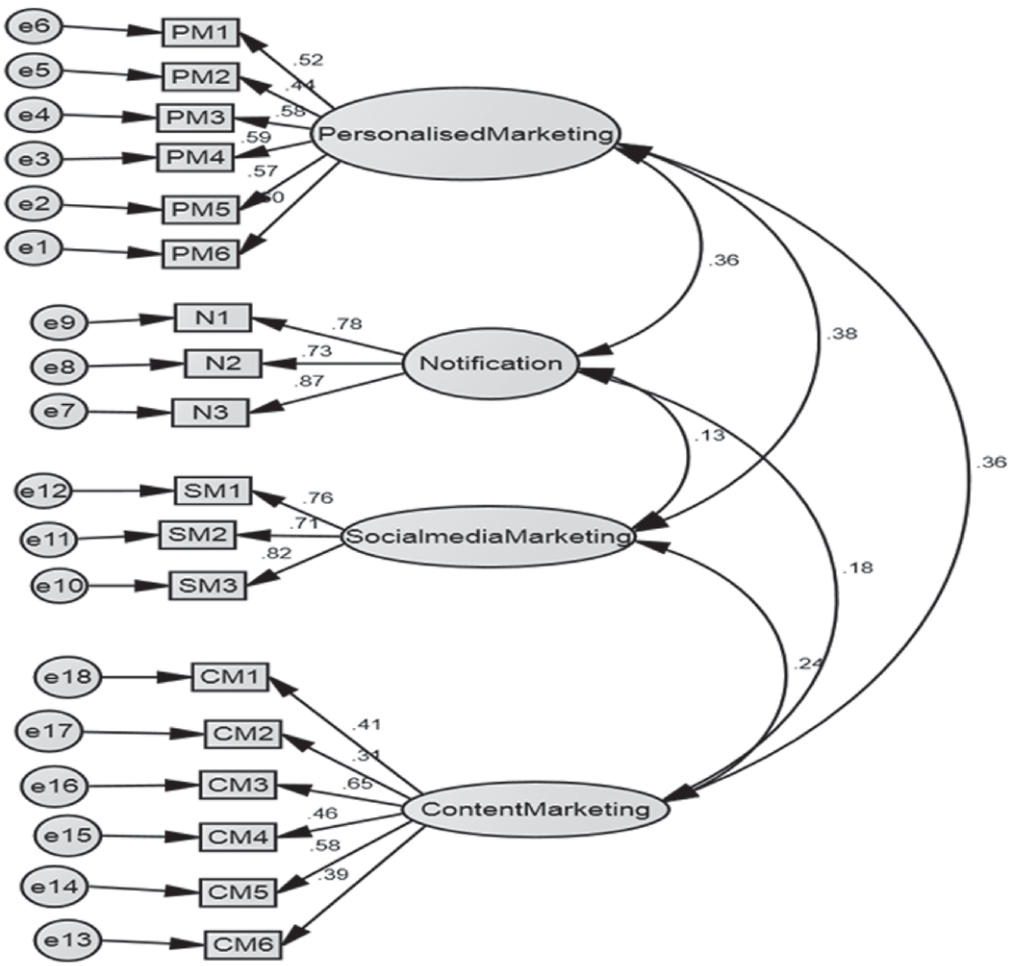


Figure1. First-order model checking the constructs of Digital Marketing strategies

First-order analysis: The First-order analysis was conducted using AMOS version 21.1, as shown in figure 1. Through the first-order model, four dimensions, PM, N, CM, SM were confirmed to be the independent predictors of the digital marketing strategies. All the factor loading are not above 0.4 (Hair, Gabriel, & Patel, 2014). Therefore, the question labelled CM1 CM2 and CM6 were dropped from the construct of content marketing due to factor loading below 0.4 and CM4 has been considered due to the criteria of having a minimum of three questions to measure a construct.

The outcome in the first-order model of the construct signifies X^2/df=1.900, Parsimony Comparative of Fit Index (PCFI) = 0.783, Comparative Fit Index (CFI) 0.928, Root Mean Square Error of Approximation (RMSEA) =0.48, Goodness of Fit Index (GFI) =0.935, Normed Fit Index (NFI) = 0.861. The error terms are not correlated as it is not permissible to be supported in their paper, state that the model fit may be subjected to some other issues if error terms are co-related.

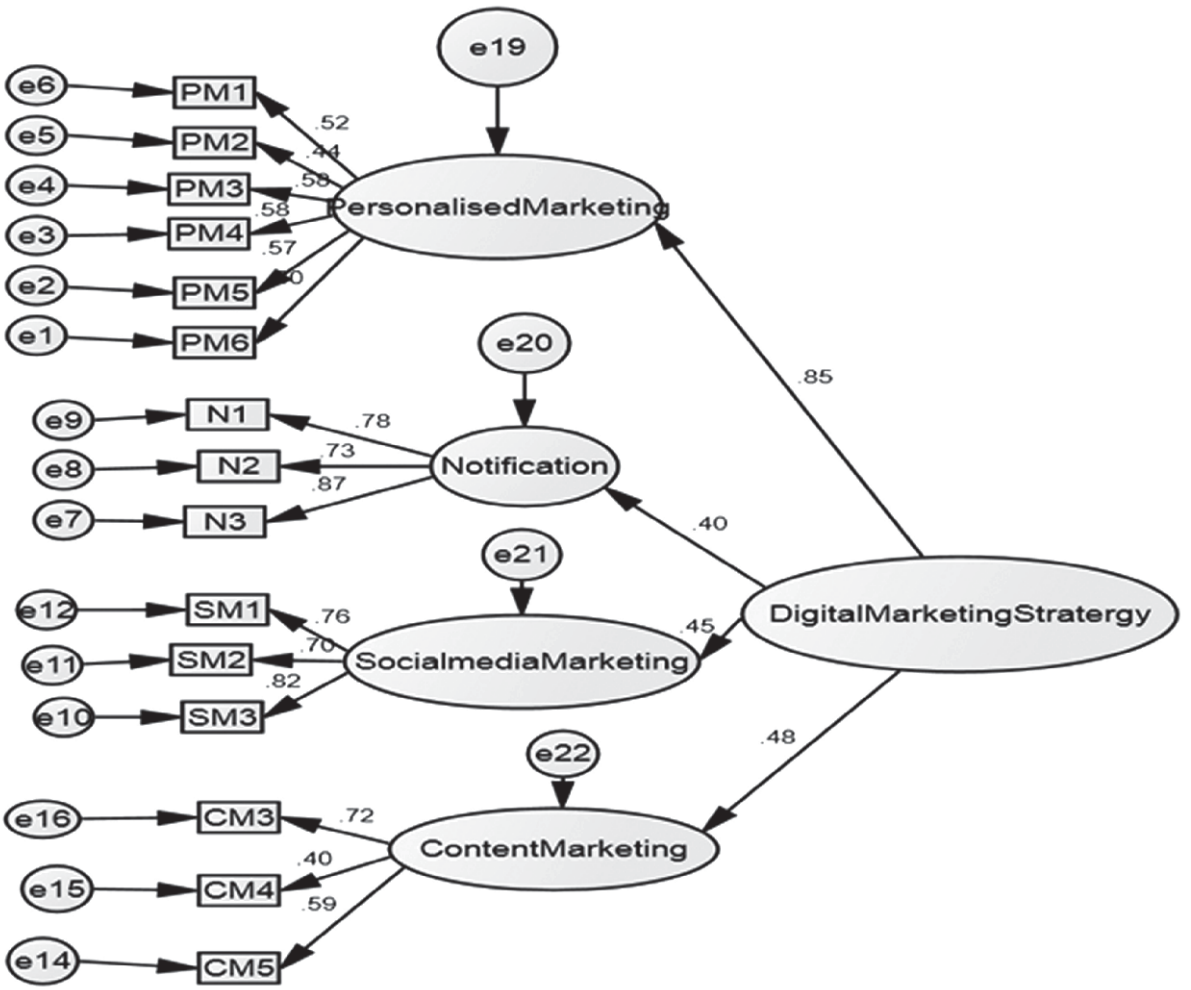


Figure 2 second-order model for examining Digital Marketing strategies on Generation Z.

Second-order analysis: The second-order model shown in figure 2 indicates fit indices for model ensures factor loading is above 0.4(Hair, Gabriel, & Patel, 2014). For the main observed Digital marketing strategies, we see that the four constructs can be used to measure the central construct. The model fit indices for the second-order model of the construct are *X2/df*=1.677, Parsimony Comparative of Fit Index (PCFI) = 0.786, Comparative Fit Index (CFI) = 0.960, Root Mean Square Error of Approximation (RMSEA)0.42, Goodness of Fit Index (GFI)= 0.953, Normed Fit Index (NFI) = 0.908. The second-order confirms that the identified constructs loads on the main constructs.

Theoretical and Practical Implications

The present study aims to develop a measurement scale for validating the constructs under digital marketing strategies exclusively for Generation Z. The four dimensions identified are Personalised Marketing, Social Media Marketing, Push Notification Marketing, and Content Marketing.

Firstly, marketers and managers are the emerging socialist as they are making their products and services more and more personalised. In the context of personalised marketing, marketers can make use of personalised strategies in their business to connect more with Generation Z. Various Sub-constructs were found to measure personalised marketing more effectively such as the recommendation of products through the purchase history, displaying side panel advertisements and include cross-selling strategy, which results in customers purchasing more than one product. Thus, personalised marketing is identified to be an effective digital marketing strategy that marketers should invest in.

Secondly, various social media marketing channels such as Facebook and Instagram, are successful in transforming the approaches and perception of customers. Social media marketing strategies have led to the evolution of many businesses to a higher level (Khan & Siddiqui, 2013). Thus, Instagram story and Facebook posts are highly recommended for the marketers to advertise their products and services. These two social media channels are most preferred and extensively used by Generation Z. From the current study, it was also evident that if the marketers want to stay on top of the competition, must integrate Artificial Intelligence factors of social media such as Chatbots as it helps in solving the repetitive queries of customers.

Thirdly, Push notification technology has been evolving, and various innovations have been adopted by the marketers, but every new technological advancement increases the pressure of retaining the customer and always involves a cost. Push notifications are an effective marketing method which is very powerful in influencing the customer as it enables one to one communication between the businesses and customers. The right notification strategies are essential in retaining customers (Tripepi, 2015). The current research aims at highlighting the concept of push notification for Generation Z. This strategy has resulted in a positive outcome for the business; therefore, marketers should permanently integrate various means of notifying Generation Z such as email notification and message notification as this increases the visibility of the business.

Fourthly, it is crucial to analyse the target audience before delivering the content to the customers; Marketers can promote high-quality content when thorough analysis is done about the products and services. Generation Z are greatly inclined towards content, therefore, placing the accurate content in the right networks is essential (Baltes, 2015). In the current study, social media content was found to have a greater impact on Generation Z as Generation Z is on one social media platform or the other. The content of display advertisements and the description of the products also plays a crucial role in influencing Generation Z. Thus, Marketers are suggested to prioritise Content Marketing in their business.

Conclusion

This paper represents one of the few studies which have attempted to capture the idea of quantifying digital marketing strategy. (Yadav, 2017) Rather than linking only potential customers with technology, it is very important to link people with technology as these people are the ones who should get influenced as they attract more new customers to the business. In the distant past, reality and marketing did not always line up. Businesses would produce intellectual marketing ideas to promote without much backlash. Customers received products which were not marketed and had very few options to spread it to the mass. The technological up-gradation is helping the marketers to be more honest with the customers and provide them with the validation they deserve. (Mishra, & Das 2019), in the present era, online businesses are growing at a fast pace. Due to intense competition in the market, ever-changing consumer dynamics of Generation Z and complex market scenario, sustainability is sceptical. Hence marketers are focusing on Generation Z as they are perceived to be loyal customers. The sooner a brand can integrate an emerging trend or technological advancement into their strategy; the better are their odds of surpassing the competition and staying on top.

To seamlessly incorporate these growing digital marketing trends into existing strategies effectively, brands can partner with top digital marketing agencies.

Limitations of the Study

The current study has captured data only from the perspective of Generation Z. Therefore, the questionnaire constructed in the study can be checked for effectiveness with different Generational segment. Secondly, the study was limited to the city of Bangalore, and this gives a narrow picture. Hence it is suggested to conduct studies and collect data from a wider audience from various metropolitan cities. In the course of surveying the literature for the current study, it was found that the concept of anchoring is one of the emerging ideas of digital marketing strategies. Researchers can explore this concept and investigate further. Many studies have researched about what could be the digital marketing strategy used by various firms as a pull strategy for selling better. There is a lack of literature which does not address the issue of a proper measurement scale to validate the constructs of digital marketing strategy. Therefore it is recommended for other researchers to make use of this questionnaire and modify the same to make the study more relevant and enhanced. Lastly, the growing concept of the General Data Protection Regulation (GDPR) in the European Union has made European marketers difficult to access personal data. Indian marketers should be prepared to tackle such council changes which can hinder the collection of privacy information from their customers. Devise a comprehensive marketing strategy from the ones discussed in the current research. Further, the research can investigate the effectiveness of the digital marketing strategy of a particular website after incorporating the strategy or for a particular product.

References

Alexander, L. (2019). "What Is Digital Marketing?". Retrieved 12 September 2019, from https://blog.hubspot.com/marketing/what-is-digital-marketing

Alexandra. (2014). "Do your pop-ups annoy customers? Here is how to check." Retrieved 4 September 2019, from https://webmeup.com/blog/do-your-pop-ups-annoy customers.html

Anastasia. (2018). "Why Are Push Notifications So Important?." Retrieved 1 August 2019, from https://rubygarage.org/blog/benefits-of-push-notifications

Anderson, J. C., and Gerbing, D. W. (1984). "The effect of sampling error on convergence, improper solutions, and goodness-of-fit indices for maximum likelihood confirmatory factor analysis." *Psychometrika*, *49*(2), 155-173.

Anderson, T. (2017). "On-Screen Pop-Ups…Annoying or Effective?." Retrieved 3 September 2019, from https://www.disruptiveadvertising.com/conversion-rate-optimization/pop-ups/Artemova, A. (2018). Engaging Generation Z Through Social Media Marketing Case: Hurja Media Oy.

Baltes, L. P. (2015). "Content marketing-the fundamental tool of digital marketing. *Bulletin of the Transilvania University of Brasov. Economic Sciences. Series V*, *8*(2), 111.

Belcher, L. (2018). "10 Amazing Benefits of Interactive Websites." Retrieved 29 August 2019, from https://www.wearenexo.com/knowledge/story/10-amazing-benefits-of- interactive-websites/175/

Berthold, M. (2018). "What is Social Media Marketing (SMM)? - Definition from Techopedia." Retrieved 31 August 2019, from https://www.techopedia.com/definition/5396/social-media-marketing-smm

Bhattacharya, J. (2019). "Gen Z is the Missing Piece in Your Content Marketing Strategy." Retrieved 19 July 2019, from http://www.econtentmag.com/Articles/Editorial/Industry-Insights/Gen-Z-is-the-Missing-Piece-in-Your-Content-Marketing-Strategy-131836.

Blunt, W., Marketing, H., & Sales, 2. (2019). "How to Integrate Instagram Stories Into Your Marketing." Retrieved 31 July 2019, from https://www.shortstack.com/blog/instagram-stories/

Bookbinder, S. (2017). "Why Customer Reviews Really Matter in Improving Your Sales." Retrieved 1 August 2019, from https://www.impactbnd.com/blog/customer-reviews-improving-your-sales

Brown, J. (2018). "Marketing evolution: From personalisation to individualisation." Retrieved 3 September 2019, from https://www.the-future-of-commerce.com/2018/09/14/marketing-evolution-personalization-to-individualization/

Byrne, B. M. (2012). "Choosing structural equation modeling computer software: Snapshots of LISREL, EQS, AMOS, and Mplus."

Clarke,C. (2015). "6 Reasons Graphic Design is More Important to Your Business Than You Think." Retrieved 2 August 2019, from https://www.business2community.com/branding/6-reasons-graphic-design-important- business-think-0928602

DiGrande, S., (2013). "Unlocking the digital-marketing potential of small businesses." *BCG Perspectives*.

Dobin, A. (2015). Marketing Orientation. *TOURO ACCOUNTING & BUSINESS JOURNAL*, 8 *digital business strategy.*

Eric. (2019). "Push Notification Benefits for Every Business." Retrieved 1 August 2019, from https://pushassist.com /blog/push-notification-benefits-for-every-business/

Galetto, M. (2019). "What Is Personalized Marketing? Benefits, Best Practices – NGDATA." Retrieved29 August 2019, from https://www.ngdata.com/what-is-personalized- marketing/

Ganta, M. (2019). "8 Reasons Why Businesses Are Using Instagram Stories In 2019." Retrieved 31 July 2019, from https://www.socialinsider.io/blog/why-brands-are-using-instagram-stories/

Hair, J. F., et al. (2014). "AMOS covariance-based structuralequation modeling (CB-SEM): guidelines on its application as a marketing research tool."

Harris, J. (2018). "The ABCs of Connecting With Generation Z." Retrieved 19 July 2019, from https:// contentmarketing institute.com/2018/10/connecting-generation-z/

Heinl, A. (2017). "5 Advantages of Cross-Selling to Existing Customers - Blitz Sales Software™." Retrieved 4 September 2019, from https://www. nowblitz.com/ blog/advantages-of-cross-selling-existing-customers/

Horton, C. (2016). "Forget Millennials: Time to Prepare for Generation Z." Retrieved 19 July 2019, from https://www.socialmediatoday.com/news/forget-millennials-time-to-prepare-for-generation-z/452647/

Hutchinson, A. (2019). "Why is Digital Marketing so Important for Business in 2019?" [Infographic]. Retrieved 31 August 2019, from https://www. socialmediatoday.com/news/why-is-digital-marketing-so-important-for- business-in-2019-infographic/552160/

Jade. (2017). "Eazi-Apps." Retrieved 19 July 2019, from https://eazi- apps.com/sitc/2017/08/24/mobile-app-push-notifications-the-holy-grail-of-marketing/

James. (2018). "9 Ways to Reach Generation Z on Social Media." Retrieved 19 July 2019, from https://socialnomics.net/2018/06/03/reaching-gen-z-on-social-media-9-strategies-that-work/

Jamie. (2017). "Rewarding Your Loyal Customers." Retrieved 4 September 2019, from http://www.artful thinkers.com/rewarding-your-loyal-customers

Jof, C. (2018). "How Important Is Graphic Design For Your Business?." Retrieved 2 August 2019, from https://www.designhill.com/design-blog/how-important-is-graphic- design-for-your-business

Joseph, S. (2017). "How effective is billboard advertising?." Retrieved 1 August 2019, from http://info.haulerads.com/moving-billboard-blog/how-effective-is-billboard-advertising

Kaur, B., and Sharma, R. R. (2018). Impact of viral advertising on product promotion: An experimental study. *Indian Journal of Marketing*, *48*(6), 57-68.

Kemp, S. (2019). "Digital trends 2019: Every single stat you need to know about the internet." Retrieved 31 August 2019,from https://thenextweb.com/ contributors/ 2019/01/30/digital-trends-2019-every-single-stat-you-need-to-know-about-the-internet/

Khan, F., and Siddiqui, K. (2013). "The importance of digital marketing. An exploratory study to find the perception and effectiveness of digital marketing amongst the marketing professionals in Pakistan." *Journal of Information Systems & Operations Management*, vol. 7(2), pages 221-228.

Lu, H. (2014). "Recommendations Based on Purchase Patterns." *International Journal Of Machine Learning And Computing*, *4*(6), 501-504. doi: 10.7763/ijmlc.2014.v6.462

Mahoney, S. (2015). " Gen Z Basics Include Personalization First, Validation Second." Retrieved 19 July 2019, from https://www.mediapost.com/publications/article/263010/gen-z-basics-include-personalization-first-valida.html

McCormick, K. (2017). Retrieved 3 September 2019, from https://thrivehive.com/benefits-display- advertising/

McVicke, D. (2018). "How Important are Your Product Descriptions to Your Content Marketing? - Relevance." Retrieved 1 August 2019, from https://www.relevance.com/how-important-are-your-product-descriptions-to-your- content-marketing/

Minton, G. (2018). "Why high-quality photos are important to your business and buyers?" Retrieved 1 August 2019, from https://blog.apruve.com/why-high-quality-photos-are- important-to-your-business-and-buyers

Mishra, V., and Das, B. (2019). "Facilitators of E-Tail Patronage Behavior Among Generation Z Consumers." *Indian Journal of Marketing*, *49*(4), 20-36.

N.d,. (2016). "Understand The Customer's Buying Behaviour | Oxford College of Marketing Blog." Retrieved 3 September 2019, from https://blog. oxfordcollegeo- fmarketing.com/2014/11/27/why-its-important-to-understand-the-customers-buying-behaviour/

n.d. (2018). "Why Customer Reviews are Good for Business | Sandmen." Retrieved 1 August 2019, from https:// www.sendmode.com/customer-reviews-good-business

n.d. (2019). "What Is Email Marketing? Why Do Email Marketing? (2019)." Retrieved 1 August 2019, from https://www.campaignmonitor.com/ resources/ guides/why-email/

Olenski, S. (2018). "5 Ways Brands Can Engage Gen Z On Social Media." Retrieved 19 July 2019, from https://www.forbes.com/sites/steveolenski/2018/07/28/5-ways-brands-can-engage-gen-z-on-social-media/#4d951bd96129

Papagni, l. (2019). Retrieved 2 August 2019, from https://www.business2community.com/facebook/you-can-still-reach-generation-z-on-facebook-02180914

Patel, N. (2019). "How 7 Companies are Using Push Notifications to Boost Engagement." Retrieved 2 August 2019, from https://neilpatel.com/blog/push-notifications-to-boost-engagement/Patel, n. (2019).

Ramaswamy, S. (2015). "How Micro-Moments Are Changing the Rules." Retrieved 1 August 2019, from https://www.thinkwithgoogle.com/marketing-resources/micro-moments/how-micromoments-are-changing-rules/

Rodriguez, V. (2016). "10 Reasons Your Company Needs Content Marketing." Retrieved 1 August 2019, from https://uhurunetwork.com/why-do-content-marketing/

Roe, S. (2018). "How to MaximizeeCommerce Profits with Cross-Selling." Retrieved 4 September 2019, from https://woocommerce.com/posts/cross-selling/

Rolson. (2019). "10 Reasons To Add Influencer Marketing To Your Business Strategy." Rolson InfoTech Solutions Blog. Retrieved 1 August 2019, from https://www.rolsoninfotech.com/blog/influencer-marketing-business-strategy/

Ruffolo, B. (2017). "What is Content Marketing (& Why is it So Important)?." Retrieved 1 September 2019, from https://www.impactbnd.com/blog/what-is-content-marketing

Sampat, D. (2019). "What is Push Notification | How it Works | Benefits of Push Notifications." Retrieved 29 August 2019, from https://www.netcore smartech.com/ what-is-push-notification

Schultz, R. (2019). "Is Gen Z Snubbing Email Marketing?." Retrieved 1 August 2019, from https://www. mediapost.com/ publications/article/330010/is-gen-z-snubbing-email-marketing.html

Shaheen, F., et al. O. (2017). "Structural Equation Modeling (SEM) in Social Sciences & Medical Research: A Guide for Improved Analysis." *International Journal of Academic Research in Business and Social Sciences*, *7*(5), 132-143.

Sharma, G. (2019). "5 Ways Brands Can Make the Best Use of Facebook Stories." Retrieved 2 August 2019, from https://www.socialbakers.com/blog/5-ways-brands-can-make-the-best-use-of-facebook-stories

Shimpi, S. S. (2018). "Social media as an effective marketing tool: An empirical study." *Indian Journal of Marketing*, *48*(7), 36-50.

Singh, A. (2018). "The Notification Generation - EdgeNetworks." Retrieved 19 July 2019, from https://edgenetworks.in/2018/05/17/the-notification-generation/

Standberry, S. (2019). "11 Benefits of an Interactive Website Design, Tips and Ideas to Inspire You." Retrieved 4 September 2019, from https://www.lyfe marketing.com/ blog/interactive-website-design/

Steenkamp, J. B. E., and Baumgartner, H. (2000). "On the use of structural equation models for marketing modeling." *International Journal of Research in Marketing*, *17*(2-3), 195-202.

Tailor, A. (2017). Retrieved 2 August 2019, from https://www.quora.com/What-is-the-importance-of-product-images-in-your-online-business

Telstra. (2017). Retrieved 29 August 2019, from https://www.sensis.com.au/learn/benefits-of-display advertising

Thomas, M.(2019) "Role Of Online Visual Merchandising And Personality Attributes On Purchase Intention Of Customers In The Apparel Industry" (P.hD) CHRIST(deemed to be university)Bangalore,India.

Tirico, K. (2016). "Gen Z Is Frugal And Demands Personalization - Retail TouchPoints." Retrieved 19 July 2019, from https://www.retailtouchpoints.com/ features/trend-watch/gen-z-is-frugal-and-demands-personalization

Tomar, V. S., et al. (2018). "Perceived Benefits of Online Shopping: Scale Modification and Validation." *Indian Journal of Marketing*, *48*(12), 7-22.

Toth, R. (2017). "Why Chatbots Are a Must-Have for Businesses (and How to Build One!)." Retrieved 4 September 2019, from https://www.singlegrain.com/ artificial-intelligence/why-chatbots-are-a must-have-for-businesses-and-how-to-build-one/

Tripepi, M. (2015). "Effective Push Notification Strategy | Smartsheet." Retrieved 4 September 2019, from https://www.smartsheet.com/push-notifications

Vishnoi, (2018). "10 Chatbot Benefits: A Business Can't Afford to Miss | Acquire." Retrieved 2 August 2019, from https://acquire.io/blog/chatbot-benefits-for-business/

Wagner, n. (2017). "What is the Importance of Images in Business?." Retrieved 2 August 2019, from https://smallbusiness.chron.com/importance-images-business-75964.html

Wainwright, C. (2019). "Why Blog? The Benefits of Blogging for Business and Marketing." Retrieved 1 August 2019, from https://blog.hubspot.com/ marketing/the-benefits-of-business-blogging-ht

William, B. (2019). "Council Post: How To Use Marketing Automation To Boost Personalizatio"n. Retrieved 3 September 2019, from https://www.forbes.com/ sites/theyec/2019/04/02/how-to-use-marketing-automation- to-boost-personalization/ #2a81907a5d14

Williams, K. C., et al. (2010). Multi-generational marketing: Descriptions, characteristics, lifestyles, and attitudes. *"The Journal of Applied Business and Economics*, 11(2), 21

Yadav, M. (2017). "Social media as a marketing tool: Opportunities and challenges." *Indian Journal of Marketing*, *47*(3), 16-28.

Zhi-Wang, et al. G. (2018). "Performance Evaluation of Digital Marketing in Health Care Industry with the Application of Data Envelopment Analysis." *Revista de Cercetaresi Interventie Sociala*, *60*, 39.

Zimmerman, T. (2018). "The Art and Science of Content Marketing For Gen Z." Retrieved 19 July 2019, from https://www.martechadvisor.com/ articles/content-marketing/the-art-and-science-of-content-marketing-for-gen-z/

APPENDIX

Constructs and their Measurement items

Constructs	Proposed measurement items
Personalised marketing(PM)	PM1**:** I find recommendation advertisement useful PM2**:** I tend to purchase products when the recommendation matches my purchase history PM3**:** I find pop up advertisements very attractive PM4: I tend to purchase products from the websites which rewards me with credit points for every purchase made PM5**:** I tend to purchase items when the website suggests me \ an alternative product. PM6**:** I tend to purchase from websites that are interactive in nature
Social media marketing(SMM)	SMM1**:** I tend to purchase an item on the website after seeing an Instagram story SMM2**:** I tend to purchase an item on the website after seeing a facebook post SMM3**:** Instant reply to my queries pushes me one step ahead in purchasing the product
Notifications(N)	N1**:** I tend to open notifications to check deals N2**:** I tend to purchase items based on email notifications N3**:** I tend to purchase items based on message notifications
Content Marketing(CM)	CM3: I tend to purchase a product after seeing a display advertisement CM4: I tend to read reviews and ratings of a product by users before purchasing an item CM5: I tend to purchase products with good image quality CM1: I have seen product details on the site very clearly CM2: I tend to purchase items which have a relevant description CM6: I tend to purchase from websites with good interface
Questions removed	

****

Identifying Destination Branding Using Twitter Data

Dr. Arup Kumar Baksi
Associate Professor
Department of Management and
Business Administration,
Aliah University, Kolkata
Email: baksi.group@gamil.com

Abstract

Branding destinations is a complex phenomenon, as it has to mask the concept of product branding with the criticalities of service branding for multiple stakeholders and diverse customer base in a networked industry. The human emotions and sentiments shared across the social media are likely to provide significant inputs for destination branding. The study examines the shared human sentiments, in the form of micro-blogs, about destinations travelled on the Twitter platform by using appropriate text mining tools and content analysis techniques. Self Organising Mapping or Kohonen Mapping technique was used for a multi-dimensional view of the sentiments apart from judging their polarity and subjectivity. The results revealed five distinct clusters of sentiments that can be embedded while branding the destination under study. The clusters also demonstrated significant code co-occurrence with the associated notions of topography-driven tourism (physical-form) and experiential tourism (opportunity).

