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JW Press

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International Journal of the Academic Business World (IJABW)

ISSN 1942-6089 (print)

ISSN 1942-6097 (online)

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FRACTALITY IN FOUR DIMENSIONS: A FRAMEWORK FOR UNDERSTANDING ORGANIZATIONS AS FRACTAL ENTITIES

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ABSTRACT

The fractal conception of organizations recognizes a universal law of self-organization based on a natural dynamic of self-similar structuration. Since Mandelbrot's discovery of fractality as a mathematical property of structuration in nature, the study of this phenomenon in the context of human organizations has proceeded slowly and speculatively for the most part. One reason for its hesitating advance seems to be the fact that the dimensionality of human organizations is of a higher order than that of the one-, two-, and three-dimensional representations that constitute the most common objects of analysis in this domain. Because fractality explicitly addresses the mathematical property of dimensionality, the specification of the correct level of dimensionality is essential to the aim of building a robust conceptual model. Nevertheless, despite the difference in complexity, fractal processes in human organizations are fundamentally the same as those in the natural world. As a basic principle of human self-organizing, it is ordinary rather than novel, common rather than rare, and ubiquitous rather than idiosyncratic. Indeed, a fractal conception of human self-organizing reveals the physical laws underlying human organizations, as opposed to merely serving as a metaphor of convenience or a model borrowed in analogy from another science. Moreover, fractality clarifies the workings of systems theory manifest in organizations by focusing on the singular element from which the commonly accepted characteristics of open systems emerge. Fractality removes the mystery from questions of organizational development, demonstrating lucidly where the difficulty in managing organizational change resides and laying a basis for addressing it rationally. In view of these observations, the present paper has the goal of clarifying the principles of fractal self-organizing in human organizations, while advancing an updated conceptual refinement of fractal exchange quality and fractal vertical polarization.

INTRODUCTION

Fractality represents a facet of organizational dynamics recognized in organizational behavior but only recently acknowledged. Until Mandelbrot (1977), no one had a term for it, although Mandelbrot (1967) had earlier called it a fractional property of the geometry of self-organizing systems. Simply construed, fractality refers to self-similarity across levels of scale (Boyatzis, 2006; Koutsakas, Hatzaras, Vontas, & Koumpis, 2002), or the unique structural dynamics that unify a self-organizing system by

producing such self-similarity. In each way that a system differentiates internally (e.g., horizontally or vertically), self-similarity is apparent across internal boundaries, with subtle modification to fit emergent structural demands at each higher level of scale (Costanza, 2009; Dooley & Van de Ven, 1999). Organizational structures are thus natural to goal-oriented aggregation, rather than dependent on premeditated logic.

Leader-member exchange (LMX), originally called vertical-dyad linkage (VDL), was the first theory in organiza-

tional behavior involving an effort to undertake scale development in the paradigm of self-organizing complexity, construed as systems theory (Graen & Cashman, 1975; cf. Katz & Kahn, 1978). In this process, scale development took the form of first identifying how systems dynamics might appear to persons within the system, and then constructing scale items with colloquial statements to interpret those dynamics into the human context of sense making. This construct has proved effective at informing how to strengthen leadership engagement. However, the resulting self-report measure for LMX only gauges respondents' relations with immediate superiors, rather than inviting respondents to include observations of vertical relations outside their immediate units. Thus, LMX is unitary in composition, rather than fractal.

Team member exchange (TMX) has operated in the same way, taking each respondent's immediate unit, hence immediate coworkers, as the relevant object of analysis (Seers, 1989). Again, scale development took the form of first identifying how systems dynamics might appear to persons within the system, this time focusing on coworkers, rather than supervisors, and constructing scale items using colloquial terminology to interpret those dynamics into the human context of sense making. Thus, TMX is also unitary in composition, rather than fractal.

Fractal vertical polarization (FVP) originally sought to uncover sources of dysfunction in vertical lines of communication in organizations, again within the paradigm of self-organizing complexity (Voss & Krumwiede, 2012). In a unitary interpretation, vertical polarization *per se* is interpretable as the negative complement to LMX. By extension, FVP is the fractal analog of that complement. As with LMX, the operating principle behind the composition of FVP scale items involved interpreting information exchange dynamics into likely forms of colloquial expression representing the view from within the system. Nevertheless, FVP has thus far failed to merge with the fractal construal of LMX in factor analysis, a fact that suggests both a qualitative distinction and perhaps a keying effect, since all LMX items use positive wording, while all FVP items use negative wording (Voss, Krumwiede, Lucas, & Fedorovich, 2014).

Both LMX and TMX in their unitary forms have supported training programs to improve organizational functioning, but the fractal constructs just described have yet to enter that realm. LMX supports an effective training structure by focusing on techniques for enhancing unit leaders' ability to engage richly with their subordinates, largely in the form of developing new habits of interacting with the latter (Graen & Cashman, 1975). TMX similarly helps build positive habits of horizontal interaction to enhance team identity and collaborative effectiveness

(Seers, 1989). For their part, the fractal construals of these dynamics would present moderate adjustments to such training structures, with the implication of extending the behavior across vertical and horizontal boundaries. They would also highlight how one's pattern of interaction reverberates across the organization. Conversely, they would highlight how counterpressures arising from the same fractal structure that causes those reverberations limit one's ability to enact those newly trained patterns successfully in one's own organization. The fractal conception thus complements training in both leadership and teamwork with an understanding of how violations of the fractal premises of organizational communication and interaction cause dysfunctions.

To illustrate the dysfunctional aspect of fractal exchange quality, FVP *per se* refers to a breakdown in the vertical information flow, such as when unit leaders fall significantly short in their duty to engage subordinates or to keep them informed of important developments in the organization. As FVP theory explains, subordinates have a way of inventing rationales to make sense of what they perceive unconsciously as an information exchange problem along the vertical axis (Voss & Krumwiede, 2012). They attribute ill intent to their leaders, rather than revealing an understanding of the organizational dynamics governing their perceptions. Conversely, their leaders similarly fail to understand the impact of their own behavior on their subordinates (Voss & Krumwiede, 2012). Thus, FVP theory predicts that leaders will develop a concomitant distrust of their subordinates under this condition, without knowing why. Meanwhile, through the same fractal dynamic, subordinate leaders unwittingly experience pressure to emulate the dysfunctional fractal exchange quality of their own leaders. Thus, through fractal dynamics, dysfunctions of information exchange emanating from the top of an organization inevitably cascade downward.

On the matter of theory, just as the fractal variant of LMX proved simultaneously distinct from FVP and strongly intercorrelated in factor analysis, so did the fractal forms of LMX and TMX when applied to subordinate employees in an organizational context (Voss et al., 2014). The clarity of the distinctiveness among the components is similar, as is the strength of their intercorrelations (Voss et al., 2014). Whether construed positively, negatively, horizontally, or vertically, the degrees of distinctiveness and intercorrelation among the components appear stable. Each component is qualitatively unique in the sense that it represents a distinct perception rather than merely a difference of degree, but each also evidently forms an integral part of a second-order construct of fractal exchange quality by virtue of strong interdependencies.

In short, until it became evident that fractal TMX correlated just as strongly with FVP as with fractal LMX, the assumption that vertical and horizontal dynamics operated independently in organizations seemed reasonable (Voss et al., 2014). Henceforth, the new finding warrants a revision to that assumption, to the effect that the fractal structure of human interaction in an organization extends both vertically and horizontally in undifferentiated fashion. Nevertheless, in qualitative terms, human actors within organizations are sufficiently able to distinguish between vertical and horizontal patterns of interaction, as well as between functional and dysfunctional exchange dynamics. Thus, if there is a context in which the vertical and horizontal patterns should differ, as when one fractal pattern operates inside another on the horizontal plane while integrating on the vertical, respondents should report this difference. To test this effect, the present study replicates Voss et al.'s (2014) scale development effort with a student sample, whose fractal properties should be different from those of a standard organizational sample on the horizontal dimension due to the distinction between horizontal exchange among students and horizontal exchange among a university's staff, while integrating on the vertical dimension.

LITERATURE REVIEW

Fractality is an essential property of complex systems (Bloch, 2005; Waltuck, 2012). Identified first by Mandelbrot (1967) and later given its current nomenclature (Mandelbrot, 1977), the earliest construals of the phenomenon were mathematical or geometrical in nature. Its relevance to understanding organizational behavior is more recent. Primarily after the turn of the millennium, researchers began to explore the potential for fractality to explain various kinds of organizational phenomena, but most of this research has examined mechanical processes, even when applied to human performance (Holden, Choi, Amazeen, & Van Orden, 2011). Meanwhile, fractality has become an increasingly popular topic in the knowledge management literature (*e.g.*, De Noni, Orsi, & Pilotti, 2009; Hasgall & Shoham, 2007; McKelvey, Salmador, Morcillo, & Rodríguez, 2013; Ramanathan, 2005; Shoham & Hasgall, 2005). Fractality has also informed the structuring of plant layouts in support of efficient manufacturing operations (Gopalakrishnan & Ganesh, 2001; Montreuil, Venkatadri, & Rardin, 1999; Ryu & Jung, 2004; Shin, Cha, Ryu, & Jung, 2006). By comparison, its application to organizational behavior is quite new.

To be sure, on the matter of applying fractal principles to information exchange dynamics of the human variety in organizations, some of the literature now addresses fractality as a way to examine organizations with implications

for human interaction. However, most of this literature treats the topic superficially, as though to achieve little more than exhorting the reader to have an open mind about the compelling nature of organizations in the light of the new sciences. There are significant exceptions to this rule, notably Dooley and Van de Ven (1999), who have sought to translate fractal patterns mathematically into measurable properties of certain organizational dynamics involving purely human behavior. Nevertheless, practical methods for applying fractal concepts to human interaction in organizational settings remain difficult to find in the literature.

One possible approach to studying the fractal pattern of human interaction is visible in Black, Hinrichs, and Fabian's (2007) argument that the verbal references, stories, and examples of prevalent mental models in organizations actually have a fractal quality. This fractal quality causes key information, often in metaphorical form, to spread throughout the organization, insofar as it is manifestly a part of the same intuitive apparatus as the organization's strategic assumptions. Thus, fractality is the unifying feature of an organization, due to its transmission along fractal lines of communication. In effect, one should be able to ask certain questions to capture evidence of an organization's fundamental structure and strategy in terms of information exchange quality and get approximately the same answer, regardless of organizational location or level. In essence, "strategic logic may . . . be embedded within the mental models of organization members to guide action" (Black et al., 2007, p. 425).

In the foregoing explanation, Black et al. (2007) have effectively advanced the thesis that fractal structures emerge in human organizations by virtue of the general principles of interaction recorded in the mind of each organizational member. In turn, each organizational member would learn these intuitive rules during a socialization process preceding full participation in the fractal structure, as part of the workforce. Hence, fractality invokes a replication of these core principles of structuration into each new agent that enters the system. Among human beings, this replication occurs with or without the organization's purposive effort, because new members have a natural inclination to emulate the core structural principles of a new community with which they wish to identify, by forming mental models into which to encode those principles (Rook, 2013). In the absence of a training program, learned patterns consist of those patterns actually practiced within view of new members, whether effective or counterproductive, through social learning (Laird, Naquin, & Holton, 2003). With the benefit of training, there is an opportunity to attune those patterns to the organization's intentional strategy and culture (Capelo & Ferreira, 2009).

Around the same time as Black et al.'s (2007) study, fractal dynamics emerged as a point of discussion among Voss and colleagues (cf. Voss & Krumwiede, 2009), specifically regarding patterns of vertical exchange in certain organizational settings that manifest distortion, reflecting some source of dissonance in the vertical lines of communication. Fractal vertical polarization (FVP), a negatively construed construct, grew out of this work, since the researchers' primary concern was a type of dysfunction caused by deviations from the functional flow of information demanded by those organizational dynamics contemplated previously by Graen and Cashman (1975) and Seers (1989) (cf. Figures 1 and 2).

In the original theory, FVP amounted to a type of polarization, namely, the consequence of information flow obstructions and asymmetries of power (cf. Esteban & Ray, 1994; French & Raven, 1959; Tedeschi, 1968). The fractal reference stemmed from Mandelbrot's (1967, 1977) work, but it also exploited the notion of elemental structure developed elsewhere in the literature (cf. Chatterjee & Yilmaz, 1992; Chua, 2005). In this sense, Voss and Krumwiede (2009) saw the elemental structure as consisting fundamentally of the fractal information or intuitive map upon which the organization *per se* emerged. Meanwhile, because the focal point of the research was information exchange among human agents, the authors also drew upon communication theory to identify the theoretical mechanisms behind the process of emergent dysfunction (Brannen, 2004; Daft, Lengel, & Treviño, 1987; Phelps, 1942; Pollack, 1953).

FVP theory predicted that employees in a high-FVP organization (*i.e.*, one that was highly dysfunctional or dissonant along the vertical axis) were likely to report symptoms of FVP that would take on the form of justifications for their dislike of management. An example of this consists of perceptions of injustice, which may emerge due to excessive opacity in organizational processes (Gómez & Rosen, 2001; Homans, 1961). In the early stages of this phenomenon, ordinary confusion may constitute the essential manifestation (cf. Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Merton, 1945, 1957; Roethlisberger & Dickson, 1939), but the perceptions predictably mutate over time, creating new, visceral substitutes for reality in the minds of employees that are really merely symptoms of the underlying FVP condition. A dogmatic leadership style in a work environment that naturally warrants a participative style, for example, creates actual distortions in the communication lines, as well as resistance against acting on the leader's guidance (Muczyk & Reimann, 1987; Thibault & Walker, 1975). While low LMX quality predicts the emergence of outgroup members in a work unit, FVP goes further, predicting an irrevocable breakdown of ingroup-outgroup communication, to the point of dysfunction. Due to this breakdown, subordinates report a qualitatively different experience from one that would otherwise merely reflect an unsatisfactory level of vertical exchange (cf. Figure 3).

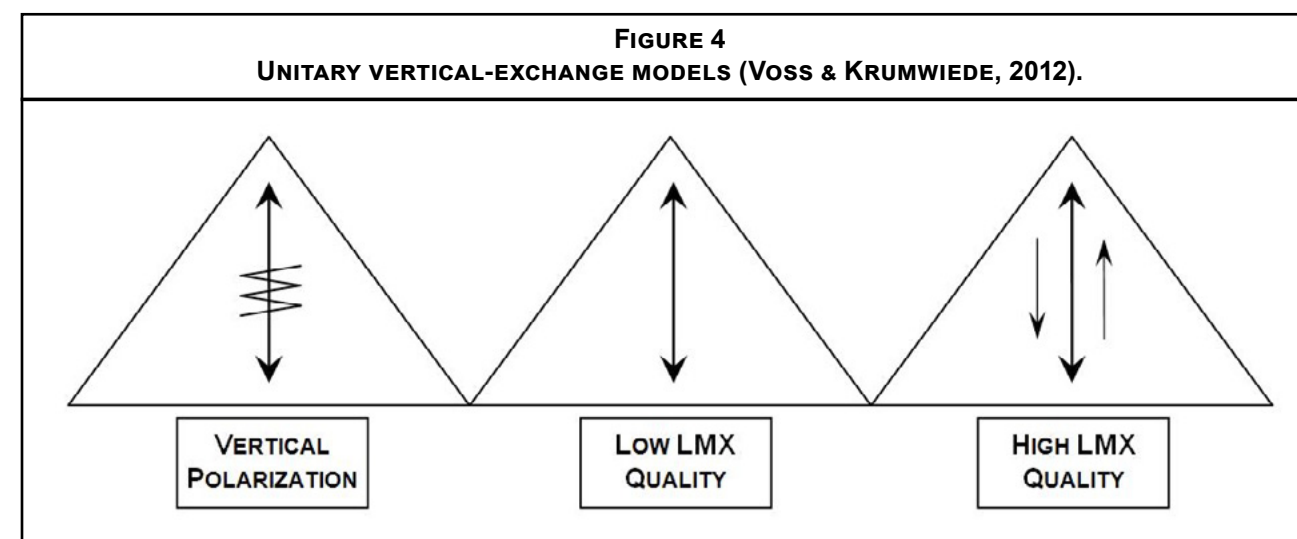
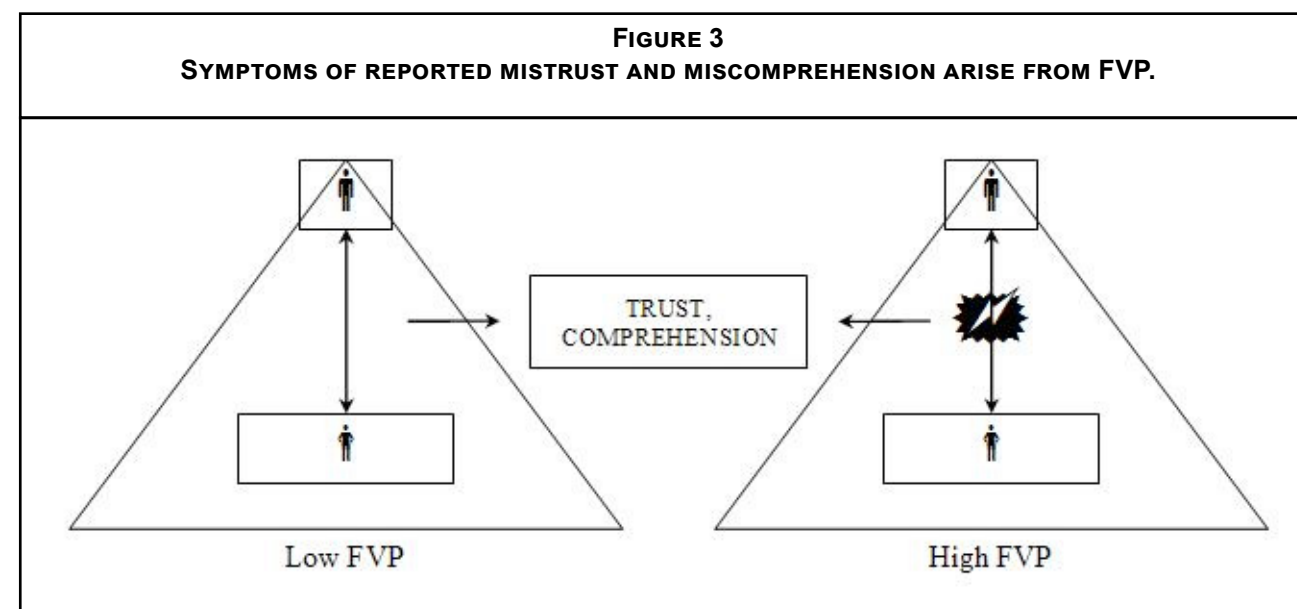
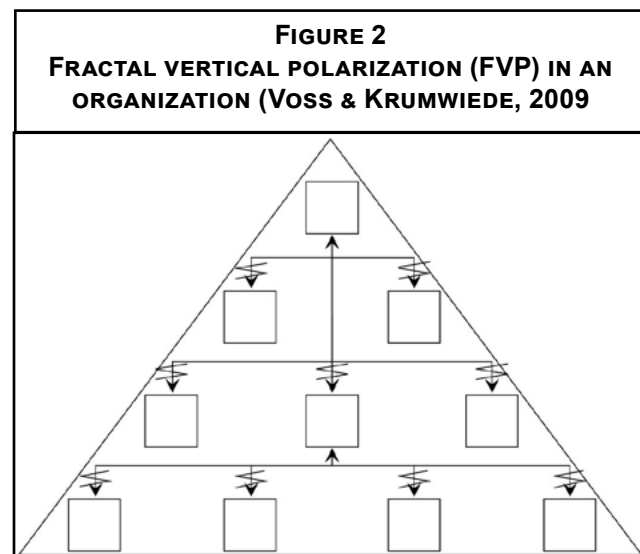
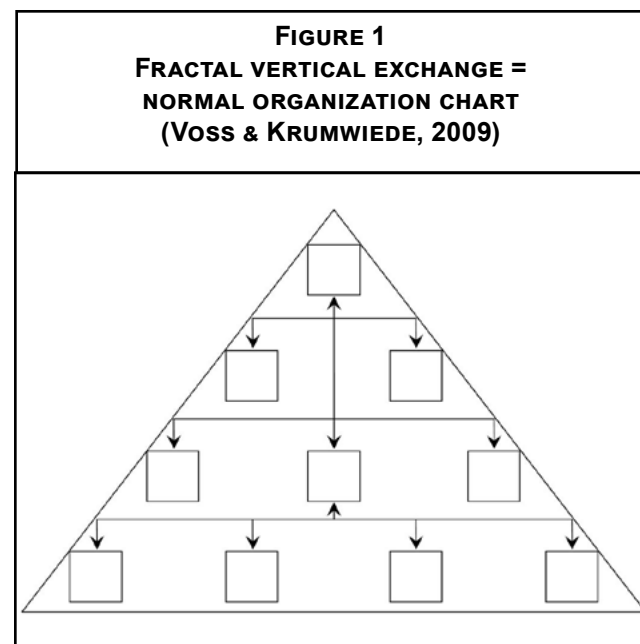
The initial research in FVP sought to develop the theory alone, through several iterations of effort, prior to commencing operationalization (Voss & Krumwiede, 2009, 2010, 2012). The prevailing wisdom was that the construct was highly complex, so considerable care was necessary in developing the nomological net (Voss & Krumwiede, 2012). Consistent with the emphasis on dysfunction, scale development took the form of creating self-report statements reflecting dissonance, hence a list of negatively

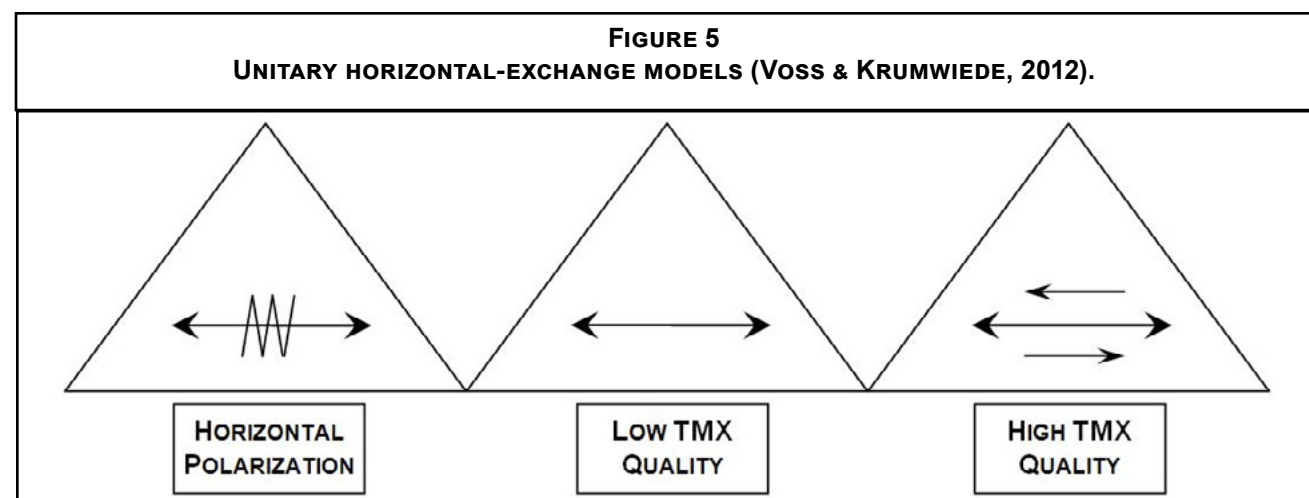
worded items for a potential scale of subordinate perceptions in an organization. In the same process, Voss et al. (2014) also tested the interplay between FVP and LMX, by adapting original LMX items from Graen, Dansereau, Minami, and Cashman (1973) to the fractal (*i.e.*, trans-unit) wording necessary to fit their new purpose. As an exploratory step, they included TMX items in the same way, from Seers (1989). The subsequent factor analysis produced notable evidence of a distinction between FVP and fractal LMX, along with similar distinguishability between these and fractal TMX.

The magnitude of the correlation between the fractal forms of TMX and LMX, however, was similar to that between these and FVP, suggesting a much closer relationship between fractal LMX and fractal TMX than anticipated. That is, an organization with strong LMX quality

would also demonstrate strong TMX quality (construed fractally), and *vice versa*. Meanwhile, an indirect form of FVP also emerged in Voss et al.'s (2014) study, interpreted as a *gestalt* subtype, meaning that subordinates might additionally perceive the overall coherence of organizational exchange dynamics in a direction-neutral way, aside from vertical and horizontal dynamics. Until that observation, the relative simplicity of vertical and horizontal exchange dynamics, notably against the backdrop of the prior work in LMX and TMX theory under unitary assumptions, seemed sufficiently compelling. Reflecting this view, Figures 4 and 5 illustrate Voss and Krumwiede's (2012) fundamental conceptual distinctions among the subtypes of fractal exchange quality.

Lastly, there may be some implications for organizational culture in the theory of fractal exchange quality. Schein's





(1991) model of organizational culture consists of artifacts, values, and assumptions. Fractal exchange quality, if construed as a theory of organizational culture, would consist of the dynamic by which core requisites of organizational behavior become part of each member's mental model, to guide patterns of interaction with an emphasis on the sharing of information. In fact, Hatch (1993) suggested adding a role for symbolic interaction to Schein's (1991) model and focusing on how organizational members form their mental models. Fractal exchange quality similarly focuses on the interplay between the communication structure and members' emergent perceptions. Fractal exchange quality should therefore correlate positively with measures of functional organizational culture, but the underlying theories are from distinct paradigms. Thus, if they converge on key measures in future studies, the result will validate both theories, which will consequently benefit from mutual confirmation using disparate paradigms.

HYPOTHESES

The first three hypotheses address basic theory. Thus, the general findings concerning the intercorrelations between FVP and fractal LMX should be similar in the present student sample to those reported in the prior employee sample. Meanwhile, even if fractal TMX separates from fractal LMX in the classroom, an engaging professor is likely to enhance the quality of student team interaction appreciably (Liao, Liu, & Loi, 2010). Moreover, insofar as FVP and fractal LMX are construable as components of a superordinate construct of fractal exchange quality, additional intercorrelation is likely for that reason alone. Therefore, there should also be a positive correlation between fractal TMX and fractal LMX, as well as a negative one between fractal TMX and FVP, hence the following hypotheses:

- H1. FVP and fractal LMX will correlate negatively in the student sample.
- H2. FVP and fractal TMX will correlate negatively in the student sample.
- H3. Fractal LMX and fractal TMX will correlate positively in the student sample.

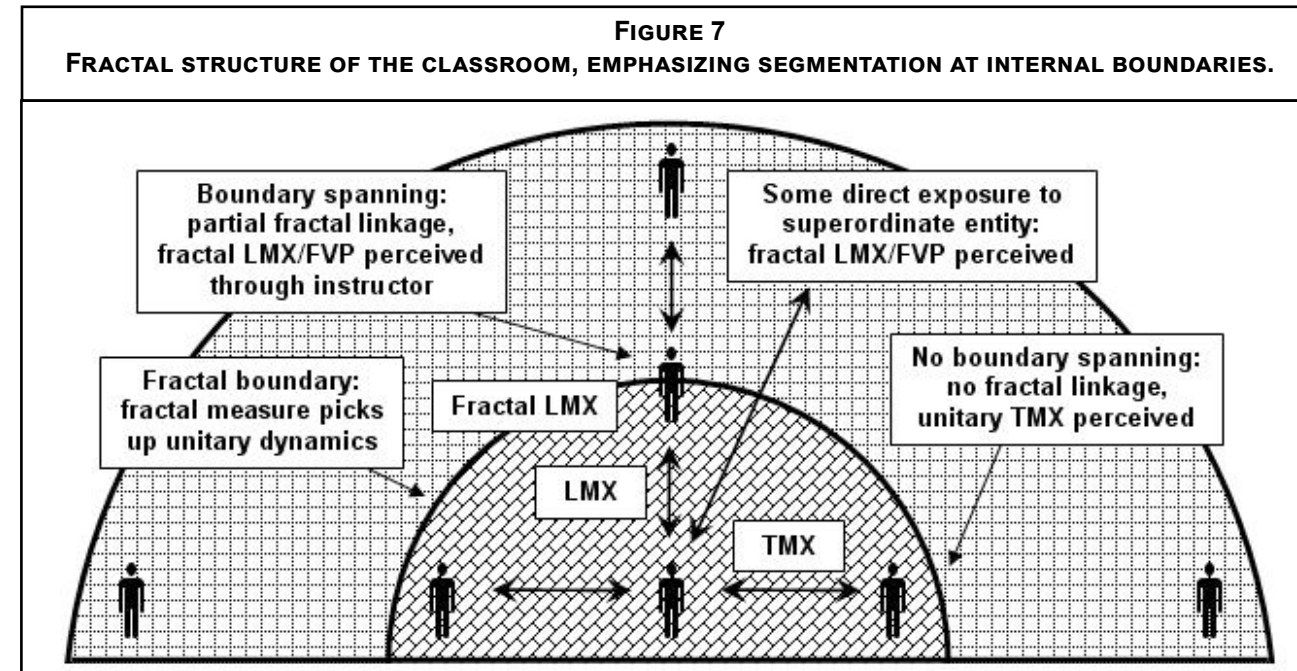
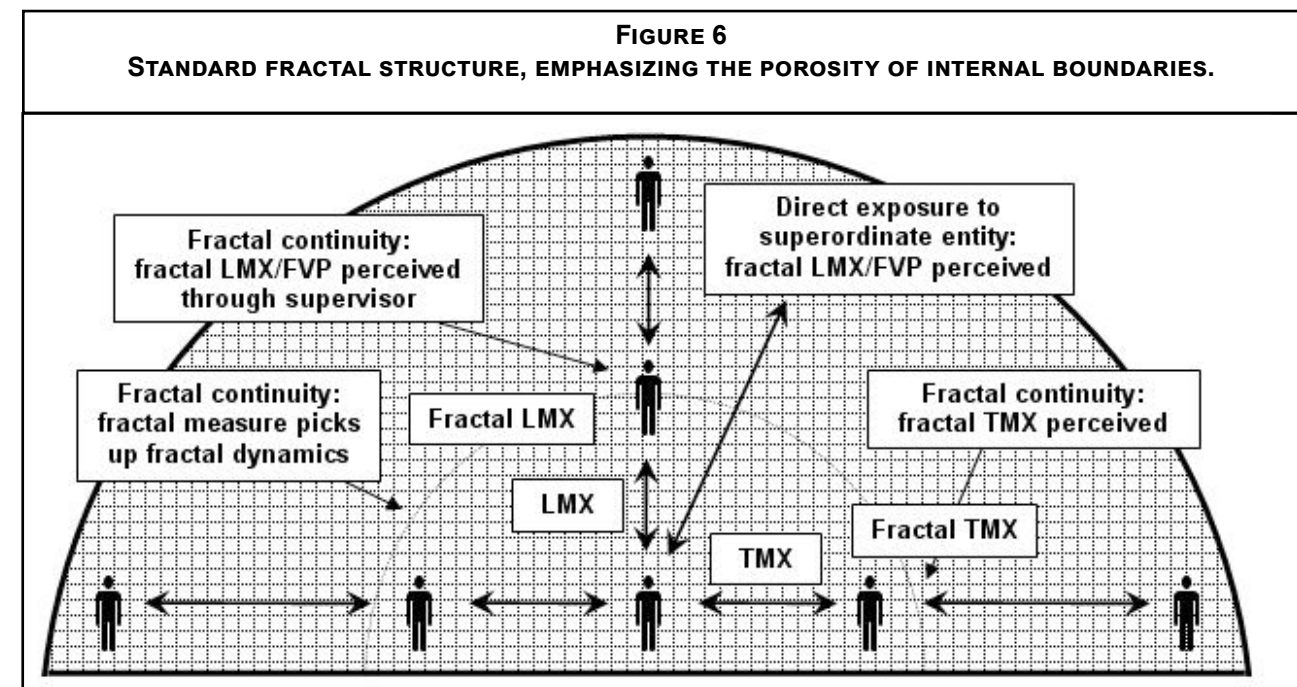
The next three hypotheses address differences expected between the student sample and the prior employee sample. Thus, the present study seeks to establish whether students perceive the fractal structure of an educational institution somewhat dissimilarly from the way in which subordinate employees perceive the fractal structure of the organization whereof they form an integral part. Horizontal engagement among students should constitute a dynamic separate from the larger organization. Therefore, the most prominent distinction should come in the form of limited correlational strength between fractal TMX and FVP and between fractal TMX and fractal LMX. In short, when students respond to survey items designed to measure fractal TMX, they should produce the same pattern of responses as they would to survey items designed to measure unitary TMX, because they perceive no difference, in effect.

Figures 6-7 illustrate the distinction between the fractal structures of a standard organization and a classroom environment, respectively. In each image, the grid pattern represents a unique fractal structure. Thus, in Figure 6, the presence of a single grid pattern pervading the entire diagram suggests the same fractal pattern, or a case of normal fractal integration. Theoretically, this should be the form commonly encountered in a standard organization. Coworkers will report unitary TMX quality, as revealed in the standard TMX measure, but this will largely be a product of fractal TMX quality, by virtue of everyone's enactment of the larger fractal structure. Analogously, subordinates will report unitary LMX quality, but this

will largely be a product of fractal LMX quality, by virtue of the supervisor's enactment of the superordinate fractal structure. Measures of unitary TMX and LMX will therefore intercorrelate strongly, reflecting a second-order type of fractal exchange quality.

In line with Figure 7, there will be a response pattern disparity on the horizontal axis. In contrast, there should be greater similarity on the vertical axis, hence the next three hypotheses:

- H4. The correlation between FVP and fractal LMX in the student sample will be similar to that in the employee sample.
- H5. The correlation between FVP and fractal TMX in the student sample will be weaker than that in the employee sample.
- H6. The correlation between fractal LMX and fractal TMX in the student sample will be weaker than that in the employee sample.



After the initial analysis, which treats FVP and the fractal variant of LMX as separate constructs, the remainder of the analysis will use a composite measure consisting of the fractal-LMX score minus the FVP score, assuming that these constructs intercorrelate significantly, as expected. The composite construct is fractal vertical exchange, which should capture the totality of the vertical-exchange dynamic. This provides an opportunity to test an additional hypothesis concerning the effect of online *versus* classroom learning, based on the assumption that online learning creates natural obstructions in the vertical information flow, which are generally absent in classroom learning, hence the following exploratory hypothesis:

- H7. Fractal vertical exchange will correlate negatively with online course taking.

METHODOLOGY

The present paper adapted Voss et al.'s (2014) scales incorporating FVP, fractal LMX, and fractal TMX to student samples from two large educational institutions in different parts of the United States. Both institutions taught partially in class and partially online, creating a potential source of natural dysfunction in vertical exchange quality from the latter mode. The sample consisted of $N = 314$ undergraduate and graduate students, including both traditional and midcareer categories, at both institutions. The ratio of males to females was 44%. The sample was 86% American (United States), with a variety of foreign nationals among the remaining 14%. For its part, the US component of the sample was 69% European heritage, 15% African American, 5% Hispanic, and 3% Native American, in addition to smaller groups.

INSTRUMENT

The present study adapted Voss et al.'s (2014) 27-item scale. The reformulated scale included 40 items, anchored in a 5-point Likert format (ranging from strongly disagree to strongly agree). It included 10 items to measure fractal LMX, 10 items to measure fractal TMX, 10 items to measure direct FVP, and 10 more items to measure the indirect facet of FVP that emerged in Voss et al.'s (2014) study. To achieve the numerical target for each subscale, notably fractal TMX, whereof only three items had survived in the previous study, it was necessary to create some new items. The authors accomplished this through ordinary brainstorming.

RESULTS

The first phase of the factor analysis consisted of a comparison between the two forms of FVP from the previous study (*viz.*, the direct and indirect varieties that emerged from that study). However, it was infeasible to produce a stable 2-factor solution from these items, as the analysis kept indicating a need to remove items from the indirect variant of FVP. This outcome resulted in a decision to remove the indirect facet altogether. The next step was to compare FVP solely against fractal LMX, to establish distinguishability, followed by a comparison between these and fractal TMX. The final step involved a full factor analysis of all surviving items from the three subscales, which produced a stable 3-factor solution. The result included at least six items per subscale, so the authors opted to trim the longer subscales by removing the weakest-loading items, to produce an evenly distributed 18-item scale. Tables 1-3 display the results. Each table lists Voss et al.'s (2014) original wording of each item, if available, to show the comparison between the student and employee versions, along with their respective factor loadings.