Keywords: *Sentiment, Branding, Twitter, Destination, Self Organizing Map, Social Media*

Brands, as stimuli, shape the cognitive orientation of the consumers. The human brain is responsible for the construct "I" for every individual and creates a sense of identity concerning sensory relationships with the inanimate. Brands, essentially inanimate, require an animated interface that can be masked with human sentiments and emotions for its acceptance at the cognitive level. Multisensory branding techniques, therefore, have assumed prime importance to ensure a 'share-of-brain'. Neuromarketing, a triangulation of human biology, psychology and decision-science, focuses on analysing brain activity responsible for specific consumer-centric functionalities and decision bases. Belger et al. (2014) attributed different behavioural functions to specific sections of the human brain (Table-1):

Table-1: Behavioural functions attributed to specific human brain sections

Sl. No.	Brain Section	Attributed behavioural function
1	Media prefrontal cortex	Affinity, attachment
2	Prefrontal cortex	Self actualization and esteem
3	Nucleus accumbens	Pleasure sense
4	Orbitofrontal cortex	Desire to acquire and possess
5	Ventral striatum	Sense of reward
6	Insula	Sense of gains/ loses
7	Amygdala	Sense of threats, challenges
8	Posterior cingulate cortex	Sense of conflict

The bundle of stimuli trapped by the human brain is responsible for behavioural articulation. The ubiquitous mass media is interactive, mobile and offers a cascade of structured and unstructured stimuli (Wrona, 2014), both conflicting and converging, as a result of which the consumers are finding it difficult to process, assign significance and take decisions. As a defence mechanism, the consumer's brains are developing a deep-layered filtration process of stimuli, and the brands are finding it hard to penetrate the human cognition. The responses of over-stimulated human brains are not decisive and precise, and as a result, the selection of a brand becomes random rather than discreet. The marketers, finding it hard to cut this clutter, have realised that a deep analysis of human sentiments and emotion is required to remove the cognitive numbness. The fact that the brain analyses brands in two sequential phases, firstly, deciphering the form and physical shape and secondly mining the abstract tasks; have guided the researchers to propose a neuromarketing brand-essence model focusing on form, functionality, feelings, derived values, perceived benefits, metaphors and extensions. The affinity of customers with brands has an underpinning of relationship management theory whereby relationship inertia and perceived switching cost was found to moderate the cognitive bonding of customers with the brands (Baksi, 2015; Parida and Baksi, 2013). Therefore, understanding the human sentiments associated with these aspects of brand-essence is emerging as the precursor of brand building by the marketers. Internet-based social media have provided the marketers with an opportunity to delve deep into the consumer psyche for cognitive penetration with brands. Social media, namely Facebook, Twitter, Instagram etc. provide an interactive platform to its users to share their sentiments and emotions associated with their decisions, purchase, participation, endorsement, advocacy, adoption and a wide range of behavioural issues. The plethora of shared human sentiments as unstructured data over these social networks can be a goldmine for the marketers. Mining of these sentiments can unravel the secret of human behaviour towards brands. Consumer sentiment analysis can be particularly critical for service branding, as the brain cannot find any tangible entity to analyse its form and shape. Therefore, abstract understanding of the intangibles associated with the services holds the key for effective and impactful branding. Branding of destinations in tourism perspective poses one such challenge for the Destination Marketing Organizations (DMOs).

The Travel & Tourism Competitiveness Report, 2019 (World Economic Forum, 2019) reflected India's incredible leap into the 34th place globally (11 places ahead from its last rank), implicating significant rise in choice-option in favour of India as a global tourist destination. The nation-branding policy acronymed as 'Incredible India' adopted by the Ministry of Tourism, Govt. of India, showcased India's enabling environment, travel and tourism policy, infrastructure and natural and cultural resources. These

broad dimensions can be effectively translated into destination-specific brand elements. However, the connectivity between brands and human minds relies heavily on the brand's appeal to the human cognition, which has become quite critical to assess.

Literature Review

Brand building is essentially connected with a consumers' emotional sphere and depends predominantly on the evocation of satisfying experience, positive vibes and appealing to fond memories and remembrance (Wrona, 2014). Sentiments are manifested brand experience aroused by attached emotions (Baksi, 2015) and are seeded from the subconscious (Wrona, 2014) and hence neuromarketing insights can be critical in brand building. The role of social media, namely Twitter, Facebook, Instagram etc. is being recognised as a brand building platform by researchers (Pozin, 2014, Graves, 2016). Ho and Wang (2015) observed that since social media facilitates consumers to express feelings and opinions using real-time conversation and those conversation threads showcase the consumer sentiments attached with the brand.

Social networking sites (SNSs) have emerged as critical channels to influence tourists' perception and thought process leading to subsequent decision making, a plethora of research on the application and use of social media in tourism and hospitality has been captured in academic canvas (Camilleri, 2017; Leung et al, 2013; Chan and Denizci Guillet, 2011; Li and Wang, 2011; Noone et al., 2011; Xiang and Gretzel, 2010). With reference to internet-based media, Rheingold (1993) coined the term 'virtual community' and observed that consumers prefer to attach sentiments to their buying decisions to articulate their relationships. This notion was later supported by Williams and Cothrel (2000), Dimitris et al. (2003), Pace et al. (2007) etc. as the researchers identified brand associations as one of the potent conditions of such relationship expressed in terms of sentiments associated with the endorsed brands. Brand community, a niche of virtual communities, emerged as a strong online brand communication platform as Muniz and O'Guinn (2001) recognised its impact in shaping brand opinion and inclination. Initially, social media was used as a medium to communicate and place brands in the cognitive domain of the consumers (Algesheimer et al., 2004) and assess the evoked sentiments and emotions of the consumers as post-consumption measures (Andersen, 2005). Marketers can analyse and aggregate the consumers' brand opinion across social media, which can be used to propagate brand augmentation and innovation (Pathak and Pathak-Shelat, 2017). Brodie et al. (2013) observed that brand engagement over the social media empowers the consumers to the franchise and voice their opinions and tend to build liking, trust and belief for a brand. Pathak and Pathak-Shelat (2017) further observed that while exchanging opinions over social media, the consumers increase their level of engagement with brands. Brand engagement may increase online-crowd inputs in the form of 'brand provocation', which may be tapped by the marketers for better brand communications (Abdullah and Zolkepli, 2017). Ghiassi et al. (2013) developed a Twitter-specific lexicon for sentiment analysis regarding brand advocacy. Gursoy et al. (2017) observed that social media mining and content analysis could be useful for strategic brand management. However, empirical work on sentiment analysis to develop service brands remains scarce, though; branding services for the tourism and hospitality industry is gaining importance to camouflage intangibility.

Destination branding, as a research proposition, surfaced during the later half of the 1990s (Ibanez and George, 2017). Ritchie and Ritchie (1998) conceptualised destination branding as a process to uniquely differentiate and promote destinations on the ground of satisfying travel experience and collectable pleasant memories. Blain et al. (2005) reinforced the conceptual definition of Ritchie and Morgan (1998) and incorporated more holistic themes, namely, experience, image, expectations, advocacy and consolidation. Approaches to destination branding also focused on the marketing initiatives to reduce tourists' search cost and perceived risk while consolidating and reinforcing emotional attachment with the destination based on experience (Gartner, 2014; Pike and Page, 2014). Branding destinations initially was posited on the theoretical realms of Aaker, 1991 and Keller, 1993), but researchers soon realised that developing a destination brand must essentially embed the experiential element, stakeholders' perception and tourists' decision-making process (Kocak et al., 2007; Pike and Page, 2014; Ibanez and George, 2017). Image perception became a critical element of destination branding. Destination image has been widely studied to have a considerable antecedent impact on destination choice (Chon, 1990; Tapachai and Waryszak, 2000) and provides the Destination Marketing Organizations (DMOs) with strategic options to brand the same (Bigne et al., 2001). In a study to assign a unique image attribute to a destination, Baksi (2017) observed that Santiniketan (a globally recognised tourist destination) could be branded on the

notion of 'craft tourism'. Gonzalez-Rodriguez et al. (2014) in their study monitored travel-related information on social media and revealed that analysis of visitors' sentiment associated with destinations was reflective of visitors' alignment and inclination to the destination (Barcelona, in the study) based on positive experiences. They further generated a sentiment score to understand the degree of attachment of the visitors with the destination. Thomaza et al. (2016) proposed a 7-phase social media content mining framework, which was empirically tested during the FIFA World Cup 2014 in Brazil. The framework examined the twitter content for hospitality, food and beverages and logistics for real-time reflection of tourism services.

Extant literature did not reveal much about academic inputs on destination branding using human sentiments and neuromarketing efforts. The conventional approach of organic branding has been used for long for branding places and nations. The existing consumer behaviour theories were used to explain the evocation and predisposition process for attitude formation. Considering the changes in intensity, source and interactivity of stimuli and the impact of social media in shaping consumer opinion, these gaps in the existing body of knowledge needs to be addressed to reinforce the classical branding approach.

The objective of this study is to identify the branding elements for a destination based on shared sentiments and emotions by the tourists over the Twitter network using micro-blogs. Further, instead of limiting the study to a single-dimensional analysis of sentiments based on polarity and subjectivity, it approaches for a multi-dimensional view of clustered sentiments using the Self Organizing Mapping or the Kohonen Mapping process that will provide the marketers with precise insights into the human cognition where brands must appeal.

Methodology

Sentiment analysis technique was deployed for the study. It is based on the polarity of words and on the syntactical tree of the sentences being analysed. The system identifies idiomatic expressions, giving an interpretation to negations, modifying polarity of words basing on the related adverbs, adjectives, conjunctions or verbs, in particular taking in account-specific functional-logic complements (McCord, 1989; McCord, 1980). The study focuses on examining the tweets of the visitors where their sentiments and emotions have been reflected in the context of their travel experience to a destination of their choice. The tweets may also reflect electronic advocacy about the destination. The reason for mining and examination of these unstructured data and asymmetrical content is to gain insights for market intelligence to reshape the branding concept for a destination. A single dimensional measure of sentiment was developed with three possible attitudinal fields (positive-neutral-negative) which were used to estimate the twitter data over time with respect to a specific destination chosen for the study. A Kohonen Self-Organising-Map (SOM) was deployed for data visualisation that allows the researcher to understand the multi-attribute orientations of tweets. Sentiment analysis using SOMs ensures a multi-dimensional view of the sentiments as the mapping process classifies the new input vectors (Claster et al., 2013; Chandrashekar and Shoba, 2009; Shanmuganathan et al., 2009).

The unstructured Twitter data requires preprocessing to prepare the filtered data-frame for subsequent mining process. The tweets are selected, at random, with reference to a specific location selected for the study, namely, Bolpur-Santiniketan, a globally recognised tourist destination having attractions for ethnocultural legacy, folk-craft, heritage festivals, pilgrimage and above all the eternal association of Gurudev Rabindranath Tagore and his creation, Visva-Bharati. The tweets and the retweets reflecting the tourists' experience, sentiments and emotions in connection with their travel and stay in Bolpur-Santiniketan were selected. The selection process was followed by data cleansing whereby all associated characters, namely hashtags (#), usernames (@username), URLs (www.website.com), emoticons (emotional icons), emails and other random affixes/ prefixes were filtered out. Parsing process was deployed to fragment the tweeted document into words for subsequent analysis by differentiating the term and determining the syntactic structure associated with each word (Hermanto et al., 2019). The final step involved the normalisation of sentences by applying appropriate tokenisation and normalisation of words (changing every alphabet into lowercase). The Application Programming Interface (API) authentication, streaming process, tokenisation and cleansing of tweets and retweets for the study was done using Rapidminer. The Aylien Text Analysis was used for sentiment analysis and Analytic Solver was used for further text mining and clustering.

Previous empirical studies that used Social Networking Sites (SNSs), including Twitter network, focused on

assimilating unstructured data (Boyd and Crawford, 2012) to classify and form clusters. Bakshy et al. (2011) designed an algorithm to stream in Twitter data and filtered the words that best describe a phenomenon, which, was further confirmed by a study done by Barbagallo et al. (2012). Stepchenkova et al. (2013), opined that in 'grassroots' branding approach the visitors to the destination could be regarded as agents of that destination's branding effort and the description of the destination visited could contribute to the branding process.

From the previous research (Ha, 2019; Fang et al, 2019; Sarda et al., 2016 and Varghese and Paul, 2014) a standard set of destination descriptors were identified and simultaneously associated expressions based on travel experience in the destination under study (Santiniketan) were also obtained from the Twitter data which was cleaned using Atlas.ti. Appropriate tokenisation was taken up along with lemmatisation or stemming process. This process allowed the researcher to identify the 'digital traces' like reviews of destination infrastructure, ambience, the scope of activities, landscape, ethnocultural spread and travel experiences expressed in textual forms. The study also assessed the homogeneity of textual expressions conveyed, using tweets and micro-blogs, between other destinations having tourism significance and the destination chosen for the study, Santiniketan. The objective of this comparative assessment was to identify the fundamental emotional orientation (as per Qu et al., 2011; Blain et al., 2005; Morgan and Pritchard, 2002; Parrot, 2001 and Tomkins, 1984) of the visitors visiting Santiniketan with the standard set the emotional outburst via text narration. Table-2 represented the descriptors to identify the similarity of expressions about destination-specific identifiers.

Table-2: Standard destination descriptor Vs Destination descriptors for Santiniketan

Sl No.	Standard destination descriptor and associated terms	Twitter-based destination descriptors for Santiniketan
1	Serene	Tranquil, Serene
2	Picturesque	Traditional
3	Vibrant	Art
4	Hospitable	Folk
5	Facilities	Craft
6	Amenities	Philosophy
7	Traditional	Souvenir
8	Souvenir	Heritage
9	Heritage	Host community
10	Community	Natural
11	Logistic	Festivals
12	Indigenous	Ethno-cultural events
13	Architecture	Hospitality
14	Gloomy	Local food
15	Buzzing	Experiential Scope (activity)
16	Hospitality	Experiential
17	Cuisine	Peaceful
18	Dining	Tribal
19	Activity	Rural
20	Fun	Rustic
21	Thrill	
22	Adventure	
23	Modern	
24	Culture	
25	Ethnic	

Dataset Description

Researchers have mentioned about the difficulty in accessing relevant data from the internet for sentiment analysis (Mack, 2008; Carson, 2008; Claster et al., 2013) predominantly because of the structural issue and time consumption. Nevertheless, with advanced technology-driven social media operations data, pertinent for specific kind of study, may be accessed from micro-blogs, Twitter handles, Instagram and host of other social media by using appropriate API authentication. This study used Twitter API authentication to stream data from assorted twitter handles (both tweets and retweets) by using search-terms, namely, 'travel experience in Bolpur-Santiniketan', 'destination attractions of Bolpur-Santiniketan' etc. A dataset of 3980 tweets and retweets were obtained between December 1st, 2017 to November 30th, 2018. The dataset was cleaned for anonymous and random characters and those keywords were retained that are associated with the travel experience of the destination under study.

Data Analysis

The polarity of the tweets represents sentiment orientation and ranges from -1 (negative) to +1 (positive) with 0 as neutral. Subjective sentences generally refer to personal opinion, emotion or judgment, whereas objective refers to factual information. Subjectivity is also afloat, which lies in the range of [0, 1]. Table-3 represents the polarity and subjectivity of the tweets streamed for the study. It was found the intensity of positive retweet regarding sentiment orientation (polarity) and personal opinion (subjectivity) was maximum (2491) for the tweet "#RT @smash.memes: What an experience to share! Its 5 am and super-chill at Santiniketan! Got to attend the traditional Baitalikat UpasanaGriha of Visva-Bharati! Poush Mela begins for me https://…". The polarity and subjectivity were positive with a confidence level of 0.827 and 0.791, respectively, emphasising the cognitive association that the destination has managed to confirm.

Table-3: Polarity and Subjectivity of Tweets

Index		Polarity				Subjectivity		
1	Nominal Value	Neutral (0)	Positive (+1)	Negative (-)	Confidence	Subjective	Objective	Confidence
2	Absolute Count	2055	1580	345	0.827	2349	1631	0.791
3	Fraction	0.516	0.396	0.088		0.588	0.412	

Fifteen tweets, with maximum retweets (⩾ 500), were identified having images of the destination (Santiniketan) sharing the experiential nature of the trips based on topographical features and the nature and scope of tourism products and activities to assess common sentiments. A network analysis was done followed by assessing the code co-occurrence table (with C coefficient) to identify the similar expressions shared. Atlas.ti was used to code the images shared through tweets and retweets and was examined for the network to understand the commonality of the tourists' perception about the destination regarding topographical attractions and activity scope. The shared visual sentiments were reflective of the destination attributes, namely, heritage, ethnocultural event, folk-art, pristine and tranquil environment, traditional art, souvenirs etc.

The codes were grouped into smart-codes based on the similarity of visual expressions into (a) topography-driven tourism and (b) experiential tourism (factored on aspiration and scope) to generate a code co-occurrence table (Table-4). The results revealed that sentiments associated with 'traditional art' co-occurred significantly with topography-driven tourism (C=0.56) and experiential tourism (C=0.44). Sentiment associated with 'heritage' was also found to be significantly co-occurring with topography-driven tourism (0.43). Sentiments associated with traditional folk art, pristine environment and natural landscape were found to be moderately co-occurring with topography-driven tourism and experiential tourism. These findings were significant inputs for the DMOs to communicate the brand attributes for optimising travel experience.

Table-4: Code Co-occurrence table

Sentiment clusters	**Topography-based tourism Gr=11**	Coefficient	**Experiential tourism Gr=10**	Coefficient
	count	**C**	**count**	**C**
◯Amar Kutir (Gr=1)	1	0.09	1	0.10
◯Ethno-cultural event (Gr=3)	2	0.27	2	0.28
◯Folk artist (Gr=1)	2	**0.20**	2	**0.22**
◯Glimpse of Visva-Bharati (Gr=4)	1	0.07	1	0.08
◯Heritage (Gr=9)	6	**0.43**	5	**0.36**
◯Legacy of Rabindranath Tagore (Gr=4)	1	0.07	1	0.08
◯Literature & Art (Gr=3)	0	0.00	0	0.00
◯Natural landscape (Gr=3)	3	0.09	3	0.10
◯Pristine (Gr=2)	3	**0.30**	3	**0.33**
◯Tranquility (Gr=4)	3	**0.25**	3	**0.27**
◯Serene environment (Gr=1)	1	**0.27**	1	**0.30**
◯Souvenir (crafts etc.) (Gr=2)	2	**0.28**	2	**0.20**
◯Traditional Art (Gr=3)	5	**0.56**	4	**0.44**
◯Traditional folk art (Gr=2)	3	**0.30**	3	**0.33**

To facilitate visualising the data beyond one-dimensional spread of positive-neutral-negative measure, a series of Self Organizing Maps (SOM) were generated. The data were preprocessed for SOM algorithm, which included (a) development of a matrix of weighted sentiment descriptors or tokens and (b) filtration of those tokens to generate a lexicon of words related to travel-sentiment. A lexicon of 187 words was produced. Rapidminer was used for classification of sentiments based on SOMs. The one-dimensional measure of sentiment (positive-neutral-negative) was used to partition the datasets. The classifier allowed to further code the lexicon of travel-sentiment words into two major sentimental associations connected with the destination: (a) topography-driven tourism and (b) experiential tourism. SOMs provides a multi-dimensional view of the expressed sentiments compared to the single-dimensional polarity and subjectivity views. The five SOMs of filtered word-tokens clustered according to the similarity of expressions and crossed with two identified sentimental groups, namely a) topography-driven tourism and b) experiential tourism. The five clusters resembled the notion of network analysis was done earlier: a) heritage, b) traditional folk-art, c) serene and tranquil environment, d) ethnocultural events and e) souvenirs. Cluster-1 represented the distribution of the descriptor 'heritage' along the perceived similar sentimental associations. Notions of experiential tourism were supported with clusters related to 'legacy of Gurudev Rabindra Nath Tagore', 'innovation', 'education' etc. Cluster-2 used the tweets containing the descriptor 'traditional folk-art' and was found significantly associated with the sentimental group of topography-driven tourism. Cluster-3 and Cluster-5 used the tokens 'serene &

tranquil environment' and 'souvenirs' and were found to share experiential tourism as a sentimental group. Cluster-4 represented the SOM of the token 'ethnocultural events' showing a shared relationship with both the sentimental groups.

Conclusion

Brand elements facilitate the process of consumer brain mapping and play a key role in building brand equity (Farhana, 2012). Research, to a large extent, on assimilating brand elements with the core brand offering was limited to the use of symbols, logos, images, jingles, slogans, characters, metaphors, packages and signages (Keller, 2003). The human sentiments were layered covertly underneath these elements; however explicit use of sentiments as brand elements were not empirically examined. One of the earlier studies by Lodge (2006) suggested that destination branding embedded experiences of interacting with destinations and were mediated by a range of everyday texts through which the physical landscape was presented (Gibson and Davidson, 2004). The present study reinforced and expanded the notion of Lodge (2006) that branding of destinations essentially embeds human sentiments manifested based on experiential travelling. The study also lends support to the findings of Hankinson (2009) as the results revealed that the need for destination branding to extend beyond image-centric phenomenon to emotion and sentiment oriented offer.

The evocation of sentiments of the travellers are clustered representations of the complex network of the travel and tourism industry. The issue of branding a destination, thus, is also complicated as the brand elements are spread over the network. The classical theories of consumer buying behaviour (Howard-Sheth, 1969; Engel-Kollat-Blackwell, 1968; Engel-Blackwell-Miniard, 1995 etc.) are finding it difficult to explain the decision making process in connection with the intangibles. Researchers (Belger et al. 2014) were hinting towards deep-rooted neuro-sensory predispositions while endorsing service brands. The study mined the Twitter network of the travellers concerning a specific destination (Santiniketan) to assess the possible human sentiments integrable within the destination's (Santiniketan) brand architecture. The polarity and subjectivity analysis revealed a uni-dimensional view of tourists' sentiments, connected with the destination, with a positive inclination. Two specific groups of sentiments, shared across twitter networks, could be identified, namely, 'topography-driven tourism' and 'experiential tourism'. While sentiments grouped into 'topography-driven tourism allowed' the researcher to identify the specific physical attributes that could be used to brand destinations, the sentiments grouped into 'experiential tourism' offered a set of emotional attributes for branding destinations. The findings expanded the previous focus on abiotic components as brand elements (Keller, 2003; Hanna and Rowley, 2011) and supported the postulation of Hankinson (2004a) that experiential attributes of a place could serve as an intangible brand element.

To explore a multi-dimensional view, the study used the concept of Self Organizing Maps (SOMs) or Kohonen Maps, which like other artificial neural networks, operate with training and mapping models. Training builds the map using input examples, while mapping automatically classifies a new input vector. The study identified a set of five (5) SOMs based on identified weighted descriptors or tokens from the corpus of tweets. The sentimental association with the destination was further clustered into two groups. The results revealed that Santiniketan, as a destination, was bonded with the tourists' psyche with the notion of its 'serene and tranquil environment', 'pristine nature', 'Visva-Bharati and the legacy of Rabindranath Tagore' and 'rustic glamour' (topography-driven tourism). Further, the study converged on the associated perception of experiential tourism based on 'heritage', 'practice of traditional art', 'presence of ethnocultural festivals' and 'scope to collect souvenir'. Kavaratzis (2002) and Baker (2007) identified infrastructure and physical attributes, respectively as tangible brand components in the context of destination branding. The present study consolidated these findings from the human perspective as the clustered sentiments, namely, 'topography-driven tourism' was identified as a potent brand element. The second cluster of sentiments, namely, 'experiential tourism' was also affirmed as a potent brand element, which reconfirmed the findings of Hankinson (2004a) and Hanna and Rowley (2011). Hence, the study affirmed that developing a destination brand must essentially embed the experiential element (Kocak et al., 2007; Pike and Page, 2014; Ibanez and George, 2017).

The approach of the study was in line with the approaches made by Grandi and Neri (2013) and Taboada et al. (2011) whereby human sentiments were assessed to understand the probable impact of the same on the formulation of strategies. The present study also extended the findings of Dickinger and Lalicic (2015) which illustrated how tourists connected themselves in an emotional manner to a city and how it varied across different touristic settings (restaurants, sights

and accommodations). The findings of the present study revealed the emotional connection of the tourists with the destination visited (Santiniketan) revealed through sharing of experience connected with the trip across social network platform (twitter), both, in the form of textual narrations and graphical images.

The study had implications for the marketers too. Marketers are finding it extremely challenging to penetrate the cognitive layers of the consumers and place their brand essence. This paper stands on these premises to examine the input-value of human sentiments, surfacing as unstructured and asymmetrical data over the social media (e.g. Twitter), in the context of destination branding. The Destination Marketing Operators (DMOs) could modify or steer the user-generated content (UGC), shared across the social networking platforms, in brand building operations. The DMOs could track Twitter micro-blogs to trace potential and recent travel motivations and sentiment related to destinations, which can be used for better and precise stimuli development.

The study had few limitations. It was conducted at a specific geospatial location with certain unique destination attributes which could generate both hedonic and utilitarian cognition. The study accessed only one specific SNS, namely Twitter, which did not have enough trends of video sharing, thereby limiting the share of sentiments through static contents. Mining sentiments is finding its application in the tourism and hospitality industry and has demonstrated its robustness to examine large unstructured datasets for trend-analysis, which, in turn, may predict tourists' choice and avoidance of destinations. Future research should focus on the issues of reliability and validity of the sentiments measuring instrument as it deals with unstructured data. Sentiments can be correlated with structured data obtained from the same traveller to assess whether thoughtful renditions are significantly converging on emotional outbursts. However, the study provided an alternative route to the DMOs to stimulate evocation, predisposition and attitude formation through brand elements as stimuli.

Reference

Abdullah, N. S. D. and Zolkepli, I. A. (2017). "Sentiment Analysis of Online Crowd Input Towards Brand Provocation in Facebook, Twitter and Instagram." Proceedings of the International Conference on Big Data and Internet of Thing: BDIOT2017, 67-74, doi: 10.1145/3175684.3175689

Andersen, P. H. (2005). "Relationship marketing and brand involvement of professionals through web-enhanced brand communities: The case of Coloplast." *Industrial Marketing Management,* 34(1), 39-51. doi:10.1016/j.indmarman.2004.07.007

Algesheimer, R., et al. (2004). "Interplay between brand and brand community: Evidence from European car clubs." *Marketing,* 38(7), 850-868.

Baker, B. (2007). *Destination branding for small cities: The essentials for successful place branding*. Portland, OH: Creative Leap Books.

Baksi, A. K. (2016). "Destination bonding: Hybrid cognition using Instagram," *Management Science Letters,* 6(1), 31-46, doi: 10.5267/j.msl.2015.12.001

Baksi, A. K. (2017). "Craftourism: Development and validation of a scale to measure visitors' behavioural pattern based on identified travel motives." *Tourismos*, 12(1), 101-125.

Baksi, A. K. (2015). "Moderating effects of CRM performance: relationship inertia and switching cost in banking industry." *SCMS Journal of Indian Management,* 12(4), 19-36.

Bakshy, E., et al. (2011)." Everyone's an influencer: quantifying influence on twitter. In I. King, W, Nejdl, H. Li (Eds.), "*Proceeding of the forth International Conference on web search and web data mining (WSDM) 2011* (65-74). Hong Kong, China.

Barbagallo, D., et al. (2012). "An empirical study on the relationship between twitter sentiment and influence in the tourism domain. In M. Fuchs, F. Ricci, and L. Cantoni (Eds.)," *Proceeding of the international conference on Information and communication technologies in tourism 2012* (506-516). Helsingborg, Sweden.

Belger, A., et al. (2014). "Imaging the Neural Correlates of Behavioral and Cognitive Shifts in Autism," *Comprehensive Guide to Autism*, edited by V. B. Patel, V. R. Preedy, and C. R. Martin. New York, NY: Springer New York.

Bigné, J. E. et al. (2001). "Tourism Image, Evaluation Variables and After Purchase Behaviour: Inter-Relationship." *Tourism Management*, 22, 607-616.

Blain, C., Levy, et al. (2005). "Destination branding: insights and practices from destination management organisations." *Journal of Travel Research*, *43*, 328-338.

Boyd, D. and Crawford, K. (2012). "Critical Questions for Big Data." *Information, Communication & Society*, 15(5), 662–679. doi:10.1080/1369118X.2012.678878

Camilleri, M.A. (2017). "The promotion of responsible tourism management through digital media." *Tourism Planning and Development*, 15(6), 653-671.

Chan, N. L. and Denizci Guillet, B. (2011). "Investigation of social media marketing: How does the hotel industry in Hong Kong perform in marketing on social media websites?" *Journal of Travel & Tourism Marketing*, *28*(4), 345–368.

Chandra Shekar, B.H. and Shoba, G. (2009). "Classification of documents using Kohonen's self-organising map." *Journal of Computer Theory and Engineering*, 1(5), 1793–8201.

Chon, K. (1990). "The role of destination image in tourism: A review and discussion." *Tourist Review*, 13, 2-9.

Claster, W.B., et al. (2013). "Tourism, Travel and Tweets: Algorithmic Text Analysis Methodologies in Tourism." *Middle East Journal of Management,* 1(1), 81-99.

Dickinger, A. and Lalicic, L. (2015). "An analysis of destination brand personality and emotions: a comparison study." *International Journal of Tourism and Technology*, 15(4), 317-340. doi: 10.1007/s40558-015-0044-x

Dimitris, K., et al. (2003). "The potential of virtual communities in the insurance industry in the UK and Greece." *International Journal of Information Management,* 23(1), 41-53. doi: 10.1016/S0268-4012(02)00067-1

Engel, J. F., et al. (1995). *Consumer behavior*. Fort Worth, TX: Dryden Press.

Engel, J. F., et al. (1968). *Consumer behaviour*. New York, NY: Holt, Rinehart and Whinston.

Fang, Y. et al.. (2019). "Visual place recognition based on multilevel descriptors for the visually impaired people." Proceedings of SPIE 11158, Target and Background Signatures V, 1115808 (retrieved on 05/08/2019); doi: 10.1117/12.2532524

Farhana, M. (2012). "Brand Elements Lead to Brand Equity: Differentiate or Die." *Information Management and Business Review*, 4(4), 223-233.

Gartner, W. C. (2014). "Brand equity in a tourism destination." *Place Branding and Public Diplomacy*, 10 (2), 108-116.

Ghiassi, M., et al. (2013). "Twitter Brand Sentiment Analysis: A Hybrid System Using N-Gram Analysis and Dynamic Artificial Neural Network." *Expert Systems with Applications*, 40 (16), 6266–6282.

Gibson, C. and Davidson, D. (2004). "Tamworth, Australia's country music capital: Place marketing, rurality and resident reactions." *Journal of Rural Studies*, 20(4), 387–404.

Gonzalez-Rodriguez. M. R. et al. (2014). "Monitoring travel-related information on Social Media through sentiment analysis." UCC '14 Proceedings of the 2014 IEEE/ACM 7th International Conference on Utility and Cloud Computing, 636-641.

Gursoy, U.T., et al. (2017). "Social Media Mining and Sentiment Analysis for Brand Management." *Global Journal of Emerging Trends in e-Business, Marketing and Consumer Psychology,* 3(1), 497-511

Grandi, R. and Neri, F. (2013). "Sentiment Analysis and City Branding." *Advances in Intelligent Systems and Computing*, 241, 339-349, doi: 10.1007/978-3-319-01863-8_36.

Graves, J. 2016. "What Can Social Media Intelligence Do for Your Brand. [Web page] American Marketing Association." Retrieved from: https://www.ama.org/resources/Best-Practices/Pages/What-Can-Social-Media-Intelligence-Do-for-Your-Brand.aspx on 16th July, 2019.

Ha, L. (2019). "Key attributes and descriptors of Vietnam destination image: A content analysis of online English post-trip-reports." *European Review of Service Economics and Management,* 1(7), 63-115

Hanna, S. and Rowley, J. (2011). "Towards a strategic place brand-management model." *Journal of Marketing Management*, 27(5-6), 458-476, doi:10.1080/02672571003683797.

Hankinson, G. (2004a). "Relational network brands: Towards a conceptual model of place brands." *Journal of Vacation Marketing*, 10(2), 109–121.

Hermanto, D. T., et al. (2018). "Twitter Social Media Sentiment Analysis in Tourist Destinations Using Algorithms Naive Bayes Classifier." *Journal of Physics: Conference Series,* 1140, 1-8, doi:10.1088/1742-6596/1140/1/012037.

Ho, C. W. and Wang, Y. B. (2015). "Re-purchase intentions and virtual customer relationships on social media brand community." *Human-centric Computing and Information Sciences, 5(*1), 5-18.

Howard, J. and Sheth, A. (1969). *The theory of buyer behaviour*. New York, NY: John Wiley & Sons.

Ibanez, M. A. and George, B. P. (2017). "The evolution of destination branding: A review of branding literature in tourism." *Journal of Tourism, Heritage & Services Marketing*, 3(1), 9-17.

Kavaratzis, M. (2004). "From city marketing to city branding: Towards a theoretical framework for developing city brands." *Place Branding* 1(1), 58–73.

Keller, K. L. (2003). "*Strategic brand management: Building, measuring, and managing brand equity"* (2nd ed.). *Upper Saddle River*, NJ: Prentice Hall.

Koçak, A., et al. (2007). "Consumer brand equity in a cross-cultural replication: An evaluation of a scale." *Journal of Marketing Management*, *23*(1-2), 157-173.

Leung, D., et al. (2013). "Social Media in Tourism and Hospitality: A Literature Review." *Journal of Travel & Tourism Marketing*, 30 (½), 3-22.

Li, X. and Wang, Y. C. (2011). "China in the eyes of western travelers as represented in travel blogs." *Journal of Travel & Tourism Marketing*, *28*(7), 689–719.

Lodge, C. (2006). "Opinion pieces: How has place branding developed during the year that place branding has been in publication?" *Place Branding and Public Diplomacy*, 2(1), 6–17.

McCord, M.C. (1989). "Slot Grammar: A System for Simpler Construction of Practical Natural Language Grammars." *Natural Language and Logic*, 15(4), 118–145.

McCord, M.C. (1980). "Slot Grammars." *American Journal of Computational Linguistics,* 6(1), 31–43.

Morgan, N. and Pritchard, A. (2002). "Contextualising Destination Branding." In by N.Morgan, A. Pritchard, and R. Pride (Eds.), *In destination branding: Creating the unique destination proposition* (11-41). Oxford: Butterworth-Heinemann.

Muniz, A. M. and O'guinn, T. C. (2001). "Brand community." *Journal of Consumer Research,* 27(4) (March 2001), 412-432. doi: 0093-5301/2001/2704-0002.

Noone, B. N., et al. 2011). "Social media meets hotel revenue management: Opportunities, issues and unanswered questions." *Journal of Revenue and Pricing Management*, 10(4), 293–305.

Pace, S., et al. (2007). "*Consumer Tribes." Butterworth, Heinemann*, Oxford, UK.

Parida, B. B. and Baksi, A. K. (2013). "CRM performance: Indexing approach." *SCMS Journal of Indian Management,* 10(2), 56-77.

Parrott, W. (2001). "*Emotions in Social Psychology*," Philadelphia: Psychology Press.

Pathak, X. and Pathak-Shelat, M. (2017). "Sentiment analysis of virtual brand communities for effective tribal marketing." *Journal of Research in Interactive Marketing,* 11(1), 16-38. doi: 10.1108/JRIM-09-2015-0069

Pike, S. and Page, S. J. (2014). "Destination marketing organisation sand destination marketing: A narrative of the literature." *Tourism Management*, *4*, 202-227.

Pozin, I. (2014). "Small Business Expert: Answers to Your Five Biggest Social Media Branding Questions." Forbes. Retrieved from: http://www.forbes.com/sites/ilyapozin/2014/11/07/small-business-expert-answers-to-your-five-biggest-social-media-branding questions/ on 16th July, 2019.

Qu, H., et al.. (2011). "A model of destination branding: Integrating the concepts of the branding and destination image." *Tourism Management*, 32(3), 465-476.

Rheingold, H. (1993). "*The Virtual Community: Homestanding on the Electronic Frontier."* Addison Wesley, Reading, MA.

Ritchie, J. R. B. and Ritchie, R. J. B. (1998). "The Branding of Tourism Destinations: Past Achievements and Future Challenges." Proceedings of the 1998 Annual Congress of the International Association of Scientific Experts in Tourism, Destination Marketing: Scopes and Limitations, edited by Peter Keller. Marrakech, Morocco: International Association of Scientific Experts in Tourism, 89–116.

Sarda, S., et al. (2016) "Semantic place descriptors for classification and map discovery." arXiv preprint arXiv:1601.05952 (retrieved on 12/04/2019)

Shanmuganathan, S., et al. (2009). "*Unsupervised Artificial Neural Netsfor Modeling the Effects of Climate Change on New Zealand Grape Wines."* Retrieved from:http://www.geo-informatics.org/publications/MODSIM09_Unsupervised_ANN_Shanmuganathan. pdf on 15th May, 2019.

Stepchenkova, S., et al. (2013). "Grassroots branding with Twitter: Amazing Florida." *Information and Communication Technologies in Tourism,* 144-156, Springer Berlin, Heidelberg.

Tapachai, N. and Waryszak, R. (2000). "An examination of the role of beneficial image in tourist destination selection." *Journal of Travel Research*, 39(1), 37-44.

Thomaza, G.M., et al. (2016). "Content Mining Framework in Social Media: A FIFA World Cup 2014 Case Analysis." *Information & Management*. Article in Press.

Tomkins, S. S. (1984). "Affect theory." In K. R. Scherer and P. Ekman (Eds.), *Approaches to emotion* (163-195). Hillsdale, NJ: Erlbaum

Williams, R. L. and Cothrel, J. 2000. "Four smart ways to run online communities." *MIT Sloan Management Review,* 41 (4), 81-91.

Wrona, K. (2014)." Neuromarketing – Its Role in Building of Brand, Introduction of Products Innovation and Advertising Messages." *Marketing of Scientific and Research Organizations,* 1(11), 3-22.

Varghese, B. and Paul, N. I. J. (2014)." A literature review on Destination Management Organization (DMO)." *ZENITH International Journal of Multidisciplinary Research*, 4 (12), 82-88.

****

Export Potential of India and China with Ethiopia

R. S. Bhardwaj
Assistant Professor
Department of Commerce
Satyawati College, University of Delhi
Email: bhardwajsr60@gmail.com

Bhamini Garg
Assistant Professor
Department of Commerce
Satyawati College, University of Delhi
Email: gargbhamini@satyawati.du.ac.in

Abstract

The study examines the export potentiality of India and China with Ethiopia. It focuses on export Potentiality with respect to 20 commodities from 2012-13 to 2016-17. Export potentiality is calculated using Revealed Comparative Advantage (RCA) of 20 commodities which are used to calculate Revealed Symmetric Comparative Advantage (RSCA) to show reliable results. The study shows that India and China have comparative advantage and disadvantage in the export of respective commodities to Ethiopia. Some commodities have more comparative advantage as compared to others. It is concluded that India has high export potentiality as compared to China with Ethiopia.

Keywords: *Revealed Comparative Advantage, Revealed Symmetric Comparative Advantage, Export Potential, Commodities*

Ethiopia is Africa's oldest independent country, strategically located in the horn of Africa, at crossroads between Africa, the Middle East, and Asia. To its north and northeast lies Eritrea, to its south lies Kenya, to its north-west lies Sudan, to its south-west lies South Sudan and to the east and south-east lies the Djibouti and Somalia. Over the last ten years, the country has achieved double-digit growth in real terms.

It has a population of around 104.34 million as on 2017 making it the second most populous African country and having a growth rate of approximately 2.5% as per 2015 estimates. The country is among the least urbanised country in the world with approximately 80.08% of the total population living in rural areas whilst approximately 19.92% living in urban areas, but the pace of growth in urban population is 4.79% as per 2016 estimates. As per the data of 2017, a large chunk of the population of around 70.5% is dependent on agriculture for its livelihood while 8.4% and 21.1% of the total population is dependent on the industry (mainly comprises of Small and Medium Enterprises) and services (comprises of social services, trade, hotels and restaurants, finance, real estate, and transport and communications) respectively.

In the past, Ethiopia has experienced severe droughts which when combined with poor farming practices, including major dependence on rain-fed agriculture has contributed to negative economic growth, but the picture has changed today. Due to several factors such as political stability with sustained peace and security, committed government for protection and promotion of investment, favourable economic as well as market factors and growing infrastructure has paved the way for Ethiopia to become a preferred destination for foreign direct investment and emerging manufacturing hub in years to come. Many potential investors are now eager to exploit the rich opportunities that Ethiopia offers.

The dependence on agriculture as a percentage of GDP has decreased significantly, and space has been occupied by growth in services and the growing manufacturing industry.

With regard to foreign trade, the leading exports of the country cover coffee, oilseeds, gold, pulses, horticulture, live animals, growing manufacturing export: textile and apparel, leather and leather products etc. Owing to weak agricultural exports and increased demand for capital import, its current account deficit shall remain wide in 2018, but a certain relief can be expected due to recent 15% devaluation in its currency as well as government's efforts for substantial investment in power infrastructure so as to diversify exports away from only agriculture while the cheap power will additionally provide a timely boost to Ethiopia's emerging manufacturing sector.

As per the estimates of IMF, the current account deficit will narrow to a whopping 7.4% of GDP in 2018 from the large 11.6% of GDP level in 2015.

Despite several weaknesses such as low level of financial inclusion, few sectors heavily influenced by government policy. Ethiopia has a positive growth outlook. It is yet to unlock its vast potential to strengthen its position in the world market.

As regards, India-Ethiopia bilateral relations, it was in July 1948, that they first established diplomatic relations. The relationship between the two countries has a long history of 2000 years ago in respect of trade and people to people contact. India started to trade silk, spices, ivory and gold etc. back in the 6th century with the Ethiopians. In the latter half of the nineteenth century, a fairly large number of traders and artisans from India settled in Ethiopia. India's relations with Ethiopia have been traditionally close and friendly which have passed through various phases largely in response to the change in regimes in Ethiopia. Ethiopia appreciates India's understanding of the problems of the countries of Africa, its support to their economic development and sensitivity to their needs. It values India as an important partner in its developments efforts. Since the last decade, concerning infrastructural projects in Ethiopia, the India-Ethiopia relations have grown significantly. Bilateral trade has been increasing year on year between India and Ethiopia. Major items of exports from India comprises of drugs and pharmaceuticals, iron and steel products which are semi-finished in form, manufactures of metal, machinery and its instruments etc. The major items of imports by India from Ethiopia comprises of vegetables and seeds, stones-precious and non-precious, pulses, leather and spices. More than 540 Indian companies in Ethiopia are investing in several sectors such as Information and Communication Technology, textiles and cotton, manufacturing, agriculture, consultancy, education, pharmaceuticals and healthcare etc. They have maintained their position and remain in the league of top three foreign investors in Ethiopia. Time and again, newer and newer Indian MNC's are making their mark in Ethiopia. There are various potential areas of making an investment in Ethiopian

economy viz. sugar industry, agriculture and food-processing, leather and leather products, textile and garments, chemicals industry, engineering industry, tourism, construction, mining etc. and some of the leading non-agricultural sectors of Ethiopia are renewable energy, information communication and technology, construction, tourism and aviation. The sub-sectors such as mobile banking and outsourcing services, software related to the website, technology, development of software for e-government services etc. offers vast investment opportunities. India provides long term concessional credit to Ethiopia and is one of the largest from India in Africa, in sectors particularly rural electrification, sugar industry and railways. Indian companies from public and private sectors such as MSP Steel & Power Limited, JMC Projects (India) Limited , Mahindra Consulting Engineers Limited, Tech Mahindra Ltd. etc. bagged various contracts in the sectors such as infrastructure that also includes consultancy works with respect to roads, power etc.

As regards, China-Ethiopia bilateral relations, it started about 100 B.C which were made official when they opened embassies in their respective capitals beginning from 1972. Over the last two decades, the bilateral trade relationship along with socio-cultural relationship has reached a greater level benefiting both the sides. Being located in the Horn of Africa, Ethiopia has qualified to be part and parcel of Chinese developmental projects in Africa. Both the countries are leading in terms of global economic growth, and specifically, Ethiopia has been witnessing very fast economic growth. China provided over $12 billion in loan finance (usually tied to infrastructure projects undertaken by Chinese firms) between 2000 and 2014. Though there is growing investment by China in the Ethiopian economy, imports of cheap consumer goods from China greatly exceeded the exports from Ethiopia to China as per the estimates of 2015. Ethiopia has been focusing on infrastructure which has created numerous opportunities for Chinese construction firms and for which China has also provided large loans to Ethiopia, of which some are concessional. The exports from China to Ethiopia have been on an increasing trend, and the Ethiopian government has encouraged imports, purchasing Chinese equipment and supplying it to local construction and manufacturing firms on a lease-to-buy basis. Trade continues to grow rapidly with Ethiopian exports encouraged through special quota and tariff arrangements on many goods.

In this study, an attempt will be made to draw the trend and changing pattern of export of commodities to Ethiopia by India as well as China for the past 10 years as well as measure the product export potential of India and China with Ethiopia.

Literature Review

In order to measure the performance of international trade of a country, several studies have been undertaken so far at the national and international level. Some of these measured the impact of foreign trade on the economic growth of a country. Some of the researchers focused on predicting the export of a country on the ground of implementing the free trade agreements. A few of them measured the performance of export by using the concept of Revealed Comparative Advantage (RCA) (Balassa, 1965). A brief review of research work in the form of PhD theses and reports done by academicians and researchers is given below.

Jun, Jikun and Huanguang (2005) have used the GTAP model to investigate how the establishment of a China-Australia free trade area would influence the two countries' national income, agriculture, and industry. It was found that after the establishment of a China-Australia free trade area, Australia's national income was expected to increase by 0.2%, while China's national income would grow only 0.1%. The increase in Australia's national income would come from agriculture and industry, with the former contributing two times more than the latter while an increase in National Income of China would be solely attributed to its industrial growth. The study by Haojun, Shujin and Hao (2009) used a computable general equilibrium (CGE) approach, and it revealed that establishing a China-Australia free trade area could result in declines in the output of most Chinese agricultural products and gap in growth rates of agricultural imports and exports between the two countries, which will further widen China's trade deficit in agricultural goods with Australia. Singh (2014) made an attempt to analyse the trend and composition of foreign trade since 1991 and also to analyse the impact of trade on the economic growth of India. The study reveals that though the total exports and imports both have increased the growth rate of imports is more than the growth rate of exports. It is also found that manufactured goods comprise a major portion of the export goods, while petroleum and crude products contribute a major portion of the imported goods. The study also reveals that import has a negative influence on economic growth, while export and economic openness are positively related to the economic growth of India. Richardson and Zhang (1999) in their research paper on RCA used such index which was developed by Balassa for the U.S trading partner. They tried

to analyse the patterns of variation across time, sectors and regions and over time they were found to be different across different parts of the world as also for different levels of aggregation of the export data. Influence of factors such as geographical proximity of trading partners and per capita income varies over time and across sectors/sub-sectors were accounted for any differences. In the study done by Yue (2001), it was advocated with the help of RCA index that the export pattern of China has been changed in order to coincide with its comparative advantage. In addition to this, it was held that the distinct differences in export patterns appear between the coastal regions and the China interiors. Bender and Li (2002) did a study for the period 1981-1997 in respect of East Asian and Latin American regions to understand the structural performance and shift of exports as well as their RCA. The authors studied the relation if exists between changes in export pattern among different regions along with the shifts in comparative advantage between the regions. Fert and Hubbard (2002) did a study on Hungarian agriculture vis-à-vis EU to assess its competitiveness with the help of major indices of RCA which were categorised into cardinal, ordinal and dichotomous. It was advocated in the study that the indices were less cardinal but were useful as a binary measure of comparative advantage. Hinloopen and Marrewijk (2004) in their study on RCA used this Index to find out the pattern of China's RCA and its implications in terms of competition for other exporting countries. Batra and Khan (2005) in their study analysed the comparative advantage of India and China with the help of RCA, and it was found that the pattern of comparative advantage varies at different levels of product disaggregation. In the case of India, Other than cotton, no other sector in India that ranks among the top ten according to the RCAI value retained its comparative ranking at the disaggregated level. For China, others made textiles, sets, worn clothing was so positioned. Simultaneously, there were also some sectors where either of the countries may be disadvantageously placed at the aggregate level but may enjoy a comparative advantage at the constituent product level. Padmasani (2007) in her PhD thesis on Export Performance of Indian Seafood Industry with special reference to Shrimp which was conferred to a period of 15 years from 1985-86 to 1999-2000, analysed the trend and composition of export of marine products with special attention to shrimp. Major findings of this research were: For India, the fish production comes from both marine and inland sectors. There was a significant uptrend in production of both the sectors. But during the recent period, the growth rate for both the fisheries had come down. There was a seasonal pattern in marine products export whereas it was not strictly observed in Shrimp export. Indian marine products, including Shrimp are exported through 11 major parts in the country. It is found that Indian marine products were exported to 64 countries in the world as per the data of MPEDA. Fluctuations in the exchange rate seemed to have an effect on the export of Shrimp to three major markets. Except the USA, the impact of the exchange rate was significant in the other two markets. Munir and Sultan (2016) assessed the export performance of Pakistan with countries sharing a border with it. The time period was in 2014. They followed the Revealed Symmetric Comparative Advantage (RSCA) Index of Datum et al.to measure the export performance. They pointed out that Pakistan exports around 160, 155, 133 and 60 commodities at the three-digit level of SITC classification to Afghanistan, China, India and Iran respectively. In addition to this, it was found that Pakistan has the highest and marginal comparative disadvantage in more than 50% of these commodities exported to them. Singh and Lal (2013) in their paper focused on Export performance and competitiveness of the Indian textile industry during the period of 2009-2011 with the rest of the world. Export competitiveness was calculated with the help of RCA of ten different commodities, and it was shown that some commodities are more competitive compared to other commodities. Cui and Chen (2016) in their study investigated the textile and apparel (TA) trade between China and Australia by calculating trade indices, based on an overview of the status quo. The paper used RCA method to analyse TA trade advantage between China and Australia. Then, factors that affect China's TA exports to Australia were analysed in terms of demand effect, structural effect, and competitiveness effect. The results showed that the concentration of Australia's TA imports from China was high, due to the low competitiveness of its TA goods. Thus Australia's demand matches China's exports well. Empirical analysis also suggested that signing a China-Australia Free Trade Agreement (FTA) will increase China's TA exports to Australia, boost China's domestic production and promote employment.

After going through the above literature reviews, it is revealed that no study has been conducted so far to measure the export potential of India in Ethiopia where there may be lots of trading opportunities for India. As per the World Bank report, Ethiopia is the second most growing country in Africa continent. As per IMF report, China is in the second position in making the export and investment to Ethiopia. Thus, in this scenario, it becomes very important and significant to conduct a study for measuring the export

potential of India in Ethiopia as compared to China. The present study aims to analyse the trend and pattern of the export of India and China in Ethiopia along with measuring the India's export potential in Ethiopia in comparison to China.

Research Methodology

A. Research Questions

1. What is the trend and pattern of export of commodities to Ethiopia by India and China?
2. Is the export potential of India and China at the same level with reference to Ethiopia?

B. Research Objectives

1. To understand the historical background of Ethiopia's economic and political ties with India and China.
2. To analyse the trend and changing pattern of export of commodities to Ethiopia by India as well as China for the past 10 years.
3. To measure the product export potential of India and China with Ethiopia.
4. To provide recommendations on the basis of study for availing better opportunity of increasing the export of commodities to Ethiopia by India and China.

C. Sample Size

The sample size of study consists of 20 commodities out of 99 commodities of 2 Digit HS Code Level randomly selected and which are common to both the countries i.e. India and China, exported to Ethiopia by both of these. The list of the 20 commodities under study is as follows:

Table 1
List of 20 Commodities

Product Code	Product
15	Animal or vegetable fats and oils and their cleavage products; pre. Edible fats; animal or vegetable waxex.
19	Preparations of cereals, flour, starch or milk; pastrycooks' products
36	Explosives; pyrotechnic products; matches; pyrophoric alloys; certain combustible preparations
17	Sugars and sugar confectionery
33	Essential oils and resinoids; perfumery, cosmetic or toilet preparations
25	Salt; sulphur; earths and stone; plastering materials, lime and cement
21	Miscellaneous edible preparations
91	Clocks and watches and parts thereof
74	Copper and articles thereof
65	Headgear and its parts thereof
95	Toys, games and sports requisites; its parts and accessories thereof
56	Wadding, felt and nonwovens; special yarns; twine, cordage, ropes and cables and articles thereof
37	Photographic or cinematographic goods
35	Albuminoidal substances; modified starches; glues; enzymes
58	Special woven fabrics; tufted textile fabrics; lace; tapestries; trimmings; embroidery
28	Inorganic chemicals; organic or inorganic compounds of precious metals, of rare -earth metals, ...
49	Printed books, newspapers, pictures and other products of the printing industry; manuscripts, ...
42	Articles of Leather; saddlery and harness; travel goods, handbags and similar containers; articles...
34	Soap, organic surface-active agents, washing preparations, lubricating preparations, artificial ...
10	Cereals

A. Sources of Data

Following secondary sources of data were used to conduct the study:

a) Trade Map-International Trade Statistics
b) Ministry of Commerce and Industry
c) The Embassy of India-Ethiopia and Djibouti and; People's Republic of China in the Federal Democratic Republic of Ethiopia
d) Reports of World Bank, UNCTAD, KPMG, Deloitte, Ethiopian Investment Commission
e) Working paper series of Export-Import Bank of India
f) Wikipedia
g) IMF World Economic Outlook Database
h) Encyclopedia Britannica
I) BBC and other related websites like World Integrated Trade Solution, allafrica etc.

E. Time Period of Study

Data for the five years was taken into consideration for the purpose of study, i.e. 2013 to 2017 compiled by using Trade Map- International Trade Statistics Database.

F. Methodology and Tool Used

The analysis of the export trend and pattern of commodities (2 Digit HS Code Level) will be made using tables and graphs and the export potential of the India and China with Ethiopia will be examined on the basis of Export Index of Revealed Comparative Advantage (RCA) originally given by Balassa (1965) in order to determine the important commodity of export by the country. In this study, it will be used to determine the export potential of a country in another country, i.e. finding out the relative advantage or disadvantage of export of a certain country in a certain class of commodities.

This Export Performance Indicator shows the relative comparative advantage of a country's export and is computed as follows

$$RCA_{ij} = \left(\frac{X_{ij}}{X_{wj}}\right) \div \left(\frac{X_i}{X_w}\right) \qquad \text{Equation.... (1)}$$

where, RCA_{ij} is RCA of country i for commodity j, X_{ij} is exports of a country i of commodity j, X_{wj} is total exports of world for commodity j, X_i is total exports of country i and X_w is total exports of the world. It is important to note here that the value of RCA_{ij} lies between zero to infinity and the break-even point is one. To interpret, if the value of RCAij is more than one, it means that the country i has comparative advantage or disadvantage in export of that commodity. For the purpose of this study, this index is converted from world level to bilateral level (Munir and Sultan 2016). So, new RCA_{ij} is expressed as follows:

$$RCA_{ij}^{B} = \left(\frac{X_{ij}^{B}}{X_i^{B}}\right) \div \left(\frac{X_{ij}}{X_i}\right) \qquad \text{Equation.... (2)}$$

Where, $RCA^{B}_{ij,}$ is the RCA of country i for export of commodity j into country B, X^{B}_{ij} is the export of product j by country i into country B, X^{B}_{i} is the total exports of the country i into country B, X_{ij} is the total exports of the commodity j by country i and X_i is the total exports of the country i.

It is important to note here that the value of RCA^{B}:ij lies between zero to infinity whose break-even point is one. To interpret, if the value of RCA^{B}ij is more than one, it implies that country i has comparative advantage in the export of commodity j into country B. However, the value of RCA^{B}ij on both sides of the breakeven point is not comparable as it lies between zero to one, and this is due to asymmetry in its values.

So, a modified RCA^{B}ij is used which is known as Revealed Symmetric Comparative Advantage (RSCA) as developed by Dalum et al. (1998) in order to make it symmetric. Thus, RCA_{ij} is converted into $RSCA^{B}_{ij}$ as:

$$RSCA_{ij}^{B} = \left(RCA_{ij}^{B} - 1\right) \div \left(RCA_{ij}^{B} + 1\right) \qquad \text{Equation.... (3)}$$

Now this modified RCA^{B}ij does not suffer from the problem of skewness as its value lies between –1 to +1. If the value of $RSCA^{B}_{ij}$ is positive, then the country i has a comparative advantage in export of a particular commodity in another country B and vice versa.

Ms Excel will be used for the purpose of calculating the RSCA Level of Exports made to Ethiopia by both India as well as China.

A. Variable Description

For the purpose of calculating the RCA, four variables are taken into account:

1. Exports of the product j of India/China to Ethiopia;
2. Total Exports of India/China to Ethiopia;
3. Total Exports of the product j of India/China and
4. Total Exports of India/China.

B. Hypothesis

$Ho_{1:}$ There is no significant difference between RSCA level of India and China with reference to Exports of c commodities made to Ethiopia.

$Ha_{1:}$ There is significant difference between RSCA level of India and China with reference to Exports of commodities made to Ethiopia.

C. Scope and Limitation of Study

There is a wider number of techniques that may be taken under consideration for measuring the export potentiality of the two countries with Ethiopia in order to obtain a more meaningful and useful result. But by keeping in mind some unapproachable limitations such as availability of data, the varsity of commodities exported to Ethiopia, time-bound study period and capability of using multi statistical tools etc, we are is bound to restrict the scope of the study. The last five year periods (2012-13 to 2016-17) seems appropriate for the study.

The current study has the following limitations:

1. Only 20 commodities have been taken into account for measuring the export potentiality of the two countries.
2. Data for 5 years only have been taken into account for the purpose of the study.
3. Only commodity category on 2 Digit HS Code Level has been taken into account. We have not included the commodities at 4 and 6 digit Level and also export of services to Ethiopia.

Results and analysis of the Study

A. Trend and Changing Pattern of Export of Commodities to Ethiopia by India and China

On the basis of data available with regard to exports of product to Ethiopia, in 2007-08, value of product exported by India to Ethiopia was 216,571 US$ Thousand which rose to 545,929 US$ Thousand, i.e. a growth of 152.07% in the past 10 years while in case of China, in the year 2007-08, value of product exported to Ethiopia was 1,230,719 US$ Thousand which rose to 2,669,946 US$ Thousand, i.e. a growth of 116.94% in the past 10 years.

The changing pattern and trend of exports of product (2 Digit HS Code Level) to *Ethiopia by India* is shown in Table 2 below from 2007-08 to 2016-17.

Table 2
Value of Export in US$ Thousand to Ethiopia by India

Year	Export (Value in US$ Thousand)
2007-08	216,571
2008-09	283,258
2009-10	261,601
2010-11	425,228
2011-12	643,454
2012-13	953,821
2013-14	762,770
2014-15	763,909
2015-16	830,629
2016-17	545,929

The changing pattern and trend of exports of product (2 Digit HS Code Level) to *Ethiopia by China* is shown in Table 3 below from 2007-08 to 2016-17.

Table 3
Value of Export in US$ Thousand to Ethiopia by China

Year	Export (Value in US$ Thousand)
2007 -08	1,230,719
2008 -09	1,252,460
2009 -10	1,209,615
2010 -11	885,361
2011 -12	1,529,870
2012 -13	1,868,466
2013 -14	2,922,309
2014 -15	3,440,867
2015 -16	3,214,477
2016 -17	2,669,946

Graphically, the above two tables can be represented as follows in the form of Line Chart:

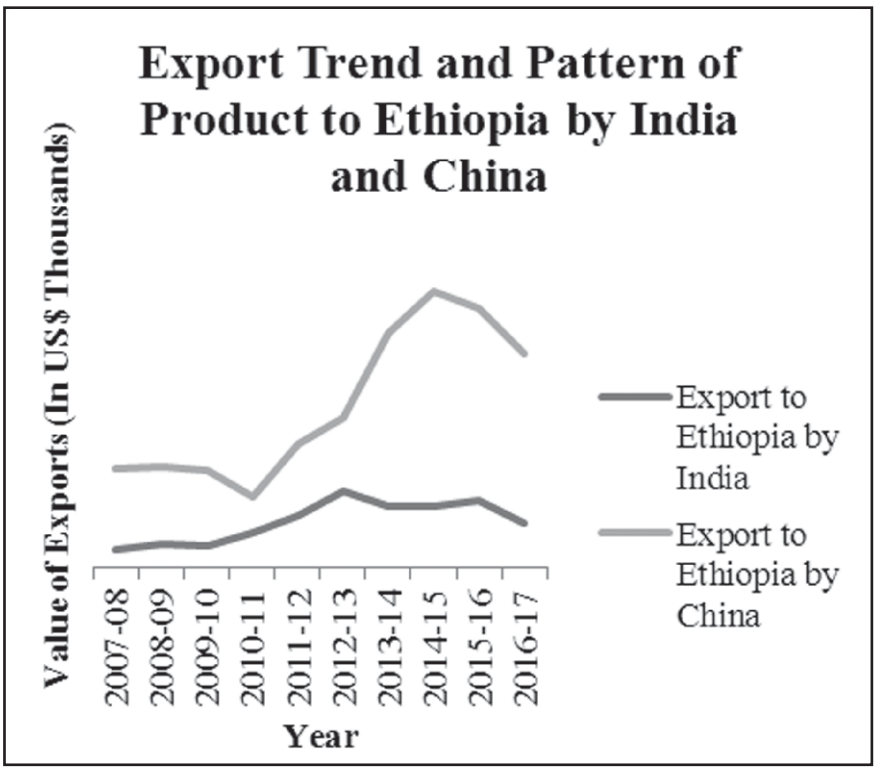


Figure 1
Export Trend and Pattern of Product to Ethiopia by India and China

As per the tables (2&3) and chart above, the trend of exports in case of India is rising until 2012-13 after which it fell next year and thereon rose for the next two years i.e. 2014-15 and 2016 after which it gain fell. In respect of China, the trend is rising for the first three years after which it fell deeply in 2010-11 and thereon kept on rising until 2014-15 after which it fell down.