Three scale variables thus emerged from this study for use with a student sample, namely, FVP, fractal LMX, and fractal TMX. Consistent with the arguments presented previously in this paper, the researchers created a fourth scale to represent fractal vertical exchange in general, for addressing Hypothesis 7. The scale consisted of the simple difference between fractal LMX and FVP (*i.e.*, the sum of the fractal-LMX score and the FVP score in its negative form). Tables 1-3 display the results of the factor analysis, with comparative results from Voss et al.'s (2014) factor analysis for analogous scale items, where available. The entries in Tables 2 and 3 use ellipses to conserve space, but the full wording is generally self-evident.

The same pattern of FVP that appeared in Voss et al.'s (2014) prior work on subordinate employees in standard organizations appeared in this sample. The emergence of the anticipated FVP pattern, although lacking the indirect (*gestalt*) variant found in the previous study, suggests that students are effectively members of the educational institution in terms of their propensity to internalize the vertical aspect of the fractal mind map indicated by Black et al. (2007). That is, the professors and administration are similar to leaders in a standard organization in this sense.

With one exception, each scale item selection for fractal LMX was identical to one of the retained items in Voss et al.'s (2014) study of employees. One difficulty in the construction of this scale was the choice of whether to cite faculty, administrators, or staff members in a given item. FVP theory suggests that this distinction should be

	Loading		Item
	Stu	Emp	
1	.72	.65	STU To get along, you have to pretend to respect your professors. EMP To get along, you have to pretend to respect the boss.
2	.71	.72	STU This institution's staff expect students to do their jobs for them. EMP This company's managers expect subordinates to do their jobs for them.
3	.70	.53	STU My professors often make unreasonable requests of me. EMP My supervisor often makes unreasonable requests of me.
4	.68	.69	STU Some professors will take credit for your ideas. EMP The boss will take credit for your work.
5	.63	.55	STU The staff too often blame students for failure. EMP Managers too often blame subordinates for failure.
6	.61	.55	STU The use of threats and penalties is normal here. EMP The use of threats and penalties is normal around here.
Notes: Stu = students. Emp = employees. Employee data are from Voss et al. (2014).			

	Loading		Item
	Stu	Emp	
1	.75	.66	STU Administrators actively seek input on ways to make the institution . . . EMP Leaders actively seek input on ways . . . the organization function better.
2	.75	.65	STU The administration in my institution . . . for its own mistakes. EMP The leadership in my company usually takes responsibility for . . .
3	.72	—	STU Administrators seek appropriate feedback . . . when making big decisions. EMP [—]
4	.59	.72	STU This institution believes in fairness and justice. EMP This company believes in fairness and justice.
5	.54	.65	STU Faculty are very reasonable about how to handle problems when . . . EMP Supervisors are very reasonable . . . to handle mistakes when they occur.
6	.53	.67	STU The faculty deal fairly with all students. EMP Supervisors deal fairly with all of their subordinates.
Notes: Stu = students. Emp = employees. Employee data are from Voss et al. (2014).			

of only minor consequence, because the information flow structure subsumes all agents, but it may be easier for students to comment on certain categories of agents (*e.g.*, faculty or staff) with whom they have personal experience.

Compared to the foregoing scales, the fractal-TMX scale showed the most differences from the scale produced by Voss et al. (2014), but this was mainly a function of the small number of items that remained in that prior analysis. One motivation for Voss et al.'s (2014) inclusion of

fractal TMX items adapted from Seers (1989) was to draw away any proposed FVP items that might imply a horizontal dynamic, rather than a vertical one. The intercorrelation between TMX and FVP was an unexpected result. The prior study produced a 3-item scale for fractal TMX, as there was no intention of including that construct *per se* at first. Thus, given the small number of initial items for fractal TMX, it was necessary to create new items for the current analysis. The present work may therefore produce an ancillary benefit by providing supplemental items for the employee version of the scale.

**TABLE 3:
FACTOR-ANALYTIC RESULTS, FRACTAL TMX**

	Loading		Item
	Stu	Emp	
1	.69	—	STU My fellow students would come to the rescue if I had a problem. EMP [—]
2	.67	—	STU My fellow students and I are open and honest with each other. EMP [—]
3	.59	—	STU There is good camaraderie among the students. EMP [—]
4	.58	.55	STU With difficult tasks, students openly ask one another for help. EMP In busy situations, team members openly ask one another for help.
5	.55	—	STU ... spend time with my fellow students outside of the classroom as well. EMP [—]
6	.53	.67	STU I usually have no problem helping out other students when necessary. EMP ... helping to finish work assigned to coworkers when necessary.

Notes: Stu = students. Emp = employees. Employee data are from Voss et al. (2014).

Upon concluding the factor analysis, the researchers then conducted a reliability analysis on each of the three factors, using changes in the Cronbach's alpha coefficient to select items to delete until confirmation that the removal of further items would only degrade reliability. Tables 4 and 5 accordingly list the reliability coefficients for FVP ($r = .77$), fractal LMX ($r = .79$), and fractal TMX ($r = .67$).

CORRELATION MATRICES

The first two correlation matrices (Tables 4 and 5) present FVP, fractal LMX, and fractal TMX, to assess how they intercorrelated in answer to Hypotheses 1-3 and to accommodate a way to compare the current results using students to the prior results using subordinate employees as reported by Voss et al. (2014), in answer to Hypotheses 4-6. The correlation matrix in Table 6 then shows a selection of additional correlations from the present study, this time referencing fractal vertical exchange (the composite scale), thus providing the results necessary for drawing a conclusion in answer to Hypothesis 7.

ANALYSIS

As shown in Table 4, the findings relating to the expected intercorrelations among FVP, fractal LMX, and fractal TMX support Hypotheses 1-3. Specifically, Hypothesis 1 predicted that FVP would correlate negatively with fractal LMX ($r = -.43, p < .001$). Hypothesis 2 predicted that FVP would similarly correlate negatively with fractal TMX ($r = -.14, p < .05$). Hypothesis 3 then predicted that

fractal LMX would correlate positively with fractal TMX ($r = .37, p < .001$). Despite the relative weakness of the correlation between FVP and TMX, these outcomes validate the theoretical structure underlying the components as part of an overarching dynamic of fractal exchange quality.

To address Hypotheses 4-6, the test consists of assessing the differences in the analogous correlation coefficients between the student sample featured in the present study and employee sample featured in Voss et al. (2014). Hypothesis 4 predicted that there would be no significant difference in the respective correlations between FVP and fractal LMX. In contrast, Hypothesis 5 predicted that the student sample would produce a weaker correlation between FVP and fractal TMX than was visible in the prior employee sample. In answer to Hypothesis 4, the difference in correlation coefficients is $r = .18 (p < .01)$. This evidences a weaker fractal connection between students and the institutional leadership than expected and therefore fails to support Hypothesis 4. By comparison, the differences associated with Hypotheses 5 and 6 are considerably larger. The difference reflecting the relationship between FVP and fractal TMX is $r = .25 (p < .001)$, while that reflecting the relationship between fractal LMX and fractal TMX is $r = .23 (p < .001)$. The results therefore affirm Hypotheses 5 and 6.

The rejection of Hypothesis 4 suggests a weaker connection between students and their educational institution than between employees and their organization. Students are able to report FVP similarly in both cases, but they may only be able to perceive a unitary form of LMX,

**TABLE 4
CORRELATION MATRIX—STUDENT SAMPLE**

		1	2	3	4	5	6
1	Educational level	—					
2	Age	.05	—				
3	Gender (m = 1, f = 2)	-.08	-.04	—			
4	FVP	-.02	-.11	-.06	[.77]		
5	Fractal LMX	-.03	.02	.02	-.43***	[.79]	
6	Fractal TMX	.14'	-.13'	-.07	-.14'	.37***	[.67]

* $p < .05$; ** $p < .01$; *** $p < .001$ (2-tailed tests); N -range = 300-314. Scale reliabilities in brackets.

**TABLE 5
CORRELATION MATRIX—EMPLOYEE SAMPLE**

		1	2	3	4	5	6
1	Educational level	—					
2	Age	.15**	—				
3	Gender (m = 1, f = 2)	-.01	-.13'	—			
4	FVP	-.14**	-.02	-.08	[.85]		
5	Fractal LMX	-.11'	.11	-.10	-.61***	[.89]	
6	Fractal TMX	.10	-.05	-.01	-.39***	.60***	[.61]

* $p < .05$; ** $p < .01$; *** $p < .001$ (2-tailed tests); N -range = 343-348. Scale reliabilities in brackets. Results from Voss et al. (2014).

**TABLE 6
CORRELATION MATRIX—FRACTAL VERTICAL EXCHANGE AND OTHER VARIABLES (STUDENTS)**

		1	2	3	4	5	6
1	Educational level	—					
2	Age	.15**	—				
3	Gender (m = 1, f = 2)	-.01	-.13'	—			
4	Extent of coursework online	-.09	.36***	.18***	—		
5	Institution 1 vs. Institution 2	-.12'	.34***	.15**	.84***	—	
6	Fractal vertical exchange	-.01	.08	.05	.12'	.15'	—

* $p < .05$; ** $p < .01$; *** $p < .001$ (2-tailed tests); N -range = 300-314. Fractal vertical exchange is composite, so no reliability statistic.

rather than the fractal form, due to the dominance of the professor in their experience. Thus, there is a distinction between what students are able to say about the larger administrative apparatus and what employees in a standard organization are able to say about their overarching organization. By comparison, the FVP items seem more clearly to capture the fractal properties of the larger organization than is possible with the fractal LMX items.

Lastly, Hypothesis 7 predicted that the online learning condition would undermine fractal vertical exchange generally, due to the expectation that it would be more difficult for students to interact with professors. In answer to this, Table 6 shows the opposite outcome ($r = .12, p < .05$). To help determine how this outcome occurred, further observation suggests that it reflects the differences between the two institutions featured in the study more than any inherent properties of online learning. Specifically, the sample at Institution 1 was more heavily an on-

line sample than that at Institution 2, which was teaching primarily in a traditional classroom format (*cf.* Table 6). Separating each institution by in-class *versus* online formats, one thus begins to see a different story, which both validates FVP theory and reveals the underlying cause of the anomaly. Specifically, using normed scores to represent fractal vertical exchange (*i.e.*, mean score = zero), the traditional-classroom component of Institution 1 has a low score of -.74 for fractal vertical exchange, while the traditional-classroom component of Institution 2 has a high score of +.53. Conversely, the online component of Institution 1 shows a high score of +1.14 for fractal vertical exchange, while that of Institution 2 shows a low score of -.93.

Between the universities, Institution 2 is an old college that has maintained traditional institutional structures and added some online courses in recent years. Taken alone, the results from Institution 2 would affirm Hypothesis 7. In contrast, Institution 1 has mounted a sustained effort over the past decade to achieve high standards in its online courses due to concerns that their quality might fall short of that of traditional classrooms. Accordingly, it has developed a state-of-the-art student support system, a full staff of curriculum designers, and ongoing faculty training, while carefully selecting online faculty. The measure of fractal vertical exchange quality appears to be quite meaningful in affirming the effectiveness of these efforts.

DISCUSSION

The aim of this paper was to test the concept of fractal vertical exchange by comparing the student experience against that of regular employees of organizations. The expectation was that students would perceive their horizontal relations, referring to other students, in a way that operated according to a different fractal pattern from how they would perceive their relations with the institutional leadership. Meanwhile, they would perceive their vertical relations similarly to what normally occurs in an organizational setting, given the presumed similarity between the student role and the employee role with respect to the duty of productivity on behalf of the larger institution. While the former dynamic was evident in the results, the latter was less so, as there was evidence of a weaker relationship between students and their institution's administration than between employees and their organization's leadership. An unexpected finding was that an educational institution could achieve high levels of vertical exchange quality in online programs, despite the obvious challenges associated with this medium.

Practical implications for human-resource development begin with the validity of fractal exchange quality as a

complexity-based model of information flow dynamics in organizations. The implications for leadership training include the premise that training individual leaders in an organization is unlikely to be sufficient as a remedy for vertical-exchange dysfunction, because negative fractal exchange quality inexorably cascades downward in an organization, frustrating subordinate leaders' efforts to overcome it. Contrarily, if organizational leaders simultaneously train subordinate leaders and give them greater autonomy, a solution is conceivable. Analogous implications are apparent for training employees in improved team interaction. That is, LMX training must occur simultaneously with TMX training to support the latter fully, whether this training is explicitly fractal or unitary in form.

Future research still needs a measure of fractal horizontal exchange, analogous to FVP, to complement fractal TMX. Future studies should also test the distinguishability between unitary and fractal LMX and TMX, given the segmentation evident in this study. Meanwhile, there is a need for analogous measures for people in supervisory positions in both educational and private organizations, to complement the subordinate scales, because the fractal conception of behavior suggests that all organizational members perceive the same mental map. Lastly, other axes may likewise exist, such as the possible *gestalt* axis observed in Voss et al. (2014).

An important observation about fractal vertical exchange remains the qualitative contrast between positive and negative variants. In their traditional forms, LMX theory and TMX theory both construed high-quality exchange in terms of the presence of the associated dynamic, while ignoring the potential for obstructions to that dynamic to create qualitatively distinct perceptions. Thus, low LMX quality reflects a lack of engaging leadership, but plumbing the depths of further degrees below zero on the LMX slope begins to reveal accusations of favoritism, injustice, or ill intent, hence FVP. In FVP theory, this qualitative difference suggests a distortion of reality in the minds of organizational members, because it is difficult to see clearly while surrounded by the organizational structure (Voss & Krumwiede, 2010). Therefore, measures of all fractal constructs should include both positive and negative forms.

This study's limitations include primarily the narrow range of institutions sampled, which obviated controlling for institutional effects to detect residual dynamics. Analyzing educational institutions is complex from this vantage point, as evidenced by the unexpected outcome for the online course condition. It might therefore be necessary in future research to clarify the status of each respondent on each dimension of interest, such as whether the

students are currently taking an online *versus* traditional course, rather than solely how often they have done so. Analogous considerations in private firms might include whether one works in a large, integrated unit or a small field unit displaced from the main corporation.

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COMPETITIVE DYNAMICS: MULTINATIONAL FIRMS AND COMPETITOR'S NETWORK IN THE HOST COUNTRY

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ABSTRACT

Drawing from social network perspective and competitive dynamics literature, we aim to contribute to the theory of multinational firms and their competitive rivalry. Prior literature has analyzed competition from the dyad point of view. We believe this perspective needs to be expanded. We propose that when a multinational firm attacks one of the firms that is embedded in a network, it is likely that the attack will be responded to by both the attacked firm and the network.

INTRODUCTION

Despite the well-known Japanese desire for harmony, there is nothing sentimental about these unions; they can be ruthless. Each keiretsu resembles a fighting clan in which business families join together to vie for market share.

-Cutts, 1992

Today, multinational firms have to constantly defend their position and make aggressive competitive moves in order to gain market share in the host country (Yu & Cannella, 2007). Many studies have shown that firms that aggressively seek opportunities and respond to competitors' attacks do better than those that are not as aggressive or slow in responding (Chen & Miller, 2011). When a multinational firm enters a host country, it may choose to attack a local firm in order to compete for market share. But what happens if the attacked firm is well-connected in the local networks? Will this change the response the attacker receives? Local business networks like keiretsu in Japan are firms that cluster together and have a close working relationship with one another within the network (Gerlach,

1992). When a multinational firm attacks one of the firms that is deeply embedded in the network, it is likely that not only the action will be responded to by the attacked firm, but also by the embedded network. For example, when Eastman Kodak was competing head to head with Fuji Photo Film in Japan, as Fuji was well-connected to the tokuyakuten, one of the four primary wholesalers in Japan, the entire tokuyakuten distribution network was closed to Kodak (Baron, 1997). Thus, we investigate: can a multinational firm's attack on a local firm trigger a network response?

Research in competitive dynamics has long recognized the importance of the competitive actions and responses of dyad firms (Chen, 1988, unpublished dissertation). For example, the awareness-motivation-capability framework shows that firms will only respond to attacks that they are aware of, and the response is determined by their motivations and capabilities (Chen, 1996). This line of research has focused on the predictors and outcomes of interfirm rivalry and has been used extensively and empirically tested by many studies (Smith, Ferrier, & Ndofor, 2001). Though significant progress has been made, studies in competitive dynamics have mainly focused on domestic

firms at the dyad level. It is without question that important insights such as the awareness-motivation-capability framework can also be applied in the study of multinational firms. However, many differences exist in the international context. For example, a multinational firm may not understand the competitive dynamics and the intertwined relationships in the host country. It may challenge its competitor in the host country and the action can lead to retaliation from the entire local network.

To fill this gap, this paper examines the competitive dynamics of a multinational firm in a host country. We draw on literature from social networks and show how an attack may be responded to by the local firm and its network. While recent literature has mainly focused on dyad relations (Baum & Korn, 1999; Smith, Ferrier, & Ndofor, 2001), this paper investigates the network position of the attacked firm and predicts the likelihood of the response by its embedded network. First, we review extant literature on competitive dynamics and its key concepts. Research has shown that rivalry is influenced by competitive perceptions and asymmetry. Second, we identify the gap in the literature, mainly, the effect of the attacked firm's network. We propose that the attacked firm's network position and the properties of the network also influence the likelihood of a response from the network. A set of propositions are then presented.

This paper extends the existing research in the following ways. First, previous scholars have called for more research in competitive dynamics at the network level (Borgatti & Foster, 2003; Kliduff & Brass, 2010) and this paper answers this call by exploring the effect of the competitor's network. Second, centrality within a network is often associated with influence. Contrary to existing literature, we propose that being well-connected (high in degree centrality) does not equate to influence. In short, we aim to contribute to the fields of international business and social networks.

THEORETICAL BACKGROUND

This study builds on two important streams of research, competitive dynamics and social networks, to understand the rivalry of the multinational firm in a host country. Strategic management scholars have long recognized the importance of competitor analysis. Early works mainly focused on the industrial organization economics (Porter, 1980) with the level of analysis at the industry level. Later researchers extended the concept and shifted the level of analysis to group level (e.g. strategic group) (Cool & Schendel, 1987) and dyad level (Chen, 1988, unpublished dissertation). Competitive dynamics research at the dyad level is especially useful since it deals with firms that are actually involved in the competition and provides great

insights into the action and response of the focal firms. At the same time, network research has gained a lot of attention in the management literature. Most of this research focuses on alliance and interlocking directorate ties. Recent research has attempted to integrate network research into the study of competition (Tsai, 2002). Examples such as co-opetition (cooperation and competition) shows how firms may work together while in competition against each other.

While research in competitive dynamics and social networks has progressed, few scholars have bridged the two. We choose the case of multinational firms entering a new market as our research setting for two main reasons. First, domestic rivalry has been well-studied but little is known in the international arena. Second, a local firm is assumed to have some basic understanding of the local networks, whereas a multinational firm is not likely to know the local networks when it first enters a new market. We now review the extant literature on competitive dynamics and its key components: competitive perceptions and asymmetry. We then introduce the concept of networks in the study of competitive dynamics.

COMPETITIVE DYNAMICS

Competitive dynamics can be conceptualized as inter-firm rivalry with exchanges of actions and responses. Chen (2009) defines competitive dynamics by the following features. First, competition is interactive in nature (hence termed dynamics). Second, a manager's behaviors and his/her decisions are as important as firm actions. Third, strategy is of some thematic consistency. Fourth, every firm is unique. And finally, there are organizational mechanisms underlying firm actions. Unlike early works on competitor analysis that focus on macro-industry level concepts, research in competitive dynamics puts emphasis on the micro-dyad level. Scholars have also suggested that there are three drivers of interfirm rivalry: awareness of the attack, motivation to respond, and capability to defend (Smith et al., 2001). Chen (1996) formalized the awareness-motivation-capability model and explained that a firm that is being attacked cannot respond unless it is *aware* of the attack. Furthermore, it will not respond unless it is *motivated* and has the *capability* of launching a defense.

In addition, researchers have also shown that responses are influenced by the attributes of the attack (Young, Smith, & Grimm, 1996), the characteristics of the attacker, and the characteristics of the defender (Chen & MacMillan, 1992). Prior studies have addressed the influences such as irreversibility, the extent that a firm is committed with its resources in response to a competitive action (Chen, Venkatraman, Black, & MacMillan, 2002); how-

ever, few scholars have considered the network position of the attacked firm. This study extends current research on competitive dynamics to include the network effects in a global context.

COMPETITIVE PERCEPTIONS AND ASYMMETRY

Competitive perceptions are related to managers' motivations and cognitions based on the assessment of the nature of the competition. Using the expectancy-valence framework developed by Vroom (1964), Chen and Miller (1994) proposed a model to predict competitive attacks and retaliation. They found that attacks that are less visible and more costly to respond to will receive fewer responses. However, attacks that are highly visible and easier to respond to are more likely to be met with higher retaliation. In essence, managers make their decisions based on their perceptions (Porac, Thomas, Wilson, Paton, & Kanfer, 1995). On the other hand, *competitive asymmetry* is a result of differences in competitive perceptions. The idea of competitive asymmetry shows that when two firms compete with each other in the same market condition, they may view their relations differently (Chen, 1996). For example, a mom-and-pop shop in a small town may view Wal-Mart as a top competitor whereas Wal-Mart may not necessarily consider a small shop a top competitor. Competitive asymmetry can be traced back to the seminal work of Kahneman and Tversky's (1979) prospect theory. The theory predicts that people view losses and gains differently depending on their reference point. Thus, a dollar gained is not equal to a dollar lost for most people. Many studies have built on the idea of competitive asymmetry to extend to configurational asymmetry (Miller, 2003), study of strategic groups (Mas-Ruiz, Nicolau-Gonzalez, & Ruiz-Moreno, 2005), and study of human resources (Gardner, 2005).

Following on Chen and his colleagues' work (1996) on competitive perceptions and asymmetry, this paper extends their ideas to the global context. When a multinational firm enters a host country, it may not be aware of the competitive environment. Local business networks, such as the Japanese keiretsu and the Korean chaebol, may not seem to be relevant to the firm. Prior literature has identified how these networks work within themselves (Granovetter, 1995), but have not yet identified how they may react to a threat as a network. For example, when a multinational firm attacks a local firm, it may not realize that the local firm is well connected into the local network. The multinational firm may see its attack as an attack against a single firm, but the other actors in the same network may see the attack as a threat to the entire network. Thus, the difference in competitive perceptions

results in competitive asymmetry which may lead to an unanticipated response by the network.

COMPETITOR'S NETWORK

Network research mainly draws on the concepts of embeddedness and social exchange. Early scholars have used embeddedness to explain economic actions (Granovetter, 1985) and social exchange to explain how favors can be expected based on trust (Blau, 1968). Network research has now been applied across disciplines. For example, Granovetter (1973) proposed that weak ties can be beneficial to information exchanges. Building on his idea, Burt's (1995) concept of structural hole predicts that brokers that serve as the only connection between different actors can possess unique advantages by controlling the flow of information. Research in interfirm networks suggests that organizational behaviors are influenced by the network structure and a firm's position in the network (Ahuja, 2000; Azoulay, Repping, & Zukerman, 2010; Marsden, 1981; Poldolny, 1993).

In the context of competition, scholars proposed that embeddedness of the firm influences competitive behaviors (e.g. actions and responses), such as centrality, structural autonomy, and structural equivalence (Gnyawali & Madhavan, 2001). Other studies on co-opetition have looked into how cooperation and competition affect strategy (Brandenburger & Nalebuff, 1996; Tsai, 2002; Tsai & Kilduff, 2003). A recent study by Tsai, Su, and Chen (2011) investigated how competitor acumen, the extent that a firm can predict its rival's competitor, can influence a firm's performance. They showed that competitor acumen is the result of a firm's relational and structural competitive embeddedness.

These prior studies focused not only on a firm's distinct attributes, but also the interfirm relationships within the network. However, what is missing is when the competitor may not be in the same network. In other words, most prior studies have investigated the same network that both the focal firm and competitors are in; few have investigated the competitor's network and how its network can influence competition. When a multinational firm enters a new host country, it may decide to attack a local firm without realizing the network that the local firm is embedded in. This paper expands network research by going beyond the tradition of focusing on measures such as centrality and structural equivalence. While most prior studies equate centrality to power and importance (Kliduff & Brass, 2010), Cook et al. (1983) showed that different networks can produce different results. Through experimental studies, other scholars also demonstrated that centrality does not equal power in some networks (Bonacich, 1987; Bonacich, 2007). In this paper, we argue that since

the power distribution of the network is not equal in most business networks, being well-connected (centrality) does not mean that it will necessarily have an influence upon the network. There are two factors that determine how a network may respond to an attack initiated by an outsider: (1) the network position of the attacked local firm and the ability of its influence on other actors in the network; (2) the network property relative to other networks.

THEORY DEVELOPMENT

In the study of competitive dynamics, two critical aspects are usually examined: (1) the likelihood of an attack (Young, Smith, & Grimm, 1996) and (2) the likelihood of response (Grimm & Smith, 1997). Both have been well studied by scholars, especially in dyad relationships. As mentioned previously, the network effect has been unexplored and thus, in building our propositions, we focus on the likelihood of response from the network. Building on the theoretical backgrounds above, we address the likelihood of response from the network based on the network position of the local firm, the network properties relative to other networks, such as density and structural equivalence, and finally, we evaluate the impact of the network response on the attacking multinational firm by examining its financial performance.

NETWORK POSITION OF THE ATTACKED FIRM

Prior literature has suggested that the network position of a focal firm influences both interfirm cooperation and rivalry (Tsai, Su, & Chen, 2011). Many scholars have recognized the importance of centrality, being defined as the position of an actor in a network that is involved with many significant ties (Wasserman & Faust, 1994). Centrality has been linked to several important organizational outcomes. First, central actors have more access to resources since they are well-connected to other actors. Second, central actors are more likely to receive new information before other peripheral actors. Third, centrality is usually associated with higher status and power. Gnyawali and Madhavan (2001) proposed that a central actor is more likely to initiate an attack and the likelihood of response from the competitor will decrease.

In this vein, centrality is seen as a signal of power and status. However, in these prior studies, a tie is being measured with the same weight. For example, a tie between Wal-Mart and a mom-and-pop shop is equal to a tie between two mom-and-pop shops. Nonetheless, as this example illustrates, it is clear that there is a power difference between powerful actors (e.g. Wal-Mart) and not-so-powerful actors (e.g. mom-and-pop shops). Early scholars

have shown through experiments and simulation studies that centrality is not equal to power (Cook et al., 1983). In the context of business networks, there are actors that are more powerful than others. For example, key financial institutions have been known to control many corporations in Japan by sending directors to their boards in those firms (Gerlach, 1992). Thus, connecting to a few powerful actors gives a firm more bargaining power than connecting to many other less powerful actors. When a foreign multinational firm attacks a local firm in the network, the local firm can choose to respond or not to respond. If it does respond, it can also choose to influence other actors in the network to "fight the same fight." In this case, we argue that a local firm that is either one of the more powerful actors or is connected to the powerful actors in the network, not necessarily the central actors in the network, is more likely to influence the entire network to respond to an attack. An attacked firm may not be well-connected to other actors in the same network but may be connected to a powerful financial institution. If the financial institution sees this attack as a threat to the entire network, it may influence other actors in the network to respond to the attack.

Proposition 1: When a local firm is being attacked by a foreign multinational firm, its network is more likely to respond to the attack if the attacked firm decides to respond and (a) the attacked firm is one of the powerful actors in the network (but not necessarily the central actors) or (b) the attacked firm is connected to the powerful actors in the network.

NETWORK DENSITY

Density is one of the key network-level properties and refers to how interconnected the actors are in a network (Gnyawali & Madhavan, 2001). When firms are highly connected to each other, the network is denser (e.g. everyone knows everyone). Coleman's (1988) seminal work on social capital described how network closure can create cohesion and thus promote trust and social norms. In essence, a closed network is more likely to facilitate expectations and obligations among members and information sharing within the network. Studies have found that cohesion promotes the longevity of alliances and joint ventures (Gulati & Gargiulo, 1999). Although business networks are usually dense networks, their density varies. Thus, the likelihood of a response from a dense network will be different from a less dense network. When a foreign multinational firm attacks a local firm, other actors connecting to the attacked firm are more likely to respond when the network is dense. There are several reasons for

this. First, a dense network promotes cohesion and thus creates identity among the actors. It is the "us" versus "them" mentality (Cutts, 1992). When one of the firms in the network is attacked by an outsider, other members are more likely to respond to the attack when the network is dense. Second, in a highly dense network, the information flow is faster within the network. Thus, when one of the actors is being attacked by an outsider, the other members will be informed more quickly and thus, more likely to react to the attack. Finally, since social exchanges are more frequent in a dense network (Granovetter, 2005; Podolny & Baron, 1997), other firms may feel more obligated to come to "rescue" the attacked firm.

Proposition 2: When a local firm is being attacked by a foreign multinational firm, its network is more likely to respond to the attack if the attacked firm decides to respond and the attacked firm is embedded in a dense network.

STRUCTURAL EQUIVALENCE OF THE NETWORK

Structural equivalence is usually a pair-level construct and measures how similar the actor's network patterns are (Wasserman & Faust, 1994). Structural equivalent actors are usually connected to a similar number of actors and have similar social roles, profiles and behaviors (Kilduff & Brass, 2010). However, structural equivalent firms are also more likely to compete with each other (Burt, 1987; Gnyawali & Madhavan, 2001). Reanalyzing a classic study by Coleman and his colleagues (1966), Burt (1987) showed that the diffusion of a practice by physicians is promoted by competition (structural equivalence) instead of cohesion (imitating others' behaviors). Thus, structural equivalence has been associated with competition and tested in other studies (Burt, 1997; Kilduff & Brass, 2010). While some scholars argue that structural equivalence should be measured as similar ties to other actors, other scholars argue that structural equivalent actors do not have to have direct ties with each other (Burt, 1997; Gulati & Gargiulo, 1999; Wasserman & Faust, 1994). However, they should have similar patterns of social relations (Rice & Aydin, 1991). Some scholars have defined structural equivalent firms as in the same industry (Davis, 1991).

Expanding the idea of structural equivalence to the network level, we argue that when a market has many structural equivalent networks, the likelihood of a response by the network is lower for a single attack to one of its actors. The reasons are as follows. First, when there are many structural equivalent networks in the market, it is likely to be in a highly competitive environment. Competition at

home is fiercer, and thus, there is less attention to a single attack to one actor in the network. Second, given the competition is higher in the market, a network response to a single firm will take away the resources devoted to other competitors in other networks. Thus, actors in the focal network may be less willing to respond to the multinational firm's attack.

Proposition 3: the more structural equivalent networks there are in the market, the less likely a network will respond to an attack from a foreign multinational firm.

THE INTERACTION OF NETWORK DENSITY AND STRUCTURAL EQUIVALENCE

We have argued that network density will increase the likelihood of a response from a network. We also argue that network density has a moderating role in the effect of structural equivalence of the network. As stated in Proposition 3, when there are many structural equivalent networks in the same market, the likelihood of a network response to a single attack from an outsider is reduced since it is also competing with other structural equivalent networks in the market. However, a dense network will foster cohesion and "togetherness." Thus, even though other members in the network may have to allocate time and resources to competitors in other networks, a dense network can diminish the effect of structural equivalence. Therefore:

Proposition 4: The higher the network density, the weaker the relationship between structural equivalence and the likelihood of a network response to an attack by a foreign multinational firm.

FINANCIAL PERFORMANCE OF THE ATTACKING FIRM

In the study of competitive dynamics, scholars have generally agreed that there is a positive link between competitive actions and financial performance (Smith et al., 2001). This can be attributed to the temporary advantage that is created in a hypercompetitive environment (D'Aveni, 1994). A firm that takes competitive actions and responds to attacks quickly and frequently is in a better position than firms that are slow in actions and responses (Chen et al., 2010). Hambrick et al. (1996) showed that a firm that is faster in initiating actions than its rivals is more likely to have better financial performance. However, these prior studies have focused on the dyad relationships. In this study, since a multinational firm is likely to be responded to by an entire network, we propose that the attack is negatively associated with financial performance for the

outside network firm. In other words, if a network does respond to an attack, we argue that the financial performance of the multinational firm will suffer. Thus:

Proposition 5: If a network does respond to a multinational firm's attack, the financial performance of the multinational firm will be negatively affected.

CONCLUSION

Drawing from social network perspective and competitive dynamics literature, we aim to contribute to the theory of multinational firms and their competitive rivalry. We propose two factors that determine how a network may respond to an attack initiated by an outsider. One factor is the network position of the attacked local firm and the ability of its influence on other members in the network. Second, is the network property relative to other networks since it will influence the level of the perceived threat to the entire network. Common wisdom says do not attack the most powerful or well-connected actor. However, a multinational firm may attack a less powerful firm and think that it will be successful. This research proposes that there is more to the competitive dynamics of the situation. If the attacked local firm is connected to powerful actors, the outcome may not be as successful as anticipated.

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IMPORTANCE OF SOCIAL MEDIA TO RURAL COLLEGE STUDENTS SEEKING EMPLOYMENT

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ABSTRACT

This article reports the results of a study which the use of social network, social media and employment portal by rural college students. It further examined the perceive effectiveness of each Internet medium and the importance of social presence management from the student perspective.

INTRODUCTION

The growth in the use of social media in the job search process has been phenomenal. The National Association of Colleges and Employers reported that “students’ use of social media for discussing specific job openings with friends; researching potential employers; or talking with friends, alumni, or colleagues about their job-search experiences has continued to rise at a steady pace. While just 36.9 percent of students were using social media in any of these ways in 2010, 66.3 percent were doing so in 2015” (NACE, 2015). Correspondingly, in January of 2016, the Society for Human Resource Management (SHRM) reported that 84-percent of organizations use social media to find potential candidates, with an additional 9 percent planning to do so in the future (SHRM, 2016). This is a significant increase in the use of social media by organizations to find potential candidates from 2011 when “just 56 percent of recruiters used social media to find talent” (SHRM, 2016, p 3). The increased use of social media by students can be attributed to its ability to provide increased opportunities to identify potential employers, a means to communicate and to establish networks. Conversely, organizations utilize social media to advertise employment opportunities as well as a means to gather information on job applicants through their social presence. As a result, past reliance on geographic proximity to employment opportunity and referrals has been replaced with the ability to obtain information from social media

on employment opportunities and to evaluate candidates through social media. The focus of this paper is to assess the importance of social media to rural college students in their search for employment given the significant growth in its use by students and organizations.

SOCIAL MEDIA AND SOCIAL NETWORK USE IN EMPLOYMENT SEARCH

The terms social media and social network are used interchangeably which leads to confusion as to how social media differs from social networks and digital presence. According to Kampan & Haenlein (2010), social media is a broad term that refers to websites that use collaborative virtual application that enables the creation, exchange, and broadcasting of online user-generated content (e.g., texts, photos, videos, etc.). While social networks have been defined as “web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system” (Boyd & Ellison, 2007, p. 211). Thus, social media websites include social networking sites (e.g., Facebook, LinkedIn), publishing virtual media sites (blogs, Wikipedia), content sharing sites (e.g., Pinterest, YouTube), microblogging (Twitter), etc. Additionally, social networking is generally viewed as a collective and systemic

form of internet correspondence compared with email or instant messaging (Myers, Endres, Ruddy, & Zelikovsky, 2012).

This study explores the dynamics of rural college students' use of social media and social network in their search for employment. In addition, it makes a differentiation between social media, social networks and organizations' employment portal. This differentiation is based on the individual's intended use of the social media medium. For the purpose of this study, social media is defined as websites that are socially focused and enables the creation, exchange, and broadcasting of online user-generated content (e.g., Pinterest, Twitter, etc.). Social networks are defined as websites that are professionally focused and users maintain a list of contact details for people on the network with whom they have a "professional relationship" (LinkedIn, CareerBuilder, Facebook, etc.). These "professional relationships" allow the user to gain introduction through a mutual contact, search for job openings and professional opportunities, and follow companies to get notifications of new offers (LinkedIn, 2015). Organizations' employment portals are defined as websites that are created by organizations to facilitate communication and the exchange of information between individuals seeking employment with the organization. Additionally, for the purpose of this study, Digital presence is viewed as the existence that an individual has created through the use of social media and social network that can be found through an online search.

DATA AND METHODOLOGY

The online survey method of research was used to conduct the study and was used as a data collector. The online survey, using SurveyMonkey, was administered to students attending a rural college system in New England during the Spring 2016 semester. The survey link was emailed to students (freshman through graduate students, traditional/non-traditional, etc.) between the ages of 18-25 who attended the five institutions which comprise the rural college system.