So, it can be seen that with respect to exports by India as well China to Ethiopia, for the first two years i.e. 2007-08 and 2008-09, the value of exports has gone up but subsequently in 2009-10; the value of exports has gone down by 7.65% and 3.42% respectively. In 2010-11, on one hand exports by India has increased significantly from 261,601 US$ Thousand to 425,228 US$ Thousand but in case of China, exports have drastically reduced by 27.81%. In 2011-12, the exports by both the countries to Ethiopia have though increased but the increase is much greater in case of China than India i.e. 73.80%. In 2012-13, exports by both the countries have gone up but afterwards in case of India for the two consecutive years 2013-14 and 2014-15, the exports value have gone down though marginally and in case of China, for both these years, the value of exports have increased. Subsequently, in 2015-16 and 2016-17, the exports made by China have decreased while for India, in 2015-16, value of exports have increased and in 2016-17, value has decreased significantly i.e.34.28%.

B. Examine the Export Potentiality of:

1) India: The RSCA for exports of 20 commodities *made by India to Ethiopia from 2012-13 to 2016-17 is as follows:*Table 4

RSCA for Exports of Commodities from India to Ethiopia

Table 4
RSCA for Exports of Commodities from India to Ethiopia

Product Code	2012-13	2013-14	2014-15	2015-16	2016-17
15	-0.6229082	-0.601594	-0.5979186	-0.7135824	-0.6211173
19	0.5180245	0.2828538	0.1733163	0.095399	0.0650863
36	0.860001362	0.869510979	0.830931204	0.857606982	0.820177416
17	0.632985	0.228389	0.75428	-0.52617	-0.32101
33	0.17697	0.39142	0.168603	0.099701	0.213379
25	-0.70977	-0.64857	-0.67712	-0.72104	-0.75065
21	-0.74975	-0.837	-0.86651	-0.8613	-0.9429
91	-0.63717	-0.71807	-0.97253	-0.96618	-0.82672
74	-0.71247	-0.77355	-0.84312	-0.88189	-0.91166
65	-0.86181	-0.88047	-0.70899	-0.76777	0.185153
95	-0.91393	-0.58423	-0.68536	-0.58647	-0.26056
56	-0.79036	-0.83228	-0.8827	-0.89282	-0.71909
37	0.151354	-0.46823	-0.96234	-0.66586	-0.82289
35	0.308921	0.265568	0.238744	0.222857	0.287621
58	0.099722	0.105107	-0.10749	-0.00988	0.175164
28	-0.16058	0.053529	-0.16851	-0.10755	0.17268
49	0.911959	0.798704	0.885418	0.950247	0.904142
42	-0.94086	-0.97483	-0.96467	-0.97572	-0.98913
34	-0.32178	0.029456	0.473378	0.514411	0.088881
10	0.614536	-0.0004	0.134753	0.15925	0.205833

On the basis of the above table, Product Code 15, 25, 21, 91, 74, 95, 56 and 42 has a negative RSCA in all the five years, so we can say that India does not hold a comparative advantage in exporting these commodities to Ethiopia. On the other hand, Product Code 19, 36, 33, 35 and 49 has a positive RSCA consecutively in all the 5 years under study. Product Code 49 depicts the highest positive RASC in the four years except in 2013-14 as compared to Product Code 19, 36, 33 and 35. So, it has a relative comparative advantage in this product and should increase the exports of this product. Thus, instead of exporting product codes 15, 25, 21, 91, 74, 95, 56 and 42, India should export product codes 19, 36, 33, 35 and 49 to Ethiopia.

Product code 17 has the positive RASC in first three years while negative thereon, so India should reduce the export of such product to Ethiopia as it does not hold comparative advantage in this product.

Product code 65 depicts the negative in the first four years while positive by a marginal in the last year. So, it can think of increasing the export of this product to Ethiopia.

Product code 37 has a positive RASC in the first year only while negative in the last four years so India does not hold comparative advantage in exporting this product to Ethiopia.

Product code 58 shows the negative RASC in the third and fourth year while positive in first two years and last year, so now India should not increase the export of this product to Ethiopia.

Product code 28 shows the positive RASC in the 2012-13, 2014-15 and 2016-17 while in 2013-14 and 2015-16, RASC is negative. Since, in last year the RASC is positive India should increase its exports to Ethiopia.

Product code 34 has negative RASC in 2012-13 only while RASC is positive in the remaining four years i.e. 2013-14, 2014-15, 2015-16 and 2016-17, so it shows that India has comparative advantage in the export of this product to Ethiopia.

Except in 2013-14, product code 10 has a positive RASC in the remaining four years. So, India should endeavor to increase the export of this product to Ethiopia.

2 China: The RSCA for exports of 20 commodities *made by China to Ethiopia from 2012-13 to 2016-17 is as follows:*

Table 5
RSCA for Exports of Commodities from China to Ethiopia

↓ Product Code	2012-13	2013-14	2014-15	2015-16	2016-17
15	-0.9106203	-0.8504438	-0.9921025	-0.9062870	-0.9701349
19	-0.9431856	-0.9803013	-0.9862202	-0.8941841	-0.6849764
36	0.3715037	-0.0970605	-0.5593368	-0.2056683	-0.4270734
17	-0.0073498	-0.3916987	-0.6790696	-0.6152490	-0.6373816
33	-0.8335594	-0.8010768	-0.8241237	-0.7298502	-0.6934775
25	-0.7534653	-0.8613146	-0.7421483	-0.6914275	-0.4373057
21	0.4790873	0.3251316	-0.2985807	-0.2604322	-0.4115645
91	-0.9390691	-0.9039559	-0.9684661	-0.3729581	-0.5153528
74	-0.6396715	0.0846494	0.0409163	-0.6070998	-0.5848506
65	-0.6308444	-0.5268969	-0.5734999	-0.6641129	-0.4353052
95	-0.9572036	-0.9313386	-0.9651233	-0.9671348	-0.9303582
56	-0.2618952	-0.3910969	-0.4439753	-0.4464027	-0.2886218
37	0.5348743	0.3458566	0.3346653	0.2928854	0.5166010
35	0.2098361	0.0186853	0.0163178	-0.1144918	0.1256061
58	-0.1338264	-0.0952866	-0.3341708	-0.1568275	-0.0316547
28	-0.1730008	-0.2446931	-0.3408075	-0.4910682	-0.5335863
49	0.1528047	0.0562865	0.3564848	0.3136109	0.1747277
42	-0.9006617	-0.5859786	-0.8393520	-0.7210308	-0.6934413
34	0.1141496	-0.1847663	-0.3324968	-0.1350935	0.2170792
10	-0.9550288	-0.9577256	-0.9480055	0.6721910	0.7925073

On the basis of above table, Product Code 15, 19, 17, 33, 25, 91, 65, 95, 56, 58, 28 and 42 has a negative RSCA in all the five years, so we can say that China does not hold comparative advantage in exporting these commodities to Ethiopia. On the other hand, Product Code 37 and 49 has a positive RSCA consecutively in all the 5 years under study. Product Code 37 depicts the highest positive RASC in the 2012-13, 2013-14 and 2016-17 as compared to Product Code 49. So, it has a relative comparative advantage in this product and should export more this product as compared to

product code 49. So, instead of exporting product codes 15, 19, 17, 33, 25, 91, 65, 95, 56, 58, 28 and 42, China should focus on exporting product codes 37 and 49 to Ethiopia.

Product code 36 has the positive RASC in 2012-13 only while in remaining four years; it is negative so China should reduce the export of such product to Ethiopia as it does not hold comparative advantage in this product.

Product code 21 depicts the positive RASC in the first two years while positive in the last three years. So, it should increase the export of this product to Ethiopia.

Product code 74 has a positive RASC in 2013-14 and 2014-15 while negative in remaining three years so now China does not hold a comparative advantage in exporting this product to Ethiopia.

Product code 35 shows the negative RASC in 2015-16 only while positive in remaining four years, so China can increase the export of this product to Ethiopia as it hold a comparative advantage.

Product code 34 shows the positive RASC in the 2012-13 and 2016-17 while in 2013-14, 2014-15 and 2015-16, RASC is negative and since, in last year the RASC is positive China should now increase the exports of this product to Ethiopia.

Product code 10 has negative RASC in first two years while positive in the remaining last two years i.e. 2014-15, 2015-16 and 2016-17, so it shows that China has comparative advantage in the export of this product to Ethiopia.

Therefore, we can say that in case of India, in 8 out of 20 commodities taken for the study, India has a comparative disadvantage in exporting such commodities to Ethiopia while it has a comparative advantage in 5 out of 20 commodities. In 5 commodities, India has shown positive RASC in last year showing comparative advantage to export those commodities more to Ethiopia in future years while in remaining commodities, RASC being negative in the last year, shows somewhat comparative disadvantage to export commodities in future years.

In case of China, in 12 out of 20 commodities, China has a comparative disadvantage in exporting its commodities to Ethiopia while it has a comparative advantage in 2 out of 20 commodities. In 3 commodities, China has shown positive RASC in last year showing comparative advantage to export those commodities more to Ethiopia in future years while in remaining commodities, RASC being negative in the last year, shows somewhat comparative disadvantage to export such commodities in future years to Ethiopia.

Neither of the country India or China has common commodity that has shown a positive RSCA.

Conclusion

To conclude, though the export of all commodities to Ethiopia in value terms is more in case of China as compared to India, but India has shown high rate of growth in the past ten years as compared to China. Thus, we can say that the exports of commodities from India to Ethiopia have better future prospects. Moreover, in respect of 20 commodities selected on random basis to know the relative comparative advantage of such commodities for both India as well as China, we can see that China has relative comparative disadvantage in 60% of the sample taken while India has relative comparative disadvantage in 40% of the commodities exported to Ethiopia as compared to China. Thus, it is concluded that India has high export potentiality as compared to China. So, the Null Hypothesis is rejected on the basis of results drawn.

Recommendations

On the basis of result obtained, we recommend that India should focus more on increasing the exports of the commodities which have a positive RSCA as compared to those which have negative RSCA as it has relative comparative advantage in such commodities. So, such commodities should be dropped down from the export list in orde\r to make it more competitive than China.

Moreover, those commodities which are showing a negative RSCA in the initial years but subsequently positive in the later years should also be exported more to Ethiopia.

References

Balassa, Bela. "Trade Liberalization and Revealed Comparative Advantage". *The Manchester School of Economics and Social Sciences.* 33 (1965): 99-117.

Jun, Yang, et al. "On the Economic Effect of Setting up the China-Australia Free Trade Area and Policy Suggestions". *Journal of International Trade.* 11 (2005).

Haojun, He, et al. "A CGE Analysis of the Impact of Tariff Cut on China's Agriculture After Establishment of a China-Australia Free Trade Area". *Inquiry into Economic Issues*. 11 (2009).

Singh A. Pushpalata. "Performance of Foreign Trade in India in the Post Liberalization Era". *International Journal of Humanities, Social Sciences and Education* (IJHSSE). 1.10 (2014).

Richardson J. David and Zhang Chi. "Revealing Comparative Advantage Chaotic or Coherent Patterns across Time and Sector and US Trading Partner". *University of Chicago Press.* (2001): 195-232.

Yue, Chen. "Comparative Advantage Exchange Rate and Exports in China". International Conference on Chinese Economy of 'Has China Become a Master Economy. CERDI. Clemont-Ferrand France. (2001).

Imre, Ferto and J. Lionel, Hubbard. "Revealed Comparative Advantage and Competitiveness in Hungarian Agri-Food Sectors". Technology Foresight in Hungary. Econstar. IEHAS Discussion Papers. No. MT-DP-(2002).

Hinloopen, Jeroen and V. Marrewijk, Charles. "Dynamics of Chinese Comparative Advantage". Timbergen Institute Discussion Paper No. TI. (2004).

Batra, Amita. and Khan Zeba. "Revealed Comparative Advantage: An Analysis for India and China". Indian Council for Research on International Economic Relations, Working Paper No. 168. (2005).

S. Govindarajan, Padmasani. "Export Performance of Indian Sea Food Industry with Special Reference to Shrimp". Phd Thesis. (2007).

Munir, Kashif and Sultan, Maryam. "Export Performance with Border Sharing Countries: An Assessment of Pakistan". University of Central Punjab, MPRA Paper No. 69535. (2016).

Singh, Priyanka and Lal, Madan. "Export Performance and Competitiveness of Indian Textile Industry". *International Journal of Scientific Research.* 2.11 (2013).

Cui, Chunying. and Chen, Shaoshao. "A RCA Analysis of China's Competitive Advantage to Export Textile and Apparel to Australia". Advances in Social Science. Education and Humanities Research (ASSEHR). International Conference on Education. *Management Science and Economics.* 65 (2016).

Dalum, Bent., et al. "Structural Change in OECD Export Specialization Patterns: De-Specialization and Stickiness." Int Rev Appl Econ. 12.3 (1998): 447-467.

****

Social Entrepreneurship: Dynamics and Current Trends

Diana Arango-Botero
Professor, Department of Management Sciences -
Instituto Tecnológico Metropolitano.
Medellín – Colombia.
Email: dianaarangob@itm.edu.co

Martha Luz Benjumea Arias
Professor, Department of Finances -
Instituto Tecnológico Metropolitano.
Medellín – Colombia.
Email: marthabenjumea@itm.edu.co

Abstract

To understand the dynamics of social enterprises in the past, current trends, their contribution to social change, and positive impact on communities, we conducted a systematic literature review divided into three phases: (1) bibliometric analysis, (2) keyword analysis using multiple correspondence analysis, and (3) network analysis. The findings indicate that social enterprises must prioritise innovation, sustainability, and community transformation. Besides, they should increase their involvement in the national educational system, as well as policy-making, and their participation in production, institutional, and social networks

Keywords: *Bibliometric Analysis, Entrepreneurial Education, Multiple Correspondence Analysis, Social Entrepreneurship, Social Innovation*

Social entrepreneurship is a specific type of entrepreneurship (Dees, 2001) for which there is no standard method, code of practice, or business model to follow. However, lack of consensus regarding the meaning of social entrepreneurship and social enterprises has led to a polarisation in the world of research. On the one hand, some authors have focused on the personal attributes that can be used to differentiate traditional entrepreneurs from their social counterparts; and, on the other hand, some have focused on understanding the business models on which social enterprises are based, namely, on the constitution of a social network (Palacios, 2010).

The creation of sustainable social value is the key feature that differentiates this type of enterprises from charities or the philanthropic actions of well-intentioned individuals (Martin et al., 2007). The difference lies in the fact that the provision of social services is associated with a form of altruism in which people are committed to a cause because they identified a disparity and, hence, developed a program to address the situation. However, their impact remains limited to a local population, and their scope is determined by the resources they are able to obtain (Bargsted et al., 2013).

Social entrepreneurship has been defined as the "creation of social value" in non-profit, corporate, and public sectors (Austin et al., 2006; Zahra et al., 2015), and its fundamental role is transformation (Bikse et al., 2013). In particular, social entrepreneurs possess key characteristics, such as flexibility, creativity, and the ability to identify opportunities (Marion et al., 2012). Nevertheless, in their dual pursuit of social and financial value creation to address pressing societal problems (Bacq, et al., 2015), they also face strong resource constraints that limit their ability to take strategic actions and develop their full potential (Aspelund et al., 2005; Bresciani et al., 2013).

The benefits of social entrepreneurship are not necessarily constrained to markets. In many cases, enterprises can act directly by strengthening human skills, increasing personal freedom, or building levels of trust. Such enterprises, and the entrepreneurs who create them, generate impacts not as a result of commercial exchanges but rather due to the inherent value of the human lives that their actions are helping to preserve or improve (Auerswald, 2009).

Thus, social enterprises are created to address issues the government and the for-profit sector have failed to. Although they are not driven by profit, they are fundamentally innovative because they must find a balance between fulfilling their social mission and generating enough profit to be self-sustainable (Nuñez, 2010). Adding an economic dimension to their collective value proposition means that organisations must be disciplined and foster a results-oriented culture, which is not an easy feat in the absence of a financial driver (Tedmanson et al., 2011).

In view of the above, the historical dynamics of social enterprises and their current trends should be understood in order to boost their contribution to social change and positive impact on communities.

Literature Review

Entrepreneurship, in all its forms, plays an important role in economic, social, and organisational development. Its objective is always to implement innovative solutions based on newly recognised opportunities in order to solve a problem or fill a gap in a market (Miller et al., 2012). More specifically, social entrepreneurship includes social groups that have been marginalised from conventional wealth distribution systems. Social enterprises have sought to benefit groups of individuals who depend on the private sector or the government and mainly subsist on manual labour and similar types of work (Gaiger, 2004). Said enterprises are driven by a desire for social justice and seek, through their actions, to directly improve the quality of life of the people they work with and serve (Warner et al. 2016; Leadbeater, 1997). Their goal is to devise solutions that are financially viable (Agrawal et al., 2014) and can produce organisational, social, and environmental results, combining creativity with pragmatic skills to generate new ideas and turn them into actual services.

As community activists, social entrepreneurs pursue a vision of social change until it becomes an extended reality (Roberts et al., 2000). While private value is created by providing goods and services in a market, the social value generated by social enterprises is equity (Palacios, 2010). According to Nyssens (2006), in social enterprises, benefits are not spontaneously generated as a result of their economic activity, but rather are a consequence explicitly sought after by those who foster and manage said activity. Consequently, social enterprises must be innovative in all their activities due to increasing competitiveness and its impact on their economic, social, and organisational development. In addition, the environment, their collective mission, and the need for sustainability demand a unique form of business behaviour (Weerawardena et al., 2006).

Social entrepreneurship is defined as the process of identifying, evaluating, and capitalising on opportunities (Shane et al., 2000) that imply achieving desirable social outcomes which are not being spontaneously produced by markets. Similarly, from an economic perspective, social enterprises can significantly contribute to social change by adopting business models to offer creative solutions through the management of innovative organisations or the creation of new companies (Zahra et al., 2009). As Gartner (1998) proposed regarding companies in general, four components are necessary to start social ventures: individuals, processes, an organisation, and an environment.

Social entrepreneurship studies have mainly adopted two approaches: American and European (Hoogendoorn et al., 2010). The American approach emerged in response to the economic recession of the late 1970s. It focused its efforts on creating programs for poverty reduction, education, health care provision, community services, and environmental protection. In this approach, social entrepreneurship is based on carrying out economic activities that serve a social objective in different in markets, regardless of the legal structure of the organisation or the sector in which they take place (Nyssens, 2006). Said American tradition included the schools of thought of social enterprise (Haugh et al., 2014) and social innovation (Hechavarría et al., 2015).

In contrast to its American counterpart, the European approach is based on social economy, also known as the third sector, and focuses on services that the government has failed to provide to its citizens. This approach gave birth to social enterprises created by civil society actors in the form of non-profit organisations or cooperatives aimed at generating a positive impact for communities (Clamp et al., 2010) by combining income generation with projects or activities involving their beneficiaries (Nyssens, 2006).

As can be seen, social entrepreneurship has been researched from different perspectives: the construction and definition of the concept; similarities and differences with other closely related sectors, such as entrepreneurial initiatives or business entrepreneurship (Roberts et al., 2000); entrepreneurship and its relationship with social policies and labour economics (Coraggio, 1999; Gaiger, 2004); social activism and the provision of social services (Martin et al., 2007); and social entrepreneurship based on the definition of market-based knowledge and business skills for the non-profit sector (Martin et al., 2007).

The research agenda of studies into social enterprises aims at: 1) defining the scope of social enterprises; 2) analysing the environmental context; 3) recognising opportunities and chances to innovate; 4) understanding organisational structures in social enterprises; 5) obtaining resources; 6) taking advantage of opportunities; 7) measuring performance; and 8) examining education, training and learning in social enterprises (Haugh, 2005).

Therefore, social entrepreneurs take part in continuous innovation processes, adapt, learn, take bold actions to obtain resources, and are deeply committed to their community (Dees, 2001), while they also face constant obstacles such as an ongoing shortage of resources, a lack of experience in certain markets, greater uncertainty and risk, low credibility, and limited external relations. Thus, they highly value partnerships and the creation of networks in order to achieve their economic and social development goals (Coraggio, 1999; Gaiger, 2004).

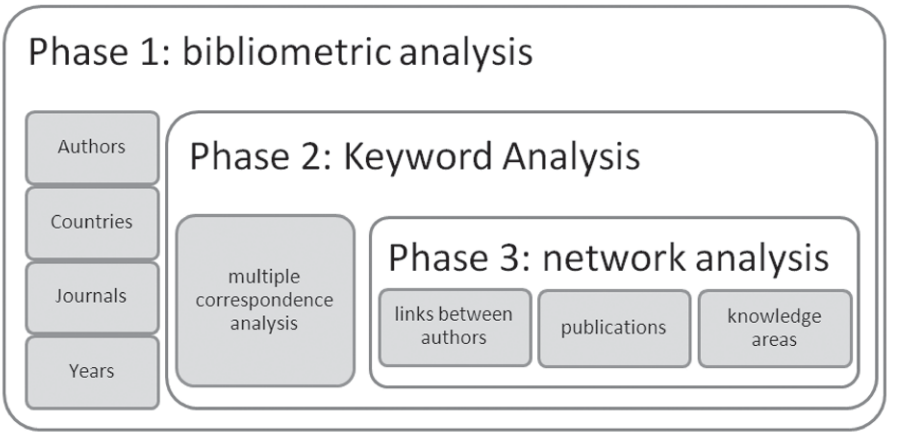
To differentiate social enterprises from businesses, we can consider four variables (Austin et al., 2006): *market gaps*, i.e., "a problem for business entrepreneurs is an opportunity for social entrepreneurs"; *mission*, because the fundamental purpose of social entrepreneurship is the creation of value for the common good); *mobilisation of resources* (given the limitations for social enterprises to obtain funds); and *measuring performance* because social enterprises face great problems in evaluating their performance due to the difficulty of measuring social impact.

As a result, social entrepreneurs have become leaders and agents of change who address problems both in the social and corporate worlds and foster a culture of innovation (Bacq et al., 2011). They embody the purpose of creating and sustaining social because they constantly recognise and pursue new opportunities to serve social goals.

Methodology

We conducted a three-phase analysis (Fig. 1). The first phase was a bibliometric analysis, in order to understand the dynamics of social entrepreneurship, using the following search equation:

*TITLE ((social W/2 entrepreneur *) OR (Community W/2 entrepreneur *)) AND KEY (social W/2 entrepreneur*) OR (community W/2 entrepreneur *))*



Source: Article authors

Figure 1. Research phases

Through a bibliometric analysis, it is possible to identify the most prolific and cited authors, the journals that publish most articles, and the countries of affiliation of the authors, among other aspects (Daim et al. 2006). Therefore, a bibliometric analysis allows us to answer questions such as: "*What authors and journals have contributed the most to the field?*", "*What countries have contributed the most?*", and "*What is the distribution of the most productive journals in the field?*" (Valencia-Arias, Cano and Arango-Botero, 2019). To answer these questions, two types of indicators are generally calculated: quantity and quality. Quantity indicators define the number of publications per author, year, and journal, among other criteria, while quality indicators represent the corresponding impact of authors and journals (Arango-Botero, et al., 2019). In Phase two (Keyword analysis), we conducted a multiple correspondence analysis (MCA) in order to understand the dynamics in the field of social entrepreneurship over different years of publication. For that purpose, the keywords were classified into 5 groups. MCA is applied to tables that have individuals in the rows and categorical variables in the columns. In MCA, individuals are compared on the basis of presence-absence of the categories of the variables under study. From this perspective alone, the distance between two individuals depends entirely on their characteristics and not on those of the other individuals. However, it is important to account for the characteristics of the other individuals when this distance is calculated (Husson and Pagès, 2017). In this study, for the MCA, the individuals are the articles retrieved with the search equation and the categorical variables are keywords (KW), main author's continent of affiliation (CA), and publication time interval (PTI). Finally, in Phase three (Network analysis), we used structure indicators to measure the links between publications, authors, and fields of knowledge (Villa et al., 2018). These indicators are often associated with the construction and analysis of social networks, which are composed of nodes (vertices) and links. In bibliometric analyses, the nodes are the authors (people who research and publish their results), and the links represent co-authorships (Rueda et al., 2007). Said indicators are part of a series of one-dimensional metrics that includes scientific production, information dissemination, and collaboration between authors and institutions (Sánchez, 2006).

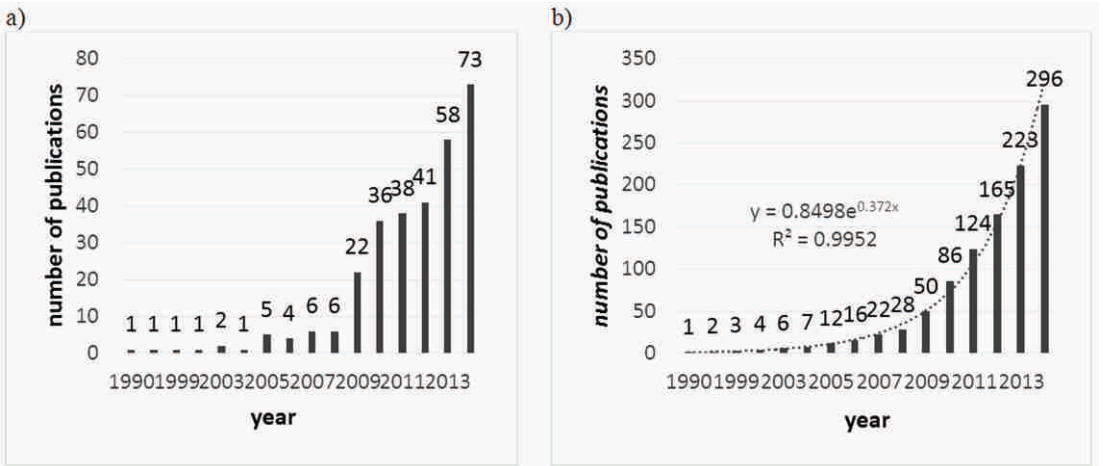
Results

The main findings of each phase in our process are described below.

Phase 1 - Bibliometric analysis

In total, 77% of the 357 records retrieved using the search equation were articles published in journals; 12%, conference papers; and 11%, other types of documents. These figures could serve as indicators of the current relevance of the topic and its ongoing dissemination in conferences and similar events.

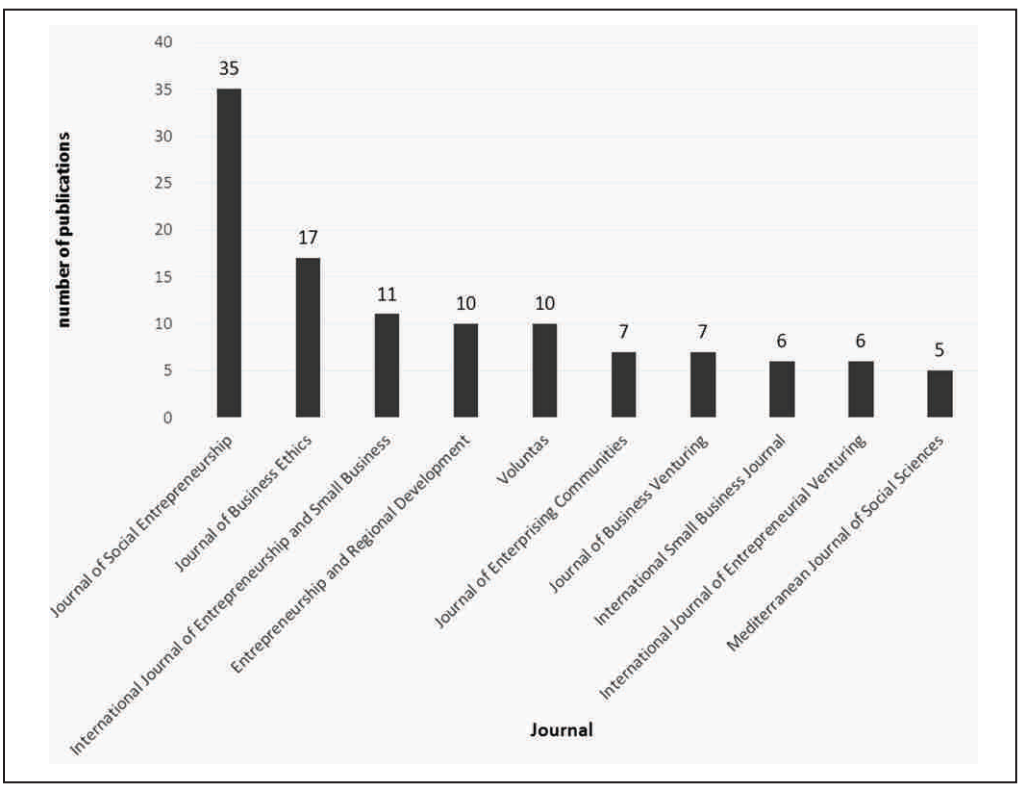
After 2009, there has been an increasing interest in social entrepreneurship literature. Before that year, publication numbers did not exceed 6 articles per year, and an average of one publication per year between 1990 and 2004 (Fig. 2a). When we plotted the cumulative number of articles published per year, we obtained an exponential growth curve (Fig.2b), which means that the number of publications on social entrepreneurship has increased significantly.



Source: Article authors.

Fig 2. a) Number of publications per year; b) Cumulative number of publications.

In the top 10 of journals with most articles published on the topic (Fig. 3), the Journal of Social Entrepreneurship takes the first place with 35 papers, followed by the Journal of Business Ethics, with 17. Regarding the concentration of publications, 3.05% journals have published 25% of the articles, and, with a significant percentage increase, 17.77% of them have published 50% of the studies. Finally, 55.84% of the journals have featured 75% of all the articles.



Source: Article authors.

Fig 3. Number of articles published per journal

Regarding authorship, Figure 4 shows the top 10 researchers who have written most articles on the topic. The list starts with Bacq, S., who has 5 published articles, followed by Williams C.C., and Nadin, S., with 4 papers each. The remaining seven authors have published 3 articles each. In terms of authorship concentration, 17.12% of the authors have published 25% of all the articles; 44.79% have published 50%; and, finally, 72.47% have published 75% of the studies. The information shows that the share of articles of all the researchers is equally distributed: no single author predominates in the literature in the field.