The survey consisted of 21-questions to explore the research questions, Table 1. Several questions gathered demographic information, i.e., gender, discipline of study, etc. Participants indicated on a 4-point Likert scale (4 – Very Important; 1 – Not at all Important) the importance of social media, social networks, and organizations' employment portals along several dimensions (seeking employment, effectiveness, etc.).

Additional questions examined the use of various internet mediums (social media, social networks, and organizations' employment portals) in their search for employ-

1. Determine the importance of social media, social networks, and organizations' employment portals to rural college seeking employment.
2. Determine the students use of social media, social networks and organizations' employment portal by rural college students seeking employment.
3. Determine the effectiveness of social media, social networks and organizations' employment portal used by rural college students in obtaining employment.
4. Determine the importance to rural college students of their social presence in their search for employment.

Variable		Percentage
Gender	Male	37.6
	Female	62.4
Age	18 – 19	34.2
	20 – 21	39.1
	22 – 23	19.2
	24–25	7.5
Class Status	Freshman	24.3
	Sophomore	20.8
	Junior	27.2
	Senior	22.4
	Graduate Students	5.3

ment; as well as, their assessment of the effectiveness of the various internet mediums in their search for employment. The data was analyzed using different quantitative and qualitative techniques and presented in the appropriate format.

RESULTS

SURVEY DEMOGRAPHY

Data was collected from 307-students of which the majority of respondents were female (62.4%). Although, all disciplines were surveyed, the top three disciplines were Business (17.1%), Psychology (9.1%) and Nursing (5.6%).

Table 2 presents the demographic characteristics of the sample.

IMPORTANCE OF INTERNET MEDIUM

It is clear from the survey that rural college students (Table 3) view the use of an organization's employment portal as very important in their search for employment, while the use of social media is not nearly as important. However, male respondents tended to rate the importance of the various internet medium higher than female respondents. This raises the question of whether there is a statistical significant difference in gender perception of the importance of the various internet medium used in seeking employment. The resulting null hypothesis is "the male view of the importance of the various internet mediums is the same as the female view." The alternative hypothesis is "the male view of the importance of the various internet mediums is not the same as the female view." Testing of the null hypothesis was conducted at the significant level of $\alpha = 0.05$. The results are presented in Table 4.

Students	Social Media	Social Network	Employment Portal
All	2.52	2.94	3.30
Female	2.38	2.84	3.26
Male	2.65	3.05	3.33

Prior to conducting the t-test, an F-test was conducted to determine if the variance in the two samples are equal. The result of the F-test determines if the correct t-test is "two-sample assuming equal variance" or "unequal variance". The results of the F-test are presented in Table 4. Based on the statistical analysis, we can conclude that the variance in the two samples across the differing in-

	F-Value	P(F<=f) one-tail	Mean F	Mean M	P(T<=t) two-tail	t Critical two-tail
Social Media	1.040	0.442	2.39	2.65	0.062	1.975
Social Network	1.064	0.391	2.84	3.05	0.113	1.977
Employment Portal	1.104	0.335	3.26	3.33	0.585	1.977

*Significant level of $\alpha = 0.05$

ternet mediums are assumed to be equal and we can proceed with the t-test that assumes equal variances (i.e., the P(F<=f) one-tail is greater than the 0.05, significant level, the assumption is that the variances are equal). T-test results revealed that since the p-value (0.062, 0.113 & 0.585) is greater than 0.05, there is insufficient evidence to reject the null hypothesis of equal means. Based on these results, we can conclude that the male view of the importance of the various internet mediums is the same as the female view. Thus, it is reasonable to conclude that of the various internet mediums, rural college students prefer to use an organization's employment portal.

INTERNET MEDIUM USED BY RURAL COLLEGE STUDENTS SEEKING EMPLOYMENT.

The preference to use organization's employment portal to seek employment is supported by rural college students identifying it as the primary websites they have used in their search for employment (Table 5) followed by LinkedIn. Interestingly, Craigslist, even with questions regarding the validity of job postings, risk of spam, identity theft, viruses, etc. (Roeper, 2014), was identified as a significant site used by rural college students in their search for employment. Facebook and Indeed rounded out the top 5-websites used by rural college students seeking employment. Twitter and SnapChat (social media) were identified as being used by only 3.3% of respondents.

Preference to use a particular website is generally associated with the individuals view of whether the website is useful and effective. Respondents were asked, "Which of the following best describes your view on the usefulness of social media, social networks, or organization's

employment portals in your search for employment"? The data indicates that the majority of respondents (71.6%) viewed an organization's employment portal as very useful in their search for employment (Figure 1). Social networks are considered very useful by of respondents in their search for employment. Interestingly, the effect of gender differences in their response to the question reveals an un-

TABLE 5
REPORTED WEBSITE USAGE BY STUDENTS*

	Employment Portal	LinkedIn	Craigslist	Facebook	Indeed
All Students	28.6%	13.7%	12.9%	10.1%	8.6%
Female	19.0%	7.1%	9.1%	5.8%	5.6%
Male	9.6%	6.6%	3.8%	4.3%	3.0%

*Top five sites

Figure 1: Perception of usefulness of various internet mediums

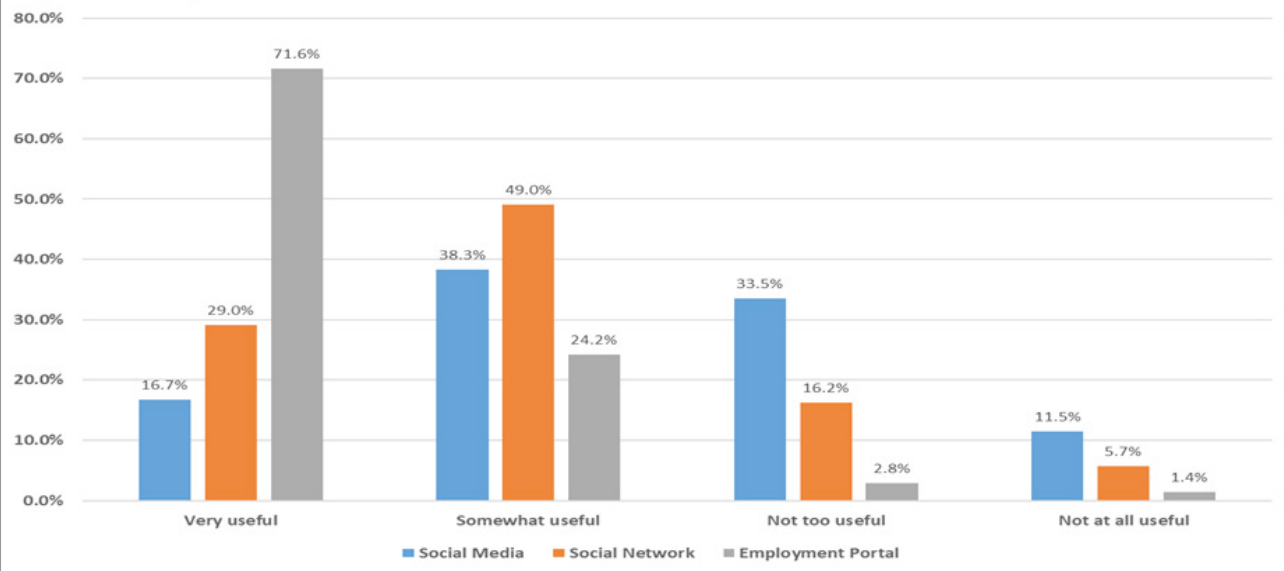
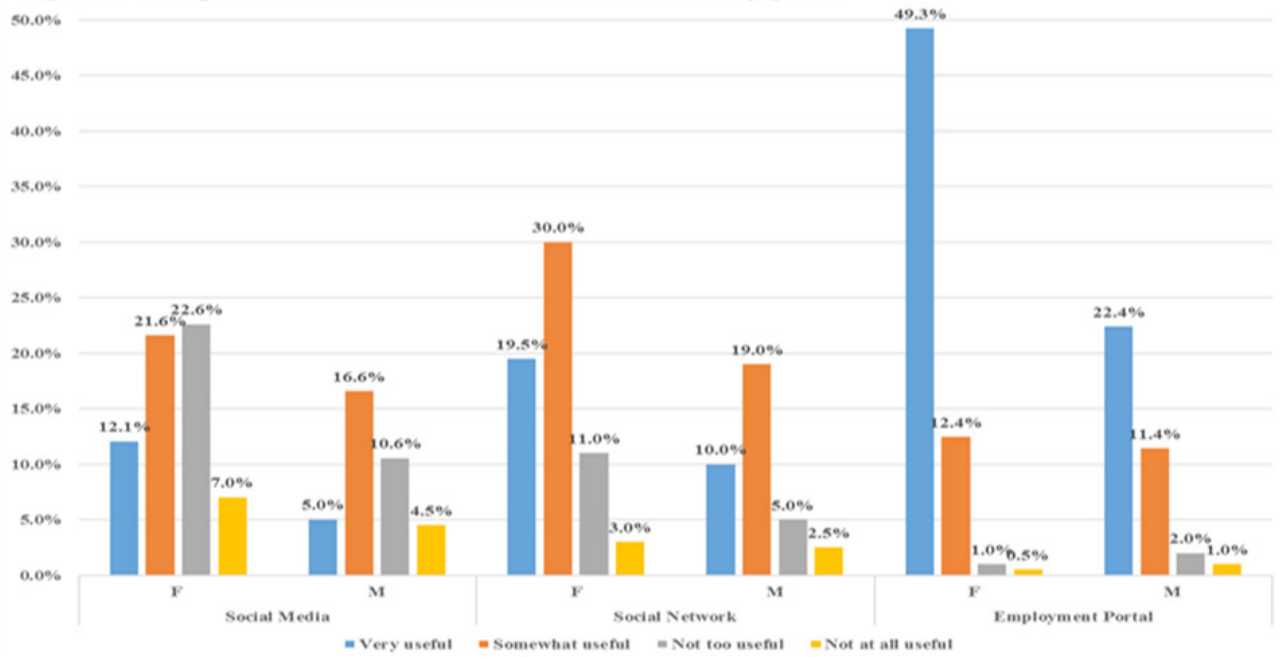


Figure 2: Perception of usefulness of various internet medium by gender



expected distribution, Figure 2. This raises the question of whether there is a statistically significant difference in gender perception of the usefulness of the various internet mediums used in seeking employment. The resulting null hypothesis is "the male view of the usefulness of the various internet mediums is the same as the female view. Testing of the null hypothesis was carried out at the significant level of $\alpha = 0.05$.

Prior to conducting the t-test, an F-test was conducted to determine if the variance in the two samples are equal. The results of the F-test are presented in Table 6. Based on the statistical analysis, we can conclude that the variance in the two samples across the differing internet mediums are assumed to be equal and we can proceed with the t-test that assumes equal variances. T-test results revealed that since the p-value (0.962, 0.990 & 0.940) is greater than 0.05, there is insufficient evidence to reject the null hypothesis of equal means. Based on these results, we can

conclude that the male view of the usefulness of the various internet mediums is the same as the female view.

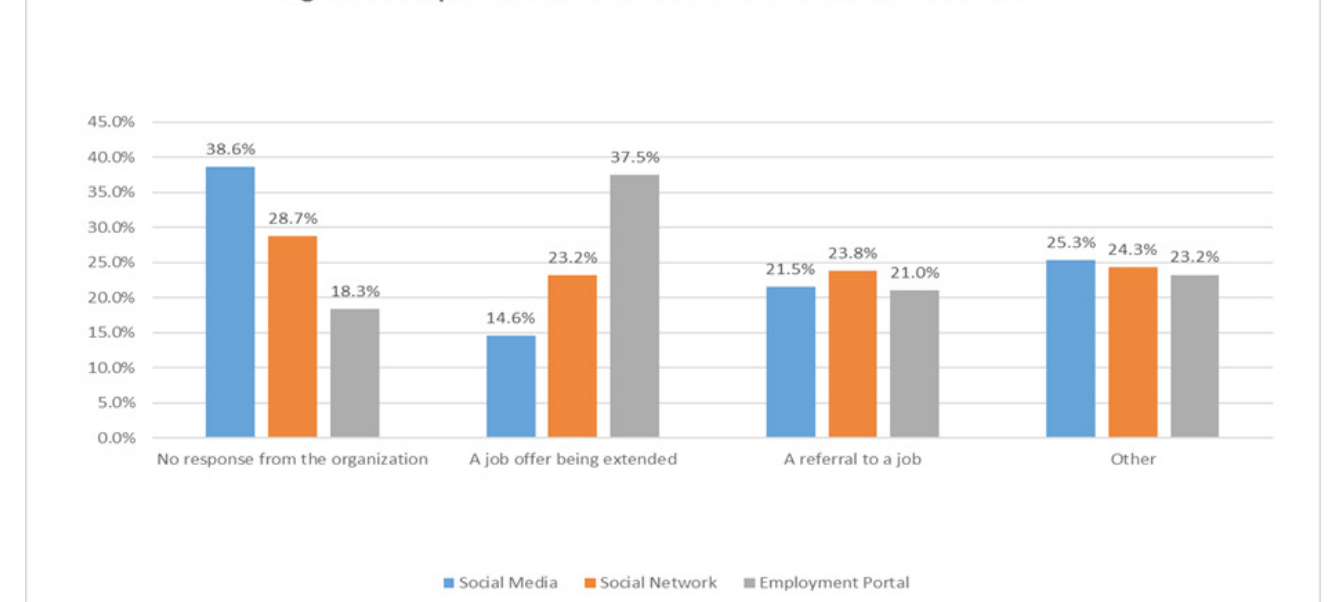
In addition to the perception of usefulness, the results (effectiveness) achieved through the use of the various internet mediums by rural college students was examined. Respondents were asked to identify the responses they received from using the various internet mediums, Figure 3. Over 37% of respondents identified that a job offer was extended to them through the use of an organization's employment portal versus 23.2% receiving a job offer using social network. The use of social media resulted in only 14.6% of respondents receiving a job offer. Given the percentages of jobs offered extended from the use of employment portals, the percentage of respondents (78.2%) who identified employment portals as very/highly effective in seeking employment is not unexpected, Figure 4. Nor is the percentage of respondents (74.1%) identifying social media as not too/not at all effective.

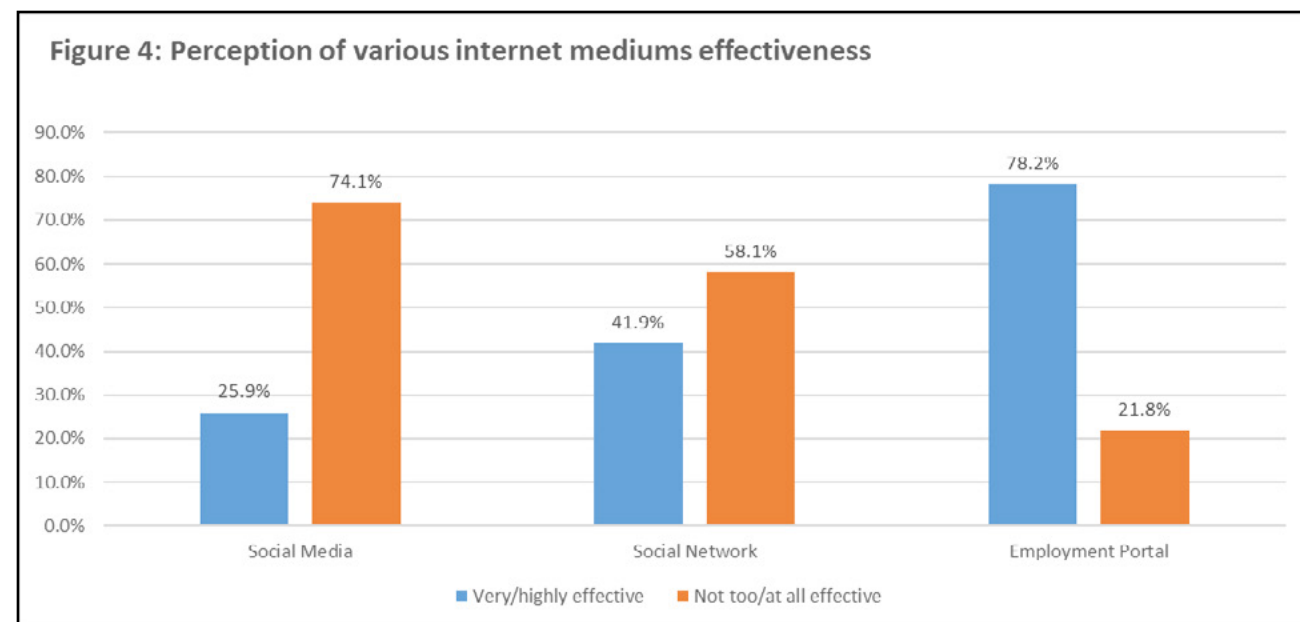
TABLE 6
T-TEST OF GENDER PERCEPTION ON THE USEFULNESS OF THE VARIOUS INTERNET MEDIUMS USED IN SEEKING EMPLOYMENT

	F-Value	P(F<=f) one-tail	Mean F	Mean M	P(T<=t) two-tail	t Critical two-tail
Social Media	1.304	0.464	2.69	2.70	0.962	1.967
Social Network	1.303	0.469	3.08	3.07	0.990	1.967
Employment Portal	1.302	0.482	3.62	3.63	0.940	1.967

*Significant level of $\alpha = 0.05$

Figure 3: Responses received from the various internet Medium





Importance of Social Presence	Social Media (%)	Social Network (%)
Very Important	30.9	31.5
Fairly Important	32.4	38.1
Not too Important	23.0	21.0
Not at all Important	13.7	9.4
Management of Social Presence	Social Media (%)	Social Network (%)
High Priority	10.9	12.5
Moderate Priority	29.5	30.4
Somewhat of a Priority	30.1	29.9
Not at all a Priority	29.5	27.2
Potential Employer Review of Social Presence	Social Media (%)	Social Network (%)
Highly Likely	37.8	37.8
Very Likely	36.8	37.8
Not too Likely	18.9	18.9
Not at all Likely	6.5	5.4
Social Presence Accuracy	Percentage	
Very /Moderate	67.2	
Slightly/Not at all accuract	32.8	

SOCIAL PRESENCE

Root and McKay (2014) observed that students are aware that potential employers may be viewing their social media content; an observation supported by our study which found that rural college students believe that there is a high likelihood of potential employers finding and reviewing their social presence, Table 6. They also believe () that organizations will make greater use of social media and social networks in the future when reviewing candidates.

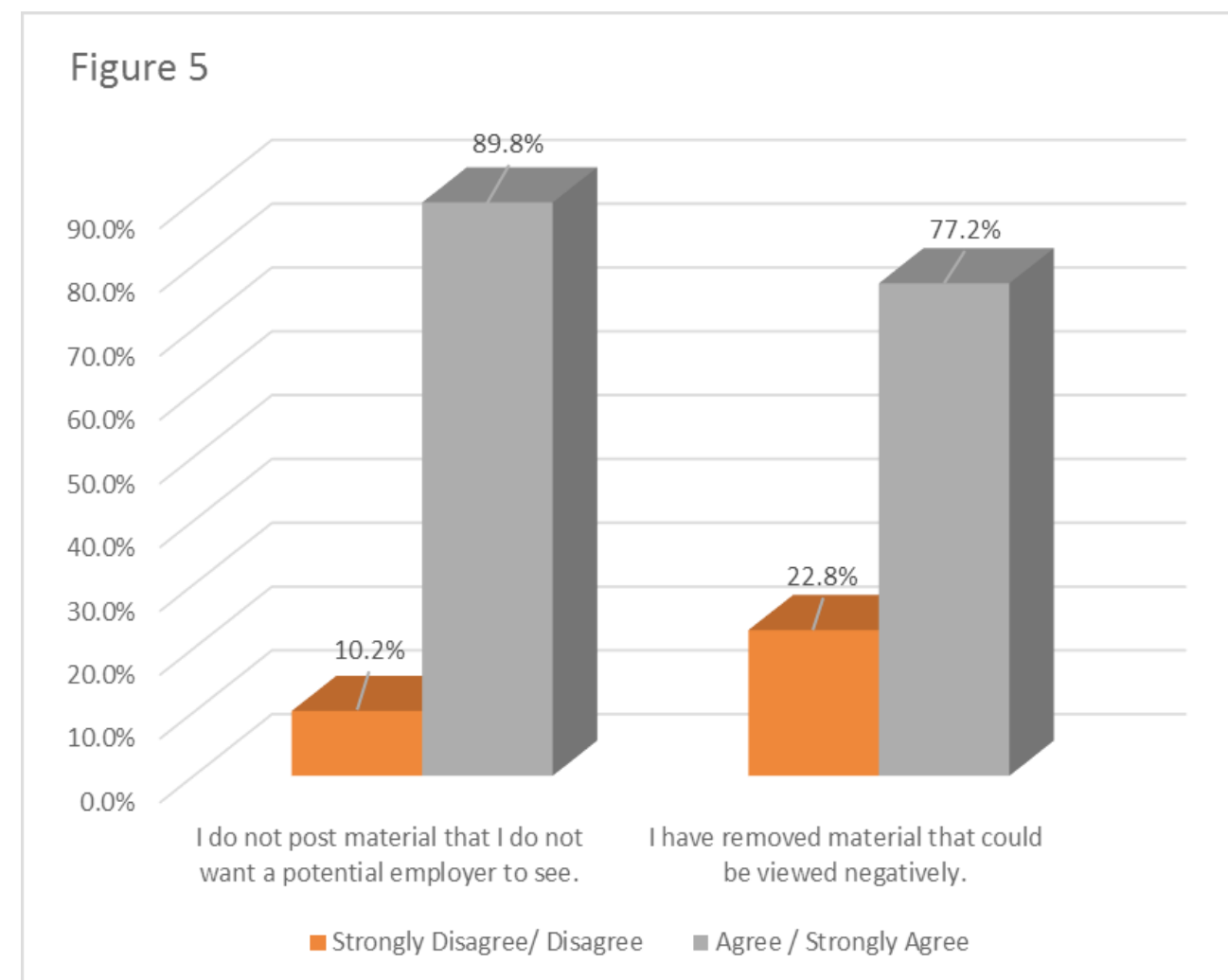
Interestingly, rural college students indicated that their social presence is very/fairly important to them. They also indicated that in general their social presence is very/moderately accurate in portraying their character and work ethic. Given this recognition by rural college students, it is interesting that the management of their social presence is not a high priority. Though, a significance number of students indicated that they have chosen not to post mate-

rials that they do not want a future employer to view or remove materials that could be viewed negatively, Figure 5.

DISCUSSION AND CONCLUSION

When rural college students were asked to rate the importance of social media, social networks, and organizations' employment portal in finding employment, identified an organizations' employment portal as the most important with social networks as the next most important. This view is constant between male and female students. Not surprisingly, an organizations' employment portal is identified as the most useful of the internet medium and is more effective than social media or networks based on the percentage of job offers being extended to applicants.

Rural college students also believe that there is a high likelihood that potential employers will seek, find and review their social presence; a presence that rural college students believe, that in general, is very/moderately accurate in



portraying their character and work ethic. However, they indicated that the management of their social presence is not a high priority even though they have chosen not to post materials that they do not want a future employer to view or remove materials that could be viewed negatively.

The use of social media, social networks and organizations' employment site by rural college students can be expected to grow as it serves as a means to overcome geographic proximity in their search for employment. Additionally, their social presence serves as a means for potential employers to evaluate the applicant's character and work ethic. Together, rural college students can seek and pursue employment opportunities beyond their local community.

LIMITATIONS

The study involved college students, and may not be projectable to the entire population without further study. The information collected was from a small group of rural college students ($n = 307$) and may not be applied to all college students. This study offers potential for further study/research at other small rural academic environment, as well as comparison to urban and suburban university. Social networks are used at the beginning of a job search to identify prospective employers through social media. It is possible and plausible that social media usefulness is under reported while the tools used to get an interview, organizational website, are credit with success. Further research is needed to explore the dynamics of student's use (rural, urban, and suburban) of social network, social media and employment portal when searching for employment.

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MITIGATING HUNGER THROUGH TRANSDISCIPLINARY COLLABORATION

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ABSTRACT

Hunger Mitigating the impact of hunger is a daunting challenge. The challenge is best addressed by a transdisciplinary approach. This study draws from a collection of perspectives. Specifically this study will: 1) establish the importance of applying transdisciplinary perspectives to the issue of hunger, especially in Africa; 2) address the merit of a systems level approach to hunger; 3) evaluate the value of synthesizing biology, accounting, economics, and political science in order to evaluate and mitigate hunger; and 4) offer conclusions as to the value transdisciplinary collaboration has in mitigating world hunger has been a constant over time. Laudable efforts to alleviate hunger have occurred and are on-going.

Keywords: Hunger; Transdisciplinary; Systems Level; Agricultural Sustainability; Environmental Accounting

INTRODUCTION

This project was initiated through conversations as to how to mitigate hunger. Interestingly, the authors of the piece reside on two different Midwestern college campuses and represent four disciplines. Such interest is, of course, not unique. Efforts to alleviate hunger have long occupied the world citizenry. Feeding an exponentially growing and hungry population is daunting. The Food and Agriculture Organization of the United States (FAO) provides a glimpse of the breadth of this hunger issue in the following passage:

There is sufficient capacity in the world to produce enough food to feed everyone adequately; nevertheless,

in spite of progress made over the last two decades, 870 million people still suffer from chronic hunger. Among children, it is estimated that 171 million under five years of age are chronically malnourished (stunted), almost 104 million are underweight, and about 55 million are acutely malnourished (wasted). Micronutrient deficiencies, or “hidden hunger”, affect over two billion people worldwide, impeding human and socio-economic development and contributing to the vicious cycle of malnutrition and underdevelopment. At the same time, an estimated 1.4 billion people are overweight and 500 million are obese (FAO, 2013).

The mitigation and possible resolution of hunger-related issues, due to its complexity, ought to involve a variety

of disciplinary approaches. Our aim in this reading is to utilize the case study approach to examine the possibility of implementing irrigation in northern Nigeria, leaning on transdisciplinary perspectives to address all of the dimensions of this option. The green revolution advances achieved in Asia and the Americas have been largely absent in Africa, yet Africa holds tremendous promise for increasing its food security and agricultural productivity through the incorporation of efficient irrigation systems. The prospect of increased irrigation in many African states, such as Nigeria, offers this ideal case study for students, teachers, and, of course, practitioners.

As stated above, we will explore the likelihood of reducing hunger from multiple institutional and transdisciplinary perspectives. Specifically, we will: (1) analyze how science, through a systems approach that focusses on agricultural sustainability and values in nature, can guide better use of the land; (2) offer accounting assessment using an environmental accounting system, and economic assessment of African agriculture efficiency to provide a model for allocation of resources and food; and (3) evaluate the political forces which temper any data-driven technological, scientific, or economic solutions.

TRANSDISCIPLINARY VALUE

Transdisciplinary approaches are valuable when teams are asked to develop solutions to complex issues. In an article entitled "Methodological Innovations in Public Health Education: Transdisciplinary Problem Solving", Lawlor (2015) and others observe that "the argument for improving public health education through case studies and blending disciplines has been made for the past decade, setting the stage for interdisciplinary and transdisciplinary education that will build workforce capacity in science and practice to solve complex public health problems."

The teaching lesson that develops is built upon the recognition of limitations as well as the potential for moving beyond these limitations. Carroll et al. (2014) aptly stated the following within the *Journal of Law, Medicine & Ethics*: "Transdisciplinarity requires more humility that recognizes the boundaries of what single disciplines can achieve and more openness to other perspectives." The humility that drives resolution stretches the boundaries of mere academic constructs. As Buizer et al. (2015) suggests:

Transdisciplinary research, likewise, cuts across disciplines, and also involves nonacademics...It requires interactions between science, policy, and society that are transparent, acknowledge complexity, appreciate different

types of knowledge, and achieve integration as a precondition for solving real-life problems.

Real-life conditions transform academic exercises into problem solving exercises, and the methodological impact moves from disciplinary jargon to a simplicity associated with the actual resolution of complex problems.

It is the problem solving aspect of transdisciplinary research that is so very useful as a teaching tool as well as a relevant approach to real-life situations. The methodology that often stymies academics is lessened by the quest to solve important problems. Betz et al. (2014) provides a three step methodology worthy of replication and consideration. Specifically, these authors state that "transdisciplinary research consists of three phases: problem identification and structuring, problem analysis, and the practical application of results." Our approach is well-suited to the aforementioned phases. The case examines (1) the problem of hunger in Africa as potentially mitigated through irrigation; (2) the analysis of the stated problem through the lenses of technology, biology, accounting, economics, and politics; and (3) the formulation of practical directions for Nigeria.

A SYSTEMS LEVEL APPROACH TO RESOURCE USE DECISION MAKING

The earth is a closed system. That is, for all intents and purposes, our global environment receives no appreciable resources from outside the atmosphere. As such, natural ecosystems rely upon the re-use or recycling of key resources, notably water and essential elements. Natural ecosystems may vary locally in terms of inputs and outputs of water and essential elements such as nitrogen or the other fifteen minerals required for successful plant growth and reproduction. For example, in arid environments, water outputs routinely exceed inputs over the course of the calendar year. Alternatively, water inputs routinely exceed outputs in mesic environments. Regardless, these local imbalances are overridden by the reality that no new water enters our global system.

Humans have long modified natural ecosystems to capitalize on food production. This agricultural approach emphasizes maximizing crop production, or output, while minimizing supplements, or inputs. Of course, this is not simultaneously possible, so producers, be they subsistence or corporate farmers, strike a compromise between maximizing outputs while minimizing inputs by evaluation of the Return on Investment (ROI). Historically, the emphasis on ROI has been on short term gains rather than long term sustainability. Typically, if water and nutrients are readily available, either naturally or by supplementation, the importance has been placed on maximization. In

other words, suitable light, temperature, water and nutrient conditions are exploited to glean the greatest harvest possible. However, there has been recognition over the past 30 years that sustainability must be factored into the ROI. As Wendell Berry (1987) put it in relation to modern agriculture, "We have never known what we were doing because we have never known what we are undoing." That is, regional systems may be afflicted by crises even before we recognize that there is a problem. Examples include heavy metal contamination in water and soils, pervasive and persistent air pollution, and drought/flood cycles. Hence, our understanding of natural and agricultural ecosystems is paramount to ensuring sustainability that is ecologically, economically and culturally sound.

AGRICULTURAL SUSTAINABILITY

Modern agriculture is characterized by the use of multiple supplements for maximizing crop production. Among these are: irrigation, fertilizers, pest control, and soil cultivation practices. Each of these supplements works in a combined fashion to enhance the effect of natural resources on crop production, particularly water as rainfall, naturally occurring soil nutrients, and suitable sunlight and temperature conditions. Companies that manufacture irrigation systems, produce fertilizers, and develop various pesticides have recognized for some time that economic sustainability of their companies depends upon maintenance of the natural ecosystems that are the underpinning of agro-ecosystems. In turn, economic and ecological sustainability are closely linked with cultural or societal sustainability. Calculating the ROI in modern agriculture around the earth must include estimations of economic return, ecological health, and community viability. Our capability to estimate economic return is well established. Our scientific understanding of natural and agro-ecosystems becomes more sound with each passing year. However, community viability, or a culturally sound rural society perhaps, presents the greatest challenges, as it is at the intersection of economy and nature. While humanity has commonality in so many ways across the earth, culture varies widely; thus, our forecasting capabilities for multi-strand sustainability are compounded.

VALUES IN NATURE

Human health and quality food production are closely aligned. The challenge in meeting human health needs is both global and complex. As a result, a transdisciplinary approach is warranted in striving toward solutions to worldwide food quality and quantity problems. The approach requires involvement of people with a wide variety of professional and non-professional experiences. Regardless of number and variety of stakeholders involved in

discussions and development of plans for sustainability, it seems clear that efforts ought to begin with consideration of values in nature. People may agree on surface level economic and even non-economic values in nature; however, there may be differences in the views among cultures around the globe. Included within the category of economic values are the essentials of food, shelter, clothing, and medicines. General non-economic values take account of intrinsic worth, nature as art value, and aesthetic value. There are some values that might be perceived as "blended" including recreational value, research and baseline monitoring values, teaching value, and nature as examples of survival. Valuation of nature and subsequent actions that guide human decision making about the environment requires a truly transdisciplinary effort.

If there is a holistic ROI to be calculated, it must include the quantitative estimation of efficiency in crop production, sustainability of a quality environment, and appropriate consideration of cultural integrity.

AFRICAN AGRICULTURAL EFFICIENCY

African nations employ approximately 60% of their work force in the agricultural sector, and yet that sector only accounts for one-third of gross domestic product for the continent. These nations have the opportunity over the next 15 years to unlock a trillion dollar prospect through the modernization of their agricultural sector (The World Bank, 2013). A key to unlocking this potential is eliminating inefficiency in agricultural production. Inefficiencies in agricultural production create barriers to profitability; it hinders the ability for African nations to compete on global export markets. Prior literature has explored the importance of improved labor quality, the deficiency of capital and credit markets, as well as the role of African governments in contributing to these inefficiencies (Yu and Nin-Pratt, 2011). It is important to identify the impact of water (be it from freshwater sources, or rainfall) on agricultural efficiency.

According to the World Development Report published by the World Bank in 2008, investment in agriculture is two times more effective in reducing poverty and hunger than investment in any other sector. The National Geographic Society and the Food and Agriculture Organization of the United Nations (FAO) estimate the average African farmer has roughly the same yield per acre as a Roman farmer did during the Roman golden age of approximately half a ton. By comparison, modernized nations' yields tend to exceed three tons. For the African continent, the importance of an efficiency analysis of agricultural production and promoting efficient use of scarce water resources cannot be understated.

Africa produces a wide variety of crops including, but not limited to, coarse grains, wheat, and rice. That being said, Africa's yields are one-sixth that of the world's leading producers. Nin-Pratt et al. (2009) identify the greatest opportunities in closing yield gaps utilizing spatial analysis and conclude that there is no one-size-fits-all solution. To this end, it is important to identify the yield gaps of particular staple crops in each nation and match the largest growth market for those commodities within the region as the optimal approach to maximizing the outcome of any agricultural initiative. They implied that in order to make closing these yield gaps feasible for the average farmer, regional cooperation on technology adaptation is essential, along with strengthening local agricultural markets and enhancing the links between agricultural and nonagricultural markets in order to enhance productivity and innovation. One of the problems associated with Nin-Pratt et al. (2009) is that they do not identify the systemic problems associated with closing this yield gap. One explanation for this yield gap, offered by Bindraban, Loffler, and Rabbinge (2008), is the lack of technological adaptation. Technology has been used in the rest of the world to fuel productivity growth. It also highlights that modern farming systems are used in only 10% of Africa's agricultural sector. Lamb (2000) begins to truly dissect these problems with a look at total agricultural output, food crops, export crops, and how they are affected by exchange rates and food prices.

Lamb's article highlights the short run problems associated with exchange rate changes and food prices on total African agricultural output. He argues that it is necessary for the structure of African agricultural markets to be considered. Lamb further notes that the most advanced agricultural nations produce food crops at such efficient rates that exporting such crops from African nations is typically not a profitable endeavor; thus, in order to expand export crop production, African nations must focus on cash crops at the expense of food supply. Lamb finds that the increase in export supply takes years to materialize, indicating that in the short run, increasing export crop production has in fact a negative impact on the agricultural sector in that nation. He also points out that the exchange rate is a proxy for macro-economic variables that are not passed on through prices. Thus, a change in global prices may not entirely explain total agricultural supply in Africa, but changes in the exchange rate help to fill in the holes.

Thiele (2003) provides evidence of how the macro-landscape impacts the agricultural sector of African nations through the actions of their governments. Literature behind the inadequacies and missteps of governments on their agricultural sectors is substantial. The common theme behind much of this literature is that protection-

ist policies, high taxes, and low infrastructure and service spending by these governments have hamstrung the growth of their nations as well as the sophistication of their agricultural sectors, leading to widespread poverty and famine. Thiele highlights that while discrimination against Sub-Saharan African agriculture has waned since its peak prior to the 1980s there has been only slight progress in eliminating heavy taxation, and policies that favor publicly managed agricultural sectors vary widely from nation to nation. In essence, he finds that you can discover some positive undertones in the overall health of the agricultural sector of African nations, but reform as a whole is lacking.

Badiane and Makombe (2014) support Thiele by highlighting the government interventions of the 1960s and 1970s when African nations attempted to industrialize their lands. These attempts at industrialization resulted in hampered agricultural growth, as investments in rural services were abandoned in favor of urbanization. African nations continued this centralization, and as a result, heavy-handed public management restricted growth in the agricultural sector and delayed structural reforms necessary to keep pace with the modern world. Badiane and Makombe insist that agricultural development is dependent on strong government approaches which empower the private sector and invest in services and infrastructure that comprise the sector. They suggest that the East Asian agricultural revolution of the last 20 years is a model for Africa's future. The East Asian agricultural revolution transformed Eastern Asia from a net food importer to a net food exporter in the span of approximately a quarter century.

While prior literature offers insight into the overall structure and status of African agriculture over the last 50 years, it fails to address the micro-economic issues that surround the sector. Binswanger and Townsend (2000) point to three major reasons for slow growth in the agricultural division of Africa: adverse resource endowments, argumentative policies, conflict, and political instability. The first reason is supported by Hayami and Platteau (1997) who argue that adverse resource endowments have led to slower growth through a cyclical process. They frame this cyclical process as an overabundance of land alongside low population density, leading to slow growth within the sector. Their claim is that low population density creates greater transportation and transaction costs in delivering goods to market, discouraging production and trade. This makes it unprofitable for a sufficient number of traders to enter the market and leads to a lack of competition in the market.

The adverse resource endowment theory also argues that due to low output volumes, there is too little demand for

credit to develop a sufficient credit system. The supply of credit is further constrained by the lack of suitable collateral due to low land values (because of the abundance of land). Due to the lack of well-developed market, as well as the shortage of credit supply, technology adoption becomes difficult in the midst of high transaction costs. Thus, the common theme for improving African agriculture is to give these nations necessary technology or the money to buy technology. These nations are inhibited by the lack of infrastructure to support these markets, and the landlocked populations are further burdened by increased transportation costs required to convey their goods to regional and global markets.

Binswanger and Townsend's (2000) second reason for slow growth is adverse government policies as they relate to each nation's agricultural sector. Protectionist policies of the mid-20th century limited the sector to foreign investment, and producers received little incentive to adopt efficiency advancing technologies. This was a product of government efforts to encourage industrialization at the expense of the agriculture sector (Badiane and Makombe, 2014). Their third reason highlights the lack of commitment African nations grant to their agricultural sectors. Often times they found that initiatives in development were short lived and commonly suffered from public sector bias and over centralization. Finally, they took time to focus on how impact conflict and political instability has hampered the growth of Africa. They pointed to internal conflict and strife causing displacement and instability amongst the populace. The markets and that the benefits of turning away from conflict are blatantly obvious. They used Mozambique's relative peace as an example of the growth in agriculture once a nation begins to find stability.

Binswanger and Townsend (2000) commend the gains that have been seen in Africa over the last 20 years. They found evidence of the easing of anti-export bias. In addition, general African macroeconomic stability has improved. They found that the international community and African nations themselves have been more serious about their investment in agricultural services and infrastructure, but that after nearly a century of poor policies and neglect, there are huge unrealized opportunities for future growth in the sector. They highlight this neglect by stating that public expenditure and commitment to rural areas remains woefully inadequate, decentralization of public agricultural and rural development services is painfully slow, and fiscal decentralization is non-existent. To Binswanger and Townsend (2000) this becomes a question of empowering not simply those who are in need but those who know what they need. Binswanger and Townsend (2000) go into great detail regarding how

to improve and hasten growth within the sector through macroeconomic policies, trade policies, and market access.

For such an important sector of one of the poorest continents on the planet, literature experiences major gaps due to a lack of reliable data. Problems plaguing Africa are both endemic and systematic. This continent suffers from a lack of cohesive government planning that would be necessary to develop their agricultural markets and return to being the net exporter of food that they were in the 60s. There are many common themes within the research such as educating rural populations to enhance productivity, directing foreign aid into the agricultural sectors, and having national governments invest in agricultural services and infrastructure especially in rural areas. Additional political barriers will be discussed later in this reading. The consensus is that problems plaguing the agricultural sectors of African nations are multi-headed and that no quick fix exists. Improvements to the sector will take comprehensive planning, commitment, and stability from the respective nations. United Nation's Food and Agriculture Organization (UNFAO) is more positive and optimistic than other sources. While other researchers have found that African agricultural productivity has fallen over the last 50 years, the FAO has found a slight increase, stating that it is about hastening growth. Further research would be needed to pin down an appropriate evaluation of productivity over the last 50 years and to help determine a comprehensive plan for each nation.

ENVIRONMENTAL ACCOUNTING

An environmental accounting system is far from simple, as it not only considers the economic input, processes and output of a limited resource like water, but is also umbilically juxtaposed to the many political and environmental needs of its stakeholders –individuals or parties who continually provide feedback for updating and improving the system. That being said, a comprehensive system can result in better efficiencies at the market and environmental levels.

To simplify, an environmental accounting system for water should include approaches in how one acquires water and a process of prioritization as to how the water will be distributed. The flashpoint usually seems to surround the issue of "who decides" and "who will benefit". Environmental accounting systems for water of old have focused on allocating water based on a benefit-cost analysis or developing a process of dividing the pie based on determined priorities. Yet, the environmental water account may provide a proactive approach for budgeting current and future water needs. As Sinclair, Knight, and Mertz (2006) describe, the water accounts contain opening wa-

ter balances, inflows, outflows, and ending balances for the specific period.

Plummer and Tower (2010) discuss how the United Nations Statistics Division (UNSD) created the System of Environmental and Economic Accounting for Water (SEEA) which emphasizes the type of information that can be made available in five key categories: (1) physical supply and use tables; (2) hybrid and economic accounts; (3) assets accounts; (4) quality accounts; and (5) valuation accounts. Perhaps environmental accounting for water can assist in balancing the needs for water into the future.

POLITICAL BARRIERS

As solutions are being developed, the last consideration for our purposes is to address the barriers addressed by politics. The negative legacy of colonialism continues to impede progressive development. Take for instance the complexity of Nigeria. As noted by Oba (2011):

“Colonial authorities administered the northern and southern protectorates separately until their amalgamation in 1914. With the introduction of regionalism in 1954, the country was divided into three regions: northern, western, and eastern... regionalism (36 states) holds the key to understanding the current legal arrangements in the country... Today, the bulk of the laws in the states owe their origin to the era of regionalism. Uniformity of laws in the northern states, particularly regarding Islamic and customary laws, continued largely until 1999, when twelve of the nineteen states in the north adopted Islamic law as the basic source of laws in their states in a largely uniform manner.”

Nigeria could benefit greatly from increased irrigation which in turn would mitigate hunger. Yet, the political complexity can be daunting, and violent. Boko Haram, an anti-Western force clearly chills developmental possibilities. As Daniel Egiegba (2011) observed: “The resurgence of ethnic and youth militancy in the Niger Delta and southern areas of the country as well as the recent Boko Haram terrorist attacks are all signs that things are not well with Nigeria.”

The political solution for Nigeria or any area of conflict must stress cooperation rather than differences. The politics of cooperation is better constructed when guided by elements from biology, economics, and accounting. The late Elinor Ostrom, a Nobel Prize winner, best formulated the guiding principles for cooperation in natural resources politics. Ostrom (1990) offered the “8 principles for Managing Commons:

1. Define clear group boundaries.
2. Match rules governing use of common goods to local needs and conditions.
3. Ensure that those affected by the rules can participate in modifying the rules.
4. Make sure the rule-making rights of community members are respected by outside authorities.
5. Develop a system, carried out by community members, for monitoring members' behavior.
6. Use graduated sanctions for rule violators.
7. Provide accessible, low-cost means for dispute resolution.
8. Build responsibility for governing the common resource in nested tiers from the lowest level up to the entire interconnected system.
9. These principles have significant value for resolving conflict and the conversation benefits from the impact from a multi-variant, transdisciplinary analysis. Mitigating hunger in Africa is indeed limited by the lack of good government. Even with good government, Mother Nature might deliver the brutal forces of nature, such as drought and disease. Like Mother Nature, the political forces ought not to be ignored.

CONCLUSIONS

Transdisciplinary conversations and analyses are essential in mitigating global hunger. Indeed the synthesis of multiple disciplinary possibilities can become useful for mitigating world hunger. Multiple disciplinary and institutional frameworks should be encouraged and implemented. The artificial constructs created by discipline purity are not well-suited to address complex problems, such as world hunger.

ACKNOWLEDGEMENTS

Mary Elizabeth Cummings graduated from the University of Wisconsin-Whitewater with a Bachelors' degree in Economics. Special thanks to her for facilitation of inter-author collaboration.

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ATTRACTING MILLENNIALS TO THE INSURANCE INDUSTRY: WILL THEY FILL THE VOID?

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ABSTRACT

For any industry to remain successful, a continuous supply of new, skilled talent must be ready to replace talent leaving the industry. A significant number of studies report that the insurance industry is at the precipice of a significant talent void. This paper examines the need for new talent to replace the aging insurance industry workforce. It also examines the perceptions of college insurance majors with regards to careers in the insurance industry.

INTRODUCTION

Those associated with the insurance industry often attribute our looming “talent crisis” to the retirement of Baby Boomers (Cole and McCullough, 2012; Karl and Wells, 2016), as well as the failure to appropriately attract and retain students (Kwon, 2014 and Karl and Wells, 2016). McKinsey & Company (2010) report that one quarter of the insurance workforce will reach retirement age by 2018. In identifying methods of coping with this talent crisis, several trends appear throughout the literature, such as flexible work options and exposing insurance students to industry professionals (McKinsey & Company, 2010; Cole and McCullough, 2012; Karl and Wells, 2016).

PRWeb (2015) reports that the insurance sector provides employment to more than 2.6 million individuals and supplies more than \$420 billion to the gross domestic product (GDP) of the U.S. As with many industries, the

growth in workers aged 16 to 44 is lagging the growth in the number of workers aged 45 and older. This combined with a perceived low interest in jobs in the insurance industry point to the potential of a significant talent shortage. Johannsdottir et al. (2014) argue that the industry itself is perceived as “un-sexy” and the talent pool of which insurers can build their employee base from is limited. Thus, the employee shortage will likely be a combined factor of lower numbers of potential employees, as well as the need for new perspectives and skills in the insurance industry.

A 2016 survey administered by Great Insurance Jobs shows that respondent firms had a significant number of job openings in most areas of risk management and insurance (RMI). The 73 companies, from a broad range of industry segments, responding to their survey showed openings across the property and casualty, life and health, managed care, and broker/agent segments of the industry.

In total, the 73 responding companies reported more than 11,000 current job openings, with more than 90 percent of the companies surveyed reporting current openings. A simple extrapolation of these results for 73 insurance organizations surveyed to the thousands of organizations in the RMI industry further point towards a talent crisis. The survey also reports that, in addition to the more than 11,000 current job openings, respondent companies expected to open a combined total of more than 12,000 additional jobs in the last three quarters of 2016. The top five jobs in heavy demand, as reported by the survey, are:

- Sales
- Customer Service
- Claims Adjusters
- IT
- Underwriters

A complementary study from February 2016 by The Jacobsen Group shows similar results, as they report 66.3% of companies plan to increase staff during the next 12 months. Although the potential of baby boomers retiring contributes to the need for new talent, over 70 percent of the companies surveyed cite an expected increase in revenue as the primary reason to hire.

An optimistic business forecast for the RMI industry, combined with an aging workforce, paints a picture of immediate need in attracting millennials to the RMI sector. In this study, we examine the current perceptions of students with respect to future careers in RMI as a means to provide insight as to how new talent might be attracted.

NEW TALENT

Insurers continue to be concerned about the lack of talented and motivated employees with a genuine passion for working in the risk management and insurance industry. Human capital, an invaluable asset, supports the core focus of insurers. The difficulties associated with acquiring (and retaining) talented insurance professionals are becoming an increasing concern due, in part, to the combined effects of demographic, economic, as well as industry-specific factors (Kwon, 2014). The aging population and subsequent exiting of the work force by retirees is certainly one of the strongest factors affecting the industry. As such, attempts to engage future insurance talent should be at the forefront of agendas amongst universities and the industry itself.

With the exception of a few large programs, most academic programs in RMI are relatively small with less than 100 students enrolled (Business Insurance, 2015). The number

of academic programs in RMI is limited, especially when compared to the number of programs in the more common areas of marketing, management, accounting, and finance. It would require significant growth on the part of existing academic programs to meet the expected job demand for the industry. With the heightened and collaborative efforts of many organizations and academic institutions, interest in RMI careers should increase. Universities are showing more interest in RMI education, evidenced by several new Gamma Iota Sigma (GIS) chapters having formed over the last few years. The purpose of this business fraternity is to engage students with interests in risk management, insurance, and actuarial science.

Kwon (2015) contends that the insurance industry employs a tremendous range skilled personnel, with a diverse set of employment opportunities for minimally to highly skilled individuals. It is for this reason that this industry's inability to attract new talent remains somewhat of a mystery. Jacobson (2016) reports that US insurers are experiencing significant difficulty in recruiting skilled individuals to fill roles such as actuaries, technology specialists, analytics, executives and underwriters. Additionally, McKinsey & Company (2010) find the population of insurance professionals in the US who are aged 55 years and older increased by 74% from 1998 to 2008. This should be alarming to employers as the general population of employees in this age category only increased by 45% during this period. The authors found that not only are the employees ageing, but also that approximately 20% are currently near retirement and it is estimated that 25% will be near retirement age by 2018.

Past research efforts show that many of the millennials are simply unaware of careers in the RMI industry. A study conducted in 2012 by the Griffith Insurance Education Foundation showed only 5 percent of millennials were very familiar with the insurance industry and less than one in ten expressed an interest in working within the insurance industry. The survey found that top reasons for not having an interest in the insurance industry were that respondents did not want to sell insurance (52%) and they felt the insurance industry was boring (44%).

However, some studies point to a positive perception of the insurance industry. The Spencer Educational Foundation performed a survey amongst scholarship recipients (Business Insurance, 2012; Kwon, 2015). Respondents indicated that the prospect of job opportunities was the most prevalent reason they chose to enter an RMI curricular program. Other reasons, in order of popularity, were the opportunity for advancement, stability of the industry, as well as job security. These reasons, among others, are likely to be areas of strength within the insurance industry, and should be further explored by academics in

the pursuit to increase enrollments within existing RMI programs.

SURVEY RESULTS

This research identifies factors that attract students to an RMI academic program and serves as points of interest to them in exploring RMI careers. The survey was conducted at the 2016 Excess and Surplus Lines Symposium sponsored by The Derek Hughes Education Foundation and hosted by Troy University. The primary purpose of this program is to inform students about the excess and surplus lines industry and careers in that market segment. This annual Symposium is funded by the Derek Hughes foundation and offered to students and RMI programs at universities across the country. The 2016 Symposium had 190 students attend from 24 different universities. The vast majority of these students are currently enrolled in RMI programs or courses at their universities. The survey, as shown in Appendix A, was conducted at the beginning of the 2016 Symposium.

Table 1 provides the average responses with regards to which factors influenced students' decisions to major or concentrate/minor in RMI. Students were asked to rate each factor from 1 (Less Influential) to 7 (More Influential). It appears that students are joining because they see opportunities for job placement, as well as advancement within the industry. Interestingly, very few students are being influenced by family and friends that already work in the insurance sector. There is very little difference in responses across gender, with one exception. Female students are much more influenced by scholarship opportunities than are males. In fact, female students ranked scholarship opportunities as their 2nd most influential factor, while male students ranked it their 11th most influential factor.

Perceptions of students regarding the comparison of job opportunities, starting salary and salary advancement for insurance careers relative to other areas of business are provided in Table 2. Again, a 1 (RMI Lower) to 7 (RMI Higher) scale was used. Assuming that 4 represents no difference in RMI and the other fields, students ranked RMI as having more potential than Accounting, Finance,

and Marketing. Results indicate that respondents felt RMI offered a somewhat greater likelihood of finding immediate employment than in the other three fields. While students were less confident in having a higher RMI starting salary, they were more confident in the opportunity for salary advancement in RMI. With respect to differences across gender, males tended to be more optimistic with regards to RMI as they rated RMI higher in 7 of the 9 comparisons.

Table 3 provides the average student ratings with regards to how important particular skills are in order to attain success within the insurance industry. Students rated each skill from 1 (Not Important) to 7 (Very Important). While all skills were rated as being important, "Drive to Succeed" and "Communication" were ranked the highest. While students ranked "Quantitative" skills as being important, it was ranked as the least important in the list of skills. Craig et al. (2012) argue that advanced analytics

Table 1
Factors attracting students to RMI.

Influencing Factor	Female	Male	Overall	Difference
Job Opportunities	6.48	6.40	6.43	0.07
Advancement Potential	6.00	6.12	6.07	-0.12
Networking Opportunities	5.92	6.09	6.01	-0.17
Internship Opportunities	5.64	5.78	5.72	-0.14
Faculty Scholarship Opportunities	5.61	5.63	5.62	-0.02
Interest in Curriculum	5.13	4.65	4.86	0.48
Salary	5.57	5.23	5.38	0.34
RMI Student Activities	5.35	5.26	5.30	0.09
Mentors	5.48	5.32	5.39	0.15
Certification Opportunities	5.07	4.86	4.95	0.21
Ease/Difficulty of Major	5.08	4.86	4.96	0.23
Friends in Industry	4.24	4.30	4.27	-0.06
Family in Industry	3.50	3.38	3.43	0.12
	2.34	2.53	2.45	-0.18
	<i>n=59</i>	<i>n=74</i>		

Table 2
Comparing RMI to Accounting, Finance, and Marketing.

Comparison	Female	Male	Overall	Difference
ACT Job within 3 months	4.91	5.42	5.18	-0.51
ACT Starting Salary	4.48	4.33	4.40	0.14
ACT Advancements in Salary	4.94	5.25	5.11	-0.31
FIN Job within 3 months	4.83	5.44	5.16	-0.61
FIN Starting Salary	4.52	4.41	4.46	0.11
FIN Advancements in Salary	4.66	5.00	4.84	-0.34
MKT Job within 3 months	4.73	5.60	5.21	-0.86
MKT Starting Salary	4.53	5.31	4.96	-0.78
MKT Advancements in Salary	4.69	5.44	5.10	-0.75
	<i>n=64</i>	<i>n=76</i>		

will become vital to the success of insurers, and identify three types of future analysts to be heavily utilized by insurance companies: analytics scientists, analytics experts, as well as analytics specialists. The authors, however, caution that while many insurers currently recognize the need of analytic skills, they experience difficulty in determining how to use those skills to become more successful. We argue that it makes perfect sense for students to rank quantitative skills as the least important, as it seems insurers themselves are still struggling to identify the ways in which quantitative skills, aside from the traditional actuary's role, may be utilized to achieve stronger results. Interestingly, there was almost no difference in the perceptions between female and male students.

Table 4 compares students' perceptions of the prestige and professionalism of insurance careers relative to other careers in business. A seven-point scale was used, where 1 represents lower prestige and professionalism for insurance careers and 7 represents higher prestige and professionalism. Students ranked insurance careers as being both more prestigious and more professional, and there were minimal differences for females and males.

Students were asked whether or not they had interest in a particular type of job in the insurance industry. In addition to specific types of career options, students were given the opportunity to indicate they were "Not Sure" or that they were interested in a field not listed. Students were given the opportunity to select all types of career paths that interested them. Student responses are summarized in Table 5. The table clearly indicates that students are most interested in becoming brokers or underwriters.

The percentages of students showing interest in each job type are shown in Table 6. None of the students indicating "Other" or "Not Sure" showed interest in any other job type. Note there were a total of 68 females and 79 males responding to this section of the survey. After removing the students indicating "Other" and "Not Sure," there are a total of 117 students—52 females and 65 males. The resulting percentages were found by dividing the values from Table 5 by 52 for Female, 65 for Male, and 117 for Overall. While both genders show tremendous interest in working as a broker or underwriter, it is interesting to note that males are much more interested in working as a broker and females are much more interested in working as underwriters.

CONCLUSIONS

Numerous studies point to a tremendous need for new, skilled talent in the insurance industry. The good news is that there is a growing number of universities offering

Table 3
Skills necessary to be successful in insurance.

Necessary Skills	Female	Male	Overall	Difference
Drive to Succeed	6.66	6.77	6.72	-0.10
Communication	6.69	6.73	6.71	-0.04
Ethical Behavior	6.65	6.48	6.56	0.17
Problem Solving	6.51	6.36	6.43	0.15
Interpersonal	6.24	6.39	6.32	-0.15
Flexibility	6.43	6.01	6.21	0.41
Quantitative	5.87	5.68	5.77	0.18

n=67 *n*=76

Table 4
Prestige and professionalism of insurance professionals.

Trait	Female	Male	Overall	Difference
Prestige	5.59	5.44	5.51	0.15
Professionalism	5.68	5.60	5.63	0.08

n=68 *n*=77

Table 5
Frequencies of desired insurance industry job.

Job Interest	Female	Male	Overall
Underwriter	36	33	69
Broker	23	45	68
Not Sure	14	8	22
Account Manager	11	8	19
Agent	3	15	18
Actuary	8	3	11
Adjustor	2	6	8
Other	2	6	8

n=68 *n*=79

Table 6
Percentages of desired insurance industry job.

Job Interest	Female	Male	Overall
Underwriter	69%	51%	59%
Broker	44%	69%	58%
Account Manager	21%	12%	16%
Agent	6%	23%	15%
Actuary	15%	5%	9%
Adjustor	4%	9%	7%

n=52 *n*=65

academic programs designed specifically for risk management and insurance careers. College student perceive insurance as equally or more prestigious and professional than other business careers. In addition, as compared to popular business school majors, accounting, finance, and marketing, insurance was perceived to be slightly better in terms of obtaining immediate employment, starting salary, and opportunities for salary raises. The disappointing news is that, while the survey did not address it, informal discussions with students attending the symposium indicated that most of them entered college with no knowl-

edge of the opportunities in the insurance industry. In order to keep the insurance industry's talent pool deep, insurance programs will need to develop marketing plans to educate high school students on the numerous career opportunities.

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APPENDIX A

Survey of Factors Important to Students Selecting a Risk Management & Insurance Major or Concentration

University: _____

Classification: Freshman Sophomore Junior Senior

Gender: Female Male

Age: _____

Is your degree (major/concentration) in RMI? Yes No

Total number of RMI classes completed PLUS ones currently enrolled in: _____

If you are enrolled in an RMI major or concentration, rate the factors below with regard to how they

Please circle one number

	Less Influential			More Influential			
	1	2	3	4	5	6	7
Salary	1	2	3	4	5	6	7
Job opportunities	1	2	3	4	5	6	7
Potential for advancement in your career	1	2	3	4	5	6	7
Interest in curriculum or concepts	1	2	3	4	5	6	7
Family in the industry	1	2	3	4	5	6	7
Friends in the industry	1	2	3	4	5	6	7
Ability to pursue professional certifications	1	2	3	4	5	6	7
Faculty at your university	1	2	3	4	5	6	7
Internship opportunities	1	2	3	4	5	6	7
Scholarship opportunities	1	2	3	4	5	6	7
RMI student activities	1	2	3	4	5	6	7
Ease or difficulty of classes in RMI	1	2	3	4	5	6	7
Mentors	1	2	3	4	5	6	7
Networking opportunities	1	2	3	4	5	6	7

What job most interests you in the risk management & insurance area?

Account Manager Adjustor Agent Broker

Underwriter Not Sure Other _____

Based on your perception, compare the following factors for RMI graduates to graduates...

With an accounting degree

- Starting salary
- Opportunity for advancements in salary
- Probability of getting a job within 3 months of

	RMI Lower			Equal			RMI Higher		
	1	2	3	4	5	6	7	8	9
Starting salary	1	2	3	4	5	6	7	8	9
Opportunity for advancements in salary	1	2	3	4	5	6	7	8	9
Probability of getting a job within 3 months of	1	2	3	4	5	6	7	8	9

With a finance degree

- Starting salary
- Opportunity for advancements in salary
- Probability of getting a job within 3 months of

	RMI Lower			Equal			RMI Higher		
	1	2	3	4	5	6	7	8	9
Starting salary	1	2	3	4	5	6	7	8	9
Opportunity for advancements in salary	1	2	3	4	5	6	7	8	9
Probability of getting a job within 3 months of	1	2	3	4	5	6	7	8	9

With a marketing degree

- Starting salary
- Opportunity for advancements in salary
- Probability of getting a job within 3 months of

	RMI Lower			Equal			RMI Higher		
	1	2	3	4	5	6	7	8	9
Starting salary	1	2	3	4	5	6	7	8	9
Opportunity for advancements in salary	1	2	3	4	5	6	7	8	9
Probability of getting a job within 3 months of	1	2	3	4	5	6	7	8	9

Rate the following skills with regard to how important you believe they are for someone to be

	Not Important			Very Important			
	1	2	3	4	5	6	7
Communication	1	2	3	4	5	6	7
Interpersonal	1	2	3	4	5	6	7
Quantitative	1	2	3	4	5	6	7
Problem Solving	1	2	3	4	5	6	7
Flexibility	1	2	3	4	5	6	7
Ethical Behavior	1	2	3	4	5	6	7
Drive to Succeed	1	2	3	4	5	6	7

Rate your perception of the prestige of a successful RMI professional compared to other business professionals.

	Less Prestigious			More Prestigious			
	1	2	3	4	5	6	7
	1	2	3	4	5	6	7

Rate your perception of the professionalism of a successful RMI professional compared to other business professionals.

	Less Professional			More Professional			
	1	2	3	4	5	6	7
	1	2	3	4	5	6	7

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TULIP MANIA

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ABSTRACT

Though investors have repeatedly felt the financial wrath that follows the bursting of an economic bubble, they continue to eagerly pump their dollars into the stock market's latest lucrative fad. However, as history has continuously proven, these economic fads, such as the dot.com bubble, inevitably come crashing down. With recent financial crises looming in investors' minds and bank accounts, economic bubbles may appear to be a relatively modern burden. On the contrary, however, these recent financial crises are simply manifestations of a strikingly similar economic affair that occurred nearly 400 years ago. Rumored to be the world's first economic bubble, tulip mania emanated from the Netherlands during the seventeenth century. As implied by its name, tulip mania is often described as a time of market madness due to the exceedingly high prices market participants willingly paid for a single flower. At the height of the mania, prices paid for rare tulips surpassed those of the most grandiose houses during the time period, increasing by tenfold throughout the mania. In addition to expensive rare tulips, there were also common tulips that were exchanged by novice tulip traders at more affordable prices. With the option of both rare and common tulips, the tulip trade welcomed all types of investors into its market, and the pursuit of the dazzling blossoms quickly swept across Europe. However, like the economic crises of today, the tulip bubble, with investments amounting to more than one hundred million of today's dollars, inescapably burst, leaving Europe to feel the financial aftermath of an early economic bubble.

TULIP MANIA

Exemplified through the stock market's continuous cycle of crises, history has an uncanny way of repeating itself. Skewing the judgment of eager investors throughout time, the pursuit of profits has resulted in a myriad of economic bubbles in recent years, all of which were quick to burst. Following the savings and loan crisis of the 1980s came the collapse of the dot.com bubble, which, in turn, was shortly displaced by the latest banking and subprime mortgage crises. Though economic distress accompanies each bubble burst, the financial frenzies continue to manifest as investors fail to learn from past mistakes. Proving

to be a timeless battle, these recent collapses are merely current manifestations of a similar economic bubble that originated with a tulip almost 400 hundred years ago.

An enticing air of mystery surrounds the legend of this initial tulip bubble, which developed in the Netherlands throughout the early seventeenth century. Due to the excessively high prices paid for single flowers, the events of the tulip market during this time have been termed "tulip mania," and lunacy is rumored to have infested its market participants. Depicted as sheer madness by many, the argument that tulip mania was not an economic bubble but rather a craze of irrational market behavior has surfaced

(Garber, 2000, pp. 12-13). However, a closer look at the blossoming and ultimate collapse of tulip mania reveals its striking similarities to the economic crises of today.

While the tulip flourished in the Netherlands, this was not the blossom's native country. Taxonomists think tulips originated in the Tien Shan Mountains of central Asia, where wild tulips decorated the mountains' hillsides and valleys. Within these valleys lived Turkish nomads who were enthralled by the simplistic beauty of the flower. The tulip's first annual blooming brought not only aesthetic pleasure to the Turkish nomads but also the promise of life and fertility after having just survived another harsh Asian winter. The tulip grew to be a prominent symbol in Turkish culture, flourishing throughout Asia and spilling into Europe as the Turks traveled westward (Dash, 1999, pp. 4-11).

Though popular amongst the Turks, it was not until April of 1559 that the tulip was specified by a botanical description and figure. Conrad Gesner is credited with the initial botanical specification of the tulip, which he first sighted in the garden of counselor John Henry Herwart in Augsburg, Germany. Naturally, the tulip seeds of Herwart's garden originated from Constantinople, where the Turks already cherished the flower. Following its official specification, the tulip gained increasing popularity in Europe. Dutch merchants, along with Vienna's affluent natives, ventured to Constantinople in search of various tulips. Due to its Turkish origin, the tulip was known by the name of "tulipa" in Italy, which is a Turkish extraction allotted to the flower based on its resemblance to a turban (Emmett, 2000, p. 84). As interest in this turban-like flower began to blossom, a mania was born.

To fully appreciate the mechanics of tulip markets and the eventual mania requires a fundamental knowledge of tulips. Tulips are bulbous flowers that bloom for only a brief period in the spring months of April and May. Tulips reproduce asexually and propagate through the planting of either buds formed on the mother bulb or mere seeds. The primary method of breeding tulips is the planting of a bud from the mother bulb, as this method yields an increase in tulip bulbs at rates of 100 to 150 percent. Assuming proper cultivation, the bud will replace the original bulb by the end of the season. Reproduction through buds is drastically more time efficient than that through seeds, which require seven to twelve years to produce the flowers. Following the spring bloom, tulip bulbs can be removed from their beds in June but must be replanted by September (Garber, 2000, pp. 39-40). It is this fragmented nature of the tulip's existence that led, in part, to the chaotic inner workings of the mania.

In addition to the demanding internal clock of the tulip, the flower's color and markings played a vital role in the

tulip markets of the seventeenth century. Goldgar (2007) concluded "it was their color that gave them primacy even over other popular flowers entering Europe at the same time" (p. 39). Though the single-colored tulip bulbs were beautiful, the real attractions throughout the mania were the dazzling, multi-colored tulips. These so-called "broken" tulips contained patterns with vibrant colors, making them exceedingly desirable. While florists believed that "breaking" into patterns was a standard stage in the maturing process of tulips, the actual causation of breaking was the invasion of the mosaic virus. An unknown enemy to the tulip, the mosaic virus sickened the commodity flower and reduced its fertility (Garber, 2000, pp. 40-41). With a diseased commodity as the center of trade, the tulip market had unknowingly been built upon an unsound foundation.

Addressing the tulip markets at last, the trade of tulips was always in terms of bulbs, not blossoming flowers. Initially, the bulbs were sold individually, but as the tulip market gained traction, the unit of trade amplified from tulip to flower bed to acres of tulips. Only the rare bulbs, such as the Semper Augustus, were sold individually and for a lofty fee (Emmett, 2000, p. 95). Bulbs were often sold by weight in terms of azen ("aces"), a unit of measurement borrowed from goldsmiths because of its extremely small size (Dash, 1999, p. 118). With the option to trade either rare or common bulbs, two categories of tulip purchases, known as "piece" goods and "pound" goods, emerged. The purchase of "piece" goods meant that specific types of bulbs were identified and sold by their weight to the buyer, while the purchase of "pound" goods meant that no particular kind of bulbs were required by the contract (Garber, 2000, pp. 43-44). However, the complexities of tulip contracts far exceeded the classification of "piece" versus "pound" goods purchases.

Originally dominated by genuine blossom connoisseurs, the buying and selling of tulips initially occurred during the summer when the tulips were extracted from the ground and could be physically traded. The tulip connoisseurs, who desired to see their tulip before purchasing it, preferred this logical system of trading from June through August. With physical trades taking place, both tulips and payments were typically delivered on time. While connoisseurs were satisfied with the physical trade of tulips, emerging buyers and sellers who had no interest in possessing the tulip itself felt that their potential profit was being significantly limited (Dash, 1999, pp. 113-114).

Striving to keep pace with the climbing demand for tulips, sellers developed a new method of trading the precious plants by utilizing futures contracts. These futures contracts were based on the trade of the excrescences, or buds, still attached to the mother bulb. Unfortunately, there

was no guarantee that the outgrowths would bloom once planted, thus adding a new risk to the tulip trade (Emmett, 2000, p. 95). The introduction of futures contracts allowed tulip traders to deviate from their June through August trade window, and they could be relatively risk-averse if reasonable quantity and time requirements were applied to the contracts. However, as greed-driven buyers and sellers joined the tulip markets, there was a push for year-round tulip trading, resulting in a drastic change in the tulip market in 1635 (Dash, 1999, pp. 113-114).

The Dutch government cringed as its fears of short sales in the marketplace became a reality in the tulip market. Highly aware of the inherent risks of short sales, the Dutch government "ruled that trading commodities that were not in the possession of either the buyer or the seller was not merely dangerous but fundamentally immoral" (Dash, 1999, p. 117). In 1608, just two years after its introduction to short sales, the Dutch government declared them to be illegal and passed additional laws banning futures trading in the years 1621, 1623, 1624, 1630, and 1636. Thus, while short sales were clearly illegal during tulip mania, countless short sale transactions still occurred in the tulip market and aided in the bursting of the economic bubble (Dash, 1999, p. 117-118).

Approaching the tulip market boom of 1636, short sales ran rampant in the Dutch economy. Buyers of tulip bulbs often were uninterested in acquiring the tulips and entered into contracts to buy bulbs which they knew the seller did not possess. Likewise, the seller agreed to trade their nonexistent bulbs at a price the buyer likely could not afford to pay. Through this trade of baseless assets, a sort of trading frenzy began. In a short period of time, one could make a substantial profit on paper by repeatedly selling "tulips" for a continuously rising price. At the climax of the tulip's economic boom, the majority of tulip trades occurred without any basis of goods. This basic "get rich quick" scheme spread like wild fire across the Netherlands, and the various grades and prices of tulips allowed all social classes to join in the mania (Emmett, 2000, p. 97).

As the number of tulip traders grew to new heights, so did the beloved blossom's price. Augmenting in an exponential fashion, the prices of tulip bulbs rose gradually at first before rapidly increasing in the final months of the mania. Though valued at impressive amounts leading up to the mania's climax, no prices paid for tulips compared to those forfeited during December 1636 and January 1637, the peak of the tulip madness. Records reveal astonishing escalations in bulb prices for various species of tulips, including increases from 15 guilders to 75 guilders for an Admiraal de Man, 45 guilders to 550 guilders for a Gheel en Root van Leyde, and 95 guilders to 900 guilders for

a Generalissimo. However, these rising prices did not deter traders from jumping on the tulip train as desperate Dutchmen continued to invest all they had in the bulb market (Dash, 1999, p. 108). With surging prices and popularity, the tulip trade became so prominent that a single town is said to have had tulip sales totaling 10 million florins (equivalent to 10 million guilders) during the mania (Emmett, 2000, p. 439). Such superfluous spending would amount to roughly 115 million of today's dollars, quite a fortune for a single town's investment.

Prominent among the excessive prices paid for tulips was that of the esteemed Semper Augustus, which rose from the lofty fee of 5,500 guilders per bulb to an astounding 10,000 guilders per bulb in January 1637. This latter amount of 10,000 guilders, which could be afforded by only a handful of Dutch families, equated to the cost of feeding, clothing, and housing an entire Dutch family for half of a lifetime or to the cost of a grandiose home on Amsterdam's upscale canal with an eighty-foot garden and coach house to boot (Dash, 1999, p. 108-109). It was the prospect of possessing such wondrously lucrative bulbs that attracted tulip traders from far and wide to participate in the tulip market and, ultimately, the mania.

With the fervor for flowers and fortunes in the air, the demand for contemporary transaction methods grew as the number of tulip deals in the market increased. Newcomers continued to permeate the tulip market, and it became evident that the novice traders needed a central place to do business. Thus, the "college" originated in mid-1636. Colleges were private societies in which newcomers gathered to make deals while spectators merrily ate and drank. A universal set of only a few rules governed the various colleges, where tulip amateurs were willing to pay a surprisingly high price for various bulbs. Due in large part to the sea of inexperienced tulip traders that flooded the market, the amateurs' time in the colleges was cut short as the tulip market took a turn for the worse (Emmett, 2000, pp. 97-100).