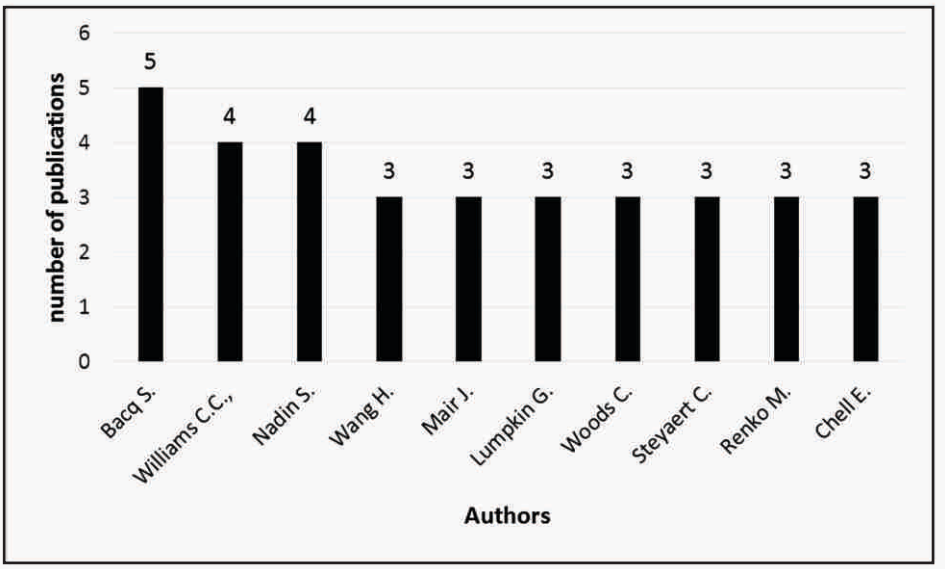
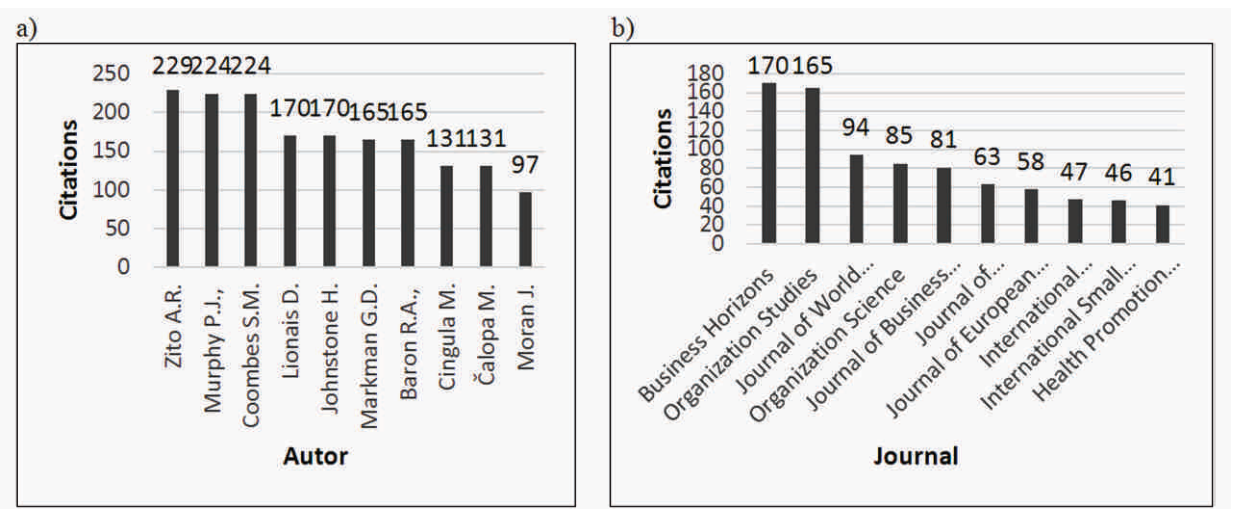


Figure 4. Number of articles published by the top ten authors.

With respect to references, we found that Zito A.R. was one of the most cited authors, with 229 citations (Fig. 5a), followed by Murphy P.J. and Coombes S.M. (224 each), and Lionais D. and Markman GD (170 citations each). Overall, the most cited authors are not in the top ten of the most prolific authors (Fig. 4). This is not, however, the case with journals (Fig. 5b) because two of them, the Journal of Business Venturing and the International Small Business Journal, are in both lists. The journal with the greatest impact is Business Horizons, with 170 citations, which confirms its relevance and contribution to the dissemination of social entrepreneurship studies.



Source: Article authors.

Fig 5. Number of citations: a) by author b) by journal

The following terms are recurrent in the contents of the selected articles and the keywords suggested by their authors: *entrepreneurship*, *social enterprises*, *social capital*, *sustainable development*, *social innovation*, *social networks*, *social entrepreneur*, *innovation*, *social value*, *social change*, *social entrepreneurs*, *community*, and *social impact*. Given that *entrepreneurship* was found in every article we analysed, it was not taken into account in the keyword analysis. Said keywords were grouped into 5 mutually exclusive groups (Table 1). The continents of affiliation were 1) Europe, 2) America, 3) Asia, 4) Oceania, and 5) Africa. Three-time intervals were considered: 1) Before 2012; 2) Between 2012 and 2015, including both years; and, 3) After 2015.

Table 1. Keywords by groups and frequency

Group	Keywords	Frecuency
1	Industry / institutional / stakeholders / conmunity / organization / marketing	118
2	Social movements / cultural shift / social transformation / social projects / social development / sustainability	117
3	Enterprise education	34
4	Policies / state / legitimacy / regulation / legislation	45
5	Social innovation / innovative ideas / innov ation	37

Although some articles featured keywords and content related to different groups, they were classified based on the main topic they discussed. As a result, some papers were classified in group 2 even though they mentioned *social innovation* or *policies*, for example, because these Sub-topics were discussed in the literature review or to provide theoretical background. Still, they were not the article's main idea concerning social entrepreneurship.

Classifying keywords into different groups allowed us not only to identify Sub-topics in social entrepreneurship but also to characterise trends and the way they have evolved. After they were organised in a timeline, we conducted a multiple correspondence analysis to explore the connection between keywords, authors' affiliation, and publication time intervals.

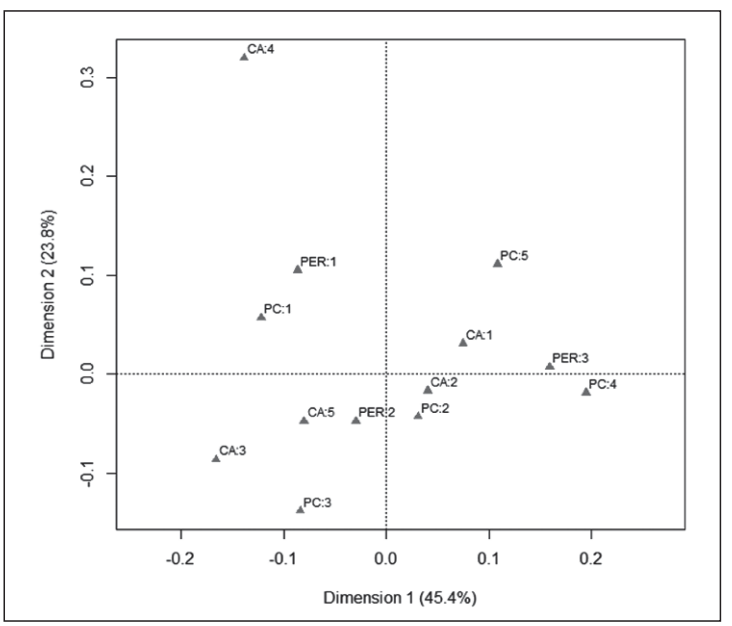


Fig 6. MCA factor map.

Source: Article authors with the support of R statistics software (The R Core Team, 2016)

Figure 6 presents two dimensions that, together, account for 69.7% of the variability of the data, which was calculated by means of a multiple correspondence analysis using R statistical software (The R Core Team, 2016). The articles published before 2012 were mostly connected to Group 1 keywords. In other words, older articles mostly discussed communities, organisations, and markets. From 2012 to 2015, most studies dealt with social changes, development, and sustainability, and most of them were written in the Americas and Africa. In turn, recently published articles have focused on policies, legislation, and governments.

In each one of these three time periods, we identified several main Sub-topics. However, the Sub-topics of the keywords in groups 3 and 5 could not be associated with a specific period of time, which seems to indicate that they may be Sub-topics that have been continuously addressed over the years and have been an ongoing trend in social entrepreneurship studies. The following is a brief description of each Sub-topic defined by the Groups of keywords:

Sub-topic 1 - Social capital: its role in the community and the market

Social entrepreneurs promote cross-sectoral initiatives to address economic and community challenges in both developed and developing regions (Squazzoni, 2009) in order to promote people's well-being, which has led to the creation of social capital (Tedmanson et al., 2011; Wu et al., 2012). Access to social capital has been found to be an important tool in their set of strategies required to mobilise available resources, which are scarce in many regions and represent valuable solutions for communities (Griffiths et al., 2013).

Social entrepreneurs are considered the promoters of social capital creation (Narangajavana et al., 2016) and are said to increase the value of the latter by creating new organisations (Åmo, 2014). However, they need to develop certain skills that allow social enterprises to engage with other actors in the market with the aim of identifying and exploiting existing opportunities for social value co-creation and ultimately driving change in communities (Sigala, 2016). Hence, proactive human capital and the capacity to innovate have been found to contribute to the creation of social value (Faller et al., 2016), a vitally important issue in today's economic context (Méndez-Picazo, 2015).

The creation of social capital is currently considered the focus of social entrepreneurship (Hunter et al., 2014) because social enterprises not only look for opportunities and innovative ways to use resources in order to meet collective needs but also take part in the process of creating social values (Cai et al., 2012). In the literature, some authors suggest that creating social value contributes to sustainable regional development (Garrigós-Simon, 2017), which is why the interest in this topic has increased lately (Parris et al., 2014).

Sub-topic 2 - Social and sustainable development

In recent years, social entrepreneurship has become an emerging trend (Ferreira et al., 2016), and, according to some, it directly contributes to the achievement of sustainable development goals (SDGs). This situation has encouraged companies to increase their social responsibility initiatives (Seelos et al., 2005). Therefore, social entrepreneurs play a key role in communities because the former can enable the latter to attain their specific SDGs (Rahdari et al., 2016; Swan et al., 2016).

Social entrepreneurs use their entrepreneurial skills to create sustainable enterprises. They focus their efforts on developing strategies to promote clean technologies, sustainable livelihoods (Warner et al., 2016), and other activities that bring about positive changes in their countries and address global social, ethical, and environmental problems (Narang et al., 2014). Thus, citizens who support social enterprises are being increasingly recognised as agents of change due to their work (Narang et al., 2014).

Despite contextual and resource constraints, achieving sustainable development in developing countries is possible, thanks to the innovative approaches and creative thinking of social entrepreneurs (Azmat, 2013). The latter, in turn, have become crucial actors when it comes to leading and motivating citizens to express their needs and interests and achieving SDGs at the regional level (Varol et al., 2009). In this context, governments, regardless of their level of development, should support social entrepreneurs so that they can propose innovative methods aimed at sustainable development (Azmat, 2013).

Sub-topic 3 - Entrepreneurial education

Most empirical studies indicate that education can promote entrepreneurship and entrepreneurship can be taught

(Karimi et al., 2012). Universities can contribute to the training in this field in many ways: educating candidates, marketing research, and being the center of these new enterprises (Rasmussen et al., 2006). Similarly, education can help to develop the attitudes and skills of enterprising students and, therefore, further their plans of creating new organisations (Piperopoulos et al., 2014). According to Peterman and Kennedy (2003), entrepreneurship programs can significantly change the intentions of participants, but individuals are influenced by their culture when they form their social entrepreneurial intentions (Yang et al., 2015). In turn, Souitaris et al. (2007) described different benefits that students obtain when they participate in such programs.

Universities have a great responsibility regarding innovation. They must teach students entrepreneurship so that they become competitive in this area and fulfill their innovation potential by increasing their motivation and competitiveness to make them key actors in innovation and entrepreneurship (Rasmussen et al., 2006; Mair et al., 2006).

Sub-topic 4 - Legislation and public policies

In different entrepreneurship studies, model applicability is often emphasised, and the models' implications for research, education, public policy, and business planning are often discussed as well (Krueger et al., 2000). For instance, Ideas of "entrepreneurship as a driver for value creation" are often discussed in the political arena of developed countries, and business education holds a prominent place in these countries' political agendas (Von-Graevenitz et al., 2010).

Entrepreneurship is often associated with innovation, technological development, economic growth, and job creation. This vision is particularly widespread in the political sector (Minniti et al., 2008) and, therefore, has provided a general motivation for governments to offer entrepreneurship courses in different undergraduate and graduate programs (Martin et al., 2013). This is because the ability to innovate by creating new businesses and new business areas is the key to achieving the economic objectives of companies, regions, and nations (Rasmussen et al., 2006; Galindo-Martin et al., 2012).

Sub-topic 5 - Social innovation

Social innovation has become increasingly relevant as a means to alleviate social problems (Grohs et al., 2015), partly because of a growing disappointment in for-profit business models, which, in turn, has kindled people's interest in social enterprises and social innovation (Phillips et al., 2015).

Social innovation, an emerging field (Gawell, 2014) with potential for different kinds of research projects (Phillips et al., 2015), has been a topic of interest for many scholars (Muhamad et al., 2013; Caldwell et al., 2012), and different studies have investigated its effects (Shaw et al., 2013; Ladd, 2017), such as cooperative companies (Absanto et al., 2013).

Phase 3 - Network analysis

Figure 7 presents the network of authors in the 1999–2009 period, which was created using Cytoscape software. The image allows us to broadly visualise some of the general properties of this network, where each individual is represented by a node and each link represents a researcher's connection to at least another research project created by a different author.

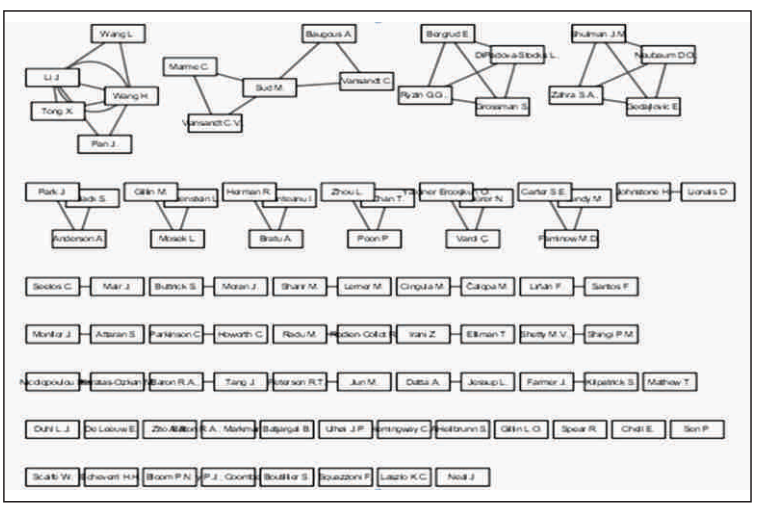


Fig 7. Topological authors' network map from 1999-2009.

Source: Article authors with the support of Cytoscape software.

To illustrate the behavior of the author network over the years, Table 2 lists some distinctive features and relevant characteristics of the period between 1990 and 2015. In said period, there were 731 authors active in this field, and each author co-authored, on average, at least one article with another researcher (1.951). In addition, the density of the network was close to zero (0.003), which shows that the intensity of the connections between authors in the network was low. This is considering that the density of the graph represents the number of links established between nodes compared to the maximum number of links if every actor in the network was directly connected to all the others (as defined by Sanz, 2003). This could indicate a significant dispersion of scientific production in this field. Additionally, in the sub-networks, the presence of node clusters is significant because the degree of clustering is 0.553. In addition, the level of heterogeneity (0.741) is greater than the level of clustering, which indicates a low degree of connectivity, as some sub-networks tend to resemble a star. This shape implies the presence of a central node in the sub-network that is connected to the others and can serve as a bridge to connect authors; similarly, its absence could isolate several of the nodes to which it is connected.

Table 2. Structure indicators.

Indicador	1990-2009	1990-2015
Number of nodes	89	731
Network density	0,015	0,003
Network diameter	2	4
Expected characteristic distance	1,106	1,224
Number of connected components	47	291
Average number of neighbors	1,326	1,951
Degree of clustering	0,386	0,553
Network centralization	0,031	0,010
Network heterogeneity	0,782	0,741
Number of isolated nodes	21	72
Components connected by nodes	52,80%	33,77%
Components isolated by nodes	23,59%	7,45%

Table 2 also includes the structure indicators between 1999 and 2009. The purpose of this table is to analyse the evolution of the author network over time by comparing these indicators with those of the period from 1999 to 2015. The table presents a significant increase in the number of authors (number of nodes), number of independent authors (number of isolated nodes), and number of isolated sub-networks (number of isolated components). However, the growth rate of these nodes is much higher than that of isolated nodes and connected components. Therefore, there has been a decrease in the dispersion of isolated sub-networks and independent publications (variations in the indicators *Components connected by nodes* and *Components isolated by nodes*, respectively). This could mean that the authors entering the field are doing so by accessing existing networks. In this regard, sub-networks have been increasing in size and decreasing in density, which is reflected in the way the degree of clustering and the diameter of the network have evolved. Nevertheless, the decrease in network density indicates that new authors are connecting with few other authors in the sub-network they entered, and, as a consequence, their expected characteristic distance has been growing.

Finally, the network of authors in the field of social entrepreneurship has become increasingly decentralised and more heterogeneous. In other words, there are no central authors common to the entire field but central authors in different sub-networks.

Agenda

Considering the results of this study and the aspects identified above, we propose an agenda of topics that could be addressed by future federations of social enterprises:

Cultural aspects are essential in social entrepreneurship processes (Ariza-Montes, Morales-Fernández, & Sianes, 2015). Therefore, researchers must continue examining the variables derived from specific cultural contexts that can

significantly influence the structuring, success, and sustainability of new entrepreneurship initiatives.

The educational system is a decisive factor for social entrepreneurship because teaching processes and educational programs reduce the obstacles for the generation and effective implementation of social entrepreneurship projects and establish the particularities and special needs of social entrepreneurs (Ortbal, Frazzette, & Mehta, 2016; Sarkar, 2018). Therefore, educational institutions should explore novel strategies, methodologies, and training tools that can continuously enrich initiatives related to social enterprises.

Public policy is an essential factor in the promotion of social entrepreneurship projects. In that sense, it is necessary to strengthen the regulations, policies, and strategies established to encourage the formulation and implementation of innovative social projects (regarding the environment, citizen participation, and intersectoral collaboration, among others) (Chandra, 2018; Karanda & Toledano, 2018).

Finally, our results suggest that other aspects of production, institutional, and social networks (which have become dynamic mechanisms of activities in different structures of society) should be investigated and that communication processes should be conceived as a strategic component in the dissemination and exchange of information.

Conclusion

As the popularity of social entrepreneurship is growing worldwide (Said et al., 2015), the creation of social capital has become increasingly important and has been established as a goal in community development (Dufays et al., 2014). The literature has shown that higher educational institutions provide important human capital to their communities and have, therefore, been recognised as a means to bolster social entrepreneurship (Said et al., 2015).

This study shed light on the dynamics of social entrepreneurship over the years and identified its current trends. For that purpose, we conducted an initial bibliometric analysis, as a result of which we were able to identify, among other aspects, the main authors and journals in the field, not only in terms of the number of publications but also citations. In addition, we analysed their keywords and, using a multivariate technique (multiple correspondence analysis), we established five sub-topics: 1) Social capital, its role in the community and the market; 2) Social and sustainable development; 3) Entrepreneurial education; 4) Legislation and public policy; and, 5) Social innovation.

As a result of the analysis of the time period considered in this paper, we found that the first social entrepreneurship studies mostly focused on the role of social enterprises in their communities and organisations and their interaction with different actors in the market. However, that focus changed between 2012 and 2015: it was then necessary to reflect on the impact of said enterprises not just on their communities but also in terms of social and sustainable development. Finally, recent publications seem to have focused on governance and public policy-making.

Research areas such as entrepreneurial education, the role of universities in training entrepreneurs, and social innovation were not particularly associated with a specific interval, which seems to indicate that the interest in these fields has been sustained over the years. Nevertheless, in recent decades, educational institutions have played an increasingly active role in economic and social development. The authors of this study are fully aware of the importance of the interaction between universities, the private sector, and the government, known as a the "Triple Helix", which has often resulted in technology transfer offices, research programs covering basic long-term inquiries, and applied interdisciplinary research centers and institutes that focus on specific sectors (Bienkowska et al., 2010).

According to Wompner (2012), the role of educational institutions in the training of entrepreneurs should be reexamined. Moreover, these institutions must provide entrepreneurs with the skills and abilities they require because entrepreneurship is an essential factor for social mobilisation. A study conducted by Kolvereid and Moen (1997) found that students who graduate with higher grades in this area are more likely to start new businesses, and their entrepreneurial intentions are stronger than those of their graduate peers.

Undeniably, innovation is a key aspect in any economy that aims to establish itself in the long term. The role of universities has evolved from providing human capital with a certain level of training and generating new knowledge through research to training individuals who play a key role in innovation and entrepreneurship, enhancing graduates' motivation and competencies (Rasmussen et al., 2006).

The results of this study are relevant to the scientific community because they define a clear route regarding

emerging social entrepreneurship issues. Consequently, future studies into this topic can be truly coherent with the current global dynamics so that this field of knowledge is not saturated and a real impact is produced on science for the benefit of society.

Therefore, it is crucial for each country, regardless of their level of development, to encourage, through public policies and other applicable regulations, actions that further the strengthening of social entrepreneurship, as it is a key partner for governments in their ongoing endeavor to enhance communities' well-being.

As far as civil society is concerned, the results of this bibliometric analysis will allow the emerging partnership between academia, governments, and the productive sector to benefit communities' cultural, social, economic and cultural dimensions, which will, in turn, have a positive impact on the quality of life of citizens. Consequently, these results will also have an effect on social entrepreneurs because they will help them to be more aware of their actions in the market.

Finally, a broader field of knowledge has been opened for the results and impacts that social enterprises can have, especially in emerging economies that are organising themselves to mobilise communities through social projects. Faced with this new context, the social sector is welcoming more and more social actors with different backgrounds who consider social entrepreneurship to be an alternative for the growth and development of countries. This is especially relevant in regions in Latin America where many social problems have not been solved by governments and markets are more unmanageable due to armed conflicts, gender-based violence, corruption, and a lack of trust in government officials, which can lead to more complex challenges for development.

Acknowledging the importance of social entrepreneurship implies understanding the social and economic conditions in which it operates. Therefore, it is important to continue investigating the cultural aspects; educational system; internal organisational structures; factor markets; personal aspects; and political regulations that may affect social entrepreneurship.

References

Absanto, G., et al. "Cooperatives; Forms of Business Ownership that Nurture Both Social and Commercial Entrepreneurship." *International Business Management*, vol. 7, no 3, 2013, pp. 229-233. http://docsdrive.com/pdfs/medwelljournals/ibm/2013/229-233.pdf (accessed 18 July 2017).

Agrawal, S., and Gugnani, R. "Creating successful business model: lessons for social entrepreneurship." *International Journal of Entrepreneurship and Innovation Management*, vol. 18, no 5-6, 2014, pp. 438-445.

Åmo, B.W. "Antecedents, prevalence and manifestations of social entrepreneurship." *International Journal of Entrepreneurial Venturing*, vol. 6, no 2, 2014, pp. 162-178. DOI: 10.1504/IJEV.2014.062750.

Arango-Botero, D., et al. "Research Approaches to Technology Transfer in the Triple Helix Context: A Bibliometric Analysis." *Knowledge Management: An International Journal,* vol. 19 no 1, 2019, pp. 1-20. doi:10.18848/2327-7998/CGP/v19i01/1-20.

Ariza-Montes, A., et al. Social Entrepreneurship and Social Entrepreneurs: The Infl uence of Cultural Context. In J. M. M.-L. M. Peris-Ortiz (Ed.), Entrepreneurship, Regional Development and Culture, 2015 (pp. 157–177). https://doi.org/10.1007/978-3-319-15111-3

Austin, J., et al. "Social and Commercial Entrepreneurship: Same, Different, or Both?" *Entrepreneurship Theory and Practice*, vol. 30, no 1, 2006, pp. 1–22.

Auerswald, P. "Creating Social Value." *Stanford Social Innovation Review*, vol. 51(94305-5015), 2009.

Aspelund, A., et al. "Initial resources' inûuence on new venture survival: A longitudinal study of new technology-based ûrms." *Technovation*, vol. 25, no 11, 2005, pp. 1337–1347.

Azkarate, T. A., and Croasdell, D. NASF in Twitter: An Entrepreneur's Community of Practice Using Electronic Networks of Practice. 2013 46th Hawaii International Conference on System Sciences, 2013, pp. 3488–3493. https://doi.org/10.1109/HICSS.2013.643.

Azmat, F. "Sustainable development in developing countries: The role of social entrepreneurs." *International Journal of Public Administration*, vol. 36, no 5, 2013, pp. 293-304. DOI: 10.1080/01900692.2012.756891.

Bacq, S., et al. "Social and commercial entrepreneurship: Exploring individual and organisational characteristics. Scales Research Reports." *EIM Business and Policy Research*, 2011. http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.463.5125&rep=rep1&type=pdf.

Bacq, S., and Janssen, F. "The multiple faces of social entrepreneurship: A review of definitional issues based on geographical and thematic criteria." *Entrepreneurship & Regional Development*, vol. 23, no 5-6, 2011, pp. 373–403.

Bacq, S., et al. "Bricolage in social entrepreneurship: how creative resource mobilisation fosters greater social impact." *The International Journal of Entrepreneurship and Innovation*, vol. 16, no 4, 2015, pp. 283-289.

Bargsted M., et al. "Psychosocial characterisation of social entrepreneurs: A comparative study." *Journal of Social Entrepreneurship*, vol. 4, no 3, 2013, pp. 331-346.

Bienkowska, D, et al. "Public-private innovation: Mediating roles and ICT niches of industrial research institutes."

Innovation: management, policy & practice, vol. 12, no 2, 2010, pp. 206-216. DOI: 10.5172/impp.12.2.206.

Bikse, V., and Riemere, I. "The Development of Entrepreneurial Competencies for Students of Mathematics and Science Subjects: the Latvian Experience." *Procedia – Social and Behavioral Sciences*, vol. 82, 2013, pp. 511 – 519.

Bresciani, S., and Eppler, M.J. "Knowledge Visualization for Social Entrepreneurs." In: *17th International Conference on Information Visualisation*, London, UK, 16-18 July 2013, pp. 319-324. London: IEEE.

Brouard, F., and Larivet, S. "Essay of clarifications and definitions of the related concepts of social enterprise, social entrepreneur and social entrepreneurship." In Fayolle A and Matlay H (eds.) *Handbook of research on social entrepreneurship*. EE – Edward Elgar publishing, 2010, pp. 29-56.

Cai, N., et al. "Theoretical deduction on influence factors of opportunity recognition in social entrepreneurship." In: *International Symposium on Management of Technology (ISMOT)*, Hangzhou, China, 8-9 November 2012, pp. 113-117. IEEE. DOI: 10.1109/ISMOT.2012.6679439.

Caldwell, K., et al. "The potential of social entrepreneurship: Conceptual tools for applying citizenship theory to policy and practice." *Intellectual and developmental disabilities*, vol. 50, no 6, 2012, pp. 505-518. DOI: 10.1352/1934-9556-50.06.505.

Chandra, Y. "New narratives of development work? Making sense of social entrepreneurs' development narratives across time and economies." *World Development*, vol. 107, 2018, pp. 306–326. Retrieved from https://doi.org/10.1016/j.worlddev.2018.02.033.

Clamp, C.A., and Alhamis, I. "Social entrepreneurship in the Mondragon cooperative corporation and the challenges of successful replication." *Journal of Entrepreneurship*, vol. 19, no 2, 2010, pp. 149-177.

Coraggio, J.L. *Política social y economía del trabajo. Alternativas a la política neoliberal para la ciudad*. Quito: ABYA-YALA, 1999.

Dees J.G. *The Meaning of Social Entrepreneurship*, 2001. https://entrepreneurship.duke.edu/news-item/the-meaning-of-social-entrepreneurship/ (accessed 15 May 2017).

Dufays, F., and Huybrechts, B. "Connecting the dots for social value: A review on social networks and social entrepreneurship." *Journal of Social Entrepreneurship*, vol. 5, no 2, 2014, pp. 214-237. DOI: 10.1080/19420676.2014.918052.

Faller, L.P.,et al. "Criação de valor sob a ótica do empreendedorismo social: Uma análise dos empreendimentos coletivos de uma incubadora social." *Revista ESPACIOS*, vol. 37, no 11, 2016.

Ferreira, J.J., et al. "Conceptualising social entrepreneurship: perspectives from the literature." *International Review on Public and Nonprofit Marketing*, 2016, pp. 1-21. DOI: 10.1007/s12208-016-0165-8.

Gaiger, L. "Emprendimientos económicos solidarios", 2004.http://wb.ucc.edu.co/institucional5/files/2011/08/emprendimientoseconomicosolidarios.pdf (accessed 15 May 2017).

Galindo-Martín, M.Á., et al. "Innovación y crecimiento económico: Factores que estimulan la innovación." *Cuadernos de Gestión*, vol. 12, 2012, pp. 51-58. DOI: 10.5295/cdg.110309mg.

Garrigós-Simon, F.J., et al. "Policies to enhance social development through the promotion of SME and social entrepreneurship: a study in the Colombian construction industry." *Entrepreneurship & Regional Development*, vol. 29, no 1-2, 2017, pp. 51-70. DOI: 10.1080/08985626.2016.1255437.

Gartner, W., et al. "Predicting new venture survival: an analysis of "anatomy of a start-up." Cases from inc. Magazine." *Journal of business venturing*, vol. 14, no 97, 1998, pp. 215–232.

Gauthier, J., et al. "Evaluating and extending SCALERS: Implications for social entrepreneurs." *Journal of Small Business & Entrepreneurship*, vol. 31 no 4, 2019, pp. 349–370. Retrieved from https://doi.org/10.1080/08276331.2018.1498260.

Gawell, M. "Social entrepreneurship and the negotiation of emerging social enterprise markets: Re-considerations in Swedish policy and practice." *International Journal of Public Sector Management*, vol. 27, no 3, 2014, pp. 251-266. DOI: 10.1108/IJPSM-11-2012-0143.

Griffiths, M.D., et al. "The socio-political, economic, and cultural determinants of social entrepreneurship activity: An empirical examination." *Journal of small business and enterprise Development*, vol. 20, no 2, 2013, pp. 341-357. DOI: 10.1108/14626001311326761.

Grohs, S., et al. "Social Entrepreneurship Versus Intrapreneurship in the German Social Welfare State: A Study of Old-Age Care and Youth Welfare Services." *Non-profit and voluntary sector quarterly*, vol. 44, no 1, 2015, pp. 163-180. DOI: 10.1177/0899764013501234.

Haugh, H. "A research agenda for social entrepreneurship." *Social enterprise journal*, no 1, 2005, pp. 1–12.