On the first Tuesday of February in 1637, the tulip market crashed unexpectedly. History reports that the initial push in the domino-like decline of the tulip trade occurred in Haarlem as florists met for another typical trade in a local college. A mundane sale of bulbs for a fair price of 1,250 guilders was initially offered to the buyers, but to the florists' disbelief there were no bidders on this proposal. Slightly shaken, the auctioneer lowered the bulbs' price again and again, until panic spread through the college and country (Dash, 1999, p. 162-163). With several tens of millions of guilders invested in deals in the tulip market (the equivalent of several hundred million dollars today), the diminishing worth of the tulip was felt in wallets and gardens across Europe (Emmett, 2000, p. 448).

The tulip market's traumatic downfall can be attributed to the exhaustion of both money and tulip bulbs in February 1637. A lack of affordable bulbs prevented new florists from entering the tulip market, which, in turn, lessened the amount of capital flowing into the market. Simultaneously, experienced tulip dealers were attempting to seize their profits by "selling up," which again restricted capital in the tulip market. At the peak of the tulip mania, tulips were exchanged at a brisk pace, yet the majority of the bulbs traded in early 1637 were worthless "pound" goods. With limited capital and no demand for the surplus of worthless bulbs, tulip mania came crashing down (Dash, 1999, p. 166-167).

Following the crash of the tulip market, chaos plagued the hillsides of Europe as countless futures contracts for tulips remained in limbo. Naturally, sellers wished to receive full payment for the agreed upon tulips, which the buyers no longer desired. In an attempt to contain the madness, Haarlem's government ruled that tulip sales taking place on or before November 30th 1636, were enforceable by law. Additionally, if transactions occurred after November 30th, 1636, the buyer was allotted the right to reject the tulips as long as he paid 10 percent of the sales price to the seller. After analyzing potential solutions to the tulip crash, the State of Holland eventually sought advice from the Court of Holland. Unable to produce a reasonable resolution, the Court ruled that local governors were better qualified to address the tulip market matters in their differing cities and also proposed temporary rules for the interim. These rules suspended all current tulip contracts and authorized bulb growers to either keep or sell tulips that had been rejected by their previous buyer. If the contracts were later deemed enforceable by law, the previously contracted buyer would repay any loss experienced by the bulb grower. While little data exists on the actions taken by city governments to moderate the effects of tulip mania's crash, it is evident that their efforts were ultimately unsuccessful (Emmett, 2000, pp. 101-103).

Parallel to the bursting of modern economic bubbles, the demise of the tulip market in 1637 imposed great economic stress on those entangled in its complex web. Both the rich and the poor suffered losses from the fall of the flower trade, though the poor were more heavily burdened by these losses. Additionally, bulb growers, who scarcely received payment for bulbs grown and sold, suffered extensively from the economic crisis. However, many sellers were able to avoid losses through contract annulments, as they had entered into contracts for the trade of goods that did not exist. Fortunately, these annulments significantly lessened the blow of the tulip crash on society, and when compared to the tremendous amount of guilders invested in the tulip trade, the crisis's overall effect on society was

not nearly as devastating as it could have been (Emmett, 2000, p. 103).

Following the bursting of the tulip bubble, the general public's admiration of the flower swiftly faded, yet not all passion for the tulip was lost. Connoisseurs rooted deeply in the flower trade remained loyal suitors of the bulbous plant, and rare tulips continued to be traded by collectors who valued their beauty. With the physical flower being the desire of such trades, the trends of post-mania tulip trading differed from that of the craze: "The fashion among connoisseurs in the post-mania years was to cultivate single specimens of as many different tulips as possible" (Dash, 1999, p. 209). Ironically, the tumultuous collapse of the tulip market aided in its recovery, as the rest of Europe longed to feast their eyes on the legendary flower responsible for the crash. Graced by the demands of collectors and curious Europeans, Dutch florists were able to trade and export rarer, attractive tulips, which helped offset their losses from the mania's demise. However, these post-maniac tulip trades were minor compared to those during the peak of the lunacy, lagging in both price and demand (Dash, 1999, p. 208-210).

While knowledge of tulip prices for the years following 1637 is scarce, the few existing records reveal a significant decline in tulip prices after the market's crash. Previously priced at an average of 1,345 guilders per bulb during the mania, the rare and desirable Admiral van der Eijck tulip sold for a mere 220 guilders in 1643. Likewise, records show that the price per bulb of a Rotgans tulip plummeted from the value of 805 guilders to 138 guilders post-mania. Depreciating at an even steeper rate than these rare, valuable tulips were their cheaper and more common kin. With little appeal to connoisseurs, the demand and, consequently, price of the common bulbs quickly dwindled, and tulips such as the White Crowns fell in price from a peak of 1,668 guilders to only 37.5 guilders in just five years. As tulip prices continued to fall, many novice bulb growers fled from the profession, and the market for the flower lessened accordingly. Mellowing out with fewer and less greedy participants, the tulip trade returned to reasonable prices once more (Dash, 1999, p. 208-210).

As the curtains closed on the famed tulip market, the hyacinth took center stage as Europe's next fashionable flower. Eerily similar to the trends of tulip mania, hyacinths became highly sought-after objects of trade, and financial contracts for the flowers flourished as quickly as the plants themselves. Mimicking the lust for rare and colorful tulips, the hunt for hyacinths with vibrant hues became increasingly popular. With tulip mania looming fresh in Europe's mind, warnings against unrestricted contracts emerged, yet these cautions did little to deter such flower trades. Disregarding a lesson from Europe's own history,

hyacinth prices soared from their initial popularity in 1734 before promptly crashing in 1739 (Garber, 2000, p. 71). Thus, hyacinths, much like the great tulips before them, thrived as the center of manic trade before quickly wilting away.

Sticking to their roots, Dutch bulb growers continued to dominate the tulip market as it transformed over the years. A notable change in the tulip trade was the development of year-round tulip production, which was accomplished by keeping the tulip bulbs at low temperatures. In addition to this fundamental change, the tulip itself has bloomed into an array of new and beautiful species. Though the beloved broken tulips of the mania are long gone, ultimately taken by the mosaic virus that brought them their fame, modern species, such as the charming parrot and double-petal tulips, have surfaced. While the expulsion of the mosaic virus was healthful for tulips, the innovation and wondrous aesthetics offered by the virus are missed today. However, even without the virus, variations of tulips have continued to blossom, and nearly six thousand different breeds of tulips are on record today (Dash, 1999, pp. 215-217). Hence, the floral madness may have died, but the tulip has persevered through time as an ever-evolving classic beauty.

In summary, tulip mania was not a period of market lunacy but an economic bubble that arose from traders anticipating fast profits. Much like the economic crises of today's stock market, the contracts of the tulip trade escalated to unsustainable amounts, and, consequently, the market crashed. Unbeknownst to the eager market participants, the tulip trade was destined to fail, as the primary object of trade was a sick flower. Built upon a fundamentally unstable market, tulip mania dazzled Europe with its breathtaking blossoms before its swift demise. While the losses from the bursting of the tulip bubble were significant, the economic distress fortunately did not reach its full potential, and a small market for tulip connoisseurs lived on in the years following the crash. Today, thousands of tulip species decorate the world's gardens, and while the legendary patterned tulips vanished with the mosaic virus, there is no denying the tulip's allure. With such unparalleled, simplistic beauty, it is no wonder Europe went mad for tulips.

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ARE CORPORATE MERGERS ECONOMIC TIME PERIOD AND INDUSTRY-TYPE SENSITIVE?

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ABSTRACT

This study extends previous merger and acquisition studies by analyzing firms engaged in merger and acquisition activities in eight specific industries during years of economic downturn (2007-2010) and economic upturn (2011-2015). These eight industries are further partitioned by below average growth industries and above average growth industries.

Results indicate that with respect to below average growth industry firms, average mean response coefficients are generally negative and significant at conventional levels, regardless of economic time period. Turning to above average growth industry firms, the coefficients' average mean are positive and significant at conventional levels. In fact, there are no significant differences between the results regardless of economic period. The conclusion is that during merger and acquisition activities, above average growth industry firms seem to fair better from a stock price perspective than below average growth firms, regardless of economic cycle.

INTRODUCTION

Since 1985, more than 300,000 mergers & acquisitions transactions have been announced in the U.S. with a known value of almost \$33 trillion. In 2015, a new record was broken in terms of transaction value at \$2.4 trillion which is a 12% increase over 2014. The compound annual growth rate for the number from 1985 to 2015 was 4.63% while the value grew at 6.51% (Institute for Mergers, Acquisitions & Alliances, 2016). Although the level of mergers and acquisitions appears to be leveling off, the significance of mergers and acquisitions in the U.S. remains an important topic for corporate managers, financial analysts, and investors.

Questions that frequently arise with respect to mergers and acquisitions are; does such activity occur in waves or specific time periods during the economic cycle, and does the activity have a greater impact in certain industries? Town (1992) studied quarterly observations of merger and acquisition activity from 1895 to 1989 and finds that a "wave" pattern does exist. The bottom of the wave appears to be during depression or near-depression downturns, with the worst being in 1932, during the Great Depression. The top of the wave is noted to be during periods after economic recovery. Similar characteristics have

been discovered by Shea (1991), Sowell (1992), Baillie and Bollerslev (1994), and Diebold and Lindner (1996).

Since the later part of the 20th century, mergers and acquisitions have tended to come in waves, spurred by the availability of credit, changes in government policy, or bursts of private-sector innovation. Deregulation, for instance, motivated a wave of mergers in the airline industry in the 1970s and the consolidation of the banking industry in the 1990s. But perhaps the most important factor in motivating these bursts is economic conditions, particularly the strength of the stock market. Mergers in particular are often financed with stock, and high stock values give companies the resources with which to make purchases.

According to *Forbes Magazine* (1/7/16), the stock market has had a strong run for several years now, with the Standard and Poor's (S&P) 500 up more than 138% since its bear-market lows of 2008. So why are we seeing such a strong merger and acquisition boom? Surely one reason is that today's market is heavily fortified by quantitative easing. *Forbes* goes on to state that the Federal Reserve has taken unprecedented action to keep interest rates low in both the short and long term, and those efforts have kept stock prices high despite the weak economy. In other words, given central bank stimulus, a rising stock market isn't quite the indicator it used to be.

In addition to predicting merger and acquisition activity, the stock market is also considered a leading indicator of economic growth, meaning increases in GDP generally follow bull markets. This is because stock prices reflect investors' expectations for a company's future income. A high stock price today represents investors' belief in big profits tomorrow. Taken in the aggregate, a surging stock market index is a predictor of increases in GDP down the line.

Forbes is quick to point out that the huge gains seen in stock prices since 2009 have also not been followed by robust economic growth. It is noted that this is probably because Fed action has done more to promote stock price increases than economic fundamentals. But this is exactly why we should be encouraged by this merger and acquisition activity, especially if it keeps up in the coming months. It may mean that recent stock market gains are once again reflecting confidence about future profits, and not just central bank stimulus.

Recent empirical studies (Girma [2008], Hu [2009], Yen and Andre [2010], Kemal [2011] and Chatterjee [2011]) indicate that merger and acquisition activity may in fact have a negative impact on the acquiring firm's profits and subsequent stock price. Stunda (2014) finds similar results, however, two industries (i.e., oil/gas, and banking/financial services) engaging in merger and acquisition activities are found to have a significantly positive effect on stock prices.

PURPOSE

This study attempts to combine and extend extant literature relating to mergers and acquisitions. It does so from two distinct perspectives. First, to assess the "wave" notion established by prior authors, this study is broken down into two periods, one period containing the years 2007-2010, which represents an economic downturn and recession, and the other period, 2011-2015, representing a period of economic recovery. Second, since prior research shows that there may exist the possibility that industry membership could play a role in merger and acquisition results, an analysis is made using two industry types; industries that have exhibited above average growth, and industries that have exhibited below average growth.

The incorporation of these two elements in determining stock price effect will help to better focus on the market-effect of mergers and acquisitions and if the effect is driven by economic cycle and industry membership.

LITERATURE REVIEW

Over the decades, there have been several extant studies conducted on the effect of merger and acquisition activities. Holmstrom (2001) found that mergers and acquisitions of acquiring firms improved not only the productivity but the corporate governance mechanism of U.S. firms. Olinger, Chambers and Nelson (2006) found that mergers and acquisitions in the U.S. rose during the period from 1980-1999 mainly due to leveraged hostile takeovers and buyouts. Kemal (2011) found that the effects of merger and acquisition activities on the acquiring firm included a worsening of financial ratios, particularly those relating to liquidity, along with a pronounced drop in security prices. Chatterjee (2011) also notes a reduction in security prices of acquiring firms in the U.S., possibly as a result of direct and indirect acquisition costs. Altunbas and Ibanes (2004), on the other hand, found evidence of improvement in acquiring firms' return ratios and security prices. Hu (2009) examines post-acquisition periods of acquiring firms and finds mixed financial results with some acquiring firms posting a worsening security price effect while others showing a positive effect. This finding is furthered by Girma (2008) who finds post-acquisition security prices higher for predominantly larger firms and negative for predominantly smaller firms, though the sample size is small. Some firms have abnormal positive returns while other firms have abnormal negative returns. Hu (2009) concludes that the industry and year of acquisition play a role in subsequent return on the acquiring firm.

From a profitability perspective, Mantravadi and Reddy (2008) found evidence that acquiring firms experience increases in profitability, however, the impact is strongest for firms in textile, banking and finance, and healthcare. Wong, Cheung and Mun (2009) conducted research focusing on security returns of acquiring firms, but their research was limited to firms in the Asian markets. Their findings indicated that the buying firms' market shares receive abnormal positive returns in periods after the merger and acquisition announcement. In contrast to this study, Yen and Andre (2010) surveyed a limited number of mergers and acquisitions in the U.S. and found that acquiring firms either suffer losses as the result of the activity, or at best, breakeven. Yen and Andre (2010) also found no evidence of immediate positive returns on security prices of the acquiring firms, and in fact discovered an associated decline in security prices among these firms, although corporate governance procedures seemed to improve.

One of the explanations of how such studies might have such differing results associated with mergers and acquisitions is offered by Williams (2010). Williams (2010) indicated that researchers often overlook the marketing syner-

gies that may result from mergers and acquisitions, which lay at the heart of either failure or success of the endeavor by the acquiring firm, and that economic time periods may play a role. Williams (2010) found that horizontal integration offers the best chance at success and profitability of acquiring firms. Also, Williams (2010) discovered that the more established the acquiring firm is (i.e., more long-lived) the greater likelihood it has of realizing increased profitability. Williams (2010) also notes limitations in time periods studied. Ismail, Abdou and Annis (2011) also suggest that reasons for conflicting results from various studies on merger and acquisition activities may be because of the scope (which is limited in both numbers of mergers and acquisitions and time frames covered) of the studies and most of the above studies focus on a single industry, with the exceptions of Hu (2009) and Mantravadi and Reddy (2008), which assess U.S. acquiring firms' security prices by industry for limited time periods. Also, Ismail, Abdou and Annis (2011) find that past studies do not adequately assess firm size or time in industry, both of which might have an effect on results.

Recent merger and acquisition literature is conflicted in its analysis of the results associated with acquiring firms. Some studies indicate a negative impact on the acquiring firm and its stockholders (Girma [2008], Hu [2009], Yen and Andre [2010], Chatterjee [2011], and Kemal [2011]), while other studies find abnormal positive results (Altunbas and Albanes [2004], Hu [2009], Girma [2008], Wong, Cheung, and Mun [2009]). Stunda (2014) finds general negative results with positive results among certain industries. Because merger and acquisition activities have hit new highs over recent years, it is important that we obtain a better understanding of the effect of such activities on the acquiring firm and their stockholders. This study will attempt to do just that by analyzing the effect of mergers and acquisitions on the acquiring firms' stock price by economic cycle and industry group.

SAMPLE

The aim of this study is to investigate the share price behavior of publicly traded firms that are identified as the acquiring firm in a merger and acquisition in the U.S. A database was assembled for the study years 2007-2015 utilizing a Lexis-Nexis and Electronic Data-Gathering, Analysis and Retrieval (EDGAR) search. The database was compiled to capture all announced mergers and acquisitions along with the announcement release date. The availability of earnings and security return information was then assembled for the associated firms using Compustat and Center for Research on Security Prices (CRSP) data bases for earnings and security price information respectively. The study period was separated into two sub-

samples. The first sub-sample, represents years during an economic downturn (i.e., 2007-2010). The second sub-sample represents years during an economic upturn (i.e., 2011-2015).

A total of eight industries are analyzed in the study. In their analysis of earnings forecast accuracy, Sinha, Brown, and Das (2015) find that certain industries have experienced above average growth in the last ten years, while other industries have experienced below average growth during this same period. This study incorporates industry analysis from that study to highlight similar above growth industries, namely; Technology, Healthcare, Oil/Gas, and Banking/Finance. In addition, the same below average growth industries are also analyzed, they are; Utilities, Real Estate, Transportation, and Industrials. The total sample meeting the above criteria, by industry, is listed in Table 1.

Industry	Number of Firms Engaging in Mergers and Acquisitions	
	2007-2010	2011-2015
Utilities	158	237
Real Estate	140	197
Transportation	205	318
Industrials	342	407
Technology	118	352
Healthcare	238	454
Oil/Gas	311	479
Banking/Finance	248	397
Total	1,760	2,841

HYPOTHESES DEVELOPMENT

As previously noted, extant studies assessing the effects of mergers and acquisitions contain many varying results. These studies indicate minimal, negative and even positive impact on stock prices of acquiring firms. Town (1992) introduces the notion of "wave" effect and finds that results of this effect are tied to economic cycle and may be industry-sensitive. Incorporating the analysis of Sinha, Brown, and Das (2015), eight merger and acquisition industry firms are analyzed for the two sample periods. The initial test will assess if there is indeed a wave associated with all firms in the sample when analyzed by economic upturn

versus economic downturn periods. The first hypothesis, stated in the null form is:

H1: There are no significant differences in stock price response of acquiring firms engaged in merger and acquisition activities between economic cycles.

Some past merger and acquisition studies (Hu [2009] and Mantravadi and Reddy [2008]), which assess U.S. acquiring firms' security prices by industry for limited time periods indicate that the effect of merger and acquisition activities on stock prices varies by industry, with certain industries showing a greater effect than others. Sinha, Brown, and Das (2015) find that certain industries have experienced above average growth in the last ten years, while other industries have experienced below average growth. In order to assess this industry-based phenomenon, the group of acquiring firms that have engaged in merger and acquisition activities for the full study period (i.e., 2007-2015) is broken down by major industry and the industry effect is analyzed. This gives rise to the second hypothesis, stated in the null form:

H2: There are no significant differences in stock price response of acquiring firms engaged in merger and acquisition activities when assessed by industry category.

Still other studies in the area of mergers and acquisitions attribute the effect of merger and acquisition activities on stock prices to time-specific metrics [Town (1992), Williams (2010), Ismail, Abdou and Annis (2011)]. Town (1992) sets forth the concept of the "wave" factor with respect to stock price effect. Extending hypothesis two, the time period notion is incorporated with the industry-specific concept in order to assess if there is any difference in stock price reaction among industries during different economic time periods. This results in the third hypothesis, stated in the null form:

H3: There are no significant differences in stock price response of acquiring firms engaged in merger and acquisition activities when assessed by industry category and economic cycle.

METHODOLOGY

Ordinary least squares (OLS) regression was used to test the models for all hypotheses. The reason for using OLS measurement was to remain consistent with the approach used by prior researchers [i.e., Town (1992), Williams (2010), Kemal (2001), Altunbas (2004), Holmstram (2001)], thus insuring comparability to prior studies. Cross-sectional dependence and heteroskedasticity are not likely to be present in stock return metrics since

sample firms are not affected by common event dates. (Binder 1985; Bernard 1987; Grammatikos and Yourougou 1990). However, whenever a set of multiple regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIF) was utilized. This approach was used in Hu (2009), Yen and Andre (2010), Kemel (2011), Ismail, Abdou and Annis (2010) and Wong, Cheung, and Mun (2009). When the VIF factor exceeds a value of 10, multicollinearity is said to be present, O'Brien (2007).

HYPOTHESIS ONE METHODOLOGY

The purpose of the test of the first hypothesis is to assess any differences in the relative information content of unexpected earnings to share prices in a cross sectional analysis of acquiring firms involved in merger and acquisition activities for the study periods 2007-2010 and 2011-2015. The following regression model [similar to that used in Town (1992), Williams (2010), Kemal (2001), Altunbas and Ibanes (2004), and Holmstram (2001)] is used to test empirical results:

$$CAR_{it} = a + b_1 UED_{it} + b_2 UEU_{it} + b_3 MB_{it} + b_4 B_{it} + b_5 MV_{it} + e_{it} \quad (1)$$

Where:

CAR_{it} = Cumulative abnormal return firm i, time t

a = Intercept term

UED_{it} = Unexpected earnings for firm i, time t, for all merger firms in the 2005-2010 sample (i.e. downturn economic years)

UEU_{it} = Unexpected earnings for firm i, time t, for all non-merger firms in 2011-2015 sample (i.e. upturn economic years)

MB_{it} = Market to book value of equity as proxy for growth and persistence

B_{it} = Market model slope coefficient as proxy for systematic risk

MV_{it} = Market value of equity as proxy for firm size

e_{it} = error term for firm i, time t

The coefficient "a" measures the intercept. The coefficient b_1 is the earnings response coefficient (ERC) for all firms in the 2007-2010 sample (1,760). The coefficient b_2 is the ERC for all firms in the 2011-2015 sample (2,841). The coefficients b_3 , b_4 , and b_5 , are assessed for any potential contributions to the ERC for all firms in the sample. To investigate the effects of the information content of earnings on security prices, there must be some control for variables shown by prior studies to be determinants of ERC. For this reason, the variables represented by coefficients b_3 through b_5 are included in the study. Un-

expected earnings (UE_i) is measured as the difference between the actual earnings (EA_i) and security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES) (EX_i). The unexpected earnings are scaled by the firm's stock price (P_i) 180 days prior to the forecast:

$$UE_i = (EA_i - EX_i) / P_i \quad (2)$$

For each cross sectional sample firm, an abnormal return (AR_{it}) is generated for event days -1, 0, and +1, where day 0 is defined as the release date of the merger and acquisition activity identified by EDGAR. The Dow Jones News Retrieval Service (DJNRS) is also reviewed to insure that confounding factors, such as change of corporate ownership or form, or management change, are minimized by excluding any firms which contain these events. The market model is utilized along with the CRSP equally-weighted market index and regression parameters are estimated between -290 and -91. Abnormal returns are then summed to calculate a cumulative abnormal return (CAR_{it}). Hypothesis 1 is tested by examining the coefficients associated with the unexpected earnings of the two samples (i.e., b_1 , and b_2).

HYPOTHESIS TWO METHODOLOGY

The purpose of the test of the second hypothesis is to assess the relative information content of unexpected earnings to share prices in a cross sectional analysis of acquiring firms involved in merger and acquisition activities by industry membership for the study period 2007-2015. This test will help determine if certain industries demonstrate stronger security price reaction while undergoing merger and acquisition activities, regardless of time frame. In assessing empirical results by industry, a regression model similar to the one used in hypothesis one, and in conformance with that used in Hu (2009) and Mantravadi, Reddy (2008), and Sinha, Brown, and Das (2015) is replicated. The following model used is:

$$CAR_{it} = a + b_1 UEU_{it} + b_2 UER_{it} + b_3 UET_{it} + b_4 UEI_{it} + b_5 UETE_{it} + b_6 UEH_{it} + b_7 UEO_{it} + b_8 UEB_{it} + b_9 MB_{it} + b_{10} B_{it} + b_{11} MV_{it} + e_{it} \quad (3)$$

Where:

CAR_{it} = Cumulative abnormal return firm i, time t

a = Intercept term

UEU_{it} = Unexpected earnings for firm i, time t, for all utility firms in sample

UER_{it} = Unexpected earnings for firm i, time t, for all real estate firms in sample

UET_{it} = Unexpected earnings for firm i, time t, for all transportation firms in sample

UEI_{it} = Unexpected earnings for firm i, time t, for all industrial firms in sample

$UETE_{it}$ = Unexpected earnings for firm i, time t, for all technology firms in sample

UEH_{it} = Unexpected earnings for firm i, time t, for all healthcare firms in sample

UEO_{it} = Unexpected earnings for firm i, time t, for all oil/gas firms in sample

UEB_{it} = Unexpected earnings for firm i, time t, for all banking/finance firms in sample

MB_{it} = Market to book value of equity as proxy for growth and persistence

B_{it} = Market model slope coefficient as proxy for systematic risk

MV_{it} = Market value of equity as proxy for firm size

e_{it} = error term for firm i, time t

HYPOTHESIS THREE METHODOLOGY

While hypothesis two assess differences in stock prices among acquiring firms engaged in merger and acquisition activities by industry across all sample years, it does not assess any differences associated with time differences in economic cycles. The purpose of this test is to determine if specific industries respond differently during different points in the economic cycle. In order to assess this, a comparison must be made of the relative information content of unexpected earnings to share prices in a cross sectional analysis of the acquiring firms, by industry, involved in merger and acquisition activities for the study periods of 2007-2010 and 2011-2015. Results are then compared to help determine if time, in addition to industry, are factors in determining the effect of stock price changes, thus overcoming the criticism of prior studies by Williams (2010), and Ismail, Abdou and Annis (2011). The following regression model is used:

$$CAR_{it} = a + b_1 D_1 UEU_{it} + b_2 D_2 UER_{it} + b_3 D_3 UET_{it} + b_4 D_4 UEI_{it} + b_5 D_5 UETE_{it} + b_6 D_6 UEH_{it} + b_7 D_7 UEO_{it} + b_8 D_8 UEB_{it} + b_9 MB_{it} + b_{10} B_{it} + b_{11} MV_{it} + e_{it} \quad (4)$$

Where:

CAR_{it} = Cumulative abnormal return firm i, time t

a = Intercept term

$D_1 UEU_{it}$ = Dummy variable for unexpected earnings for firm i, time t, for utility firms in sample (upturn/downturn economic periods)

$D_2 UER_{it}$ = Dummy variable for unexpected earnings for firm i, time t, for real estate firms in sample (upturn/downturn economic periods)

- D_3UE_{it} = Dummy variable for unexpected earnings for firm i, time t, for transportation firms in sample (upturn/downturn economic periods)
- D_4UE_{it} = Dummy variable for unexpected earnings for firm i, time t, for industrial firms in sample (upturn/downturn economic periods)
- D_5UETE_{it} = Dummy variable for unexpected earnings for firm i, time t, for technology firms in sample (upturn/downturn economic periods)
- D_6UEH_{it} = Dummy variable for unexpected earnings for firm i, time t, for healthcare firms in sample (upturn/downturn economic periods)
- D_7UEO_{it} = Dummy variable for unexpected earnings for firm i, time t, for oil/gas firms in sample (upturn/downturn economic periods)
- D_8UEB_{it} = Dummy variable for unexpected earnings for firm i, time t, for banking/finance firms in sample (upturn/downturn economic periods)
- MB_{it} = Market to book value of equity as proxy for growth and persistence
- B_{it} = Market model slope coefficient as proxy for systematic risk
- MV_{it} = Market value of equity as proxy for firm size
- e_{it} = error term for firm i, time t

RESULTS

HYPOTHESIS ONE RESULTS

Results for hypothesis one are indicated in Table 2. The b_1 variable represents the acquiring firms during periods of economic down-turn during the years 2007-2010. Results indicate that there tends to be a significantly negative impact on stock prices of the acquiring firms during these years (-.02, p-value .05), quite possibly as a result of associated high acquisition costs as posited by Hu (2009) and Yen and Andre (2010). The variable b_2 represents the acquiring firms during periods of economic up-turn during the years 2011-2015. Results indicate that there tends to be a significantly positive impact on stock prices of the acquiring firms during these years (.04, p-value = .01). This finding runs contrary to extant research [i.e., Altunbas and Ibanes (2004), Girma (2008), Hu 92009), Wong, Cheung, and Mun (2009)], that indicates minimal to negative stock price impact on acquiring firms. Results do affirm Town (1992) which attributes differing results to a “wave” or economic time period pattern. These results, therefore, help to establish a distinction between high and low economic cycle periods when analyzing merger and acquisition results. Hypothesis one, which states that there are no significant differences in stock price response of acquiring firms engaged in merger and acquisition ac-

tivities between economic cycles must, therefore, be rejected.

In addition, whenever a set of multiple regression variables are employed, there is a probability of the presence of multicollinearity within the set of independent variables which may be problematic from an interpretive perspective. To assess the presence of multicollinearity, the Variance Inflation Factor (VIF) was utilized. Values of VIF exceeding 10 are often regarded as indicating multicollinearity. In the test of hypothesis 1, a VIF of 2.1 was observed, thus indicating the non-presence of significant multicollinearity.

Model: $CAR_{it} = a + b_1UE_{it} + b_2UEU_{it} + b_3MB_{it} + b_4B_{it} + b_5MV_{it} + e_{it}$						
a	b_1	b_2	b_3	b_4	b_5	Adj. R ²
.03	-.02	.04	10	.03	.17	.236
(.42)	(1.89) ^b	(2.29) ^a	(.27)	(.71)	(.19)	

HYPOTHESIS TWO RESULTS

As indicated in Table 3, the earnings response coefficients for below average growth industries are predominantly negative and significant; Utilities (average mean -0.38, p-value .10), Real Estate (average mean -2.29, p-value .01), Transportation (average mean -1.45, p-value .05). The only below average growth industry reporting a positive earnings response coefficient is Industrials (average mean 0.39, p-value .05). With respect to the above average growth industries, earnings response coefficients are positive and significant for each industry; Technology (average mean 3.76, p-value .01), Healthcare (average mean 1.95, p-value .05), Oil/Gas (average mean 2.87, p-value .01), Banking/Finance (average mean 0.48, p-value .10). All other variable are not significant at conventional levels.

These findings supports that of Hu (2009) who finds industry membership plays a role in stock price effect of acquiring firms. In addition, findings also indicate that those acquiring industry firms which have exhibited above average growth rate in recent years appear to generally have a significantly positive effect on stock prices, while acquiring industry firms which have exhibited below average growth in recent years appear to have a significantly negative effect on stock prices. As a result, hypothesis two,

which states that there are no significant differences in stock price response of acquiring firms engaged in merger and acquisition activities when assessed by industry category, must be rejected.

The Variance Inflation Factor (VIF) is again utilized to assess multicollinearity in the regression model. In the test of hypothesis 2, a VIF of 2.5 was observed, thus indicating the non-presence of significant multicollinearity.

Table 3: Stock Price Effect of Mergers and Acquisitions on Acquiring Firms by Industry

Model: $CAR_{it} = a + b_1UEU_{it} + b_2UER_{it} + b_3UET_{it} + b_4UEI_{it} + b_5UETE_{it} + b_6UEH_{it} + b_7UEO_{it} + b_8UEB_{it} + b_9MB_{it} + b_{10}B_{it} + b_{11}MV_{it} + e_{it}$				
Variable	Industry	Average Mean	t-Statistic	p-value
b_1	Utilities	-0.38	2.23	.10 ^c
b_2	Real Estate	-2.29	1.67	.01 ^a
b_3	Transportation	-1.45	1.86	.05 ^b
b_4	Industrials	0.39	1.79	.05 ^b
b_5	Technology	3.76	1.64	.01 ^a
b_6	Healthcare	1.95	1.91	.05 ^b
b_7	Oil/Gas	2.87	1.62	.01 ^a
b_8	Banking / Finance	0.48	2.19	.10 ^c
b_9	Market to BV	0.21	0.48	-
b_{10}	Slope coefficient	0.13	0.79	-
b_{11}	Market value	0.32	0.41	-
a=significant at the .01 level b=significant at the .05 level c=significant at the .10 level				

HYPOTHESIS THREE RESULTS

Table 4 presents the earnings response coefficients by industries and economic period. Results indicate that with respect to below average growth industry firms (i.e. Utilities, Real Estate, Transportation, and Industrials), the coefficients’ average mean are generally negative and significant at conventional levels. However, improvement in results is noted during upturn economic periods and the coefficient is positive for Utilities and Industrial firms during upturn periods. Turning to above average growth

industry firms (i.e. Technology, Healthcare, Oil/Gas, and Banking/Finance), the coefficients’ average mean are positive and significant at conventional levels. In fact, there are no significant differences between the results regardless of economic period. All other variables are not significant at conventional levels.

Model: $CAR_{it} = a + b_1D1UEU_{it} + b_2D2UER_{it} + b_3D3UET_{it} + b_4D4UEI_{it} + b_5D5UETE_{it} + b_6D6UEH_{it} + b_7D7UEO_{it} + b_8D8UEB_{it} + b_9MB_{it} + b_{10}$				
Variable	Industry	Average Mean	t-Statistic	p-value
b_1 Utilities				
Downturn		-1.18	2.19	.10 ^c
Upturn		0.46	0.71	-
b_2 Real Estate				
Downturn		-2.95	1.64	.01 ^a
Upturn		-1.38	1.80	.05 ^b
b_3 Transportation				
Downturn		-1.72	1.59	.01 ^a
Upturn		-0.13	2.29	.10 ^c
b_4 Industrials				
Downturn		-0.67	1.79	.05 ^b
Upturn		1.58	2.19	.10 ^c
b_5 Technology				
Downturn		3.03	1.67	.01 ^a
Upturn		4.97	1.59	.01 ^a
b_6 Healthcare				
Downturn		0.28	1.95	.05 ^b
Upturn		2.15	1.59	.01 ^a
b_7 Oil/Gas				
Downturn		1.55	1.69	.01 ^a
Upturn		3.69	1.57	.01 ^a
b_8 Banking/Finance				
Downturn		0.15	1.76	.05 ^b
Upturn		0.77	1.60	.01 ^a
a=significant at the .01 level b=significant at the .05 level c=significant at the .10 level Downturn periods=2007-2010 Upturn periods=2011-2015				

These findings support both Hu (2009), who attributes differences in merger and acquisition activities to industry membership, and Town (1992) who demonstrates a “wave” effect of merger and acquisition activity by economic period. The findings also extend Town (1992) and Hu (2009) by illustrating that specific industry membership also plays a role in stock price effect. Acquiring firms in above average growth industries appear to have a positive stock price effect regardless of economic period, whereas acquiring firms in below growth industries generally have a negative stock price effect regardless of economic period. As a result, hypothesis two, which states that there are no significant differences in stock price response of acquiring firms engaged in merger and acquisition activities when assessed by industry category and economic cycle, must be rejected.

The Variance Inflation Factor (VIF) is again utilized to assess multicollinearity in the regression model. In the test of hypothesis 3, a VIF of 2.6 was observed, thus indicating the non-presence of significant multicollinearity.

CONCLUSIONS

Town (1992) studied quarterly observations of merger and acquisition activity from 1895 to 1989 and finds that a “wave” pattern exists that is tied to the economic cycle. Hu (2009) finds that results of merger and acquisition activity may be industry-sensitive. This study extends these and other studies by analyzing firms engaged in merger and acquisition activities in eight specific industries during years of economic downturn (2007-2010) and economic upturn (2011-2015).

Results indicate that there is a significantly negative impact on acquiring firms’ stock price when all firms are examined for the economic downturn periods. In contrast, findings indicate a significantly positive impact on acquiring firms’ stock price when all firms are examined for the economic upturn periods. These results support the “wave” findings of Town (1992).

When specific industries are categorized by below average growth (i.e. utilities, real estate, transportation, industrials) and above average growth (technology, healthcare, oil/gas, banking/finance), earnings response coefficients for below average growth industries are predominantly negative and significant, while above average growth industries’ earnings response coefficients are positive and significant. This indicates that investors perceive earnings to be information-enhancing for the above average growth industry firms, and therefore react by bidding up the stock price. The earnings signal for the below average growth industry firms is more noisy and leads to a nega-

tive stock price reaction. These results support the findings of Hu (2009).

In addition, when the below average growth industries and above average growth industries are partitioned by economic downturn and economic upturn periods, results indicate that with respect to below average growth industry firms average mean response coefficients are generally negative and significant at conventional levels. Turning to above average growth industry firms, the coefficients’ average mean are positive and significant at conventional levels. In fact, there are no significant differences between the results regardless of economic period. The conclusion is that during merger and acquisition activities, above average growth industry firms seem to fair better from a stock price perspective than below average growth firms, regardless of economic cycle period.

This information helps to further shed light on the merger and acquisition line of research and is beneficial for managers of all firms considering mergers and acquisitions along with prospective and current stockholders of such firms.

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THINK “IT’S UNETHICAL BUT LEGAL”? EXECUTIVE PAY IN THE CROSSHAIRS

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ABSTRACT

The gap between executive pay at the top of some of our largest American corporations and those who work under them, has widened dramatically in the past several decades. The economic implications of having such a large pay gap between the “haves” and “have-nots” can be staggering, leading not only to economic pain, but also to threatening the peace, stability and security of the nation as well.

Is this drastic difference in pay due to a real difference in talent or has it resulted from some other factor, such as a serious increase in unethical conduct by those running our largest corporations? Has this gaping difference between “pay at the top” and everyone else resulted in lower worker morale across the board and a decrease in productivity among workers? Has it also led to a very myopic outlook by top corporate executives, causing them to sacrifice the long term health and financial results of the company they are leading, in exchange for their own short-term financial gain?

Although corporate executive pay has been skyrocketing for decades, in 2017 there are budding signs that the American legal system is getting geared up again to remind those running some of our largest corporations that there is such a thing as being paid too much. The oft-repeated statement “it’s unethical, but legal” is not true when it comes to executive pay decisions at many of our largest American corporations. This paper will examine how and why corporate executives became so ethically confused on executive pay issues, why it matters, and what’s likely to be the response of the American legal system regarding excessive executive pay – the only question is when and how?

ANGRY, SCARED, AND MAD

Political cartoonist, Bob Gorrell’s State of the Union cartoon dated January 12, 2016 captured the mood of the entire country: angry, scared, mad, upset, worried, confused and frustrated. At the core of this dissatisfaction is the deteriorating standard of living of the American middle class, the bulwark of America’s economic prosperity, peace, stability and security over the long-term. Finally, economic distress in the United States became so pro-

nounced, the pent-up anger and frustration of millions of “ordinary” Americans spilled over into the political arena, sending shock waves across the nation in the Presidential election of November 2016 with the election of Donald Trump.

Over the past four decades, the living standards of the American middle class have eroded while the rich in America have become much, much richer. Millions of Americans are now drowning in debt. Student loan debt

tripled over the past decade to \$1.232 trillion, making it a larger share of household debt than credit card, auto loans, and all other forms of debt, except mortgages.¹ Health care costs for millions of Americans are now staggeringly high. Food stamp usage has skyrocketed from 27 million to 48 million. This extremely high level of debt portends trouble ahead for the U.S. where consumption expenditures accounted for almost 70% of the Gross Domestic Product (GDP). The United States has the greatest income inequality among the developed economies. Financially struggling consumers will find it hard to buy the good and services produced by our giant American corporations.

Wages and salaries as a percentage of the country's GDP have been declining for 40 years because of "the decline of secure work and the explosive rise of wealth and income inequality."² Since the Financial Crisis of 2008, the Federal Reserve's balance sheet has ballooned from \$800 billion to \$4.5 trillion. According to the Labor Department, reported in the Wall Street Journal, the average weekly earnings from production and nonsupervisory workers, adjusted for inflation, peaked in the early 1970s and the real hourly earnings are lower today than they were back in 1972. By the 2000s, the income gap between the rich few and much poorer majority of Americans was the same as it was in 1928, right before the onset of the Great Depression.³ We have already witnessed how stagnant wages leading to increased inequality have roiled American presidential politics in 2016 (the candidacies of Donald Trump and Bernie Sanders).

But not just private households in the U.S. are wallowing in enormous amounts of debt. Our federal national debt, just below \$6 trillion in 2000 has skyrocketed to \$20 trillion. The U.S. national debt is now both dangerous and unsustainable.

FORTUNE 500 CEOs: THE NEW "ROBBER BARONS"?

Over the past four decades those at the top of the corporate food chain have done exceedingly well – so well in fact that in recent years they are now being called "The New Robber Barons".⁴ In recent decades, as ordinary American workers have seen their jobs shipped overseas or replaced by automation and their wages stagnate, CEOs of most of America's top corporations have been given outrageous pay packages reminiscent of the out-of-touch French monarchy and aristocracy right before the bloody French Revolution led to their beheadings. Any nation in which only a small group of people live in extraordinary luxury, while the rest of the population barely has enough to eat, is unstable.

Two recent egregious examples of outrageous executive pay awards are the staggeringly huge pay packages of the CEOs of Yahoo and Google that were reported in 2017. Yahoo's CEO Marissa Meyer, after a "largely unsuccessful five-year effort to restore the internet pioneer to greatness", will walk away from Yahoo (if the sale of the company to Verizon goes through this year as planned) with more than \$200 million in compensation.⁵ Google CEO Sundar Pichai was awarded \$199 million worth of shares, making him the highest paid American CEO. In total, he has now received \$650 million in company stock.⁶

Is this the new normal? In 1978, CEOs earned 30 times that of the average employee; now CEOs at our top organizations are paid 276 times as much.⁷ The modern rise of these "new robber baron" corporate CEOs and their outsized pay packages coincided with the stagnation of the wages of working Americans employed by these giant corporations. Coincidence? Maybe not.

Before the 1980s, a CEO's pay was based on how others got paid in the same organization known as 'internal equity'. However, in the 1980s, a "winner-take-all" attitude took hold in our largest corporations. CEO pay became based on their peer CEOs at other large corporations, dubbed as 'external equity.' On top of that, CEOs were given additional bonuses as "incentives" to do what they were paid to do in the first place. Corporate Boards of Directors, responsible for setting CEO pay, began tying these CEO bonuses to financial targets, such as stock prices, which could be easily manipulated. Excessive executive pay began right about the same time as wages for the "ordinary" workers began to stagnate.

A major factor often overlooked in the cause of the development of excessive executive pay, is that these outrageously high executive pay packages coincided with a serious breach of mandatory ethical standards required under traditional ethics-based American Rule of Law.

CAPITALISM REQUIRES MORALITY

Some experts and academics believe the huge wealth disparity between the top 1% of Americans and everyone else is a natural by-product of greed that is an inevitable by-product of a capitalist economy. However, this is not true. While capitalism is, in fact, the only economic system that has brought the most economic benefits to the most people over the long-term, capitalism only "works" over the long-term if it includes an essential non-negotiable ingredient – MORALITY.

Flawed capitalism, that is, capitalism without morality, is responsible for unleashing the unbridled greed and the "winner-take-all" mentality that had led to the extreme

income disparities we have today. This phenomenon of extreme pay at the top of our largest corporations has happened before in American history. Flawed capitalism – that is, capitalism without morality – was also rampant in the 1920s. That is why the extreme income disparities in the U.S. in 2007 were the same as they were in 1928, right before the onset of The Great Depression.⁸

The moral behaviors required for a successful free capitalist economy and society over the long-term are not the squishy, "you get to make it up as you go along" morality that has been so often taught in our schools and universities over the past four decades. The morality required for long-term successful capitalism, capable of successfully spreading the wealth to a majority of the population, requires clear, bright-line standards of right and wrong (ethical) behavior. Here's why.

Every country in the world, to remain an independent and successful nation, must be able to do the same four things *at the same time*. Each nation must be able (1) to maintain a successful economy that can feed its population and enable its people to obtain the basic necessities of life; (2) to live and work peaceably together; (3) to provide a stable political system, and (4) be able to protect its people from both external and internal security threats.

RIGHT behavior creates a stable economy, peaceful society, stable political system and security for the nation and its people. WRONG behavior does just the opposite. Wrong behavior creates a failed economy, people that fight among themselves, an unstable political system, and insecurity from internal and external threats. There are only two ways to accomplish these four mandatory tasks of a successful nation – trust or force. When it comes to enforcing right and wrong (ethical) behavior in countries around the world, there are only two ways to do it: TRUST or FORCE. Trust requires that countries be able to create and maintain a culture of trust through *effective* Rule of Law. Force means dictatorship, where the power of the government is used to force its citizens to comply eg. China.

In a capitalist economy, trust is a mandatory requirement. Thus,

- Morality is knowing the difference between right and wrong; that is, the right conduct that creates a successful economy, peaceful society, stable government and secure nation. Wrong behavior does just the opposite;
- Ethics, is a voluntary code of conduct that recognizes the difference between right and wrong; and
- Law, is the enforcement mechanism that recognizes the difference between right and wrong.

In other words, in the context of understanding successful capitalism, morality, ethics and law overlap like Venn diagrams, sometimes intersecting and overlapping more and sometimes less, depending on various factors. During boom times and periods of great technological advancement that requires creativity, flexibility and innovation (which sometimes last decades) legal enforcement of the essential ethical standards required for long-term successful capitalism and a peaceful, stable, and secure, society is very lax. Conflicts of interest, self-dealing and outright fraud are allowed to flourish.

However, tolerating unethical conduct over a long period of time inevitably leads to economic, social, political and security failures. When that occurs, an angry American public can swiftly elect different leaders with the mandate to institute swift and painful enforcement of these ethical standards seemingly "overnight". This is the only way to restore trust quickly enough to re-establish an effective free capitalist economy that supports a majority of the population being middle class, an essential requirement for a prosperous, peaceful, stable and secure free nation. Any society in which a tiny fraction of people are exceedingly rich, while the majority of the population is poor, is a recipe for trouble. Wide disparities of wealth such as these have been the seeds of violent revolutions time and time again throughout history.

By definition, a free society like the United States can only remain free if it is able to keep and maintain its essential culture of trust, developed and honed over centuries. This culture of trust is required both for our free, prosperous capitalist economy and our free, stable, secure and peaceful society over the long-term.

AMERICA'S ESSENTIAL CULTURE OF TRUST

The roots of America's long-standing and well-established culture of trust, deeply embedded in ethics-based American Rule of Law, can be traced back to the first Christian Anglo-Saxon king who established Rule of Law in Britain nearly 1400 years ago. British Rule of Law principles were followed in the United States even after the American Revolution in the late 18th century. Unlike other violent revolutions in history (e.g. the French Revolution, the Communist Russian Revolution, and the Communist Chinese Revolution), the American Revolution did not overthrow everything that came before. Instead, Americans continued to use centuries-old British Rule of Law principles as the foundation for our own unique brand of American Rule of Law that is unlike any other legal system in the world.

Ethics-based American Rule of Law, in contrast to today's American Rule of Lawyers and Bureaucrats, is based on 10 simple ethical principles (the 10 Commandments of Trust). In their simplest form, these ethical principles are: (1) tell the truth, (2) be fair, (3) be loyal, (4) be careful, (5), be accountable, (6) observe private property rights, (7) respect people, (8) keep promises, (9) be a REAL leader, and (10) enforce 1 through 9.9 However, although these ethical principles are simple and easy to understand, they are implemented in very specific ways under ethics-based American Rule of Law, not according to individual interpretations of what each ethical principle means.

Several of these ethical principles of ethics-based American Rule of Law (the 10 Commandments of Trust) figure prominently in explaining how executive pay became unhinged. Failure to adhere to these simple, clear and non-negotiable ethical principles required to create the required culture of trust that is the foundation for a successful free, capitalist economy. Behavior that violates any of the ten established ethical principles under American Rule, is "illegal", even when those behaviors have been tolerated for decades. Many Americans will be caught completely off-guard by how swiftly American law can "change on a dime" to re-establish our essential culture of trust quickly, especially in a serious crisis or national emergency.

LEGAL & ETHICAL FRAMEWORK FOR EXECUTIVE PAY DECISIONS

NO CONFLICTS OF INTEREST

One of the most important ethical principles under American law is the ethical principle that corporate officers and directors have a fiduciary duty of loyalty to the corporation when carrying out their corporate responsibilities. This ethical principle is based on the biblical principle that "you cannot serve two masters at the same time". What is sometimes difficult for a lay person to understand is that for purposes of legal analysis and enforcement, a corporation is a separate and distinct "legal person".

This ethical principle of duty of loyalty means that corporate executives and members of the corporate Board of Directors must not have any conflicts of interest. However, this clear ethical standard began to be blurred around 1979, when Gordon E. Moore, the co-founder and CEO of Intel Corporation, a giant manufacturer of microprocessors, took on the additional role of acting as the Chairman of the Board of Directors at the same time. By definition, the same person taking on the role of the CEO and the Chairman of the Board of Directors at the same time is a classic conflict of interest situation. After all, the

role of the Board of Directors is to oversee the operations of the corporation, which by definition includes evaluating the performance of the CEO. So, a CEO acting as the Chairman of the Board, is in the position, whether directly or indirectly, of evaluating his own performance and influencing his compensation as the CEO.

ARM'S LENGTH TRANSACTIONS

To avoid a conflict of interest, transactions must be "at arm's length". This means that one party must not be in a position to unduly influence the other party, Picture two people standing side by side more than an arm's length distance between them so it is physically impossible for them to touch one another. Since they cannot physically touch, one party cannot force the other party to move in any particular direction. Compare that to two people with one person's arm wrapped around the shoulder of the other. Because of their physical proximity, one party could cause the other party to move in a certain direction.

Thus, the argument often repeated to justify today's outrageously high executive pay is that we pay tens of millions of dollars for sports stars and television stars. This is a flawed argument. While it is certainly true that TV stars can make huge sums of money, like Judge Judy being paid \$45 million a year as the star of her own TV show, such an exceptionally large pay package was negotiated at arm's length by independent parties who are not connected with one another and thus not in a position to influence one another.

When a corporate CEO is also acting as the Chairman of the Board, the CEO's compensation package, even when done through intermediaries like compensation consultants or subcommittees of the Board of Director, by definition, these decisions are not made in an arm's length process. The CEO, acting as the Chairman of the Board, is in a position to influence his own pay, whether directly or indirectly – a clear conflict of interest violation under the fiduciary duty of loyalty that both the CEO and the Board of Directors owes to the corporation.

NOT "MAXIMIZING SHAREHOLDER WEALTH"

About the same time that the CEO began taking on the additional role of the Chairman of the Board, a new theory popped up in American business schools that it was the CEO's duty to "maximize shareholder wealth". While this might be a popularly held view, it is not American corporation law. "Rather, it was introduced by a handful of free-market academics in the 1970s and then picked up by business leaders and the media until it became an oft-repeated mantra in the corporate world."¹⁰

All officers and directors of a corporation have three important fiduciary duties to the corporation itself – a separate legal person under American corporation law:

- *Duty of loyalty*: to put the corporation's interests ahead of any other interests, including one's own interests,
- *Duty of care*: to be careful, competent and diligent, and,
- *Duty to account*: to use the corporation's money and assets only for what clearly benefits the corporation, not for the personal benefit of the officers and directors,

Corporate executive and directors do not owe these fiduciary duties to the shareholders. By definition, they can only serve "one master" – the corporation itself, a separate legal person under American law.

Today's modern corporate governance structure began with Berle and Means' classic book, *The Modern Corporation and Private Property*.¹¹ In that book, these authors warned of a serious potential problem: the separation of ownership and control in large U.S. corporations.¹² Thus, when a co-founder CEO like Gordon Moore at Intel took on the added role of the Chairman of the Board, executive pay decisions were held in check because as a co-founder, Gordon Moore was also an owner.

However, when "hired hand" corporate CEOs, without any prior ownership interest in the corporation, also took on the added role of Chairman of the Board of Directors, Berle and Means' concerns about the separation of ownership and control in giant American corporations were realized. Executive pay packages began to reach into the stratosphere. In the late 1990s, Michael Eisner, CEO and Chairman of the Board of Disney and Roberto Goizueta, CEO and Chairman of the Board of Coca-Cola became the first "hired hand" (non-owner, non-founder) CEOs to be paid \$1 billion through salary, bonuses and stock options. Fast forward twenty years later to 2017. As you can see by the CEO compensation of Google of nearly \$200 million in 2017 alone (described above), excessive CEO compensation is still going strong in the United States today

WARNINGS FROM EARLIER SCANDALS

The American legal system can be creative, flexible, innovative, and extraordinarily painful when it becomes necessary to quickly restore the simple and clear ethical standards essential to maintain the American culture of trust required for a free capitalist economy, stable political system, and a peaceful and secure society. This generally

occurs when a financial or economic crash reveals massive corruption on a spectacular scale. This occurred in the scandals uncovered by the 50- 70% drop in stock prices when the dot.com stock bubble burst in 2000-2002.

Richard Scrushy, the former CEO of HealthSouth, was sent to prison for 7 years for bribery. In addition, approximately \$100 million of his personal assets have been seized to pay for a \$2.9 billion personal judgement against him in a shareholders' derivative lawsuit for accounting fraud and breach of his fiduciary duties to the corporation.¹³

Walter Forbes, the former CEO of Cendant Corporation, was sentenced to 12 years and seven months in federal prison and ordered to pay \$3.275 billion in restitution for accounting fraud.¹⁴

BACKLASH BREWING?

As the American stock market has continued its upward trajectory, reaching all-time highs in 2017, corporate CEOs at giant American corporations have continued to be paid staggeringly large sums of money. Talk of bubbles in both the housing market and the stock market abound, warning again of the possibility of serious crashes ahead. Even before another housing or stock market crash has occurred, there are signs that finally, a Board of Directors of at least one giant American corporation, has been forced to acknowledge that something has gone terribly wrong with CEO compensation.

The recent scandal at Wells Fargo, in which 2 million accounts had been opened that were not authorized by its customers, sent shockwaves through the American financial system. This scandal was so egregious that finally the Board of Directors of Wells Fargo imposed a compensation clawback and forfeiture on the bank's former CEO. The bank "clawed back" about \$28 million from its former CEO, John Stumpf, after requiring him to forfeit \$41 million in unvested equity awards before resigning in 2016. So far, Stumpf has lost compensation amounting to about \$69 million.¹⁵

Unethical conduct leads to pain – and a lot of it – the only question is when and how. There are signs that the American public's tolerance of excessive CEO compensation at our largest American corporations has reached a breaking point. However, the full brunt of the public's ire and the extremely painful legal remedies possible under ethics-based American Rule of Law for violat-

ing the mandatory ethical standards of capitalism without morality, will likely be felt full-force in the next market crash, which may not be very far off. CEOs at our giant corporations would be wise to remember now that “the loophole you love today, can and will be a noose around your neck tomorrow”.¹⁶

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EXAMINING THE TRAVEL MOTIVATIONS AND TRAVEL PATTERNS OF PROSPECTIVE CHINESE OUTBOUND TOURISTS

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ABSTRACT

Drawing on a push-pull approach, this study attempts to understand the travel motivations of the Chinese outbound leisure travelers and how the relevant motivational factors influence the pattern of Chinese leisure travelers' travel behavior. The roles played by the key demographic factors in shaping Chinese leisure travelers' behavioral patterns are also examined. Based on previous theoretical contributions, a questionnaire survey is developed to test the proposed research questions in mainland China. The results of the study indicate four principal "push" factor and "pull" factors that have significant influence on Chinese leisure travelers' travel decision making, which is associated with travel period, planned expenditure and preferred hotel class. The findings of this study also suggest that marriage status, education background, income level and occupation are four main demographic factors that impact Chinese leisure travelers' decision making when they plan to travel overseas. Research implications are discussed.

INTRODUCTION

Entering the New Millennium, China's travel and tourism industry has appeared to be continually booming due to the increasingly affluent population and rapid growth of economy. World Tourism Organization (WTO) predicts that by the year 2020, China will rank the number one tourist destination in the world, holding a total number of 3.6 billion domestic tourists, and meanwhile become the number four tourist generating country in the world, contributing 100 million outbound visitors (WTO, 2003; Kong & Baum, 2006). The tremendous Chinese outbound travel market indicates huge business opportunities for multinational tourism and lodging companies. With Chinese outbound tourists increasingly expanding their travel horizons, both Asian and non-Asian countries have been paying attention to this emerging market (Li et al., 2015).

On the other hand, China has been experiencing dramatic economic, social and cultural reform since the Open-Door Policy was taken into effect in 1978. The changing

social values and life styles can exert strong impacts on the preferences and expectations of Chinese leisure travelers when they choose their vacation destinations as well as why they conduct their travel behaviors. It is paramount for lodging firms and tourism industrial practitioners to understand the critical factors that are likely to influence the motivation and behavioral patterns when Chinese leisure travelers establish their vacation plans. Accordingly, this study aims at enriching the contemporary understandings of the factors motivating Chinese leisure travelers to initiate their travel decisions and to choose their travel destinations. It is expected that this study can shed some light on how Chinese leisure travelers' travel decisions and travel patterns are influenced by important motivation and demographic variables.

The objectives of this study are first, to examine the factors that influence the Chinese travelers' travel decisions with respect to "whether to go" and "where to go" through the application of the push-pull framework. The second objective is to explore the relationship between the push-pull factors and specific travel patterns Chinese leisure

travelers prefer when they conduct their travel plans. A third objective is to examine how the differences of demographic backgrounds can influence Chinese leisure travelers' travel decisions regarding "whether to go" and "where to go" as well as their travel patterns.

THEORETICAL BACKGROUND

Travel motivation is a critical concept in understanding why and how individuals make travel decisions to preferred destinations (Kim et al., 2006). A useful and widely applied conceptual framework in examining travel motivation is the push-pull framework (Dann, 1977; Crompton, 1979; Kim & Lee, 2002; Klenosky, 2002; Kau & Lim, 2005). According to this framework, push factors are those specific forces that lead to the decision to take a vacation; while pull factors refer to the forces that lead a potential traveler to select one destination over another once the travel decision has been made (Klenosky, 2002). Correspondingly, push factors can be illustrated as internally generated drives causing a tourist to search for objects, situations and events that can reduce prevalent drives (Gnoth, 1997) and thus can be considered as intrinsic motives (Pan & Ryan, 2007). Pull factors are resulted from the attractiveness of a destination perceived by individuals with the propensity to travel and include both tangible resources and travelers' perceptions and expectations (Uysal & Jurowski, 1994) and thus can be considered as destination attributes representing opportunities by which the intrinsic motives can be met (Pan & Ryan, 2007). From the perspective of decision-making, push motivation is related to "whether to go" while pull motivation addresses the question of "where to go" (Klenosky, 2002).

The push-pull framework has been widely used in the context of travel and tourism research and approved to be an effective tool for investigating the factors that are likely to influence travelers' decisions (Yuan & McDonald, 1990; Turnbull & Uysal, 1995; Cha & Jeong, 1998; Nassar et al., 2015), or for supporting customer segmentation (Cha et al., 1995; Baloglu & Uysal, 1996; Frochot & Morrison, 2000; Jang et al., 2002; Kinley et al., 2012). Although some tourism researchers (e.g. Ryan & Mo, 2001; Kau & Lim, 2005) have applied the push-pull framework to investigate travel motivation of Chinese leisure travelers, their research targets are mainly concerned with those outbound Chinese travelers who are visiting a foreign country. Few of the previous studies have particularly looked at the contemporary domestic Chinese travelers, a certain portion of whom might become international leisure travelers in the future. Moreover, few of existing studies relate the push-pull factors examined with Chinese travelers'

specific travel patterns and personal backgrounds so that further marketing insights can be revealed.

RESEARCH METHODOLOGY

Quantitative research method is used in this study through the application of a structured four-section questionnaire as the research instrument. The first section asks for the preferred destinations by respondents at continental, national and city level. The second section consists of a total of 39 questions probing the travel motivation of respondents in terms of both push factors and pull factors. The development of the study scale is based on the work of Cha et al. (1995) and Klenosky (2002). As visa application and language obstacles are usually special concerns of Chinese travelers when they plan their foreign vacation. The pull scale is extended to include two items with respect to how easy visa can be obtained and what support can be provided to overcome language obstacles from a destination nation. The third section is developed for revealing respondents' travel patterns and the last section asks for respondents' demographic information.

Brislin's (1976) blind translation-back-translation method was used to translate the questionnaire into Chinese and a pilot study was conducted to generate relevant feedback based on which questions were further modified. Four cities—Beijing, Shanghai, Guangzhou and Hangzhou were selected for data collection since these four cities are the most economically developed cities in mainland China and can generate large number of leisure travelers. Furthermore, in consideration of the economic, social and cultural traits of these four cities, the characteristics held by travelers located in these four cities are specifically representative to leisure travelers nationwide. Questionnaire distribution and collection were mainly conducted in the airports and local hotels of these four cities, where leisure travelers are more likely to be centrally located. Data collection process was supported by the management of local airports and hotel properties.

RESULTS

A total of 520 questionnaires were collected during a six-month survey period and out of them 309 appeared to be valid eventually. Given that the measures of constructs in this study are obtained from self-reported data and the analysis needs to interpret the correlations among them, the results may suffer the problem of common method variance (Fiske, 1982). To test potential existence of common method bias, a Harman's one-factor test (McFarlin & Sweeny, 1992) was undertaken during an initial pivot survey before the main survey was started. The presence of multiple factors for both motivation and behavioral pat-

Table 1
Results of Factor Analysis—Push Factors

	Factors			
	Experience & Knowledge	Novelty & Discovery	Activities with Relativez	Relax
Seeing and experiencing a foreign destination	.761			
Seeing as much as possible	.757			
Having fun or being entertained	.750			
Learning new things or increasing knowledge	.742			
Traveling to historical places	.664			
Experiencing new and different life-style	.587			
Reliving past good times	.562			
Indulging in luxury		.735		
Talking about a trip after returning home		.677		
Going places friends have not been		.675		
Being daring and adventuresome		.658		
Rediscovering myself		.472		
Visit places family came from			.730	
Visit friends or relatives			.586	
Sports participation and speculating			.565	
Family togetherness			.538	
Physical activity			.451	
Doing nothing at all				.710
Escaping from the ordinary				.656
Being free to act the way I feel				.589
Feeling away from home				.557
Change from busy jobs				.536
Get away from demands of home				.495
Experiencing simple life-style				.403

tern variables was found, which indicates that common method bias does not pose a serious problem and the main data collection could proceed.

MOTIVATIONAL FACTORS FOR CHINESE LEISURE TRAVELERS

Before the in-depth statistical analysis was carried out, the overall internal consistency of the two scales of travel motivation was tested. The Cronbach's Alpha is 0.838 for "push factor" scale and 0.820 for "pull factor" scale respec-

tively, indicating that the scales developed in this study are sound reliable.

To categorize the motivational factors that can influence China's leisure travelers' decision making and to investigate how the push-pull scale employed can match the research context of this study, the authors conducted a common analysis on the importance ratings of "push" and "pull" factors. The scree plot of eigenvalues indicated that a four-factor solution existed for "push" related motivational factors. Factor rotation using varimax criterion was conducted, creating more interpretable results. The

following criteria for factor extracting were applied. All factors had an eigenvalue greater than one, and each factor explained at least 4% of the total variance in the motivation items. Moreover, only factor loadings greater than 0.4 were included in each factor grouping as loadings less than 0.4 indicate “non-clean” items (Cha, et al., 1995). Correspondingly, the original item “finding thrills or excitement” was removed for loading (0.384) less than 0.4.

An examination of factor loadings (Table 1) suggested four relevant factor labels covering a total of 24 items for “push” related travel motivational factors. These four factors are: experience and knowledge, which is concerned with enhancing personal travel and entertaining experience and enriching knowledge; novelty and discovery, which related to finding new things or places and sharing them with friend; activities with relative, which is concerned with travel on purpose of meeting or uniting friends or family members and taking entertaining activities together, and relax, which refers to the travel activities for the purpose of relaxation from daily life. A detailed statistical summary for these four factors is presented in

A similar approach was conducted to examine the category of “pull” factors that influence on Chinese leisure travelers’ travel decision making. The scree plot of eigenvalues indicated again the existence of a four-factor solution for “pull” related motivational factors. Through applying

Factors	Eigenvalue	Variance Explained	Cronbach’s Alpha
Experience & Knowledge	5.736	22.95%	0.850
Novelty & Discovery	3.206	12.84%	0.778
Activities with Relative	2.119	8.48%	0.708
Relax	1.355	5.42%	0.675

factor rotation and employing the same criteria as those for analyzing “push” factors, four factor labels covering a total of 14 items for “pull” related travel motivations are presented in Table 3.

Table 3 reveals that four “pull” related factors are important for influencing Chinese leisure travelers’ travel decision making especially for those decisions regarding “where to go”. These four factors are destination resources, that are concerned with unique natural or human attractiveness and cultural specialties provided by the potential destinations; service and conditions. These include the

	Factors			
	Destination Resources	Service and Conditions	Cost	Travel Obstacle
places having heritage human resources	.825			
places having natural resources	.769			
places having history and culture I am interested in	.754			
places having novelties	.698			
places enabling fully relax	.574			
places enabling obtaining new knowledge	.570			
places having high level of tourism service		.828		
safe places		.689		
places having good traffic conditions		.682		
places having complete tourism facilities		.651		
low expenditure			.866	
travel cost below budget			.831	
possible of get over language obstacle				.825
possible of getting the visa				.753

Factors	Eigenvalue	Variance Explained	Cronbach’s Alpha
Destination Resources	4.289	30.64%	0.815
Local Service and Conditions	2.059	14.71%	0.758
Cost	1.458	10.42%	0.739
Travel Obstacle	1.225	8.75%	0.699

local environment such as traffic condition, accommodation facilities, service, security; and cost. These are the main concerns for expenditures in the budget plan. Travel obstacles are mainly related to the possible difficulties in language and getting a visa. A detailed statistical summary for these four factors is presented in Table 4.

CHINESE LEISURE TRAVELERS’ MOTIVATIONAL FACTORS AND TRAVEL PATTERNS

Table 5 (on the following page.)presents correlations among motivational factors, travel pattern, and demographic variables in this study. In terms of the preferred travel destinations, the results in Table 5 show that both “push” and “pull” factors do not play very important roles in affecting Chinese outbound leisure travelers’ decision making. Most of the results were not significant. Interestingly, when Chinese leisure travelers think about visiting the US., the two “push” factors, experience and knowledge and relax, and the two “pull” factors, destination resources and travel obstacles seemed to be negatively associated with the degree of this travel inclination. Partial support was obtained from multivariate analysis. The results of multiple regression (Table 6) support that the two “push” factors are good predictors of Chinese leisure traveler’s inclination to visit the US after controlling two behavior variables (travel period and planned expenditure) and two demographic variables (education and geographic region).

Correlation patterns indicate that to enrich experience and knowledge, to find novelty things and destination resources as well as travel cost are associated with Chinese leisure travelers’ decision regarding how long they would like to travel abroad. However, a further multiple regression analysis revealed that only the “push” factor novelty and discovery is a significant predictor of travel time after controlling relevant behavior and demographic variables (see Table 6).

The correlation matrix indicates that none of the “push” or “pull” factors is a good predictor of Chinese leisure travelers. Correspondingly, three behavior variables (length of travel period, preferred hotel class and travel style) and one demographic variable (geographic origin) were included in the regression model. The regression analysis results (Table 6) showed that the three behavioral variables are good predictor of Chinese leisure travelers’ planned expenditure.

Both correlation and regression analysis provide evidence that the “push” factor activity with relative and the “pull” factor cost are negative while the “pull” factor local service and conditions are positively associated with Chinese leisure travelers’ choice of deciding the class of lodging service when they travel abroad. The regression model (Table 6) indicates this finding after controlling the three behavioral variables (length of travel period, planned expenditure and preferred travel style) and two demographic variables (education and annual income).

TRAVEL PATTERNS AND DEMOGRAPHIC FACTORS

One of the objectives of this study is to investigate how the demographic factors can influence Chinese leisure travelers’ travel patterns when they plan to travel abroad. The multivariate analysis of variance was first conducted to examine how each of the seven demographic variables can lead to group differences with regard to three main travel behavioral variables: length of travel time, planned expenditure and preferred hotel class. Multivariate analysis of variance can be employed in this case since the three behavioral variables to a degree share a common conceptual meaning (Stevens, 1992). MANOVA tests indicate that marriage status (Wilks’ Lambda=.961, p=.008), education (Pillai’s Trace=.064, p=.02), annual income (Pillai’s Trace=.188, p<.001) and occupation (Pillai’s Trace=.125, p=.012) can have significantly effect the combined dependant variables. The follow up univariate analysis was then conducted. ANOVA results indicate that the length of travel period significantly differs for marriage status (F=7.785, p=.006) and occupation (F=2.185, p=.035); planned expenditure significantly differs for education (F=3.686, p=.012) and annual income (F=13.147, p<.001); and preferred staying hotel class significantly differs for annual income (F=7.421, p<.001) and occupation (F=2.503, p=.016).

DISCUSSION AND IMPLICATION

In this study, we find that Chinese outbound leisure travelers’ decision making is likely to be influenced by both “push” factors and “pull” factors. Specifically, four

**TABLE 5
CORRELATION OF RESEARCH VARIABLES**

	1	2	3	4	5	6	7	8	9	10
1 continental to travel	1									
2 country to travel	.341	1								
3 city to travel	.209	.457	1							
4 would like to visit USA	.188	.182	.205	1						
5 Experience and knowledge	.043	-.040	-.043	-.202	1					
6 Novelty and discovery	.013	.054	-.043	-.050	.000	1				
7 Activity with relative	.017	.048	.021	.040	.000	.000	1			
8 Relax	-.017	.022	.057	-.155	.000	.000	.000	1		
9 Destination resources	.033	.029	-.001	-.141	.515	-.065	.059	.134	1	
10 Local service & conditions	-.006	.050	.048	-.030	.018	.073	-.015	.175	.000	1
11 Cost	.004	.088	-.005	-.093	.015	-.059	.226	.155	.000	.000
12 Travel obstacles	-.040	.002	.003	-.118	.244	.181	.208	-.005	.000	.000
13 time period of trip	.013	.100	.099	.163	-.163	.198	.027	-.069	-.169	-.030
14 purchase preference	-.029	-.166	-.139	.071	.125	-.100	.063	.005	-.070	-.258
15 preferable destination type	-.009	.042	.033	-.022	.157	-.082	-.012	.031	.162	.027
16 planned expenditure	.088	.140	.120	.200	-.032	.105	.078	-.088	.003	.053
17 preferred hotel class	.072	.124	.061	.037	-.045	.017	-.216	-.028	-.024	.158
18 preferred travel method	.095	.082	.154	-.047	.074	-.051	.125	.221	.154	.098
19 preferred travel style	-.010	.052	.125	.002	.145	-.028	.004	.024	.101	-.017
20 preferred travel destination	.156	.169	.096	-.040	.025	-.014	.048	.103	.036	.014
21 age	.058	-.023	.110	.025	-.099	-.096	.034	.032	-.089	.138
22 gender	.004	.017	-.036	.053	.053	-.078	-.078	.049	.009	.135
23 marriage status	-.008	.006	-.059	-.008	-.007	.062	.025	.052	.138	-.154
24 education	-.072	.021	.039	-.159	.172	-.068	-.102	.072	.240	-.010
25 annual income	.051	.160	.064	.016	.053	-.081	-.051	-.114	.105	.065
26 occupation	.043	.062	-.010	-.009	-.021	.076	-.036	-.147	-.070	-.054
27 geographic origin	.021	.039	.031	.135	.145	.085	.013	-.073	.105	-.067

Note: Cells with a 2 pt border: $p < 0.01$, Cells with a 1 pt border: $p < 0$

**TABLE 5
CORRELATION OF RESEARCH VARIABLES (CONT.)**

	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27
1																	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	
11	1																
12	.000	1															
13	-.133	.060	1														
14	-.022	.049	.031	1													
15	.108	-.088	-.095	-.071	1												
16	-.063	.032	.311	.070	-.101	1											
17	-.214	-.050	.133	-.038	-.099	.272	1										
18	.015	-.004	-.056	.006	.008	.056	-.015	1									
19	-.123	.058	.011	.066	-.011	.243	.144	.636	1								
20	-.012	-.041	.043	.052	.144	.104	.031	.135	.136	1							
21	.057	-.035	-.043	-.005	-.130	.103	-.030	-.081	-.057	-.062	1						
22	.019	-.114	-.047	-.057	-.010	.072	.095	-.087	-.133	.033	.109	1					
23	.016	.043	.157	-.063	.037	-.062	-.022	.126	.014	.065	-.529	-.066	1				
24	-.064	.091	-.074	-.051	.047	.096	.116	.046	.131	.105	.037	.071	-.036	1			
25	-.119	-.106	-.035	.030	-.052	.261	.262	.059	.183	.088	.273	.084	-.315	.269	1		
26	-.069	-.024	.119	.008	-.055	.024	.012	-.020	.024	.049	.105	.092	.014	-.095	.120	1	
27	-.074	.095	.000	.027	.033	.085	-.052	-.005	.043	.028	.010	-.044	.022	.090	-.051	.133	1

Note: Cells with a 2 pt border: $p < 0.01$, Cells with a 1 pt border: $p < 0$

TABLE 6
REGRESSION ANALYSIS OF TRAVEL
MOTIVATION, PATTERN AND DEMOGRAPHIC FACTOR OF
CHINESE LEISURE TRAVELERS

	Propensity to visit USA ¹	Length of travel time	Planned expenditure	Preferred hotel class
Experience and knowledge	-0.083*	-0.063		
Novelty and discovery		0.078*		
Activity with relative				-0.084**
Relax	-0.076*			
Destination resources	-0.035	-0.051		
Local service and conditions				0.054*
Cost		-0.051		-0.055*
Travel obstacle	-0.057			
time of trip	0.085		0.346**	0.065
planned expenditure	0.160**	0.250**		0.105**
preferred hotel class		0.045	0.387**	
preferred travel method				
preferred travel style			0.312**	0.053
age				
gender				
marriage status		0.226**		
education	-0.114*			0.032
annual income				0.080*
occupation		0.02		
geographic origin	0.120**		0.087	
F	6.617**	10.253**	18.766**	9.164**
R ²	0.159	0.224	0.201	0.206
Adjusted R ²	0.135	0.202	0.190	0.184
ΔR ²	0.061	0.044		0.076

be a main factor for travel planning as indicated by this study. As far as external “pull” factors are concerned, it is interesting to find that cost is not the most significant concern when Chinese leisure travelers select their travel destinations. They have been increasingly focused on what attractiveness they can experience from the destination they will visit and whether the local environment can meet their expectations. This indicates that tourism and hospitality companies need to provide these Chinese travelers with improved service to achieve their approval. Language and visa applications still appear to be the main concerns when Chinese leisure travelers plan their foreign

“push” factors identified by this study are enriching experience and knowledge, achieving novelty and discovery, performing activities with relatives and relaxation. Four “pull” factor are destination resources, local service and conditions, cost and travel obstacle. Comparing with previous studies such as Cha et al. (1995), this study indicates that Chinese leisure travelers are more concerned about gaining valuable experience and new knowledge when they plan a foreign trip. Pure relaxation is an important factor that pushes Chinese leisure travelers to make travel decisions, but is not as significant as enriching experience and improving their knowledge base. In traditional Chinese culture, being with family and friends still appears to

trip. This is particularly the case when they choose to visit the U.S.