Haugh, H.M., and Talwar, A. "Linking social entrepreneurship and social change: The mediating role of empowerment." *Journal of Business Ethics*, 2014, pp. 1-16.

Hechavarría, D.M., and Welter, C. "Opportunity types, social entrepreneurship and innovation: Evidence from the panel study of entrepreneurial dynamics." *The International Journal of Entrepreneurship and Innovation*, vol. 16, no 4, 2015, pp. 237-251.

Hoogendoorn, B., et al. "What Do We Know About Social Entrepreneurship: An analysis of empirical research report series." *International Review of Entrepreneurship*, vol. 8, no 2, 2010.

Hunter, L.,and Lean, J. "Investigating the role of entrepreneurial leadership and social capital in SME competitiveness in the food and drink industry." The International Journal of Entrepreneurship and Innovation, vol. 15, no 3, 2014, pp. 179-190.

Husson, F.,et al. "Exploratory multivariate analysis by example using R." CRC press, 2017.

Karanda, C., and Toledano, N. "Foreign aid versus support to social entrepreneurs: Reviewing the way of fighting poverty in Zimbabwe." *Journal Development Southern Africa*, vol. 35 no 4, 2018, pp. 480–496. Retrieved from https://doi.org/10.1080/0376835X.2018.1482198.

Karimi, S., et al. "The Role of Entrepreneurship Education in Developing Students' Entrepreneurial Intentions." 2012. http://ssrn.com/abstract=2152944 (accessed 21 March 2017). DOI: 10.2139/ssrn.2152944.

Kolvereid, L., and Moen, Ø. "Entrepreneurship among business graduates: does a major in entrepreneurship make a difference?" *Journal of European industrial training*, vol. 21, no 4, 1997, pp. 154-160.

Krueger, N.F.Jr, et al. . "Competing models of entrepreneurial intentions." *Journal of business venturing*, vol. 15, no 5, 2000, pp. 411-432. DOI: 10.1016/S0883-9026(98)00033-0.

Ladd, T. "Business models at the bottom of the pyramid: Leveraging context in undeveloped markets." *The International Journal of Entrepreneurship and Innovation*, vol. 18, no 1, 2017, pp. 57-64.

Leadbeater, C. *The rise of the social entrepreneur*. London: Demos, 1997.

Li, C. "Co-creation Design Mechanism for the Online Entrepreneur Community Building." *IHIET 2019: Human Interaction and Emerging Technologies*, 2019, pp. 176–182. https://doi.org/ https://doi.org/ 10.1007/978-3-030-25629-6_28.

Mair, J., and Marti, I. "Social entrepreneurship research: A source of explanation, prediction, and delight." *Journal of world business*, vol. 41, no 1, 2006, pp. 36-44. DOI: 10.1016/j.jwb.2005.09.002.

Marion, T.,et al. "New product development practices and early-stage ûrms: Two in-depth case studies." *Journal of Product Innovation Management*, vol. 29, no 4, 2012, pp. 639–654.

Martin, B.C., et al. "Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes." Journal of Business Venturing, vol. 28, no 2, 2013, pp. 211-224.

Martin, R.L., and Osberg, S. "Social Entrepreneurship: The Case for Definition." *Stanford Social Innovation Review*, 2007, pp. 1–13. http://www.ngobiz.org/picture/File/Social%20Enterpeuneur-The%20Case%20of%20Definition.pdf (accessed 5 February 2017).

Massetti, B. "The social entrepreneurship matrix as "tipping point" for economic change." *Emergence: Complexity & Organization (E:CO),* 2008, pp. 1–16. DOI: 10.emerg/10.17357.a78a8a22a573f663377e98cc17f0a1d9.

Miller, T.L., et al.. "Educating the minds of caring hearts: Comparing the views of practitioners and educators on the importance of social entrepreneurship competencies." *Academy of Management Learning & Education*, vol. 11, no 3, 2012, pp. 349-370.

Minniti, M., and Lévesque, M. "Recent developments in the economics of entrepreneurship." *Journal of Business Venturing*, vol. 23, 2008, pp. 603–612.

Muhamad, N.S.A., and Adham, K.A. "Social entrepreneurship as transformative service for societal well-being." *Journal Pengurusan*, vol. 39, 2013, pp. 111-118.

Narang, Y., et al. "Scaling the impact of social entrepreneurship from production and operations management perspective–a study of eight organisations in the health and education sector in India." *International Journal of Business and Globalisation*, vol. 13, no 4, 2014, pp. 455-481. DOI: 10.1504/IJBG.2014.065431.

Narangajavana, Y., et al. "Measuring social entrepreneurship and social value with leakage. Definition, analysis and policies for the hospitality industry." *International Entrepreneurship and Management Journal*, vol. 12, no 3, 2016, pp. 911-934. DOI: 10.1007/s11365-016-0396-5.

Nyssens, M. *Social Enterprise: At the crossroads of market, public polices and civil society*. London and New York: Routledge, 2006.

Núñez, G.P. "Emprendimiento social: integrando a los excluidos en el ámbito rural." *Revista de Ciencias Sociales*, vol. 16, no 4, 2010.

Ortbal, K., et al.. "Stakeholder Journey Mapping: An Educational Tool for Social Entrepreneurs." *Procedia Engineering*, vol. 159, 2016, pp. 249–258. Retrieved from https://www.sciencedirect.com/science/article/pii/S1877705816323189.

Palacios, G. "Emprendimiento social : integrando a los excluidos en el ámbito rural." *Revista de Ciencias Sociales*, vol. XVI, no 4, 2010, pp. 579–590.

Parris, D.L., and McInnis-Bowers, C.V. "Social Entrepreneurship Questioning the Status Quo: Waste as a Resource." *Journal of Economic Issues*, vol. 48, no 2, 2014, pp. 359-366.

Peredo, A., and Mclean, M. "Social Entrepreneurship: A critical review of the concept." *The journal of World Business*, 2005, pp. 1–29.

Peterman, N.E., and Kennedy, J. "Enterprise education: Influencing students' perceptions of entrepreneurship." *Entrepreneurship theory and practice*, vol. 28, no 2, 2003, pp. 129-144.

Phillips, W., et al."Social Innovation and Social Entrepreneurship A Systematic Review." *Group & Organization Management*, vol. 40, no 3, 2015, pp. 428-461.

Piperopoulos, P., and Dimov, D. "Burst Bubbles or Build Steam? Entrepreneurship Education, Entrepreneurial Self Efficacy, and Entrepreneurial Intentions." *Journal of Small Business Management*, vol. 53, no 4, 2014, pp. 970–985. DOI: 10.1111/jsbm.12116.

Rahdari, A., et al. "Achieving sustainability through Schumpeterian social entrepreneurship: The role of social enterprises." *Journal of Cleaner Production*, vol. 137, 2016, pp. 347-360. DOI: 10.1016/j.jclepro.2016.06.159.

Rasmussen, E.A., and Sørheim, R. "Action-based entrepreneurship education." *Technovation*, vol. 26, no 2, 2006, pp. 185-194. DOI: 10.1016/j.technovation.2005.06.012.

Roberts, D., and Woods, C. "Changing the world on a shoestring : The concept of social entrepreneurship." *Europe*, vol. 7, no 1, 2000, pp. 45–51.

Rueda, G., et al. "Bibliometrics and social network analysis of the nanotechnology field." In: *Management of Engineering and Technology, Portland International Center for, Portland, OR, USA*, 5-9 August 2007, 2905-2911. IEEE.

Said, H., et al. "Assessing the Role of Higher Education in Developing Social Entrepreneurship in Malaysia: A Review of Literature." *Mediterranean Journal of Social Sciences*, vol. 6, no 2, 2015, pp. 583-587. DOI: 10.5901/mjss.2015.v6n2p583.

Sánchez, M.L.L. "La evaluación de la actividad científica mediante indicadores bibliométricos." *Bibliotecas: Revista de la Escuela de Bibliotecología, Documentación e Información*, vol. 24, no 1 y 2, 2006, pp. 9-26.

Sarkar, S. "Grassroots entrepreneurs and social change at the bottom of the pyramid: the role of bricolage." *Entrepreneurship and Regional Development*, vol. 30 no 3–4, 2018, pp. 421–449. https://doi.org/10.1080/08985626.2017.1413773.

Seelos, C., and Mair, J. "Social entrepreneurship: Creating new business models to serve the poor." Business horizons, vol. 48, no 3, 2005, pp. 241-246. DOI: 10.1016/j.bushor.2004.11.006.

Shane, S., and Venkataraman, S. "The promise of entrepreneurship as a field of research." *Academy of management review*, vol. 25, no 1, 2000, pp. 217-226.

Shaw, E., and De Bruin, A. "Reconsidering capitalism: the promise of social innovation and social entrepreneurship?" *International Small Business Journal*, vol. 31, no 7, 2013, pp. 737-746. DOI: 10.1177/0266242613497494.

Swan, C.D., and Morgan, D. "Who wants to be an eco-entrepreneur? Identifying entrepreneurial types and practices in ecotourism businesses." *The International Journal of Entrepreneurship and Innovation*, vol. 17, no 2, 2016, pp. 120-132.

Sigala, M. "Learning with the market: A market approach and framework for developing social entrepreneurship in tourism and hospitality." *International Journal of Contemporary Hospitality Management*, vol. 28, no 6, 2016, pp. 1245-1286. DOI: 10.1108/IJCHM-06-2014-0285.

Souitaris, V., et al. "Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources." *Journal of Business Venturing*, vol. 22, no 4, 2007, pp. 566-591. DOI: 10.1016/j.jbusvent.2006.05.002.

Squazzoni, F. "Social entrepreneurship and economic development in Silicon Valley: A case study on the Joint Venture: Silicon Valley Network." *Non-profit and Voluntary Sector Quarterly*, vol. 38, no 5, 2009, pp. 869-883.

Tedmanson, D., and Guerin, P. "Enterprising social wellbeing: social entrepreneurial and strengths based approaches to mental health and wellbeing in "remote" Indigenous community contexts." *Australasian Psychiatry*, vol. 19(sup1), 2011.

The R Core Team. *R: a language and environment for statistical computing. 3.3.1 ed. R Foundation for Statistical Computing*, Vienna, Austria, 2016.

Triantafyllopoulou, A. "Social Entrepreneurship-Social Enterprises: European Experience and the Greek Case." *Review of European Studies*, vol. 4, no 1, 2012, pp. 115.

Tomos, F., et al. „The Emergence of Women Entrepreneurs and Communities of Practice within the Global Context." In In I. Management Association (Ed.) (Ed.), Entrepreneurship: Concepts, Methodologies, Tools, and Applications 2017 (pp. 2063–2092). https://doi.org/10.4018/978-1-5225-1923-2.ch089.

Valencia-Arias, A., et al. "Trends In The M-Learning Subject Area Over A 15-Year Period (2002-2017) Using Scopus." Problems of Education in the 21st Century, vol 77 no 2, 2019.

Varol, Ç., Yalçiner, Ö., Gürer, N. "Sustainable actions of community entrepreneurs: local agenda 21 in Karaburun-İzmir." *Gazi University Journal of Science*, vol. 22, no 1, 2009, pp. 51-58.

Venkataraman, S., and Shane, S. "The promise of entrepreneurship as a field of research." *Academy of Management Review*, vol. 25, no 1, 2000, pp. 217–226.

Villa, E., et al. "Electronic Commerce: Factors Involved in Its Adoption from a Bibliometric Analysis." Journal of Theoretical and Applied Electronic Commerce Research vol. 13 no 1, 2018, pp. 39–70. https://doi.org/10.4067/S0718-18762018000100104.

Von-Graevenitz, G., et al. "The effects of entrepreneurship education." *Journal of Economic Behavior & Organization*, vol. 76, no 1, 2010, pp. 90-112. DOI: 10.1016/j.jebo.2010.02.015.

Weerawardena, J., and Mort, G. "Investigating social entrepreneurship: A multidimensional model." *Journal of World Business*, vol. 41, no 1, 2006, pp. 21–35. DOI:10.1016/j.jwb.2005.09.001.

Warner, K., et al. "Ignatian Pedagogy for Social Entrepreneurship: Twelve Years Helping 500 Social and Environmental Entrepreneurs Validates the GSBI Methodology." *Journal of Technology Management & Innovation*, vol. 11, no 1, 2016, pp. 80-85.

Wompner, F.H. "El emprendimiento como factor de movilización social." *Nómadas*, vol. 36, no 4, 2012, pp. 1-6.

Wu, W., and Yao, L. "Research on entrepreneurs' social capital, absorptive capacity and corporate performance." In: *9th International Conference on Service Systems and Service Management (ICSSSM)*, Shanghai, China, 2-4 July 2012, 348-352. IEEE.

Yang, R.,et al. "Social Entrepreneurial Intentions: China versus the USA–Is There a Difference?" *The International Journal of Entrepreneurship and Innovation*, vol. 16, no 4, 2015, pp. 253-267.

Zahra, S.A., et al. "A typology of social entrepreneurs: Motives, search processes and ethical challenges." *Journal of business venturing*, vol. 24, no 5, 2009, pp. 519-532.

Zahra, S.A., and Wright, M. "Understanding the social role of entrepreneurship." *Journal of Management Studies*, vol. 53, no 4, 2016, pp. 610-629.

****

Carbon Credit Issuance: Accounting Based Financial Performance

Praveen Kumar
Assistant Professor
Chitkara Business School,
Chitkara University, Punjab
Email: praveen.kumar@chitkara.edu.in,

Amit Mittal
Professor
Chitkara Business School,
Chitkara University, Punjab
Email: amit.mittal@chitkara.edu.in

Mohammad Firoz
Assistant Professor
Department of Business Administration,
National Institute of Technology, Kurukshetra
Email: mfiroz@nitkkr.ac.in,

Abstract

A carbon credit is having tradable money related worth and might be exchanged in the open market. Henceforth, these credits influence firms' money inflow and change the organisations' profitability. This examination analysed the connection between the CERs issuance and the CFP. It covers 44 Indian organisations' that are effectively occupied with climate conservation exercises and provided data about their ecological exercises through the CDP at least once during 2011-2015. This investigation revealed that the CERs issuances are positively and significantly linked to ROE. The finding reveals that the investors see the CERs grants as a positive organisation's initiative, leading to greater ROE. These results will be useful for financial specialists who trade in the CDM market and environmental strategies formation of the Indian organisations.

Keywords: *Environment, Carbon credit, India, Carbon Disclosure Project, UNFCCC, ROE*

Abbreviations: *CDM- Clean Development Mechanism; ROE; UNFCCC- United Nation Framework Conventions on Climate Change; CDP-Carbon Disclosure Project; CFP-Corporate Financial Performance; CERs-Certified Emission Reductions; GICS-Global Indus*

As ecological execution affect an organisation's CFP (Freedman and Jaggi, 1982; Ullmann, 1985; Dye, 1985; Dowell et al., 2000; King and Lenox, 2001; Konar and Cohen, 2001; Al-Tuwaijri et al., 2004; Saka and Oshika, 2014; Flammer, 2015; Qiu et al., 2016; Kumar and Firoz, 2018b). The literature on environmental change effects on the CFP has gotten a matter of enthusiasm for various stakeholders all through the world, in view of polluting firms are facing high pressure to adopt environmental-friendly initiatives (Kumar and Firoz, 2019a). It gives rise to new financial instruments to protect the environment like CERs. The CERs is created under CDM and affirmed by the UNFCCC, the USA in light of the decrease in the ozone harming substances. These credits are having a tradable financial worth and might be exchanged the open market (Kumar, 2016). Subsequently, these credits issuances influence firms' money inflow and adjust the organisations' earning ability. India has generated 1,47,95,88,814 CERs in Kyoto Protocol's stage 1 and 47,81,97,494 CERs in Kyoto Protocol's stage 2, up to 2017 (see Fig. 1). We investigated the connection between CERs issuance and ROE.

A significant number of examinations have endeavoured a positive linkage of organisations' environmental change management exercises and CFP (Palmer et al., 1995; Blacconiere and Northcut, 1997; Bae and Sami, 2005; Stern, 2007; Kim and Lyon, 2011; Fisher-Vanden and Thorburn, 2011; Hsu and Wang, 2012; Griffin et al., 2012; Saka and Oshika, 2014; Matsumura et al., 2014; Kumar and Firoz, 2018a) in developed nations. However, not many analysts have contemplated the connection between the ecological presentation and CFP in emerging nations (Lee et al., 2015). This examination is foremost to look at the connection between issuance and ROE in the Indian setting. Most of past investigations utilised stock returns for CFP criteria (e.g. Jones and Murrell, 2001; Oberndorfer, 2009; Jacobs *et al.*, 2010; Hsu and Wang, 2013; Gabbi et al., 2015; da Silva et al., 2016; Brouwers et al., 2016; Moreno and Silva, 2016 and Kumar & Firoz, 2019b), a limited studies utilised accounting-based criteria. This examination likewise fills this gap. Lastly, this investigation gives leaders important ramifications regarding making environmental change arrangements to the greatest advantage of a company's money related execution in the market.

The current investigation portrayed that the CERs announcements are positively and significantly linked to ROE. After considering the business and organisations' related factors, we argued that the ROE will be greater for organisations who received CERs certification. More specifically, this investigation revealed that the CERs issuances are positively and significantly linked to ROE. The investors see the CERs grants as a positive organisation's initiative, leading to greater ROE. These results will useful for financial specialists who trade in the CDM market and environmental strategies formation of the Indian organisations.

The remainder of this paper continues as follows: The literature review section discusses the prior studies on the connection between the CERs and the CFP. The data and methodology section depicts the exploration technique and factors which are being utilised in this investigation. We then provide the findings of the empirical examination. Then discussed the ramifications of the investigation and concluding comments.

Working of CERs

"A carbon credit is a generic term for any tradable certificate or permits representing the right to emit one tone of CO2 or the mass of another greenhouse gas with a carbon dioxide equivalent tCO2e to one tone of CO2 by burning fossil fuels" (UNFCCC).

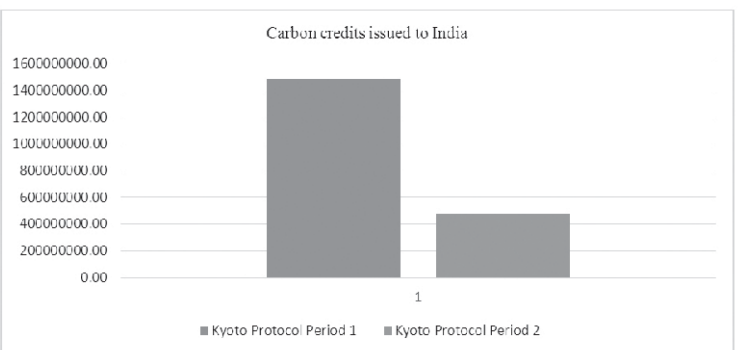


Fig. 1 CERs issued to India
Source: UNFCCC (2017)

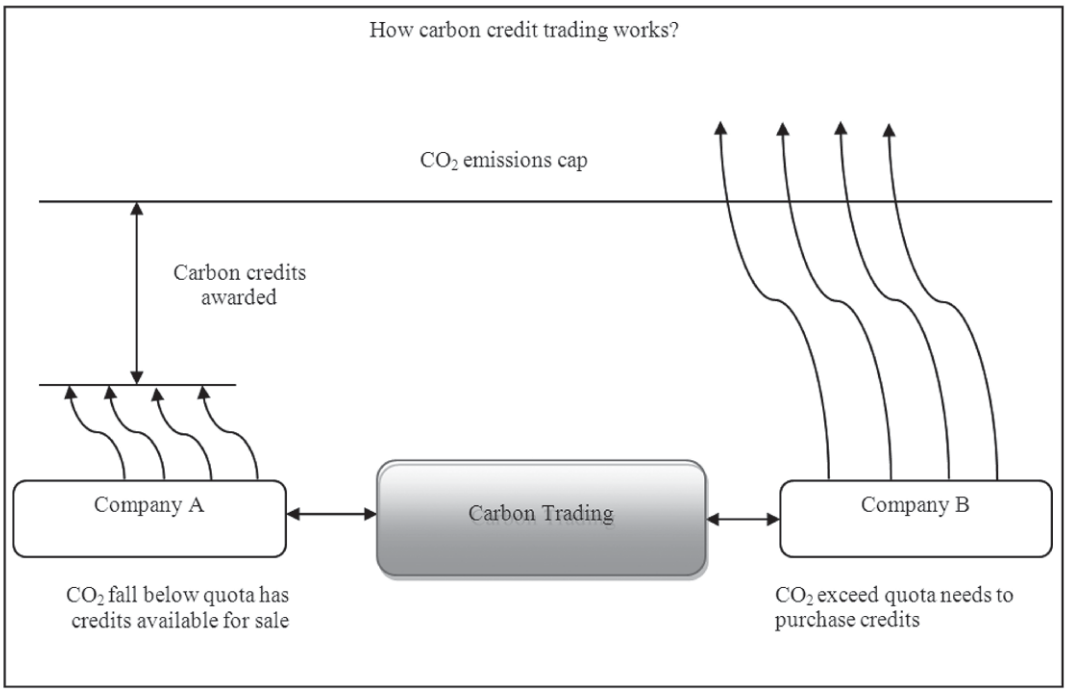


Fig. 2 Working of carbon credit trading

Carbonex: The S&P BSE CARBONEX tracks the performance of the firms on the basis of their commitment to mitigate the environmental risks. The carbonex was set-up to address market demand in a sophisticated way to handle portfolio by taking care of environmental opportunity and risk.

Chicago Climate Exchange (CCX): It is a cap-and-trade mechanism located in North America. Under this mechanism, members who did not able to meet their emission targets can fulfil their compliance commitment by buying emission allowances through CCX's electronic trading.

European Climate Exchange (ECX): It handles the product development and campaigning for ECX Instruments listed and eligible for buying and selling on the ICE Futures.

European Energy Exchange (EEX): It develops handles and links safe, flexible and fair markets for energy and associated products. It also provides contracts on power and carbon allowances along with agricultural commodities.

BSE-Greenex: It measures the performance of the firms' w.r.t CO_2 emission. It covers 20 firms from each sector like power, steel; cement etc. which meets the energy efficiency criteria. It is jointly constructed by the BSE and Indian Institute of Management, Ahmedabad.

NASDAQ OMX Commodities: It is trade in products and services which are related to commodities. The trading under NASDAQ includes power, gases and emission allowances, fuel oil etc. It was formerly known as Nord Pool.

Power Next: It handles the greenhouse gas activities of the EEX Group. The Power Next was incorporated in 2001. It provides services to the energy industry and handles the National Registry for electricity guarantees.

Literature Review

Previous studies display that a positive connection of environmental exercises and the CFP (e.g. Murphy, 2002; Clarkson et al., 2008; Chapple et al., 2013 and Lam et al., 2016). More specifically, carbon credits have positively linked to the CFP (e.g. Jones and Murrell, 2001; Oberndorfer, 2009; Jacobs et al., 2010; Hsu and Wang, 2013; Gabbi et al., 2015; da Silva et al., 2016; Brouwers et al., 2016 and Moreno and Silva, 2016). Smale et al. (2006) showed that a CO_2 reduction positively influences the profitability of an organization under EU-ETS. Further, an analysis of 419 German organizations by Anger and

Oberndorfer (2008) recommended that the actual distribution inside the EU-ETS system in the main stage did not significantly affect incomes and employment.

In this vein, Oberndorfer (2009) analyzed 12 power segment organizations' for 2005-2007. This examination also shows that the carbon price hike (decline) positively (negatively) affect market returns. In a subsequent study, Yu (2011) examined 216 Swedish organizations for 2005-2006. This examination found no significant effect of the EU-ETS on productivity in 2005 and a negative effect in 2006. Abrell et al. (2011) also depicted that the EU-ETS at most modestly influenced benefits, business, and the value-added of managed organizations.

Bushnell et al. (2013) examined 552 stocks listed on EURO STOXX. This examination found that few businesses profited by the EU-ETS instead of being harmed by the inconvenience of CO_2 guideline. Jaraite and Di Maria (2014) also demonstrated that EU-ETS did not speak to a delay in the productivity of taking participating in 5,000 Lithuanian organizations during 2003-2010. Gabbi et. al. (2015) using meetings with managers and the assessment of the sustainability and financial reports revealed that the CERs revenue positively influences the CFP. However, Moreno and da Silva (2016) also argued that the effect of EUA prices on CFP is ambiguous.

Based on the above discussions, the hypothesis is:

Ho: There is a positive and statistical significant relationship between carbon credit issuance and CFP.

Data and Methodology

Table 1. Sample Organiations

Company	Industry	Company	Industry
TCS	Information Technology	Gail	Utilities
Wipro	Information Technology	IOC	Materials
ACC Cements	Materials	Tata Motors	Consumer Discretionary
Tata Chemicals	Materials	Hindustan Zinc	Materials
Tata Global Beverages	Consumer Staples	Godrej Consumer Products	Consumer Staples
Sesa Goa	Materials	Godrej Industries	Materials
GVK Power	Utilities	Cairn India	Energy
Tata Power	Utilities	Piramal Enterprises	Health Care
ITC	Consumer Staples	Hindustan Petroleum	Energy
Mahindra & Mahindra	Consumer Discretionary	JSW Steel	Materials
Larsen & Toubro	Industrials	Bharat Forge	Consumer Discretionary
Tata Steel	Materials	Titan Industries	Consumer Discretionary
Essar Oil	Energy	Bharat Petroleum	Energy
Infosys	Information Technology	ONGC	Energy
Shree Cement	Materials	ABB	Industrials
Tech Mahindra	Information Technology	IL & FS Transportation	Industrials
Dr Reddys Laboratories	Health Care	Suzlon Energy	Industrials
Ultratech Cement	Materials	Mahindra Satyam	Information Technology
Indian Hotels	Consumer Discretionary	Mindtree Ltd	Information Technology
HCL Technologies	Information Technology	Asian Paints	Materials
Ambuja Cements	Materials	NMDC	Materials
Tata Communications	Telecommunications	KSK Energy Ventures	Utilities

This article extracted the information expected to quantify variables under study from the Prowess. Besides, CERs data was acquired from the website CDM. The sample organizations picked for this investigation incorporated all organizations which are effectively occupied with ecological safeguarding exercises and imparted their natural effect to their stakeholder through the CDP at least once during 2011-2015. We barred nine organizations from the financial segment in light of the fact that the administrative structure or business exercises of these organizations vary from other industry divisions (Hossain et al., 1995). Also, information about three organizations was not accessible on Prowess Database. At long last, a sample of 44 organizations was formulated (Table 1).

Econometric model

The econometric model utilized to check hypothesis is:

$$ROE_t = \alpha_0 INTERCEPT + \alpha_1 CARBON\ EMISSION\ CREDIT + \alpha_2 SIZE + \alpha_3 BETA + \alpha_4 R\&D + \alpha_5 INDUSTRY + \varepsilon_t \quad (I)$$

The current examination utilized ROE as an explanatory variable. INTERCEPT is the intercept. CERs are an indicator variable, which is coded as one if an organization got accreditation and zero otherwise. We assume the coefficient CERs will be positive. Further, consistent with prior studies (e.g., Waddock and Graves, 1997; Hai et al., 1998; McWilliams and Siegel, 2000; Al-Tuwaijri et. al., 2004 and Salama, 2005), we also utilized four control variables like beta, size, leverage, and R&D. The size is the total assets of an organization (Hackston and Milne, 1996). The article assumed a positive coefficient of size (**α**2) and argued that bigger organizations' have superior CFP than little organizations (Kumar and Firoz, 2017). Beta is a measure the systematic risk and expected to positively link ROE (Kumar and Firoz, 2017). R&D is an investment in research and development. The industries were segmented based on GICS Classification.

Estimation of ROE

Steady with the earlier investigations (Hart and Ahuja, 1996; Russo and Fouts, 1997; Haniffa and Cooke, 2005 and Shen and Chang, 2009; Kumar and Firoz, 2018a), we also utilized ROE as a proxy for CFP. It connotes how good the organization is creating returns on the capital it got from its investors. It is calculated as follow:

ROE = Net Income/Shareholder's Equity (II)

Findings and Analysis

Descriptive insights

Descriptive insights of the sample organizations are shown in Table 2. The CFP in this examination is estimated by utilizing ROE, which is likewise the predicted variable of this investigation. The mean of ROE is 16.04 per cent which shows that sample organizations are progressive and having a decent return for their investment, though the SD is 0.1260. The greatest and least estimation of ROE is 49.53 per cent and - 0.06.16 per cent.

Table 2. Descriptive insights

Variable	Observation	Min.	Max.	Med.	Mean	SD
ROE	220	-0.0616	0.4953	0.1448	0.1604	0.1260
Carbon Credit	220	0	1	0	0.1818	0.3865
Size	217	1448.13	498890.7	26517.88	53855.01	74895.15
Beta	219	0.1507	2.1791	0.8454	0.8722	0.3738
R&D	177	0	1305.39	4.55	46.09	155.46

The mean of CERs is 0.1818, which demonstrates that only 18.18% of organizations converted their ecological conservation exercises into CERs grants. The most extreme estimation of CERs (1) demonstrates that organizations got CDM accreditation under UNFCCC, while the least value (0) shows that organizations unfit to convert their natural safeguarding activities into CERs grants. The median and mean of the beta is high, are, 0.8454 and 0.8722, respectively, which indicating that the Indian organizations have high operating risks exposures. The mean and median estimations of R&D are 46.09 and 4.55, respectively. In brief, elucidating insights of variables show that the sample organizations are progressive, large, and risky.

5.1. *Multicollinearity grid*

Table 3. Correlation grid

Variables	ROE	CERs	Size	Beta	R&D	Industry
1.	1	-0.0774	0.4681*	-0.3602*	-0.0467	0.2084*
2.		1	0.0776	0.2453*	0.0174	-0.0916
3.			1	-0.1131	0.0289	0.2251*
4.				1	0.1641**	-0.1883**
5.					1	-0.0259
6.						1

(Significance values are: *** = $p < 0.10$, ** = $p < 0.05$, * = $p < 0.01$)

The relationship grid (Table 3) depicted that all correlation coefficients' values are beneath 0.9 (Hair et al., 2006) and 0.8 (Kennedy, 1985), so there is no issue of multicollinearity among the variables under investigation.

CERs issuance and ROE

We utilized multiple regression analysis to inspect the effect of CERs on firms' money related execution. The results shows (Table 4) that CERs issuance is significantly connected to ROE at the five per cent (p-value<0.10) and 10 per cent levels (p-value<0.01). These outcomes affirmed our hypothesis that CERs accreditation improves organizations' ROE.