The results of this study suggest that those Chinese leisure travelers who wish to visit the US are especially concerned with an enriching experience, knowledge, and achieving a high level of relaxation. Some Chinese leisure travelers who would like to stay abroad for a relatively long time might pursue discovering things or getting new experiences. As far as lodging practitioners are concerned, the young Chinese generation that do not respect traditional family and expenditure values as their parents did are likely to choose high class hotels when they travel abroad. On the other hand, once the high class lodging facilities locate in environments where the overall service and travel conditions are superb, Chinese leisure travelers are more likely to stay at those properties when they travel abroad.

This study found that instead of age, gender and geographic origin, marriage status, education background, income level and occupation are more likely to influence Chinese leisure travelers’ decision making. These factors influence how long they would like the trip to be, how much they would like to spend as well as what kind of lodging service they would like to experience. These results indicate that to a certain extent Chinese leisure travelers are still closely held by their social and economic background when they plan a foreign trip. On the other hand, the results also imply that China is experiencing dramatic change and more traditional demographic factors will function in a different way in terms of affecting the formulation of future Chinese travelers’ traveling plans.

Overall, this study sheds light for the international hospitality and tourism practitioners on how to target the increasingly important Chinese outbound tourism market. Though previous literature (Li et al., 2011) has identified some conventional factors that may drive Chinese travelers’ decision-making when they travel overseas, there is a need to re-evaluate established principles given the new phenomenon of the Chinese outbound travelers (Dioko, 2016). The findings of this study suggest ways in which service and marketing can be better designed, managed and delivered for meeting the expectations of the Chinese outbound leisure travelers.

CONCLUSION AND FUTURE RESEARCH

This study aims at revealing some insights for both academic workers and industrial practitioners by particularly examining prospective Chinese leisure travelers’ travel motivation, travel patterns and how they can be influenced by relevant demographic factors. The results indicate that both “push” and “pull” motivational factors and contemporary demographic changes are likely to have profound

impacts on Chinese leisure travelers’ travel behavior. The managers in the travel industry need to understand these impacts and focus on effective strategic reaction so to employ the possible business opportunities and avoid risks. Future research is suggested to extend the framework provided by this study and particularly look at the interactive effects of travel motivation and demographic variables on the travel patterns conducted by Chinese outbound leisure travelers.

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(Endnotes)

1 Inversed scale was used for this variable **. $p < 0.01$; * $p < 0$

THE EFFECT OF ORGANIZATION INNOVATIVENESS ON COMPANY INNOVATION SUCCESS

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ABSTRACT

Recent research on important determinants of company innovativeness has proposed and validated five main dimensions for innovativeness: organization creativity, openness, future orientation, risk-taking willingness, and proactiveness. The primary objective of this study is to empirically confirm each of these dimensions in practice as important to company innovation success. A field test using a mailed questionnaire has been used to test the proposed model. To eliminate possible multicollinearity among the independent variables, a multivariate regression analysis was used. The results provide clear evidence that organization creativity, openness, future orientation, risk-taking willingness, and proactiveness are directly related to company success in business innovation and together help explain a significant amount of the variance in the dependent variable. The items used for measuring the main constructs provide specific insights into what managers should focus on and go about developing these areas within their organizations. The study is strongly grounded in the existing literature and it empirically tests an independently proposed integrated model for the components of organization innovativeness important to business innovation success.

KEYWORDS: Business innovation success, organization creativity, openness, future orientation, risk-taking willingness, and proactiveness.

INTRODUCTION

Organizational innovativeness (OI), aka entrepreneurial orientation (EO), is widely accepted as an essential requirement for business organizations to survive and prosper in the long run (Hurley and Hult, 1998; Hurley, Hult, and Knight, 2005; Siguaw, Simpson, and Enz, 2006; Subramanian, 1996). Previous research suggests that high levels of innovativeness (Deshpande, Farley, and Webster, 1993; Zahra and Bogner, 2000) and proactiveness (Lumpkin and Dess, 2001; Miller and Friesen, 1983) lead to increased organizational performance. Innovativeness is embodied by a strong organizational commitment to “engage in and support new ideas, novelty, experimentation, and creative processes that may result in new products, services or technological processes” (Lumpkin and Dess, 1996: 142).

The relationship between entrepreneurship/innovativeness and firm performance has received considerable at-

tention in the organizational literature over the last several decades (Sandberg and Hofer, 1987; Tang et al., 2008; Todorovic and Schlosser, 2007; Wiklund and Shepherd, 2005). Specifically, scholars have theorized that the incidence of firm-level entrepreneurial behaviors will be positively associated with organizational profitability and growth (Covin, Green, and Slevin, 2006; Covin and Slevin, 1991; Ireland, Covin and Kuratko, 2009; Lumpkin and Dess, 1996). Previous studies suggest that, in certain situations, firms exhibiting high levels of an entrepreneurial orientation (EO) will achieve superior performance to those possessing low levels of EO (Keh, Nguyen, and Ng, 2007; Li et al., 2008; Zahra, 1991). Indeed, studies indicate that increases in firm performance related to EO are sustainable over long periods of time (Wiklund, 1999), but that this relationship may be contingent on the environmental context in which the firm is operating (Lumpkin and Dess, 2001; Zahra, 1993; Zahra and Covin, 1995). Zahra (1996: 189) contended that innovative

behaviors were critical to firm survival, arguing “success in today’s competitive environment requires a company to pursue a coherent technology strategy to articulate its plans to develop, acquire, and deploy technological resources to achieve superior financial performance.”

Porter (1980) posited that, in certain situations, firms could utilize proactive innovative behaviors in order to increase their competitive positioning in relation to other firms. Lieberman and Montgomery (1988) argued that innovative first-mover firms were able to gain significant advantages over follower firms. They defined such first-mover advantages in terms of the ability of pioneering firms to earn higher economic profits through such advantages as technological leadership and increased buyer switching costs (Lieberman and Montgomery, 1988). Given its importance researchers in many areas of study have report a plethora of studies regarding the subject. Most of this research has addressed OI’s from a variety of perspectives: strategic, market, entrepreneurial, organizational learning, company performance, leadership, and other (Deshpandé and Farley, 2004; Gumusluoglu and Ilsev, 2009; Han, Kim, and Srivastava, 1998; Hult, Hurley, and Knight, 2004).

What precisely is company innovativeness and how can one develop such desirable capability has been a challenging pursuit over the last decades. To avoid any conceptual confusion, some studies have specifically differentiated OI from instances of innovation. Siguaw et al., (2006) and Subramanian (1996) highlighted the enduring nature and the need for a consistent ability to innovate over time. Avlonitis et al. (1994) proposed that OI represents a latent capacity of organizations and should not be directly linked with the adoption of specific innovations. To some authors innovativeness is an integral component of organizational culture with innovative capacity being its outcome (Hult et al., 2004; Hurley and Hult, 1998; Hurley et al., 2005). Thus, a company’s capacity to innovate results from its innovativeness and serves as a mediating variable between company innovativeness and competitive advantage and company performance. This capacity can be measured by the number of innovations an organization successfully adopts or develops. As such, innovativeness is not coupled with specific product innovations; rather, it reflects a cultural trait of the organization and the willingness to pursue new opportunities.

In the context of this study, OI is defined as the organizational climate that provides environmental support for the continuous creation of new ideas and products over time (Hurley et al., 2005; Salavou, 2004; Subramanian and Nilakanta, 1996). As defined here we should expect that organizations with higher levels of OI are more likely to implement or adopt a larger number of successful in-

novations (Hurley et al., 2005). Thus, according with the relevant literature, in general OI represents a desirable set of activities that can assume different forms in various organizational contexts (Moos et al., 2010; Siguaw et al., 2006; Wang and Ahmed, 2004). Lumpkin and Dess (1996) posited that OI reflects a company’s tendency to engage in and/or support new ideas, novelty experimentation and creative processes that may result in new products, services or technological process improvements. OI represents the organizational activities that produce visible and tangible innovative outcomes for the organization (Baer and Frese, 2002; Denison, 1996).

Because of the widespread belief that company innovativeness is an important determinant of company effectiveness as innovators and company business performance, some researchers have called for the development of a multidimensional measure for OI representing its complex nature, providing a comprehensive theoretical understanding of this concept and its dimensions. (Moos et al., 2010; Wang and Ahmed, 2004). Wang and Ahmed (2004) conceptualize OI as “an organization’s overall innovative capability” to produce innovative outcomes (p. 304), identifying five areas for innovative outcomes: product, market, process, behavior, and strategic innovation. Moos et al (2010) proposed a two-dimensional, directional perspective on OI differentiating input-oriented from output-oriented directions. Finally, Ruvio, Shoham, Vigoda-Gadot, and Schwabsky (2014) proposed and empirically validated a measure for OI where the construct is conceptualized to represent an organizational climate that facilitates innovative outcomes over time. The five dimensions which were identified and validated empirically are organization: creativity, openness, future orientation, risk-taking, and proactiveness. The primary objective of this study is to confirm each of these dimensions as our theoretical model’s independent variables and determinants of company innovation success. In the following section each of these major independent variables and company innovation success are discussed in more detail.

THEORETICAL BACKGROUND AND PROPOSED HYPOTHESES

DEPENDENT VARIABLE: COMPANY INNOVATION SUCCESS

Business innovation has been studied from a very wide variety of perspectives. Enkel, Gassman, and Chesbrough (2009), among many others, have explored the importance of innovation approaches which emphasize the inclusion of company outsiders. Johannessen, Olsen, and Lumpkin (2001) provided some guidelines for categorizing types of

innovations in terms of what is being changed, how new, and new to whom? While it is important to understand the great variety of perspectives and factors affecting business innovation, this study has a very specific practical focus: The literature prescribing important determinants of business innovation success is grouped into four main areas encompassing strategic leadership, competitive intelligence, management of technology, and specific characteristics of the company’s innovation process (Guimaraes et al, 2016). In this case we propose a model which tests the five constructs comprising OI as a set of determinants for company innovation success. To accomplish that, this study uses a broad definition of business innovation, without specifically measuring details of the innovation process such as if partners were involved, if it created new markets or new sources of supplies, etc.

The rationale for the definition/measure of innovation used here starts with the premise that to derive benefits from strategic opportunities and address problems, companies have to implement innovations to their business processes, products, and/or to the organization itself. This variable represents the degree of company effectiveness in implementing business innovation in these areas. A company’s ability to effectively implement these innovations has a dramatic impact on organization performance and business success (Guimaraes and Armstrong, 1998a).

INDEPENDENT VARIABLE: ORGANIZATION CREATIVITY

Creativity and innovation have often been regarded as overlapping constructs however creativity focuses on the generation of new ideas and innovation focuses on implementing and transforming new ideas into products, processes, and other organization changes (Amabile, 1997). The concept of newness in the context of organization creativity is essential to the concept of company innovativeness because it distinguishes innovation from mere change (Bharadwaj and Menon, 2000). Furthermore, not all new ideas are generated within the organization; some ideas are generated externally and only subsequently are adopted by the organization (Damanpour and Gopalakrishnan, 1998; Woodman et al., 1993). For that reason, the concept of creativity should include the adoption of new ideas imported from outside the company. Woodman, Sawyer, and Griffin (1993) defined organizational creativity as “the creation of a valuable, useful new product, service, idea, procedure, or process by individuals working together in a complex social system” (p. 293). This definition frames creativity as a subset of the broader domain of organization innovation (Amabile, 1997; Bharadwaj and Menon, 2000). Based on the above discussion

we propose H1: Company creativity is directly related to its success implementing business innovation.

INDEPENDENT VARIABLE: ORGANIZATIONAL OPENNESS

This variable refers to the organization’s flexibility and adaptability in responding to new ideas and changes. Organizational openness addresses whether organizational members are willing to consider or resist the adoption of innovations. Van de Ven (1986) referred to this tendency as the management of an organization’s cultural attention toward recognizing the need for new ideas and actions. Hence, organizational openness to new ideas and changes is viewed as a dimension of the OI construct. While some authors viewed openness as a personal level variable requiring individuals to be receptive to new views, tolerating ambiguity, and nontraditional thinking (Costa and McCrae, 1987), many researchers studied openness at the organizational level (Hult et al., 2004; Zaltman, Duncan, and Holbek, 1973). Thus, Hurley and Hult (1998) defined innovativeness in terms of “openness to new ideas as an aspect of a firm’s culture” (p. 44). Based on measures of group member behavior Taggar (2002) found a positive association between openness to experiment and creativity processes. Basically innovativeness within an organization reflects the firm’s fundamental openness to break away from established procedures (Kimberly 1979). A result of this tendency is idea generation, experimentation, and creativity so that new products and processes are developed (Lumpkin and Dess 1996; Tan 1996). Based on this discussion we propose H2: Organization openness is directly related to its effectiveness implementing business innovation.

INDEPENDENT VARIABLE: FUTURE ORIENTATION

This variable represents an organization’s preparedness for future environmental changes and positioning as reaction to such changes as they occur (Ford, 2002; Morgan and Strong, 1998; Venkatraman, 1989). Christensen (1997) described the trade-off between the utilization of knowledge acquired in the past (backward-looking) and the exploration of future opportunities (forward-looking) as the “innovator’s dilemma”. Most organizations tend to rely on past experiences instead of identifying future opportunities to hopefully enhance their competitive advantage (Ford, 2002). A forward looking perspective increases awareness of possibilities and allows managers to more effectively “think outside the box,” thus enabling them to find more innovative solutions to problems (Gavetti and Levinthal, 2000).

The innovation literature differentiates between incremental innovations based on modest changes based on the past compared with radical innovations motivated by future possibilities (Christensen, 1997). Associating companies' future orientation with creativity and innovation, Ford (2002) posited that leaders raising concerns about the efficacy of current company products and processes are actually promoting consideration of longer time frames during the evaluation of alternative proposals, thus promoting creativity and change. Based on the above discussion we propose H3: Company future orientation is directly related to its success implementing business innovation.

**INDEPENDENT VARIABLE:
RISK TAKING**

This variable has been defined by Miller and Friesen (1978) as the "degree to which managers are willing to make large and risky resource commitments." This definition implies that risk-taking affects decision-making processes in resource allocation, the development of competitive strategies (Baird and Thomas, 1985; Morgan and Strong, 2003), and the choices of which new products to develop and in which markets to operate (Morgan and Strong, 2003; Venkatraman, 1989). Researchers have found positive associations among risk taking and other organization characteristics associated with innovation such as proactiveness and openness to innovation (Rauch, Wiklund, Freese, & Lumpkin, 2004).

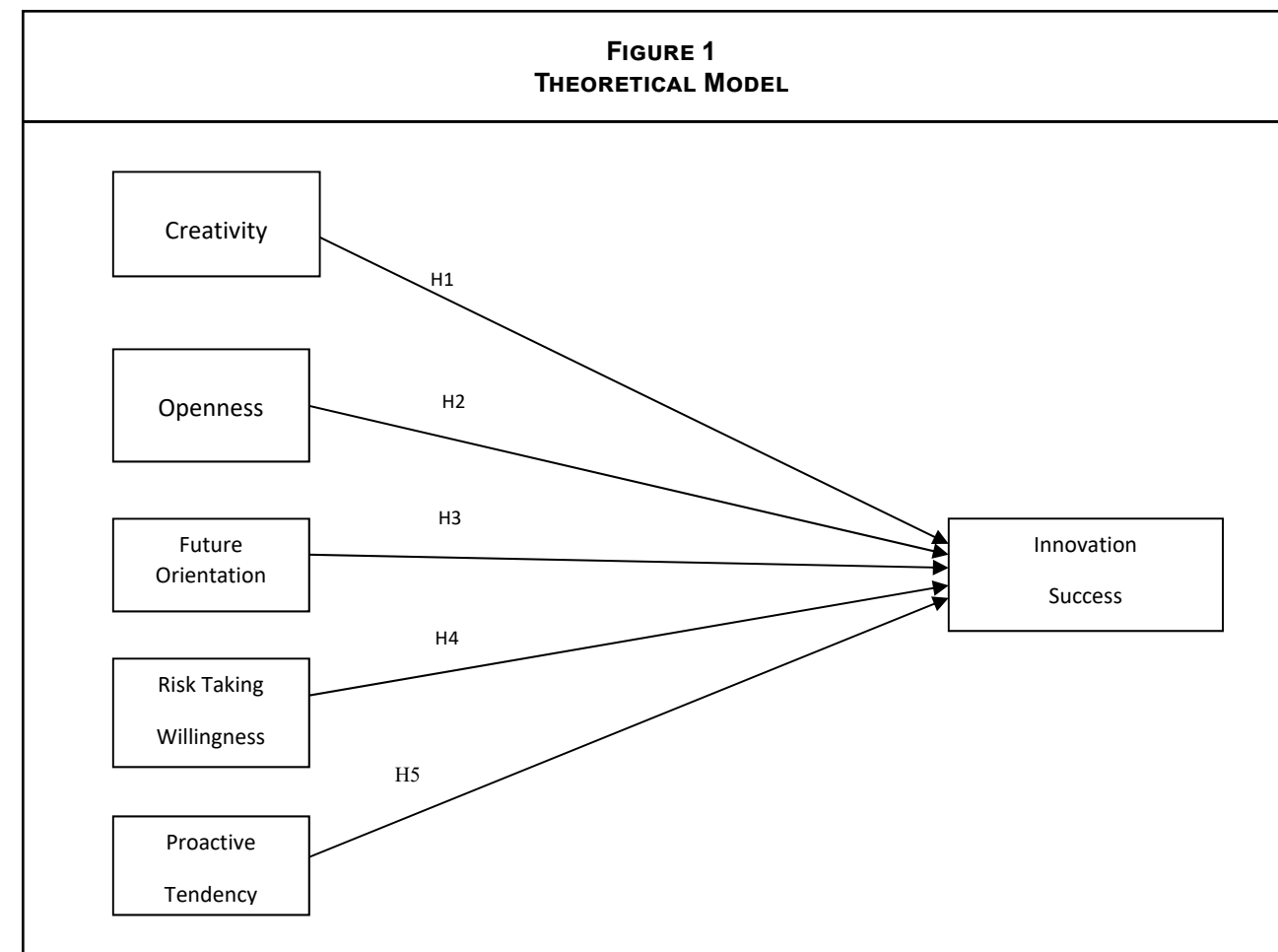
In general, since actual demand for specific products may be still relatively uncertain, companies generating new products based on technological innovations may be taking significant risks. Research on entrepreneurial orientation (EO) has shown that innovative and proactive company strategies are generally associated with risk taking (Lumpkin & Dess, 1996; Lyon et al., 2000). Researchers in EO and agency theory have shared interest in how risk taking affects company performance (Wiklund & Shepherd, 2003; Wiseman & Catanach, 1997). A meta-analysis by Rauch et al., (2004) regarding the relationship between EO and performance showed that across studies they were directly related. Rauch et al. (2004) found that the risk-taking dimension is positively related to performance, even if significantly smaller than other aspects of EO. Developing or adopting innovations is inherently risky because valuable outcomes are not ensured (Caruana, Ewing, and Ramaseshan, 2002; Lumpkin and Dess, 1996). The strategic management literature associates high levels of risk-taking with novelty, such as investing in unexplored technologies or introducing new products into new markets (Lumpkin and Dess, 1996; Rauch et al., 2009; Venkatraman, 1989). Because OI requires the

development of new products or processes, risk-taking is a characteristic of highly innovative organizations. Based on this discussion we propose H4: Company risk taking willingness is directly related to its success implementing business innovation.

**INDEPENDENT VARIABLE:
ORGANIZATION PROACTIVENESS**

This variable represents an organization's pursuit of business opportunities in a broader context than its present conditions (Lumpkin and Dess, 2001; Venkatraman, 1989). Proactiveness enables companies to overcome inertia by taking initiative in exploiting emerging opportunities, in experimenting with changes to products and business processes, and trying to anticipate and act on future company needs (Dess, Lumpkin, and Covin, 1997; Rauch et al., 2009). The management, marketing, and entrepreneurship literatures tend to view proactiveness as central to innovative organizational behavior because of its emphasis on initiating innovation activities early (Dess et al., 1997; Lumpkin and Dess, 1996; Morgan and Strong, 2003).

Proactiveness refers to an organization's attitude or perspective characterized by actively seeking opportunities for introducing business process improvements and new products or services, ahead of competition and anticipating future demand to create change and shape the environment (Lumpkin and Dess, 2001). Because of this relatively higher uncertainty level surrounding proactive action, it requires managers' extra effort convincing employees about the merit of the innovation at hand (Caruana et al., 2002) and makes proactiveness a particularly important component OI (Ruvio, Shoham, Vigoda-Gadot, and Schwabsky, 2014). Companies with strong customer orientation create superior customer value through earlier and more thorough recognition of their target markets' needs (Narver and Slater 1990). Customer needs and wants should be recognized more thoroughly and more quickly than competitors with the firm able to effectively handle the uncertainty existing with these new opportunities. When the opportunity for a competitive advantage emerges, company reaction time is often important. Lengthy reviews of the opportunity typically by less aware and unprepared firms may become detrimental to them. Thus, greater company proactiveness is likely to benefit firm performance. For all the reasons discussed above, we propose the final hypothesis H5: Company proactiveness is directly related to its effectiveness implementing business innovation.



STUDY METHODOLOGY

This section provides an overview of the field-test data collection procedure, a brief description of the sample demographics, a detailed discussion of how the variables were measured, and the data analysis procedures.

DATA COLLECTION PROCEDURE

This field test used an e-mailed questionnaire to collect data from the Internal Auditor Director (IA) of each company. IAs were chosen as respondents because, from a corporate perspective, they are thought to be most aware of the problems and activities throughout the company. Furthermore, the group is relatively homogeneous, a characteristic that strengthens internal validity of the data collection instrument used in the study. We felt that a survey of top managers who are more directly responsible for the corporate culture related independent variables studied here would have greater likelihood of bias. For similar reasons we avoided an opinion survey of lower

level managers more personally involved with specific projects implementing organizational innovations. Many of the questions in the relatively long questionnaire have been used and validated before (Guimaraes et al., 2011) and were combined with new questions related to the OI construct. After some rewording of a few questions following the input from a small pilot test involving three IAs, the questionnaire was distributed by email to the IAs of 2000 organizations randomly selected from a list of approximately 5,600 members of an Internal Auditors Association. The sample represents a wide variety of organizational settings, (i.e. small as well as large companies), from several industry sectors. Participation was voluntary, and the cover letter assured confidentiality of the responses and that only summary information from the participants would be published. The survey was accompanied by two attachments of published reports from previous studies on business innovation management (as a courtesy to prospective respondents). Respondents were asked to return the questionnaire by email directly to the researchers.

SAMPLE DESCRIPTION

Through the procedure just described, 2000 IAs were selected to participate in the study and 303 returned the questionnaire in time for data analysis. Twelve questionnaires were thrown out due to missing data. The remaining 291 usable questionnaires provide a response rate which is acceptable for studies of this type (Teo and King, 1996) and consistent with past experience with mailed surveys (George and Barksdale, 1974; Igbaria et al., 1991). Nevertheless, care was taken to assess the representativeness of the sample. Chi-square tests were used with a sample of non-respondents to check for the possibility of non-response bias. The results of this test support the conclusion that based on company size (gross revenues) and industry sectors the companies in the sample are similar to those in the target sample. The actual sample versus the target sample percentage compositions in terms of primary industry sectors and company gross revenues are presented in Tables 1 and 2, respectively.

VARIABLE MEASUREMENT

Business Innovation Success or company effectiveness implementing business innovation represents the company's ability to alter its business practices in the desired manner. As previously used by Guimaraes and Armstrong (1998a) and Guimaraes et al., (1999), this was measured

by the respondents rating the effectiveness of the firm in changing four areas to address strategic problems and opportunities: products, processes, organization structure and organization culture. This was done in comparison with the closest competing organizations and using a seven-point Likert-type scale ranging from 1=extremely lower than average, 2= much lower, 3 somewhat lower, 4 average, 5 somewhat higher than average, 6 much higher, and 7 extremely higher than average. The ratings for the four areas were averaged to produce a single measure for success implementing business innovation.

Next, consistent with Ruvio, Shoham, Vigoda-Gadot, and Schwabsky (2013), the independent variables were measured using the scale 1=completely disagree, 2=somewhat disagree, 3=neither agree nor disagree, 4=somewhat agree, and 5=completely agree.

Creativity was measured with the scale originally used by Siegel and Kaemmerer's (1978) and Tierney, Farmer, and Graen's (1999). The five item scale was more recently used and validated by Ruvio, Shoham, Vigoda-Gadot, and Schwabsky (2014). The scale assesses the creative thinking and behaviors of the organizations' managers by asking respondents to express agreement/disagreement with the statements: In this organization: creativity is encouraged, managers are expected to be resourceful problem solvers, we are constantly looking to develop and offer new or improved services, our ability to function creatively is respected by the leadership, and managers are encouraged to use original approaches when dealing with problems in the workplace.

Organizational openness, consistent with Ruvio, et al. (2014), represents a subset of the original eight items (the

Industry Sectors	No. of Companies	Actual Sample (n=291)	Target Sample (n=2000)
Manufacturing	87	29.90%	32.80%
Banking	33	11.34%	8.50%
Other	24	8.25%	7.22%
Financial Services	22	7.56%	8.23%
Utilities	19	6.53%	5.81%
Merchandising	19	6.53%	6.10%
Retailers	17	5.84%	5.30%
Health Care	15	5.15%	5.66%
Transportation	14	4.81%	6.30%
Communications	13	4.47%	4.10%
Wholesalers	11	3.78%	3.40%
Insurance	11	3.78%	4.30%
Mining	6	2.06%	2.50%
Total	291	100.00%	100%

Gross Revenues	No. of Companies	Actual Sample (n=291)	Target Sample (n=2000)
Less than \$100M	2	0.68%	0.89%
\$101M-\$300M	8	2.74%	2.10%
\$301M-\$500M	13	4.45%	3.50%
\$501M-\$700M	21	7.19%	8.20%
\$701M-\$1B	29	9.93%	9.00%
\$1B-\$2B	47	16.10%	15.20%
\$2B-\$5B	52	17.81%	18.30%
\$5B-\$10B	67	22.95%	25.90%
Over \$10B	52	17.81%	16.90%
Total	291	100%	100%

four with the highest loading in the original scales and that reflected the perception of this dimension for the interviewees) used by Siegel and Kaemmerer (1978) and by Anderson and West (1998) to measure enacted support for innovation and open-mindedness to new ideas. Respondents were asked to express agreement/disagreement with the statements: This organization: is always moving toward the development of new answers, assistance in developing new ideas is readily available, open and responsive to changes, and managers are always searching for fresh new ways of looking at problems.

Future orientation. This variable represents the extent to which managers have a clear sense of direction and share it with their employees. This scale is based on Javidan and Waldman's (2003) vision dimension of charismatic leadership profile. Consistent with Ruvio, et al. (2014), it uses the four items with the highest loading in the original scale and with the best match to the perceptions of the interviewees. Respondents were asked to express agreement/disagreement with the statements: This organization: establishes a realistic set of future goals for itself, effectively ensures that all managers and employees share the same vision of the future, conveys a clear sense of future direction to employees, and has a realistic vision of the future for all departments and employees.

Risk-taking. This variable reflects the managers disposition toward pursuing uncertain or risky decisions. Four items were selected from Jaworski and Kohli's (1993) 6-item risk-aversion scale. Consistent with Ruvio, et al. (2014) the four items with the highest loading in a previous Israeli study were selected (Rose and Shoham, 2002). Respondents were asked to express agreement/disagreement with the following statements: This organization: believes that higher risks are worth taking for high pay-offs, encourages innovative strategies, knowing well that some will fail, likes to take big risks, does not like to "play it safe."

Proactiveness. Originally Covin and Slevin's (1989) used this scale to measure the degree to which managers possess a proactive orientation. It included two reversed items, emphasizing "nonproactiveness." Consistent with Ruvio, et al. (2014), based on a pilot study these items were rephrased to reflect a proactive tendency. Further, one multifaceted item was split into two. Respondents were asked to express agreement/disagreement with the following statements: In this organization: managers are constantly seeking new opportunities for the organization, managers take the initiative in an effort to shape the environment to the organization's advantage, managers are often the first to introduce new products and services, and managers usually take the initiative by introducing new administrative techniques.

CONSTRUCT VALIDITY

Several precautions were taken to ensure the validity of the measures used in this study. The independent variables were a priori thoroughly validated by Ruvio, Shoham, Vigoda-Gadot, and Schwabsky (2014). Also, many of the recommendations by Carmines and Zeller (1979) were followed. To ensure content validity, a thorough survey of the relevant literature was undertaken to understand the important aspects of each major variable and its components, and not neglect important dimensions of any variable. To further reduce the possibility of any non-random error, the main source of invalidity (Carmines and Zeller, 1979, p. 15), a group of four practitioners from different companies with extensive experience in managing business innovation reviewed the questionnaire for validity (measuring the phenomena intended), completeness (including all relevant items), and readability (making it unlikely that subjects will misinterpret a particular question). Some questions were reworded to improve readability; otherwise, the items composing each major variable remained as derived from the literature.

As proposed by Carmines and Zeller (1979), "construct validation focuses on the extent to which a measure performs in accordance with theoretical expectations" (p.27). To ensure construct validity, the theoretical relationships between the constructs should have been previously established, and these relationships hopefully have been empirically supported by different studies over time. As discussed earlier, the theoretical underpinnings of this study are relatively well established, with most of the items in each construct having been addressed before by several authors

CONSTRUCT RELIABILITY

The measures for every construct relevant to this study have been used and validated independently before their internal reliability was retested here. Carmines and Zeller (1979) identified four basic methods to assess a measure's reliability (re-test, alternative-form, split-halves, and the internal consistency methods) and discussed their strengths and limitations. The main advantage of the internal consistency method is that it requires a single test, in lieu of splitting or repeating of items. "By far the most popular of these reliability estimates is given by Cronbach's alpha" (Carmines and Zeller, 1979, p.44) which "in most situations provides a conservative estimate of a measure's reliability" (Carmines and Zeller, 1979, p. 45). The authors go on to say "that although more complex computationally, alpha has the same logical status as coefficients arising from the other methods of assessing reliability."

Several authors have proposed different acceptable levels of reliability coefficients. For example, Nunnally (1978) suggested a coefficient of 0.50 or higher would suffice. Srinivasan (1985) and Magal et al., (1988) contended that when using a not validated data gathering instrument in exploratory research, a reliability coefficient of 0.5 or higher is acceptable. Van de Ven and Ferry (1980) posited that in this type of research even a value of 0.4 or higher will be sufficient. In our case, the reliability coefficients of all the factors were higher than 0.70, which was proposed by Peterson (1994) as useful for more rigorous studies. As Table 3 indicates, the internal consistency reliability coefficients (Cronbach's alpha) for the scales used in this study are all well above the level of 0.50 acceptable for exploratory studies of this type (Nunally, 1978).

DATA ANALYSIS PROCEDURES

The average and standard deviation for each item in the questionnaire were computed. Confirmatory factor analyses for the items in each main variable were conducted as the basis for their validation and as a prerequisite for assessing their internal reliability through the Cronbach's alpha coefficients presented within parentheses in Table 3. To test the proposed hypotheses, Pearson's correlation coefficients between the major study variables were computed and presented in Table 3. To identify the separate impact that each proposed component of organization OI may have on the dependent variable business innovation success, they were processed separately in this analysis. Because of the possibility of multi-collinearity among the independent variables, a stepwise multivariate regression analysis was conducted to assess the extent to which each independent variable incrementally contributes to explaining the variance in the dependent variable. The multivariate regression analysis results are presented in Table 4.

	Mean	Std. Dev.	1	2	3	4	5	6
1. Innovation success	4.22	1.49	(.74)					
2 Organization creativity	2.98	1.11	.39**	(.88)				
3. Openness	3.12	0.98	.34**	.42**	(.87)			
4. Future orientation	3.19	1.17	.18**	.25**	.20**	(.83)		
5. Risk taking	3.16	1.16	.23**	.27**	.22**	.36**	(.85)	
6. Proactiveness	3.03	1.02	.28**	.31**	.41**	.44**	.37**	(.89)

Numbers in parentheses diagonally) are Cronbach's alpha reliability coefficients.
* means p<.05, ** means p< .01

RESULTS

Table 3 lists the means and standard deviations for the main research variables. As a group, in comparison with their main competitors, the companies in the sample are thought to be performing slightly above average implementing business innovation and along the five dimensions comprising organization innovativeness. The relatively large standard deviations indicate significant differences along all the major variables from company to company.

To test hypotheses H1-H5, Pearson's correlation coefficients were computed and also presented in Table 3. All five independent variables show a direct relationship to success in business innovation, as defined in this study. Thus, based on these correlation coefficients, all five hypotheses are found significant at the 0.01 level or better. Because of the possibility of collinearity among the independent variables, a stepwise multivariate regression analysis was conducted to assess the extent to which each independent variable incrementally contributes to explaining the variance in the dependent variable. Table 4 shows that, dependent on the sequence in which the independent variable entered the regression equation, organization creativity explained 15 percent of the variance in innovation success. The next three independent variables cumulatively explained another 20 percent of such variance with each independent variable making a contribution significant at the .05 level or below. The cumulative contribution from orientation toward the future in this case was not significant.

CONCLUSIONS, RECOMMENDATIONS AND FUTURE RESEARCH

The results provide significant evidence regarding the importance of the five components of OI to the success of

Dependent Variable: Innovation Success	Incremental R-Squared	Significance Level
Independent Variables*:		
1. Organization creativity	.15	.00
2. Openness	.10	.00
3. Proactiveness	.06	.01
4. Risk taking	.04	.05
4. Future orientation	.02	.08
Total Variance Explained With Significance Level Less Than .05	.35	.

* In the sequence in which they entered the regression equation.

business innovation including new products, improved business processes, improved organization structure and/or culture. Given the importance of effectively implementing business innovation in these days of hyper competitiveness, it behooves top managers to do whatever they can to improve their company's performance in the areas of organization creativity, openness, proactiveness, willingness to take risks, and orientation to the future.