Table 4. Analysis of CERs' effects' on ROE

Variable	Cross-Section (I) Coefficient (*P-Value*)	Cross-Section (II) Coefficient (*P-Value*)
Intercept	-0.1678*(0.0945)* ** *	-0.3510*(0.0000)* *
CERs	0.0320*(0.0331)* **	0.0177*(0.0686)* ***
Size	0.0826*(0.0001)* *	0.1269*(0.0000)* *
Beta	-0.0717*(0.0001)* *	-0.0739*(0.0000)* *
R&D	6.1105*(0.1335)*	-7.1605 *(0.0000)*
Industry	6.6508*(0.4886)*	8.4308*(0.0001)* **
Adjusted R-Squared	0.1496	0.3610
F-Statistic	7.1942	12.0485
Prob (F-Statistic)	0.000004	0.000000

(Significance values are: *** = $p < 0.10$, ** = $p < 0.05$, * = $p < 0.01$)

Moreover, the coefficient for the organizations' size is positively and significantly connected to ROE at the one per cent levels (p-value< 0.01). These outcomes demonstrate that bigger firms have superior ROE over littler firms. Besides, the coefficient for beta is negative but significantly identified with ROE at the one per cent level. Theses outcomes argued that high leverage reduces ROE. Moreover, R&D is negatively and significantly influences the ROE of Indian organizations'. In addition, the industry is likewise significantly identified with ROE at one per cent level (Model II).

Conclusion

This paper explores the effect of the CERs issuance on CFP utilizing 44 Indian organizations which are effectively occupied with environmental conservation exercises and provided data about their ecological exercises through the CDP at least once during 2011-2015. This investigation revealed that the CERs issuances are significantly linked to ROE. Moreover, the finding of this investigation reveals that the investors see the CERs grants as a positive organization's initiative, leading to greater ROE. These results will be useful for financial specialists who trade in the CDM market and environmental strategies formation of the Indian organizations. The ecological conservations have become a discussing issue at national and worldwide level. The business also considered the phenomenon, resultant; they began to invest in ecological conservations projects (Kumar and Firoz, 2018a). Finally, this article argued that the monetary implications of the ecological conservations exercises are getting more stakeholders' exposure and significance in the revenue generation processes.

References

Abrell, J., et al. (2011), "Assessing the impact of the EU ETS using firm-level data," Bruegel Working Paper No. 2011/08.

Al-Tuwaijri, S. A., et al. (2004), "The relations among environmental disclosure, environmental performance, and economic performance: a simultaneous equations approach." *Accounting, Organizations and Society*, 29(5), 447-471.

Anger, N. and Oberndorfer, U. (2008), "Firm performance and employment in the EU emissions trading scheme: an empirical assessment for Germany," *Energy Policy*, 36(1), 12-22.

Bae, B. and Sami, H. (2005), "The effect of potential environmental liabilities on earnings response coefficients." *Journal of Accounting, Auditing and Finance*, 20(1), 43-70.

Blacconiere, W. G. and Northcut, W. D. (1997), "Environmental information and market reactions to environmental legislation." *Journal of Accounting, Auditing and Finance*, 12(2), 149-178.

Brouwers, R., et al. (2016), "The initial impact of EU ETS verification events on stock prices." *Energy Policy*, 94, 138-149.

Bushnell, J.B., et al. (2013), "Profiting from regulation: evidence from the European carbon market," *American Economic Journal: Economic Policy*, 5(4), 78-106.

Chapple L., et al. (2013), "The Cost of Carbon: Capital Market Effects of the Proposed Emission Trading Scheme (ETS),"*Abacus*,49(1), 1-33.

Clarkson, P. M., et al.. (2008), "Revisiting the relation between environmental performance and environmental disclosure: An empirical analysis." *Accounting, organizations and society*, 33(4), 303-327.

Da Silva, P. P., et al. (2016), "Firm-specific impacts of CO_2 prices on the stock market value of the Spanish power industry," *Energy Policy*, 94, 492-501.

Dowell, G., et al. (2000), "Do corporate global environmental standards create or destroy market value?" *Management Science*, 46(8), 1059-1074.

Dye, R. A. (1985), "Disclosure of nonproprietary information." *Journal of Accounting Research*, 123-145.

Fisher-Vanden, K. and Thorburn, K. S. (2011), "Voluntary corporate environmental initiatives and shareholder wealth," *„Journal of Environmental Economics and Management*, 62(3), 430-445.

Flammer, C. (2015), "Does corporate social responsibility lead to superior financial performance? A regression discontinuity approach" ,*Management Science*, 61(11), 2549-2568.

Freedman, M. and Jaggi, B. (1982), "Pollution disclosures, pollution performance and economic performance," *Omega*, 10(2), 167-176.

Gabbi A.,Godoy L. P., et al. (2015), "Measurement of Results from Investments in Clean Development mechanisms and Carbon emission credit Generation," *Chemical Engineering Transactions*, 43, 2455-2460.

Griffin, P. A., et al. (2012), "The relevance to investors of greenhouse gas emission disclosures," *SSRN Electronic Journal*, available at: http://ssrn.com/abstract¼1735555 (accessed 8 December 2016).

Hackston, D. and Milne, M. J. (1996), "Some determinants of social and environmental disclosures in New Zealand companies" *„Accounting, Auditing and Accountability Journal*, 9(1), 77-108.

Hai, Y.T., et al.. (1998), "Environmental disclosure–financial performance link, further evidence from industrial economy perspectives," In *The 2nd Asian Pacific Interdisciplinary Research on Accounting Conference (AIRA), Singapour*.

Hair, J. F., et al. (2006), *Multivariate data analysis: A global perspective*, 7, Upper Saddle River, NJ: Pearson.

Haniffa, R. M. and Cooke, T. E. (2005), "The impact of culture and governance on corporate social reporting" *„Journal of Accounting and Public Policy*, 24(5), 391-430.

Hart, S. L. and Ahuja, G. (1996), "Does it pay to be green? An empirical examination of the relationship between emission reduction and firm performance", *Business Strategy and the Environment*, 5(1), 30-37.

Hossain, M., et al. (1995), "Voluntary disclosure in the annual reports of New Zealand companies," *Journal of International Financial Management and Accounting*, 6(1), 69-87.

Hsu, A. W. H. and Wang, T. (2013), "Does the market value corporate response to climate change?" *Omega*, 41(2), 195-206.

Jacobs, B. W., et al. (2010), "An empirical investigation of environmental performance and the market value of the firm" ,*Journal of Operations Management*, 28(5), 430-441.

Jaraite, J. and Di Maria, C. (2014), "Did the EU ETS make a difference? An empirical assessment using Lithuanian firm-level data," *Energy*, 37(1), 1-23.

Jones, R. and Murrell, A. J. (2001), "Signalling positive corporate social performance: An event study of family-friendly firms," *Business and Society*, 40, 59-78.

Kennedy, P. (1985), *A guide to econometrics*. MIT press.

Kim, E. H. and Lyon, T. (2011), "When does institutional investor activism increase shareholder value? The carbon disclosure project," *The BE Journal of Economic Analysis and Policy*, 11(1).

King, A. A. and Lenox, M. J. (2001), "Does it really pay to be green? An empirical study of firm environmental and financial performance: An empirical study of firm environmental and financial performance", Journal *of Industrial Ecology*, 5(1), 105-116.

Konar, S. and Cohen, M. A. (2001), "Does the market value environmental performance?" *Review of Economics and Statistics*, 83(2), 281-289.

Kumar P. (2016), Carbon Credits: "A Paradigm Shift towards Money Making Opportunity," *Optimization, Journal of Research in Management,* 8(2), 56-62.

Kumar, P. and Firoz, M. (2017), "The Impact of Voluntary Environmental Disclosure On Cost of Equity Capital-Evidence from Indian Firms," ,*Journal of Contemporary Management Research*, 11(1), 1-26.

Kumar, P. and Firoz, M. (2018a), "Impact of Climate Change Disclosure on Financial Performance: An Analysis of Indian Firms," *Journal of Environmental Accounting and Management*, 6(3), 185-197.

Kumar, P. and Firoz, M. (2018b), "Corporate Carbon Intensity Matter: Predicting Firms' Financial Performance," *SCMS Journal of Indian Management*, 15(4), 74-84.

Kumar P. and Firoz M. (2019a), "What Drives the Voluntary Environmental Reporting (VER): An Examination of CDP India Firms," *Journal of Environmental Accounting and Management*, 7(1), 45-58.

Kumar, P. and Firoz, M. (2019b), "How does capital market respond to Certified Emission Reductions (CERs) announcements in India: An event study methodology." *Managerial Finance*, DOI: https://doi.org/10.1108/MF-12-2018-0635

Lam, H. K., et al. (2016), "Corporate environmental initiatives in the Chinese context: Performance implications and contextual factors," ,*International Journal of Production Economics*, 180, 48-56.

Lee, S. Y., et al. (2015), "Market responses to firms' voluntary climate change information disclosure and carbon communication" *Corporate Social Responsibility and Environmental Management*, 22(1), 1-12.

Matsumura, E. M., et al. (2011), "Voluntary Disclosures and the Firm-Value Effects of Carbon Emissions," *SSRN Electronic Journal*. DOI:10.2139/ssrn.1921809.

McWilliams, A. and Siegel, D. (2000), "Corporate social responsibility and financial performance: correlation or misspecification" ,*Strategic Management Journal*, 21(5), 603-609.

Moreno, B. and da Silva, P. P. (2016), "How do Spanish polluting sectors' stock market returns react to European Union allowances prices? A panel data approach" ,*Energy*, 103, 240-250.

Murphy C. (2002), "The Profitable Correlation: Between Environmental and Financial Performance: A Review of the Research. Light Green Advisors," Seattle, Washington, DC.

Oberndorfer, U. (2009), "EU emission allowances and the stock market: evidence from the electricity industry" ,*Ecological Economics*, 68(4), 1116-1126.

Palmer, K., et al. (1995), "Tightening environmental standards: The benefit-cost or the no-cost paradigm?" *The Journal of Economic Perspectives*, 9(4), 119-132.

Qiu, Y., et al. (2016), "Environmental and social disclosures: Link with corporate financial performance" ,*The British Accounting Review*, 48(1), 102-116.

Russo, M. V. and Fouts, P. A. (1997), "A resource-based perspective on corporate environmental performance and profitability" ,*Academy of Management Journal*, 40(3), 534-559.

Saka, C. and Oshika, T. (2014), "Disclosure effects, carbon emissions and corporate value," *Sustainability Accounting, Management and Policy Journal*, 5(1), 22-45.

Salama, A. (2005), "A note on the impact of environmental performance on financial performance," *Structural change and economic dynamics*, 16(3), 413-421.

Shen, C. H. and Chang, Y. (2009), "Ambition versus conscience, does corporate social responsibility pay off? The application of matching methods" ,*Journal of Business Ethics*, 88(1), 133–153.

Smale, R., et al. (2006), "The impact of CO_2 emissions trading on firm profits and market prices," *Climate Policy*, 6(1), 31-48.

Stern, N. H. (2007), *The economics of climate change: The Stern Review*, Cambridge University Press.

Ullmann, A. A. (1985), "Data in search of a theory: A critical examination of the relationships among social performance, social disclosure, and economic performance of US firms," *Academy of Management Review*, 10(3), 540-557.

Waddock, S. A. and Graves, S. B. (1997), "The corporate social performance-financial performance link," *Strategic Management Journal*, 303-319.

Yu, H. (2011), "The EU ETS and firm profits: an ex-post analysis for Swedish energy firms," *Environmental Economics*, 4(3), 1-23.

****

Developing and Validating Constructs: Human Aspects for Quality Improvement

Dr T. K.Murugesan
Associate Professor, Faculty of Commerce & Management
Kristu Jayanti College (Autonomous),
K. Narayanapura, Kothanur, Bengaluru
E-Mail :tkmvidhuharshit@gmail.com

Abstract

This study aims to provide reliable and valid constructs of human aspects in a journey of quality improvement by manufacturing firms in South India. This research paper also probes the concurrent influence of constructs of human aspects on the pursuit of quality improvement. It identified seven reliable and valid constructs of human aspects with the help of Exploratory Factor Analysis (EFA) and they were empirically significant in pursuit of quality improvement by South Indian manufacturers. The outcome of the multiple regression analysis clearly revealed that the constructs of human aspects empirically validated have a significant positive influence on the achievement of quality improvement.

Keyword: *Human Aspects, Quality Improvement, Competitive Priorities, Manufacturing Firms*

Quality Management (QM) has become a ubiquitous practice in manufacturing firms over the past three decades. Quality is by no means a novel concept in modern business. In the current scenario, quality has emerged as a competitive strategic tool for the survival and growth of the organisation. Today, quality improvement received widespread acceptance by the various sectors of the economy, including manufacturing, service, government, health care, and education. Therefore, it has become utmost important for an organisation to fulfil its purpose and mission through the continuous pursuit of quality improvement in the business processes.

The fundamental ideas of Quality Management (QM) were familiarised in the mid-1980s by most notable quality gurus like William Edwards Deming, Kaoru Ishikawa and Joseph Moses Juran (Hackman and Wageman, 1995). Although it is recognised that QM is not an unambiguous conception (Hackman and Wageman, 1995), it is mostly acknowledged as a unified corporate strategy for improving service quality and product quality (Waldman, 1994). Over the past few decades, contemporary quality gurus such as Juran (Juran and Gryna, 1993), Feigenbaum (1991), Deming (1986), Ishikawa (1985), and Crosby (1979), the principal experts and authorities of Quality Management (QM), have advanced certain proposals in the field of QM, which have gained momentous recognition throughout the world. Their comprehensions provided a good understanding of the QM philosophy, principles, practices, tools and techniques. Quality Management (QM) is also to be viewed as one of the sources of competitive advantage (Douglas and Judge, 2001; Powel, 1995; Hackman and Wageman, 1995), innovation and modernisation (Singh and Smith, 2004), revolutionary and new organisational culture (Irani et al., 2004).

From the above definitions, it is obvious that the employees' involvement and attitude is an important factor for the effective implementation of QM system in an organisation in addition to its focus on customer satisfaction. However, the past studies clearly reveal that the employee involvement positively correlates with total quality enablers and improvements in organisational performance (Vathsala and Anuradha, 2011). An important key issue for any productivity improvement program in an organisation is the management of people (Sandeep et al., 2006). The study carried out here has highlighted the prominence of human aspects in the journey of quality improvements in products or services. Some studies have concluded that behavioural aspects can magnify organisational performance and generate competitive advantage more solidly than the traditional QM tools (Laxminarayan et al., 2009).

The exploration of human aspects in the pursuit and achievement of quality improvement has materialised as an important research agenda (Sadikoglu, 2004; Douglas and Judge, 2001). Within the milieu of quality improvement, there was increasing recognition of the importance of human aspects in pursuit of Quality Management (QM) (Chen, 1997; Brah et al., 2002; Fok et al., 2000; Golhar et al., 1997; Montes et al., 2003). Most of the rudimentary elements of QM involve people, such as participative management, teamwork, creativity, innovation, operational communication, consumer feedback, employee empowerment, employee involvement, management and employee trust and support (Guimaraes, 1994).

For a corporate to realise its fundamental benefits of QM, the deliberation of human aspects was also critical in the achievement of QM. Human aspects previously identified in the literature of QM include leadership style, leadership traits, departmental interaction, kinds of employees, management commitment, the authority to empower employees, employee's attitudes toward change, and recognition/rewards/awards for novelty and citizenship behaviours (Montes et al., 2003: Mann and Kehoe, 1995).

This study examines the significance of critical success human factors (i.e., leadership, employee participation, education and training, teamwork, reward and recognition, and customer focus) on the potential implementation of QM. These human variables have been consistently viewed by many quality gurus and researchers as most significant factors in the successful implementation of QM (Montes et al., 2003). QM is being employed within a compassionate work environment is more probable to persuade employees to work tougher, stronger and smarter in accomplishing quality outcomes for the organisation (Hackman and Wageman, 1995).

Literature Review

While the literature on Quality Management (QM) includes an opulent spectrum of works, there was no harmony on the definition of quality. The conception of quality has been well-defined in different ways by various authors. The

emergent gurus of the QM practices such as Juran, Crosby, Deming, Garvin, Feigenbaum and Ishikawa all provided their own delineations of the term quality and QM. One of the essential objectives of this study is to explore the significance of human factors on the potential implementation of QM in South Indian manufacturing firms. After the researchers had evaluated various human aspects, it was decided that six human constructs of QM would be adopted in this study: (i) Leadership, (ii) Employee Participation, (iii) Education and Training, (iv) Teamwork, (v) Reward and Recognition, and (vi) Customer Focus. These constructs were already implicitly addressed by many quality gurus and researchers. The importance of the five human constructs of QM are described below:

Leadership is the ability to inspire confidence and support among those needed to achieve organisational goals (DuBrin, 1995). The Malcolm Baldrige Quality Award (1999) and The European Quality Award (1994) highly recognise the significance of leadership in generating the strategies, goals, values and systems that effectively guide the pursuit of continual organisational performance improvement. Thus, the concept of leadership in this study can be defined as the ability of top management to lead the firm in continuously pursuing long-term overall business success. This is exemplified by top management participation, top management encouragement, employee empowerment, top management learning, top management commitment to employee education and training, and top management pursuit of product quality and long-term business success. With regard to Juran and Gryna (1993), certain roles of organisation's top management can be identified as: create quality policies and goals, organise and deploy quality goals, provide organisational resources, offer problem-oriented training programs, and stimulate improvement.

Employee participation may be well-defined as the extent to which the organisation's employees engage in numerous QM activities. By individually involving in QM activities, organisational employees procure new knowledge, realise different benefits of quality disciplines, and attain a sense of achievement by solving quality-related problems in organisation. Employee involvement is pivotal in inspiring many actions on QM (Juran and Gryna, 1993). Participation by employees is highly exemplified by organising certain things such as teamwork, employee commitment and employee suggestions. Empowerment is the practice of delegating decision-making autonomy to lower levels of management within an organisation. Quality improvement is the empowerment of organisation's workforce (Juran and Gryna, 1993), which is highly valuable because quality improvement can create energy among employees (DuBrin, 1995). In order to direct and lead the organisation effectively, the commitment by top management must empower lower-level employees to resolve quality-related problems they encounter in day-to-day work life. Consequently, organisational employees can have individual authority to fix quality-related problems and prevent any defects from further occurrence.

Hackman and Wageman (1995) clearly specified that 65% firms employing quality management would craft employee suggestion program. The operations workers were highly motivated to make constructive suggestions and undertake comparatively a great degree of accountability and responsibility for achieving the overall performance of the firm (Deming, 1986). To have active participation by employees, the organisational employees' ideas and contributions should receive serious contemplation, and they must be placed into manoeuvre whenever the acclamations are sound, comprehensive and relevant. Amongst the motivational and inspirational programs that have acknowledged major attentions are employee empowerment and suggestion system (Feigenbaum, 1991). Deming (1986) and Ishikawa (1985) recognised task motivation is one of the sources of human motivation at work.

Training programs attempt to instil employees on how to execute particular activities or a specific job. On the other hand, education is much more general and makes a deliberate attempt to offer employees with expert knowledge that can be practically applied in many different organisational settings (Cherrington, 1995). With regard to Hackman and Wageman (1995), training is considered to be mostly used QM application practice in US and other developed economics. The manufacturing firms that strategically apply QM principles, practices and techniques invest profoundly in training for employees at different levels of the organisation. Deming (1986) shaft the importance of properly training employees in executing their work.

To effectively lead the firm, top management must be highly committed to providing sufficient resources for employees'

education and training, building trustful relationships with employees, and regarding them as valuable resources of the firm. Top management of an organisation should be dedicated to allocating adequate resources to prevent the quality-related problems in the working environment. The organisation's top management needs to discuss quality-related problems frequently and continuously and communicate those problems with employees at every staff meeting. Therefore, employees and things happen in a firm. The senior management should train, educate and coach the employees to analyse, assess and improve work processes in the organisation (Dale and Plunkett, 1990; Deming, 1986).

A remarkable characteristic of employee participation is teamwork (e.g., cross-functional teams and within-functional teams). The aim of a team is to improve the input and output of any stage. A team may well be composed of employees from different staff areas, everyone having a chance to contribute ideas, plans, and figures. Teamwork is profoundly desirable throughout the organisation, and it must recompense one's strength for another's weakness (Deming, 1986). The Cross-Functional Quality Teams (CFQTs) and major task forces are amid the most conjoint features of QM firms (Hackman and Wageman, 1995). Teamwork can be pigeon-holed as an alliance between top managers and non-managers in an organisation as a whole and between different functional areas (Dean and Bowen, 1994). A Quality Control (QC) Circle is a group of the workforce, typically from within one department, who volunteer to meet as a group periodically to address quality-related problems and issues that generally occur within the department (Juran and Gryna, 1993). QC circles have been magnificently implemented in Japan and other developed nations, contributing a prodigious deal to the Japanese economy (Lillrank and Kano, 1989).

The term recognition is demarcated as a public acknowledgement of supercilious performance of specific activities. The term reward is also demarcated as the benefits like salary hike, promotion, perks and bonuses, which are generally conferred for superior performance with regard to organisational goals (Juran and Gryna, 1993). Public recognition is viewed as an imperative source of human motivation (Deming, 1986). An organisation's initiatives need to be supported effectively with reward and recognition programs that stimulate and encourage organisational employees to accomplish the desired level of performance. The organisations that emphasise on achieving quality improvement and customer delight must assimilate these aspects into their reward and recognition programs. Ishikawa (1985) recommended that a firm's gain-sharing or profit-sharing programs can suitably be applied to identify, recognise and reward workforce.

The term customer focus can be labeled as the degree to which a firm constantly satisfies customer tastes, needs and expectations. A successful firm recognises the need to put the customer first in every decision made (Philips Quality, 1995). Maintaining a close relationship with the customers is one of the key principles of quality management to copiously determine the customer's needs. The clients must be diligently involved in product design and development process, with key inputs at every phase to reduce the likelihood of quality-related problems (Flynn et al., 1994). Deming (1986) suggested that the customer is the most important part of the production line; the product should be aimed at the needs of the customer.

The QM practices, principals and techniques have been extensively applied in manufacturing firms throughout the world. Many manufacturing companies have come to the conclusion that effective implementation of these practices, principles and techniques can improve their competitive capabilities and deliver strategic competitive advantages in the marketplace (Anderson et al., 1994). The contemporary studies in the field of operations have revealed that the adoption of QM system can allow manufacturing firms to compete in the global market (For instance, Easton, 1993; Handfield, 1993; Hendricks and Singhal, 1996, 1997; Womack et al., 1990; American Quality Foundation and Ernst & Young, 1991). Many researchers in the field of operations clearly reported that effective implementation of QM system has led to sustainable improvements in design, productivity, quality, flexibility and competitiveness (Benson, 1993; Schonberger, 1992).

A research study carried out by Rategan (1992) revealed that the manufacturing firms were able to achieve an improvement rate of 90% in quality improvement, operating procedures, employee relations, financial performance and customer satisfaction was achieved due to effective implementation of QM system. In the pitch of QM

implementation, much research has already been conducted and many researchers adopted different perspectives of QM. The concept of QM is still a topic of town and a subject of debate (Easton and Jarrell, 1998), still an ambiguous and hazy concept (Dean and Bowen, 1994). Thus, the concept of QM has ended-up with different things meaning to different people (Hackman and Wageman, 1995).

Research Gap and Problem Statement

In the continually changing business paradigm, competition has become more intense, and the market has changed rapidly. To beat out the turbulent market, the manufacturing companies need to focus on the continuous pursuit of quality improvement in the products, services and business processes they offer to the developing market. In today's global economy if employees are not getting ahead of the core competence or not keeping pace with the latest innovations in the industry, they are losing battleground to the competitors. To be excellent in the journey of quality improvement, the manufacturing industries need to nurture a culture of continuous quality improvement among the workforce.

The major part of the previous studies in the context of manufacturing industry has thrown a limelight on the QM implementation and its effects on organisational performance in developed countries. There was limited research found on the constructs of human aspects considered to be the key focus in the journey of quality improvement by manufacturing firms. This research paper intends to close this research gap by providing meaningful insights into the significance of human aspects in the voyage of quality improvement in the manufacturing context.

Research Objectives

To explore and validate the constructs of human aspects in the journey of quality improvement by South Indian manufacturers, the researchers have developed two primary research objectives:

1. To empirically explore and validate the constructs of human aspects which are to be critical in the pursuit of quality improvement in the manufacturing context.
2. To study the significant relationship between the valid and reliable constructs of human aspects and their coherent influence on the achievement of quality improvement.

Methodology

A detailed structured questionnaire was instrumented with the scale items for human constructs along with underlying questions on quality improvement and competing priorities. The structured questionnaire was then sent to 150 senior production executives judgmentally selected from manufacturing firms in South India. Out of 150 questionnaires sent, 132 usable samples were returned, giving a response rate of 88.0 per cent. Based on data from the survey, exploratory factor analysis was carried out to ensure that items in each scale reflected sufficiently the scope of each construct. Internal consistency analysis was also carried out to ensure the reliability of human constructs. The criterion-related validity and construct validity were statistically evaluated to ensure that a set of attributes correctly indicates the human constructs and the extent to which they are utterly free from any systematic or non-random error. The methodology of this research includes research framework, hypotheses formation, research instrument development, instrument validity and reliability, and sampling frame and design.

Research Framework

As stated earlier, the core objective of this research is to explore and validate human aspects which are endorsed to be critical in the journey of quality improvement by manufacturing firms in South India. The research framework was developed by the researchers, as shown in Figure 1. This research framework is a simple, coherent model of exploring a logical link between the self-governing independent variables such as employee participation, education and training, teamwork, leadership, customer focus, communication and reward and recognition and contingent dependent variable as quality improvement. The logical arrows in Figure 1 represent rational relationships or proposed hypotheses to be empirically tested to accomplish the research objectives of this study.

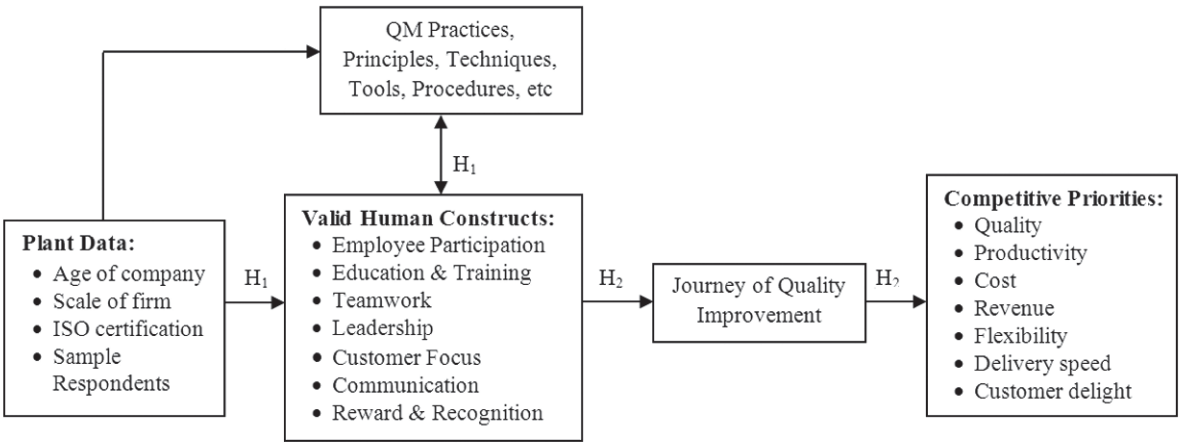


Figure 1: Significance of valid and reliable human constructs in the journey of quality improvement articulated in the form of competitive priorities

Hypotheses Formulation

This research is empirical, and it pragmatically stems from its underlying objectives. Thus, to shed light on valid and reliable human aspects for quality improvement in the manufacturing context, it is important to consider the following hypotheses:

H1: Manufacturing firms in South India are more inclined to focus on critical human aspects in the pursuit of quality improvement.

H2: There is a significant impact of constructs of human aspects on the achievement of continuous quality improvement in the manufacturing context.

Research Instrument Development

The development of the research instrument was mainly based on new scales because the researchers could not identify any past studies directly addressing all of the issues discussed in this research. However, and wherever possible, the researchers used validated measures that have been previously applied. Here, the pre-testing was administered with two consecutive rounds to ensure that the sample respondents could apprehend the measurement scales used in this study. First, the questionnaire was utterly reviewed by the academic researchers proficient in questionnaire design and development and was piloted with quality experts working in manufacturing concern known to the researchers.

Instrument Validity and Reliabilitz

After designing the questionnaire, validity and reliability tests were done to ensure whether the measurements are valid and reliable for our research. The reliability and validity of the constructs and scale items used in the research instrument were tested through a pilot survey and Cronbach's Alpha. The constructs, scale items, Cronbach's alpha and factor loadings obtained from exploratory factor analysis are presented in the data analysis section. Reliability of the questionnaire was tested as well using reliability test (Cronbach's Alpha) with the help of SPSS software, and the results obtained thereof are shown in Table 3. The alpha values of the research variables range from 0.869 to 0.985, which indicates an internal consistency with the alpha value of more than 0.70, so no items were dropped from the questionnaire.

Sampling Frame and Design

The survey reported here was conducted at manufacturing plants located in South India. The survey population of this study was defined as all South Indian manufacturing companies which have a strong inclination towards human aspects in the journey of quality improvement. The data required for the study were purely primary data collected by means of the structured questionnaires electronically mailed to 150 senior production executives sampled from manufacturing plants in South India on the basis of area-cum judgmental sampling technique. The target respondent in

each company was the senior production executive in charge of QM. This procedure resulted in 132 useful questionnaires or 88 % overall response rate. Thus, the sample size of the study was confined to 132 manufacturing companies only.

Data analysis, Results and Discussions

The data analysis, survey results and conclusive discussions of the study are summarized in the following section.

Demographic Characteristics of the Sample

The sample can be described as follows: With regard to the age of the sample company, approximately 28.0 percent have more than 20 years of existence, 16.8 percent have 16-20 years of existence, 30.4 have 10-15 years of existence and 24.8 percent have less than 10 years of existence in the industry. Breakdown of the sample respondents based on the scale of firm indicates that a large proportion (53.0 percent) of the respondents function under small-scale operation, 32.6 percent function under medium-scale operation and 14.4 percent function under large-scale operation. With respect to ISO certification, 91.7 percent of sample respondents have claimed that their companies were ISO certified and 8.3 percent have said that they don't have ISO certification and in the process of implementing ISO QMS.

A majority of the respondents were involved on QM implementation (79.8 percent), the majority (approximately 43.1 percent) were more than 50 years old and remaining were younger than 40 years old (36.7 percent). Moreover, greater than three-fourths of the respondents hold the position of senior executives in their organizations (78.3 percent). On the other hand, 21.7 percent hold the position of production or section heads in their plants. To ensure the valid and reliable responses from the representatives of larger population, a non-response bias test was statistically applied to compare early and late respondents. The χ^2 test indicates that there was no significant difference between two groups of sample respondents at 5 percent level of significance, implying that a non-response bias is not a concern.

Exploratory Factor Analysis and Main Findings

The main crux of this research is to identify the human aspects, which are to be critical in the journey of quality improvement in the manufacturing context. The first hypothesis (H_1) of this study clearly indicated that the manufacturing sectors, which are inclined to achieve excellence in their journey of quality improvement, are likely to be focused on key human aspects. For this purpose, exploratory factor analysis was performed using SPSS Statistic 17.0.

Principal component analysis with varimax rotation was used to find the underlying human factors that determine the effective implementation of QM in manufacturing companies in South India. The 33 statements, that best reflect the views of the plant managers on the significance of human aspects on QM implementation have been subjected to a multivariate data analysis technique (Factor Analysis) to decrease them to a few uncorrelated factors. First, all the 33 items were used for the factor analysis, which extracted eight factors. It was noticed that some items were not loaded on any of the factors, and some items were duplicating. Therefore, 2 items were deleted from the original list. Another factor analysis was done with 31 research items, and seven factors were found with eigenvalues greater than 1.

In order to test the suitability of the data for factor analysis, the correlation matrix was computed and examined. This revealed that there were enough correlations to proceed with factor analysis. Anti-image correlations were computed. These illustrated that partial correlations were low, revealing that true factors existed in the data. Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy (MSA) for individual variables was calculated from the diagonals of a partial correlation matrix. This was found to be satisfactorily high for all variables. Overall MSA was calculated to find whether the sample was good enough for sampling.

Bartlett's Test of Sphericity was computed to find whether the number of correlations among the variables is statistically significant or not. Overall Kaiser-Meyer-Olkin MSA was found to be 0.805 and Bartlett's Test of Sphericity was also significant (Chi-Square = 5629.853, df =465, significance = 0.000) indicating the suitability of data for factor analysis. Thus, all of these examinations revealed that data was appropriate for factor analysis. Principal Component Analysis was employed for extracting factors. The number of factors to be extracted was decided on the basis of 'Latent Root Criterion' (Table 1). All factor loadings greater than 0.50 (ignoring signs) have been considered for the analysis. Guidelines for identifying significant factor loadings based on sample size indicate considering factor loading of 0.30 for sample size 350 or more. (Hair et al. 1998. p.385).

Eigenvalues for the factors 1 to 7 are 5.831, 4.852, 3.889, 3.359, 3.225, 3.004 and 2.529 as revealed by the first column of the table. The percentage of the variance explained by individual factors is shown in the second column of the table. It is observed that the percentage of variance explained by factors 1 to 7 is 18.811, 15.652, 12.544, 10.835, 11.641, 10.403, 9.690 and 8.159. The reliability of the research variables was assessed by the Cronbach's α reliability coefficient. The internal consistency of the measurement scales is tested using the Cronbach's alpha for each research variable as well as for the complete construct. Internal consistency analysis was used to assess the reliability and validity of the measurements. Cronbach's alpha was calculated to examine the internal consistency of the construct and its reliability (Table 2).

The recommended minimum of Cronbach's alpha coefficient reliability of 0.70 (Nunnally, 1978) was used to test the reliability and validity of each factor. The results are presented in Table 3. The reliability test was satisfied as the Cronbach's α was found to be more than 0.70 for all the research variables. The alpha values for the extracted factors such as Employee Participation, Education and Training (E & T), Teamwork (T), Leadership (L), Customer Focus (CF), Communication (C), and Reward and Recognition (R & R) are respectively 0.985, 0.962, 0.953, 0.938, 0.869, 0.928, and 0.952.

Table 1: Statistics for Construct Validity of Human Aspects

Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy		0.805
Bartlett's Test of Sphericity	Approx. Chi-Square	5629.853
	df	465
	Sig.	0.000

Naming of Extracted Factors and Labeling

The seven extracted factors have been given the appropriate names on the basis of variables represented in each case. The names of the extracted factors, the statement labels and factor loadings have been summarized in Table 3. The factors representing the significance of human aspects in the pursuit of quality improvement have been discussed below.

Human Construct 1: Employee Participation (EP)

This factor has emerged as the most important factor explaining 18.811% out of the total variance. This factor has an eigenvalue of 5.831 and Cronbach's Alpha of 0.985. In total, six statements load on to this factor. The highest loading has been found for the statement "The accountability and responsibility for quality improvement are accepted by almost all employees in our company (0.921)". Followed by, "Employees with good ideas and suggestions for quality improvement are encouraged to submit them formally through a suggestion system (0.919)", "Top management strongly encourages employee involvement in QM and improvement activities (0.916)", "Employees have an active participation in quality improvement activities (0.911)", "We continuously encourage and implement small improvements involving everyone (0.903)", and "Employees from different levels are involved in making policies and plans for quality improvement (0.898)" (Table 3).

Table 2: Total Variance Explained for the Research Constructs of Human Aspects

Factors	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.831	18.811	18.811	5.831	18.811	18.811	5.623	18.138	18.138
2	4.852	15.652	34.463	4.852	15.652	34.463	4.357	14.055	32.194
3	3.889	12.544	47.007	3.889	12.544	47.007	3.544	11.433	43.626
4	3.359	10.835	57.842	3.359	10.835	57.842	3.516	11.341	54.967
5	3.225	10.403	68.245	3.225	10.403	68.245	3.393	10.946	65.913
6	3.004	9.690	77.935	3.004	9.690	77.935	3.332	10.749	76.662
7	2.529	8.159	86.094	2.529	8.159	86.094	2.924	9.432	86.094

Extraction Method: Principal Component Analysis.

Table 3: Factor Loadings, Percentage of Variance Explained and Cronbach's Alpha for Extracted Factors for Human Aspects

Sl.No.	Factors	Statements	Factors Loadings	% of Variance Explained	Cronbach's Alpha
1	Employee Participation (EP)	EP1. Top management strongly encourages employee involvement in QM and improvement activities.	0.916	18.811	0.985
		EP2. Employees with good ideas and suggestions for quality improvement are encouraged to submit them formally through a suggestion system.	0.919		
		EP3. Employees have an active participation in quality improvement activities.	0.911		
		EP4. The accountability and responsibility for quality improvement are accepted by almost all employees in our company.	0.921		
		EP5. Employees from different levels are involved in making policies and plans for quality improvement.	0.898		
		EP6. We continuously encourage and implement small improvements involving everyone.	0.903		
2	Education & Training (E & T)	E&T1. Top management allocates adequate resources for the employee education & training.	0.804	15.652	0.962
		E&T2. Employees are encouraged to attend education and training programs on quality improvement.	0.789		
		E&T3. Employees have always taken an active part in training programs on quality improvement.	0.830		
		E&T4. Quality awareness programs and specific-work skills training were given to all the employees.	0.807		
		E&T5. Employee performance has been consistently improved after undergoing every training & education program on quality improvement.	0.808		

3	Teamwork (T)	T1. Top management involves everyone while establishing quality policies, objectives, strategies, and plans. T2. Our company has cross-functional teams or quality circles. T3. We regularly focus on teamwork and team spirit among the employees. T4. Our company attempts to involve everyone in quality improvement programs.	0.619 0.656 0.637 0.621	12.544	0.953
4	Leadership (L)	L1. Managers communicate the organization's quality policy continually with the entire workforce. L2. Managers always demonstrate their commitment toward QM & improvement activities. L3. Managers always emphasize the importance of customer orientation. L4. Managers are committed toward creating and maintaining a high-performance work environment.	0.919 0.886 0.858 0.911	10.835	0.938
5	Customer Focus (CF)	CF1. Employees have a clear focus on creating and enhancing value for the customers. CF2. Customer feedback/complaints are continually solicited, monitored and acted by the quality improvement team. CF3. We have developed CRM program to maintain a long-term relation with the customers. CF4. We meet/exceed our customers' expectations continuously and take their opinions and suggestions seriously.	0.731 0.710 0.688 0.762	10.403	0.869

6	Communication (C)	C1. The organization's mission, vision and quality policy are well communicated among the entire workforce.	0.706	9.690	0.928
		C2. Top management encourages frank, two-way communication throughout the organization.	0.665		
		C3. The results of quality improvement initiatives are properly communicated to the employees.	0.653		
		C4. The organization publicizes the customers' requirements continuously to all the employees.	0.655		
7	Reward & Recognition (R & R)	R&R1. Innovative suggestions and ideas are financially rewarded in our company.	0.636	8.159	0.952
		R&R2. The performance appraisals of organizational members include quality improvement criteria.	0.682		
		R&R3. Employees are timely recognized and rewarded for their contributions on quality improvement.	0.680		
		R&R4. Our company has transparent and effective appraisal system for recognizing and rewarding employees for their efforts.	0.675		

Human Construct 2: Education and Training (E & T)

The second factor explains 15.652% out of the total variance. This factor has an eigenvalue of 4.852 and Cronbach's Alpha of 0.962. It is made up of five correlated statements. Highest loading is for the statement "Employees have always taken an active part in training programs on quality improvement (0.830)". Linked to this, "Employee performance has been consistently improved after undergoing every training and education program on quality improvement (0.808)", "Quality awareness programs and specific-work skills training were given to all the employees (0.807), "Top management allocates adequate resources for the employee education and training (0.804)", and "Employees are encouraged to attend education and training programs on quality improvement (0.789)" (Table 3).

Human Construct 3: Teamwork (T)

The third factor explains 12.544% out of the total variance explained. This factor has an eigenvalue of 3.889 and Cronbach's Alpha of 0.953. It is made up of four correlated statements. The highest loading is for the statement "Our company has cross-functional teams or quality circles (0.656)". Followed by, "We regularly focus on teamwork and team spirit among the employees (0.637)", "Our company attempts to involve everyone in quality improvement programs (0.621), and "Top management involves everyone while establishing quality policies, objectives, strategies, and plans (0.619)" (Table 3).

Human Construct 4: Leadership (L)

Four highly correlated statements load on to this factor and explain 10.835% out of the total variance explained. This factor has an eigenvalue of 3.359 and Cronbach's Alpha of 0.938. Highest loading in this factor is for the statement "Managers communicate the organization's quality policy continually with the entire workforce (0.919)", Linked to this, "Managers are committed toward creating and maintaining a high-performance work environment (0.911)", "Managers always demonstrate their commitment toward QM and improvement activities (0.886)", and "Managers always emphasize the importance of customer orientation (0.858)" (Table 3).

Human Construct 5: Customer Focus (CF)

Four highly correlated statements load on to this factor and explain 10.403% out of the total variance explained. This factor has an eigenvalue of 3.225 and Cronbach's Alpha of 0.869. Highest loading in this factor is for the statement "We meet/exceed our customers' expectations continuously and take their opinions and suggestions seriously (0.762)", Linked to this, "Employees have a clear focus on creating and enhancing value for the customers (0.731)", "Customer feedback/complaints are continually solicited, monitored and acted by the quality improvement team (0.710)", and "We have developed CRM program to maintain a long-term relation with the customers (0.688)" (Table 3).

Human Construct 6: Communication

Four highly correlated statements load on to this factor and explain 9.690% out of the total variance explained. This factor has an eigenvalue of 3.004 and Cronbach's Alpha of 0.928. Highest loading in this factor is for the statement "The organization's mission, vision and quality policy are well communicated among the entire workforce (0.706)", Linked to this, "Top management encourages frank, two-way communication throughout the organization (0.665)", "The organization publicizes the customers' requirements continuously to all the employees (0.655)", and "The results of quality improvement initiatives are properly communicated to the employees (0.653)" (Table 3).

Human Construct 7: Reward and Recognition (R & R)

The seventh factor explains 8.159% out of the total variance explained. This factor has an eigenvalue of 2.529 and Cronbach's Alpha of 0.952. It is made up of four correlated statements. The highest loading is for the statement "The performance appraisals of organizational members include quality improvement criteria (0.682)". Followed by, "Employees are timely recognized and rewarded for their contributions on quality improvement (0.680)", "Our company has transparent and effective appraisal system for recognizing and rewarding employees for their efforts (0.675), and "Innovative suggestions and ideas are financially rewarded in our company (0.636)" (Table 3).

Multiple Regression Analysis

The second hypothesis (H_2) of this research study can be expressed in a multiple linear regression equation as described below:

$$\textit{Quality Improvement (QI)} = \textit{Constant} + B_1\ \textit{Employee Participation (EP)} + B_2\ \textit{Education \& Training (E \& T)} + B_3\ \textit{Teamwork (T)} + B_4\ \textit{Leadership (L)} + B_5\ \textit{Customer Focus (CF)} + B_6\ \textit{Communication (C)} + B_7\ \textit{Reward \& Recognition (R \& R)} + \varepsilon$$

In order to critically investigate the second hypothesis of this pragmatic study, entering all human constructs in a single block model, we found that the proposed research model explains a significant percentage of variance in Quality Improvement (QI). Table 4 indicates that 91.6 percent of the observed variability in Quality Improvement (QI) is explained by the seven independent variables ($R^2 = 0.916$, Adjusted $R^2 = 0.912$).

To test the equivalent null hypothesis that there was no linear relationship in the population between the dependent variable and the independent variables, the ANOVA in Table 5 was used. Results from Table 5 shows that the ratio of the two mean squares (F) was 227.797 (F-value = 227.797, $P < 0.05$). Since, the observed significance level was less than 0.001, the seven variables influence the manufacturers' attitudes toward quality improvement.

Table 4: Summary of Multiple Regression

Model	Multiple R	R^2	Adjusted R^2	Std. Error of the Estimate
1	0.957[a]	0.916	0.912	0.302

Note: [a]Predictors: (Constant), Employee Participation (EP), Education & Training (E & T), Teamwork (T), Leadership (L), Customer Focus (CF), Communication (C) and Reward & Recognition (R & R)

Table 5: Summary of ANOVA[b]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	124.681	6	20.78	227.797	0.000[a]
	Residual	11.403	125	0.091		
	Total	136.083	131			

Note: [a]Predictors: (Constant), Employee Participation (EP), Education & Training (E & T), Team work (T), Leadership (L), Customer Focus (CF), Communication (C) and Reward & Recognition (R & R)

Dependent Variable: Quality Improvement (QI)

Table 6: Results of Regression Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		Beta (B)	Std. Error	Beta (β)		
1	(Constant)	0.554	0.092		6.004	0.000
	1. Leadership (L)	0.165	0.058	0.178	2.823	0.006
	2. Employee Participation (EP)	0.157	0.064	0.160	2.450	0.016
	3. Education & Training (E&T)	0.164	0.058	0.177	2.822	0.006
	4. Teamwork (T)	0.179	0.057	0.197	3.118	0.002
	5. Reward & Recognition (R&R)	0.124	0.059	0.120	2.107	0.037
	6. Customer Focus (CF)	0.191	0.056	0.203	3.393	0.001
	7. Communication (C)	0.113	0.046	0.112	2.194	0.042

Note:[a]Dependent Variable: Quality Improvement (QI)

To test the null hypothesis that the population partial regression coefficient for a variable is 0, t-statistic and its observed significance level were used. The results were shown in Table 6. Results from Table 6 indicate that we can safely reject the null hypotheses that the coefficients for human constructs such as leadership ($\beta = 0.178$, $t = 2.823$, $p < 0.05$), employee participation ($\beta = 0.160$, $t = 2.450$, $p < 0.05$), education & training ($\beta = 0.177$, $t = 2.822$, $p < 0.05$), teamwork ($\beta = 0.197$, $t = 3.118$, $p < 0.05$), reward & recognition ($\beta = 0.120$, $t = 2.107$, $p < 0.05$), customer focus (($\beta = 0.203$, $t = 3.393$, $p < 0.05$), and communication ($\beta = 0.112$, $t = 2.194$, $p < 0.05$) and were less than 0.05.

The β weights show that Customer Focus ($\beta = 0.203$) have a strong significant positive influence on quality improvement. Similarly, the β weights show that teamwork ($\beta = 0.197$), leadership ($\beta = 0.178$), education & training (β

= 0.177), employee participation (β = 0.160), reward & recognition (β = 0.120), and communication ((β = 0.112) have a strong significant positive influence on quality improvement. These results support the second hypothesis (H_2).

Conclusion

Today, every manufacturing industry has become increasingly aware of the significance of human aspects in the journey of never-ending quality improvement in the product, service and the business process. Quality improvement is being used as a strategic approach by most of the manufacturing industries to achieve excellence in their business operations and enhance their competitive position in the market. In the modern age of business, every manufacturing company strives hard for survival in this growing era of human core competence. In order to survive in the global market, human aspects need to be focused in a way to gain the driving force to do the best in the field of core competitive priorities of quality, price, flexibility, delivery speed, innovation, and time. This study taps into the minds of the South Indian manufacturers to assess their impressions of the significance of human aspects in the pursuit and achievement of quality improvement. Every company knows the importance of human aspects, but few companies are among the best in the world at what they do. It becomes paramount importance for every manufacturing company to explore and validate the human aspects which are to be the key in the journey of quality improvement in the manufacturing context.

It was evident from the study that the outcome of the factor analysis was found to be significant as the factor loadings for all the dimensions concerning the significance of critical human aspects in a continuous journey of quality improvement was found to be greater than 0.50. This research study identified seven reliable, and valid human constructs and these human constructs have a total of 31 individual scale items with higher reliability. These human constructs are customer focus, teamwork, leadership, education and training, employee participation, reward and recognition and communication and they were empirically significant in pursuit of quality improvement by South Indian manufacturers. The outcome of the multiple regression analysis revealed that the human aspects empirically validated have a significant positive influence on the achievement of quality improvement. It was recommended that the future research must be done in other industries to provide support for these findings and also the philosophy of quality improvement must be introduced as a part of organizational culture into the tertiary industries which are not effectively practising this philosophy in South India.

References

American Quality Foundation and Ernst & Young (1991).International Quality Study: The Definitive Study of the Best International QM Practices, Ernst & Young, Cleveland, OH.

Anderson, J.C., et al. (1994). "A Theory of QM underlying the Deming management method," *Academy of Management Review,* Vol. 19 No. 3, pp. 472-509.

Benson, T. (1993). "QM: A child takes a first few faltering steps," *Industry Week*, Vol. 242 No. 7, pp. 16-17.

Brah, S.A., et al. (2002). "Relationship between QM and performance of Singapore companies," *International Journal of Quality & Reliability Management,* Vol. 19 No. 4, pp. 356-79.

Chen, W.H. (1997). "The human side of total QM in Taiwan: leadership and human resource management," *International Journal of Quality & Reliability Management*, Vol. 14 No. 1, pp. 24-45.

Cherrington, D.J. (1995). *The Management of Human Resources*, Fourth edition, Prentice-Hall, Englewood Cliff, New Jersey.

Crosby, P.B. (1979). "Quality Is Free, "McGraw-*Hill*, Inc., New York.

Dale, B.G. and Plunkett, J.J. (1990). "Managing Quality," *Philip Allan*, New York.

Dean, J.W., Jr. and Bowen, D.E. (1994)." Management theory and total quality: Improving research and practice through theory development," *Academy of Management Review,* Vol. 19 No. 3, pp. 392-418.

Deming, W.E. (1986). "Out of Crisis, Massachusetts Institute of Technology," Center for Advanced Engineering Study, Cambridge, MA.

Douglas, T.J. and Judge, W.Q. (2001). "Total QM implementation and competitive advantage: the role of structural control and exploration," *Academy of Management Journal,* Vol. 44 No. 1, pp. 158-69.

DuBrin, A.J. (1995). "Leadership: Research Findings, Practice, and Skills," Houghton Mifflin Company, Boston.

Easton, G. (1993). "The 1993 state of U.S. total QM: A Baldrige examiner's perspective," *California Management Review*, Vol. 35 No. 3, pp. 32-54.

Easton, G.S. and Jarrell, S.L. (1998). "The effects of total QM on corporate performance: An empirical investigation," *Journal of Business,* Vol. 71 No. 2, pp. 253-307.

European Foundation for QM (1994). Self-Assessment Based on the European Model for Total QM: Guidelines for Identifying and Addressing Business Excellence Issues, Brussels, Belgium.

Feigenbaum, A.V. (1991). *Total Quality Control,* Third edition, McGraw-Hill, Inc., New York.

Flynn, B.B., et al. (1994). "A framework for QM research and an associated measurement instrument," *Journal of Operations Management,* Vol. 11, pp. 339-366.

Fok, L., et al. (2000). "Human factors affecting the acceptance of total QM", *International Journal of Quality & Reliability Management*, Vol. 17 No. 7, pp. 714-29.

Golhar, D., et al. (1997). "Supervisors' role in QM and non-QM firms," *International Journal of Quality & Reliability Management,* Vol. 14 No. 6, pp. 555-68.

Guimaraes, T. (1994). "Assessing employee turnover intentions before/after QM", *International Journal of Quality & Reliability Management*, Vol. 14 No. 1, pp. 46-63.

Hackman, R.J. and Wageman, R. (1995). "Total QM: empirical, conceptual and practical issues," *Administrative Science Quarterly,* Vol. 40 No. 2, pp. 309-42.

Hair, J., et al. (1998). Multivariate Data Analysis, 5th ed., Prentice-Hall, London.

Handfield, R.B. (1993). "A resource dependence view of just-in-time purchasing," Journal *of Operations Management,* Vol. 11, pp. 289-311.

Hendricks, K.B. and Singhal, V.R. (1996). "Quality awards and the market value of the firm: An empirical investigation," *Management Science,* Vol. 42 No. 3, pp. 415-436.

Hendricks, K.B. and Singhal, V.R. (1997). "Delays in new product introductions and the market value of the firm: The consequences of being late to the market," *Management Science,* Vol. 43 No. 4, pp. 422-436.

Irani, Z., et al. (2004). "Total QM and corporate culture: constructs of organizational excellence," *Technovation,* Vol. 24, pp. 643-50.

Ishikawa, K. (1985). "What is Total Quality Control? The Japanese Way," *Prentice-Hall*, London.

Juran, J.M. and Gryna, F.M. (1993). *Quality Planning and Analysis,* Third edition, McGraw-Hill, Inc., New York.

Laxminarayan, E., et al. (2009). "HRD Strategies for Effective Implementation of QM in Indian Industry- A Comparative Study", *Industrial Engineering Journal*, Volume-II & Issue No. 2.

Lillrank, P. and Kano, N. (1989). "Continuous Improvement: Quality Control Circles in Japanese Industry," *Center for Japanese Studies, University of Michigan*, Ann Arbor, MI.

Malcolm Baldrige National Quality Award (1999). Criteria for Performance Excellence, National Institute of Standards and Technology, United States Department of Commerce, Gaithersburg, MD.

Mann, R. and Kehoe, D. (1995). "Factors affecting the implementation and success of QM," *The International Journal of Quality & Reliability & Management,* Vol. 12 No. 1, pp. 11-24.

Montes, F., et al.2003). "Factors affecting the relationship between total QM and organisational performance", *International Journal of Quality & Reliability Management,* Vol. 20 No. 2, pp. 189-209.

Nunnally, J. (1978). *Psychometric Theory,* McGraw-Hill, New York, NY.

Philips Quality (1995). *Philips Quality - Let's Make Things Better*, Corporate Quality Bureau, Philips Electronics N.V., Eindhoven, The Netherlands.

Powel, T.C. (1995). "Total QM as competitive advantage: a review and empirical study," *Strategic Management Journal*, Vol. 16, pp. 15-37.

Rategan, C. (1992). "Total QM," *Journal of Property Management,* Vol. 57, pp. 32-34.

Sadikoglu, E. (2004). "Total QM: context and performance", *Journal of American Academy of Business,* Vol. 5 No. 1, pp. 364-8.

Sandeep, G., et al. (2006). "Role of human factors in QM: a graph theoretic approach, Benchmarking, "*An International Journal,* Vol. 13 No.4, pp. 447-468.

Schonberger, R. (1992). "Total QM cuts a broad swathe – through manufacturing and beyond," *Organizational Dynamics,* Vol. 21 No. 4, pp. 16-27.

Singh, P.J. and Smith, A.J.R. (2004). "Relationship between QM and innovation: an empirical study," *Journal of Manufacturing Technology Management,* Vol. 15 No. 5, pp. 394-401.

Vathsala, W. and Anuradha, G. (2011). "High-involvement work practices, quality results and the role of HR function," *The QM Journal*, Vol. 23 No.5, pp.516-530.

Waldman, D.A. (1994). "The contributions of total QM to a theory of work performance," *Academy of Management Review*, Vol. 19, No. 3, pp. 510-37.

Womack, J.P., et al. (1990). *The Machine That Changed the World*, Massachusetts Institute of Technology, Rawson Associates, New York.

****

SCMS JOURNAL OF INDIAN MANAGEMENT

SCMS New Campus, Prathap Nagar
Muttom, Aluva-683 106, Kochi, Kerala, India
Ph: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855
E-mail: editor@scmsgroup.org
Website: www.scms.edu.in/journal

Aims and Scope

The *SCMS Journal of Indian Management* is a blind peer-reviewed Journal. The Journal deems it its mission to submit to the readers fresh fruit of management thoughts and rich cream of current innovative research. The format of the Journal is designed reader-friendly. The academia and the corporates have an easy access to the Journal.

The Journal looks for articles conceptually sound, at once methodologically rigorous. The Journal loves to deal knowledge in management theory and practice individually and in unison. We wish our effort would bear fruit. We hope the Journal will have a long life in the shelves catering to the needs of b-students and b-faculty.

- Proposals for articles that demonstrate clear and bold thinking, fresh and useful ideas, accessible and jargon-free expression, and unambiguous authority are invited. The following may be noted while articles are prepared.
- What is the central message of the article you propose to write? Moreover, what is new, useful, counterintuitive, or important about your idea?
- What are the real-world implications of the proposed article? Can the central message be applied in businesses today, and if so, how?
- Who is the audience for your article? Why should a busy manager stop and read it?
- What kind of research have you conducted to support the argument or logic in your article?
- What academic, professional, or personal experience will you draw on to make the argument convincing? In other words, what is the source of your authority?
- The manuscript of reasonable length shall be sent to the Editor—*SCMS Journal of India Management* (Both for postal and electronic submission details are given here under).

The manuscript should accompany the following separately:

- An abstract (about 100 words), a brief biographical sketch of above 100 words for authors describing designation, affiliation, specialization, number of books and articles published in the referee journals, membership on editorial boards and companies etc.
- The declaration to the effect that the work is original and it has not been published earlier shall be sent.
- Tables, charts and graphs should be typed in separate sheets. They should be numbered as Table 1, Graph 1 etc.
- References used should be listed at the end of the text.
- Editors reserve the right to modify and improve the manuscripts to meet the Journal's standards of presentation and style.
- Editors have full right to accept or reject an article for publication. Editorial decisions will be communicated with in a period of four weeks of the receipt of the manuscripts.
- All footnotes will be appended at the end of the article as a separate page. The typo script should use smaller size fonts.
- An Author/Co-author shall submit only one article at a time for consideration of publication in the Journal. The author/co-author can send another article only on hearing from the editor whether it is accepted / rejected.
- The author getting one article published in the Journal has to wait for a year to get another published

Submit the manuscript to:

editor@scmsgroup.org

The submission must be in the form of an attachment with a covering letter to be sent as e-mail.

SCMS JOURNAL OF INDIAN MANAGEMENT

SCMS New Campus, Prathap Nagar
Muttom, Aluva-683 106, Kochi, Kerala, India
Ph: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855
E-mail: editor@scmsgroup.org
Website: www.scms.edu.in/journal

Ethical Guidelines for Authors

The Author shall present an accurate and complete account of the research performed. The corresponding author must have obtained the approval of all other authors for each submission. Ghost authors are not permitted. The material in the submission shall be original. The material based on prior work, including that of the same author/s shall be properly attributed by proper citation. The author shall have the obligation to notify the editor immediately should any one of the statements in this list ceases to be true.

Ethical Guidelines for Peer Reviewers

The Peer reviewer shall review manuscripts for which they have the subject expertise required to carry out a proper assessment. Peer reviewers shall respect the confidentiality of peer review and shall not reveal any details of the manuscript under review and of its review. Peer reviewers shall be objective and constructive in their reviews.

Ethical Guidelines for the Editor

The Editor shall actively seek the views of authors, readers, reviewers, and editorial board members about ways of improving the journal's success. The Editor shall support initiatives designed to reduce academic misconduct. The Editor shall support initiatives to educate researchers about publication ethics. The Editor shall provide clear advice to reviewers. The Editor shall require reviewers to disclose any potential competing interests before agreeing to review a submission. The Editor shall encourage reviewers to comment on ethical questions and possible research misconduct raised by submissions.

The Journal abides by the The Best Practices Guidelines of the COPE COMMITTEE ON PUBLICATION ETHICS for Editors, Authors, and Peer Reviewers.

Ph: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887 Fax: 91-484-262 3855, Website: www.scms.edu.in
E-mail: editor@scmsgroup.org Journal Website : www.scms.edu.in/journal

SCMS Journal of Indian Management
Subscription Form

Name :

Address :

City :

Zip Code :

Country :

E-mail :

Phone :

Draft Number :

DD in favour of SCMS
payable at Cochin

Subscription Rates	1 Year	2 Years	Per Issue
	2000 ($100)	3600 ($150)	500 ($30)

Payment Details :

Please find below our bank details. You can transfer the subscription and report.

Bank Name : State Bank of India, Kalamassery
A./c No : 30090816337
IFSC Code : SBIN0010110
Account Name : School of Communication and Management Studies.

Mail the bank transfer details and mailing address to editor@scmsgroup.org

For all communications contact :

Editor, SCMS Journal of Indian Management,
SCMS New Campus, Prathap Nagar,
Muttom,Aluva - 683106, Kochi, Kerala, India.
Phone: 91-484-262 3803 / 262 3804 / 262 3885 / 262 3887
Fax: 91-484-262 3855
Website: www.scms.edu.in , E-mail: editor@scmsgroup.org

Story of an entrepreneur who built up a set of high quality academic institutions in a totally hostile and challenging environment. A model for entrepreneurship in any situation.

By Prof. N.C. George
Price ₹ 895/-
Copies can be had from the Publication Department, SCMS Group of Educational Institutions, Cochin-683106.

Registration Number: KERENG/2009/32718

Edited, printed and published by Dr. Radha Thevannoor on behalf of SCMS COCHIN SCHOOL OF BUSINESS and printed at Maptho Printings, Kalamassery, Cochin-683104 and published at Muttom, Aluva-683106, Cochin.

SCMS COCHIN SCHOOL OF BUSINESS

ISSN-0973-3167

0973-3167