To improve organization creativity top managers should encourage, be supportive and expect personnel to be resourceful problem solvers, to be constantly looking to develop and offer new or improved product and services, to perform their jobs creatively and using original approaches to solve work related problems whenever possible. To increase organizational openness managers should be attentive that the organization as a whole and its employees are always moving toward the development of new answers, assisting in the development of new ideas, readily available to cooperate and open to new ideas and changes, and that managers are always searching for fresh new ways of looking at problems and opportunities. To improve the organization orientation toward the future, managers must ensure that only challenging but realistic goals are set for individuals, departmental units, and the organization as a whole, that all managers and employees share the same vision of the future, that managers conveys a clear sense of future direction to employees, and that the organization has a realistic vision of the future for all departments and employees. To improve risk taking managers must create an environment where risk management becomes an integral part of planning and project management. An organization culture where employees understand that higher risks are worth taking for higher payoffs, and managers encourage and support innovative strategies, knowing

well that some ideas will fail, and that it is ok to take big risks, and not necessarily play it safe. Last, to improve proactiveness managers must be committed to be constantly seeking new opportunities for the organization, taking the initiative in an effort to shape the environment to the organization's advantage, being continuously prepared to introduce new products and services, and taking the initiative by introducing new and more effective administrative policies and techniques.

The model tested in this study represents a major contribution to the literature because it was based on an extensive survey of the relevant literature and produced a new and improved measure for OI. This study is a first attempt at empirically testing the importance of the OI component variables as determinants of the company success in business innovation including new products, improved business processes, improved organization structure and/or culture. While their importance has been corroborated, the model tested here may need to be expanded to include other factors potentially important to business innovation success.

Another important contribution from further research would be the identification and empirical testing of other variables which might moderate the relationships between the independent variables and success in business innovation. Indeed, prior research suggested that the sub-dimensions of OI (a.k.a. innovation or entrepreneurial orientation) may have differential relationships with other important organizational variables including another important dependent variable: organization performance (Kreiser, Marino, and Weaver, 2002; Lumpkin and Dess, 1996). In this case the study would extend existing conceptualizations of OI or entrepreneurial orientation by

developing a prescriptive model of the relationship between the sub-dimensions of entrepreneurial orientation and firm performance.

Last, Rauch et al. (2004) found that the risk-taking dimension is positively related to performance. This led them to suggest that the link between risk taking and performance is less obvious than the one between proactiveness or innovation and performance (Rauch et al., 2004). Specifically, the relationship between risk taking and performance seems to vary with context. Perhaps the use of path analytic modeling techniques would be applicable for these studies involving more extensive models. The results should provide valuable information on other possible determinants of two very important constructs of company innovation success and business performance.

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TO IMPROVE FINANCIAL REPORTING, WE NEED TO DISCLOSE MORE RELEVANT INFORMATION

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ABSTRACT

The goal of financial reporting is to provide useful information for decision makers. Effective financial reporting is essential for efficient financial markets and provides transparency and accountability. Globally, there are two primary financial reporting systems. The United States, uses generally accepted accounting principles (U.S. GAAP). Outside the United States, the rest of the world uses international financial reporting standards (IFRS). Both systems require both financial and non-financial disclosures for companies that issue financial statements.

One required disclosure for both GAAP and IFRS is for companies to calculate earnings per share (EPS). This is an important financial ratio, but it is not the only important financial ratio. However, it is currently the only financial ratio that is required in company annual reports both in GAAP and in IFRS. In this paper, we recommend additional financial disclosures including a recommended set of financial ratios. These additional disclosures would be inexpensive but would provide relevant additional information to investors and thus would improve the quality of financial reporting.

INTRODUCTION

It is inconceivable that accounting data can be analyzed without transferring it into ratios, in one way or another... (Horrigan, 1965, p. 568)

The financial reporting process is an important element of the global economy. The goal of this process is to provide effective financial information that is useful for decision making. Investors rely on this financial information that is provided principally by the companies that issue investable securities. Investors need confidence that the financial reporting process provides reliable and sufficient information for many types of financial decisions.

The two major organizations that set accounting standards are the Financial Accounting Standards Board (FASB) in the United States and the International Ac-

counting Standards Board (IASB) in 125 countries globally. The FASB creates standards collectively known as generally accepted accounting principles (GAAP), while the IASB standards are called international financial reporting standards (IFRS). Both systems require many financial and non-financial disclosures included with company financial statements.

Recently, regulators at the Securities and Exchange Commission (SEC) and the FASB have been concerned with the rise of voluntary disclosures known as non-GAAP disclosures. These non-GAAP disclosures can include calculations such as adjusted revenue, adjusted net income, adjusted EPS, EBITDA (earnings before interest, taxes, depreciation, and amortization), and free cash flow. Non-GAAP disclosures are not just a U.S. phenomenon. These

disclosures are termed alternate financial measures in the IFRS world (Papa & Peters, 2016).

Non-GAAP financial measures, or alternate financial measures, start with a GAAP (or IFRS) number and adjust it either up or down to create a new metric (Shumsky, 2016). These numbers are becoming increasingly used by companies in reporting their financial results, causing increasing concern with regulators (Rapoport, 2016), with some regulators accusing companies of 'tailoring' their results with aggressive accounting practices (Rapoport, 2017). Companies counter with the argument that investors are demanding this information and these metrics have become important performance measurements (Morgan, 2017).

Companies can also provide other voluntary disclosures of information that they believe will be useful for investors. These disclosures can be called key performance indicators (KPI's) and can include sales per square foot, same store sales, and sales per customer (Papa & Peters, 2016).

Another type of voluntary disclosure that companies can provide is the presentation of financial ratios. Normally, financial ratios are not included in the category of non-GAAP disclosures and are usually considered as KPI's, but since they are built either on GAAP numbers or non-GAAP numbers, they should be included in the discussion of non-GAAP disclosures. Currently, the only financial ratio that is required in GAAP is earnings per share, with its two variations, basic EPS and diluted EPS (FASB ASC 260). However, other ratios can be provided by a company, but there is no standard for financial ratio disclosure in terms of the name, the formula, or the selection of which ratios to provide. For example, a company could report its return on assets (ROA) using a numerator that is net income, a GAAP number, or with adjusted net income which is a non-GAAP metric. Companies do not have to disclose the formulas or the numbers used in any financial ratios. It is logical to conclude that any financial ratio that uses a non-GAAP number in its calculation must itself be a non-GAAP disclosure.

Williamson demonstrates that companies only choose to provide financial ratios when they have higher and therefore more favorable values over non-reporting companies (Williamson, 1984). This implies that financial ratios only are presented when their addition is deemed to be positive and they are excluded when there are negative results. Since the companies are not required to report financial ratios except for EPS, their inclusion or exclusion in an annual report sends a signal. Therefore, financial ratios that are deemed positive for a company are more likely to be presented, while unflattering ratios would be omitted. This is the equivalent of a company only showing net income when positive and always omitting any net loss.

Several recent studies have investigated the concept of financial ratios as voluntary disclosures in the UK (Watson, Shrives, & Marston, 2002), in India (Bhatia & Dhamija, 2015), and in Malaysia (Abdullah & Ku Nor Izah Ku, 2008). The common theme of these studies is that while most companies disclose some financial ratios, the practice varies widely in what ratios are disclosed, how they are presented and how they are calculated. Watson, et al concluded:

...users of financial statements would benefit from a standardisation of practices, allowing users to compare the financial performance of companies with greater ease. An accounting standard on disclosure and measurement of ratios could help in this regard, and bridge the 'understanding gap' between users and preparers (Watson et al., 2002, p. 311)

This paper recommends that both GAAP and IFRS should be amended to require a standardized set of financial ratios. This will increase the quality of information included in financial reporting and provide information that investors clearly want with minimal additional cost.

FINANCIAL RATIOS

Financial ratios were created in the late 19th century and the early 20th century primarily by bankers for use in making credit decisions (Horrihan, 1968). In 1919, Wall first published an industry study that used seven financial ratios to analyze 981 firms. This study was designed for bankers' credit analysis and decisions (Wall, 1919). Wall's study was the beginning of the Risk Management Association's Annual Statement Studies, published annually since 1925 (RMA, 2014). The results of these annual studies were specifically designed for credit decision by bankers, who were the constituents of the RMA. This is an example of one industry developing financial ratios to improve financial analysis and decisions.

In 1919, the du Pont Company began to use its 'triangle' system of financial ratios that included return on assets, net profit margin, and total asset turnover ratio (Horrihan, 1968). This became an important tool used by analysts inside and outside the company. By the 1920's, there were also influential financial analysis books reaching a wider audience with titles like *Financial and Operating Ratios in Management* (Bliss, 1923), *Analyzing Financial Statements* (Gilman, 1925) and *Ratio Analysis of Financial Statements* (Wall & Duning, 1928). Financial ratios were being used by more professionals in more industries.

In 1926, Littleton observed the increasing interest in financial ratios. In an article in *The Accounting Review*, he

referred to them as "balance sheet ratios" and suggested that company ratios should be compared to "standard" ratios or what today are called industry averages. He argued for the desirability of standard financial ratios which would require homogeneous financial information to allow for the ratio calculation. He recognized this was easier in theory than in practice. He observed that this would happen only by government fiat or by the cooperation of the financial professionals (Littleton, 1926). Remember, this was a decade before formal financial reporting standards began. He did not envision the creation of the standard-setting bodies to come.

In his paper, Littleton created a sample form to be completed voluntarily by every company to report financial ratios. This list requested 17 different ratios including current ratio, total asset turnover, net profit margin, and return on assets. The idea was that all the ratios could be averaged by industry, size of company, year, and region of the country (Littleton, 1926). The importance of this article was that financial ratios were not only accepted for a specific purpose, such as credit analysis by bankers, but were deemed useful by financial professionals in general and assumed to be suitable for both internal and external analysis and decisions.

The 1930s saw the beginnings of Dun & Bradstreet collecting and printing industry averages, led by its influential author Roy Foulke. He developed fourteen important financial ratios that became the basis of the Dun & Bradstreet industry averages beginning in 1933 (Horrihan, 1968). Because of their widespread acceptance, Foulke declared in a 1937 *Journal of Accountancy* article that financial ratios had "become of age" (Foulke, 1937).

In the 1960s, financial ratios were used in several important studies to predict business failure. Both Beaver and Altman published seminal studies using financial ratios as predictors of failures. Beaver found that the Cash Flow to Debt ratio was the most useful ratio for predicting business failure (Beaver, 1966). Beaver later demonstrated that financial ratios are useful to predict failure for five years before the event (Beaver, 1968a) and that investors rely on financial ratios as predictors of failure and the ratios are poorer for failed companies (Beaver, 1968b). Altman created the famous Altman's Z-score model to predict failure. This model prominently included return on assets (ROA) and total asset turnover (Altman, 1968).

The use of financial ratios is widespread. The original RMA study in 1919 that analyzed 981 company financial statements now includes over 260,000 companies organized into industries (Risk Management Association, 2016). Financial ratio preparation and analysis is also recommended for beginning business students even in the very first accounting course (Huefner, 2002). College

business textbooks now have extensive coverage of financial ratios. Business textbooks across the disciplines of accounting, finance, management, and marketing illustrate on average about 18 separate financial ratios (Mankin & Jewell, 2014). Interpreting financial ratios is also recognized as an important skill for CPA candidates to prepare for careers in accounting (New York State Society of Certified Public Accountants, 2008). Financial ratios are now a long-accepted component of financial literacy.

The development and use of financial ratios began based on the need of investors and creditors to analyze company financials. The further development of the ratios occurred because they met investors' needs. However, because there are not any standards for financial ratios, there is a wide range of ratios available. This lack of standardization means that there is not a common name or formula for many common ratios. This makes ratio analysis difficult for beginning business students and novice investors.

THE SPECIAL CASE OF EARNINGS PER SHARE

The first accounting standard-setting body in the United States was the Committee on Accounting Procedure of the American Institute of Accountants (now American Institute of Certified Public Accountants). Its first standard was issued in 1939. These standards did not create an entirely new financial reporting system, rather they amended and expanded the current reporting system (Committee on Accounting Procedure (CAP), 1939). The financial reporting system included existing practices such as double-entry accounting, naming differences (e.g. net income, net profit, net earnings, or earned surplus), and financial ratios. These existing practices have not been addressed or amended in any way by financial reporting standards.

The Committee on Accounting Procedure did its work for twenty years and was replaced by the Accounting Principles Board (APB) in 1959, which was in turn superseded by the Financial Accounting Standards Board (FASB) in 1973 (Wahlen, Jones, & Pagach, 2016). All these organizations created and amended U.S. GAAP. There have been continuous accounting standard-setting bodies in the U.S. since 1939. However, the only financial ratio these bodies have ever required is earnings per share. A look at its history is informative.

Earnings per share calculations existed before the first accounting standard in 1939. Its presentation in financial reports was discouraged by the standards in the 1950s but later encouraged in the 1960s (Jewell & Mankin, 2016). EPS was first required in 1969 (Accounting Principles Board (APB), 1969). One of the reasons to require

EPS and to specify the formula is that investors do not know the weighted average number of shares of common stock. Companies used different income numbers in the numerator and different numbers of stock in the denominator. This lack of consistency on an important ratio was problematic. EPS is not the only important ratio that lacks consistency, but it is the only ratio that is currently required. This should change. (For a complete discussion of EPS, see Jewell & Mankin, 2016).

THE NEED FOR REQUIRED FINANCIAL RATIOS

Littleton, in 1926, saw the problem in an era before standardized accounting rules and was the first to call for voluntary financial ratio disclosure by every company. Gibson and Boyer also recognized the problem in 1980, and were the first to argue that a complete set financial ratios should be required for all financial reports. They called for a change in the accounting standards:

Financial statements would be more useful if the financial statement disclosure included financial ratios. There should be standard meanings concerning how these ratios were computed. The SEC and the FASB should accept the same role in this area as they do for financial statements in general. (Gibson & Boyer, 1980)

We affirm and renew this call for financial ratio disclosure in financial statements. We also extend the recommendation not only to GAAP but also to IFRS. We base our recommendation on four important points:

1. Additional disclosure provides better information at minimal cost.
2. Disclosure would reduce naming confusion.
3. Disclosure would reduce formula confusion.
4. Most importantly, investors want financial ratio information.

Additional disclosure could improve the quality of financial reporting and reduce the 'understanding gap' that exists between the preparers and the users of the financial statements. This should be an important consideration to improve the understandability of the financial reports. Many technical accounting standards require complex calculations, arcane estimates, and foggy footnote disclosures that are only understood by technical practitioners. These standards are little understood and less appreciated by users of the financials. Financial ratio disclosure could be accomplished with a simple set of financial ratios names

and formulas that would be easily understood by users. The potential benefits would be significant compared to the ease of a company providing this additional information. Every company should disclose these ratios in good years and bad to improve financial statement comparability and analysis.

Financial ratio disclosure would also help eliminate what Mankin and Jewell termed "naming confusion" and "formula confusion" (2014). This is a real problem that most financial professionals vaguely understand. Naming confusion occurs when the same ratio formula has multiple names. Mankin and Jewell showed that in current business textbooks, a common ratio could have up to five different names. The days sales outstanding (DSO) is also called days sales in receivables, average collection period, days sales uncollected, and collection period in five different textbooks. This is confusing to novice and professional alike. They found over a dozen ratios with the same formula with three or more different names (Mankin & Jewell, 2014). If accounting is the language of business, we need to use a more precise language when discussing financial ratios.

Formula confusion is potentially a larger problem. Formula confusion occurs when the same ratio name could have multiple valid formulas. Jewell and Mankin found eleven different formulas for return on assets (ROA) in business textbooks (Jewell & Mankin, 2011). This phenomenon means that it is probably rare for two or three analysts to all use the same ROA formula. Financial ratios developed to make sense of large numbers then in the millions and now in the billions. This formula confusion does not help to make analysis clearer, rather it creates more misunderstanding and less understanding. This is a problem worth solving.

Formula confusion is not just a business textbook issue. It is also a real financial world issue. Table 1 shows information from popular financial websites about return on assets (ROA) and return on equity (ROE) for Starbucks. These numbers were for a well-known and followed company on a single day. None of the seven websites could agree on the ROA for Starbucks and only three calculated the same ROE number. The ROE computations ranged from a low of 48.16% to a high of 66.14%. There should be a standard ROA and ROE number that is reported by these companies and a standard definition of the ratio. This can be accomplished easily and will provide much clarity.

The best argument for financial ratio disclosure is that investors want financial ratios. Every financial website shows at least some financial ratios. Companies provide some financial ratios, but usually only when the numbers are positive. Some investors pay for investment services

Website	ROA	ROE
Yahoo Finance	18.12%	48.92%
NASDAQ	20.00%	66.14%
MarketWatch	21.05%	48.16%
Google Finance	21.09%	48.16%
Motley Fool	21.18%	51.45%
MSN Money	21.38%	48.94%
Morningstar	21.40%	48.16%

that provide financial analysis including financial ratios. Many financial accounting standards are complex and expensive for companies to implement. They provide investors with complicated and arcane disclosure sometimes buried in the footnotes. Investors do not demand complicated lease accounting or pension disclosure information in the same way that they desire simple and basic financial ratios. This is a problem that has a simple remedy.

RECOMMENDED FINANCIAL RATIOS

To recommend a set of financial ratios, it is important to look at stakeholder needs. Gibson surveyed financial analysts and developed a list of top ratios (Gibson, 1987). Mankin and Jewell discovered the most common ratios in business textbooks (Mankin & Jewell, 2014). Lan recommended sixteen ratios for individual investors to analyze a company (Lan, 2012). The results are summarized in Table 2. These three lists have several common ratios. It should be possible to find a standard set of financial ratios

	Financial Analysts (Gibson, 1987)	Individual Investors (Lan, 2012)	Business Textbooks (Mankin and Jewell, 2014)
Liquidity	Current Ratio Quick Ratio	Current Ratio Quick Ratio Cash Ratio	Current Ratio Quick Ratio
Activity	Times Interest Earned Fixed Charge Coverage	Inventory Turnover Receivables Turnover Total Asset Turnover Payables Turnover Times Interest Earned	Inventory Turnover Times Interest Earned Days Sales Outstanding Total Asset Turnover Receivables Turnover Days Sales in Inventory Fixed Asset Turnover
Solvency	Debt Ratio Debt to Equity Ratio Long term debt to Invested Capital Equity Ratio	Debt Ratio Debt to Equity Ratio Debt to Capital Ratio	Debt Ratio Debt to Equity Ratio
Profitability	Return on Assets Net Profit Margin Return on Equity Return on Invested Capital	Return on Assets Net Profit Margin Return on Equity Gross Profit Margin Operating Profit Margin	Return on Assets Net Profit Margin Return on Equity Gross Profit Margin
Market	Price-Earnings Ratio EPS Market to Book		Price-Earnings Ratio EPS Dividend Payout Dividend Yield Market to Book
Miscellaneous	Degree of Financial Leverage Degree of Operating Leverage		

that would be acceptable to regulators, companies and investors.

Table 3 provides a recommended set of financial ratios and metrics that should be required of all companies in their financial reports. The only exception to this requirement should be for firms in industries with unique business models, such as banks and insurance companies. Firms in these industries should be required to provide relevant financial ratios based on their businesses.

Regulators should settle on standard names and formulas for each of the required ratios to improve comparability in

financial reporting. This is so beneficial for investors and easy to execute that it is puzzling why this has not been implemented already. These required ratios should also be simple for a company to produce and easy for accounting firms to audit.

SUMMARY

Financial reporting is the process of providing relevant and accurate information that investors need. It should provide the financial statements and other quantitative and qualitative information that is useful for investors.

TABLE 3 20 REQUIRED FINANCIAL RATIOS AND METRICS	
Required Ratio	Formula
Current Ratio	Current Assets / Current Liabilities
Quick Ratio	(Cash + Receivables + Marketable Securities) / Current Liabilities
Inventory Turnover	Cost of Sales / Inventory
Times Interest Earned	Earnings Before Interest and Taxes (EBIT) / Interest Expense
Cash Conversion Cycle	Days Inventory Outstanding (DIO) + Days Sales Outstanding (DSO)–Days Payable Outstanding (DPO)
Total Asset Turnover	Net Sales / Total Assets
Fixed Charge Coverage	(EBIT + Lease Payments) / (Lease Payments + Interest Expense + Preferred Stock Dividends)
Total Liabilities Ratio	Total Liabilities / Total Assets
Debt to Equity Ratio	Interest-Bearing Debt / Total Equity
Gross Profit Margin	Gross Profit / Net Sales
Net Profit Margin	Net Income / Net Sales
Return on Assets	Net Income / Total Assets
Return on Equity	Net Income / Total Equity
Return on Invested Capital	EBIT x (1-T) / Capital Employed* *Capital Employed = Total Equity + LT Debt + Costly ST Debt
Earnings Per Share (Already Required)	EACS / Weighted Average Shares of Common Stock
Price-Earnings Ratio	Price Per Share / Earnings Per Share
Dividend Payout	Common Dividends Per Share / Earnings Per Share
Dividend Yield	Common Dividends Per Share / Price Per Share
Market to Book	Price Per Share / Common Equity Per Share
Weighted Average Cost of Capital	Weight of Debt x Cost of Debt x (1-T) + Weight of Equity x Cost of Equity This is by far the most complex of the required metrics, and would require further standardization of how to compute and disclose the weights and costs required in the computation.

Additional metrics are provided by companies in a selective fashion. When the numbers are good, they are more likely to be provided. When the numbers are poor, they are likely to be omitted. This should not be allowed to continue. All companies should provide a complete set of standard financial ratios to provide good information to investors for comparability and consistency. Investors want this information and companies can provide it at a minimal cost. This small change in GAAP and IFRS would be very beneficial and welcome to investors all over the world.

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SOCCERNOMICS: SALARIES FOR WORLD CUP SOCCER ATHLETES

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ABSTRACT

This article explores the problems and relationships involved with the pay differential between male and female athletes in US professional soccer at the World Cup level. The criteria for investigating this comparison explores pay and performance of the US Men's Soccer team in the 2014 World Cup as compared to the US Women's Soccer team in the 2015 World Cup. The study population includes professional players of both genders participating in the respective World Cup teams. The study does not consider the earnings and opportunities to play professionally in various male and female soccer leagues worldwide. Other influences outside the US Soccer Federation, primarily FIFA, are considered when comparing the pay differences. The conclusion of this review indicates that male soccer World Cup players are paid more than their female counterparts. Implications of these findings may suggest changes in the way remuneration is determined.

Throughout history, when women entered the workforce in large numbers it was primarily out of necessity. During World War II, there was a shortage of males to run the factories to make the equipment that the troops needed while they were at war. After the war, women enjoyed working in the labor force and many desired to remain employed for several reasons. In 2016, women are running large companies, starting businesses, and doing things in business which, 100 years ago, only men were doing. The reason only men could participate in business was not because women were incapable of business savvy, but because women were never given the opportunity. In the early 1900s, men worked in factories or in fields, and the women bore children, raised them, taught them, and performed household duties. Women were still considered property. They did not even receive the right to vote nationwide until 1920. During both World Wars, men were drafted and removed from their families, leaving the women to make a living while maintaining the home. Women realized that they were more valuable to their families and country in the workforce, leading them to compare pay differences between males and females. Throughout history, men have been paid more, but as women were increasingly doing "men's work" and doing

it very well, this differential led to the issue of pay equity (Rosie the Riveter).

Women who were working in the same jobs as men were being paid significantly less. According to Laura Bassett of the Huffington Post (2013), in 2012 women made 77 cents for every dollar earned by a man. Thus, women needed to work longer hours to earn the same compensation as men. In the 21st century the divorce rate is higher than in previous centuries. This is related to different factors, but if a woman is making less than men while she is married; she does not feel the strain as much as a woman who is living and surviving on her income alone. This means that women who are not already in the workforce will likely enter it. To compete with men, women are returning to school to receive a university degree, but when they receive a job in the field of choice the salary is generally lower than a man in the same entry level position. The gender bias has been alleviated to some degree with structured raises and competency exams, but some women are still seeing the effects of the wage gap.

When Susan Howell (2015) sat down with students she requested men and women to ask each other questions about different gender stereotypes like men crying, and if

women liked having doors opened for them. The answers are what would be expected. The men said that they do cry, but rarely do they ever cry in public. The women responded with they like it when men open the doors for them, but it's not necessary. However, Schatt (2015) submitted a question for Howell to ask the students that she had not thought about asking, "Do you believe women will ever reach equality with men?" (p. 1). Howell said: "without any encouragement each woman in unison shook her head and said no. While most ... said they wanted equality, none of them could see it happening, at least not in their lifetimes" (p.1). This indicates that, although a few women are CEO's of large corporations and many are holding careers that only men did sixty years ago, there is still a long way to go toward equality between genders, which is where equal pay and equal worth issues begin. If the gap of inequality between genders in the labor force can be closed, most of these issues will also be resolved.

Since World War II, when women entered the workforce, they have been paid less than men for the same job with the same responsibilities. President John F. Kennedy attempted to correct this social injustice with the Equal Pay Act of 1963. This law was an amendment to the Fair Labor Standards Act of 1938, with the goal of closing the gender wage gap by requiring that men and women in the same workplace be given equal pay for equal work. Then in 1964, President Lyndon B. Johnson signed the Civil Rights Act aimed at ending discrimination in the workplace based on race, religion, national origin, and gender (Congressional Digest, 2014, p.1). By 2016 the nation experienced improvements in wages and gender discrimination. Although there are more women earning equal pay now, as a nation we are still working on closing the gap. According to Caroline Fairchild (2015), there are "only 25 companies in the Fortune 500 that have female CEOs." Fairchild goes on to say that twenty years ago, there were no companies run by women in the Fortune 500. This is an improvement, however; is the final outcome? No. The equal pay effort should not end until all citizens are treated equally. This may sound vague, similar to "I want world peace", but wage equality is a measurable goal, and over time, should be attainable. If we stop working toward equality, then it won't happen.

The difference between male/female pay in the professional sports world has been an issue for a long time. It is also a very complicated topic. Women on Board Organization, an association located in the UK and Australia, advocates for women to have equal access to directorship roles in industry. On September of 2016 this group published a study, "Gender Balance in Global Sport Report" (Tranter, Medd, & Braund, 2016), that found there is a vast gender pay gap within many sports and indicated that this was likely to grow larger. While this report primarily

focused on sports played in countries which were part of the British Empire, there is evidence that this is a global problem, including sports played in the United States. While this was a single publication, it was one of many articles which appeared in newspapers and magazines during the first part of 2016 commenting on male/female professional wage inequality in sports. Specifically, these articles discussed the complaint filed by five members of the World Cup victorious U.S. Women's National Soccer Team at the end of March 2016 with the federal Equal Employment Opportunity Commission. The members allege that US Soccer Federation engaged in wage discrimination based on gender.

The complaint filed by the Women's National Team (WNT) was, ironically, the second volley of claims between the two parties. In February 2016, U.S. Soccer sued the union representing the WNT players in a dispute over continuing the terms of the old collective bargaining agreement which included a "no-strike clause" (Thomas, 2016). Mitchell (2016) stated that Edward Williams, who helped draft the Amateur Sports Act, found the lawsuit unexpected. Williams is cited saying, "The whole concept that a governing body, which is supposed to be supportive of its athletes, would spend money and hire lawyers to sue its athletes is just outlandish" (Mitchell, 2016). As noted by Gillian White of The Atlantic, one of the issues involving the WNT the during 2016 in which lawsuits were exchanged and complaints filed with the EEOC relates to the current collective bargaining agreement (CBA) which expired in 2012. Rather than renegotiating the contract, the WNT signed a revised memorandum of understanding that kept the terms of their old CBA until a new one was put in place at the close of 2016.

This was the first instance where professional athletes formally challenged their governing body, the US Soccer Federation, on pay differences based on gender, and this provided a unique opportunity to legally claim discrimination under the Equal Pay Act of 1963. The US Soccer Foundation is the sole administrator of soccer played in the United States, which includes all age groups, amateur and professional, and both genders. This meant that the elite American male and female professional soccer stars selected to play on the two World Cup teams have the same employer. As reported on 60 Minutes (CBS), soccer appears to be the only professional sport where male and female athletes come under the same organization. This is why the Equal Pay Act was uniquely relevant when examining soccer in the United States, and not when discussing other sports which have two separate governing bodies.

When considering an Equal Pay complaint, it must be demonstrated that males and females perform equal work. As noted in the New York Times, in three of the past four

years (2012-2016), WNT has played more games than the MNT. The women also have twice as many victories, 88 wins to the men's 44. This means that, based on the data, the women had to win more games and work harder than the men to earn much less (Das, 2016).

Because of the discussion and interest in the female complaint to the EEOC, the US Soccer Federation was forced to be more transparent regarding salaries and other financial information. It was soon apparent that gender discrimination was related to wage inequality since the issue of "equal pay for equal work" could be clearly recognized by looking at the difference in remuneration of salaries between the two teams. In 2014, the United States Men's Soccer team placed 15th in the World Cup tournament. In 2015, the United States Women's Soccer team won the World Cup yet received less pay from both FIFA and the US Soccer Federation. Mitchell (2016) of the Daily News reported that:

To provoke discussion of bias, Rep. Linda Sanchez (D-Calif.), along with Rep. Jackie Speier (D-Calif.) and Sen. Patrick Leahy (D-Vt.) co-sponsored a nonbinding resolution asking FIFA to address this disparity. 'It very clearly highlights a pay gap just based on gender for people who do the same work,' Sanchez says. 'It's a very concrete example.'

Before examining the specific data relating to the pay for males and females selected to play on the national teams, it is important to understand the level and quality of professional soccer players analyzed regarding pay equity. The elite soccer players, male and female, who are offered the opportunity to play on the national teams are evaluated on their performance in several designated events. Part of the selection process would also be the performance of the athletes playing for professional soccer clubs in established professional leagues in many countries.

It is important to remember that historically professional soccer (called "football" in many other countries) has been played for over a century and prior to the past 20 or 30 years has been a male-dominated sport. In fact, the first Women's World Cup championship was not played until 1991 and female soccer was not played in the Olympics until 1996. The male leagues have large followings in other countries and the best players in the clubs are paid hefty amounts of their respective currency. The elite players make huge sums of money from the clubs and the salaries are market determined and form a major part of their earnings. Bill Conerly stated that, "Top athletes play for 'club and country.' Club refers to their regular jobs for teams in the premier soccer leagues around the world. The most talented also play for country, their national team. Most earnings come from club salaries, with

national teams paying less money, for fewer games." (Conerly, 2016)

The dominance of male players on the salary scale is further encouraged by FIFA, the international governing body of soccer which has always been a boy's club, and is responsible for the allocation of vast sums of money generated by the soccer leagues and World Cup competition. Julie Foudy is quoted by Elizabeth Mitchell (2016) as stating, "[FIFA officials] come from cultures where women don't play, or it's even a joke. Anytime you interact with them, the reality is that it's not on their radar."

Because women's professional league soccer is relatively young and has lacked the full support of FIFA and the US Soccer Foundation, the opportunity for female soccer players to receive equal payment and comparable playing conditions is limited at all levels of the sport. Mitchell (2016) stated "It's up to US Soccer and FIFA officials to show that they respect what the women on the U.S. team and other teams have done on the field" (Mitchell, 2016). Therefore, much of the pay the elite WNT players earn currently comes either from FIFA or the US Soccer Foundation which is precisely why players are fighting for higher/equal pay with the MNT.

In fact, many members of the WNT could go overseas to earn more money playing for foreign leagues, but the WNT coach wants the best American female players to remain in the United States for two reasons. One, the coach can better judge the quality of play for females who are on teams in the National Women's Soccer League (NWSL), which is run by the United States Soccer Federation. In fact, the US Soccer Foundation pays the club salaries of the females selected to play on the WNT. Secondly, the coach and US Soccer Federation want to build interest in female soccer teams to attract other potential players to start playing soccer. Keeping the "stars" at home helps to better promote the NWSL which is the third attempt to start a women's professional league. In the case of the WNT, "It has been fighting discrimination in FIFA, soccer's international governing body; arguing against inequities in the United States Soccer Federation, the sport's national custodian, while defending itself against a lawsuit filed by the organization" (Mitchell, 2016)

Therefore, the following analysis of male versus female pay in the United States WNT will not include "market rates" of pay to male soccer players in the Premier Soccer Club League play. Females playing soccer worldwide experience a pay disadvantage at both the National Team and the Club levels. The basis of this study is on "equal pay" of females versus males which is basically under the control of the FIFA and the US Soccer Foundation, and is the reason the WNT is making two different appeals: a legal

one through the EEOC and a separate appeal about social justice (Thomas, 2016).

Although this analysis does not include market rates of pay for the males, there is no doubt that the enormous salaries paid in the premier leagues would have considerable influence on the distribution of earnings by FIFA in the form of the prize money (bonuses) to the teams participating in the tournament. While this might appear as gender discrimination between the males and females, it is the economic reality of the differences in market driven salaries between males and females playing for the elite clubs. As noted in Forbes, “The major consideration is that people with higher base earnings will demand more money for their time than people with lower base earnings. The bottom line is that the men on the national soccer team make a lot of money from their clubs, but the women don’t. Some of the men might not bother to show up for paltry pay, but the women are likely to be less particular—because their regular jobs pay so little” (Conerly, 2016).

The gender gap paid by FIFA for teams participating in the Men’s and Women’s World Cup can be seen in Table 1 below, and it is clearly biased toward the male’s teams. Despite FIFA’s motto “PLAY FAIR”, the world governing soccer body has been accused of this type of gender pay discrimination for a long time. The US Female National Team won the World Cup in 2015 and received \$2 million. Germany was the winner of the Male National World Cup in 2014 and received \$35 million. The US Male National Team reached the “Sweet 16” where teams received \$9 million. It should be noted that FIFA doesn’t directly pay the players in an official capacity. Instead, FIFA pays the national organizations, and lets each nations’ governing soccer body decide how much to pay the players (Meha, 2016).

“As far as World Cup pay, the USSF said that prize money is allocated to both the men’s and women’s teams by FIFA, not U.S. Soccer, and that the international soccer governing body allocates different amounts based on the commercial value of those two events to FIFA” (Gurrieri, 2016). This statement reinforces FIFA’s intention to completely ignore the “equal pay” argument to use revenue or the economic value of men’s soccer as the primary determinant of allocation of recourse to the national organizations of the members of FIFA. It also suggests that FIFA does not want to make the necessary investment in women’s soccer which would be needed to bring the interest in women’s soccer to the same level enjoyed men’s soccer teams. Also, the United States Soccer Foundation’s blame of FIFA for gender discrimination does not excuse them for promoting a national team pay scheme for the men

and the women where much of the higher pay of the men has no real justification.

	Women’s 2015 Prize Money	Men’s 2014 Prize Money
Winners	\$2 million (USA)	\$35 million
Runner Ups	\$1.4 million	\$25 million
Semi- Finalists	\$700,000 each	\$ 19 million each
Quarter Finalists	\$400,000 each	\$14 million each
Round of 16	\$200,000 each	\$9 million each (USA)
Group Stage	\$100,000 each	\$ 8 million each
Participation Bonus	\$200,000 each	\$ 1.5 million each
(Total Sportek, 2015)		

Unfortunately, the WNT members have no direct claim to the \$2 million prize money they earned by winning the 2015 World Cup. They have to rely on the US Soccer Federation to distribute the funds based on agreements between the U.S. Soccer Federation and the collective bargaining units of the WNT and MNT. Although the two World Cup teams come under the US Soccer Federation as a common employer, each team has their own bargaining agent negotiating for members of the respective teams. Therefore, in addition to having to deal with FIFA and US Soccer Federation, the males and females each have their unique collective bargaining agreements which are different, and contracts for the two national teams which expire at different times. This makes comparing pay between the two genders difficult and complex.

Table 2 shows the payment of different amounts to members of the Men’s and Women’s national team with payment of prize money (bonuses) by the US Soccer Federation. Table 2 below shows 2014 Women’s World Cup and the proposed bonuses for the 2018 Men’s World Cup Championship. At this point, the bonus is given directly to the members of the two national teams. It is obvious that the practice of paying the MNT players greater

amounts than the WNT continues. It is difficult to understand why the men’s team that places in the top sixteen received \$3.6M to be spread out among the male players, while the winning female team and members were paid \$1.8M (2014). Why would the women’s championship team be paid so much less than the males who did not reach the quarterfinals? This appears to be the case of discrimination that caused concern for the members of the WNT and the main reason they filed a complaint with the EEOC. It would be surprising if the EEOC did not rule in favor of the females and declare the process violates the Equal Pay Act, and require that the US Soccer Federation address this discrepancy and adjust the way in which the prize money is divided between the males and females. This probably will upset the male members of the national team and may result in a countersuit to try bring this matter into the discussion when the current contracts expire.

One other thing that is apparent in table 2 is that men’s earnings in the earlier games are relatively higher. It almost appears that the list is constructed to reward the men’s success early in the rounds and then it drops off. It appears to reward the men by allowing them to earn money early while they are still in the chase, with the likelihood they will not progress further up the ladder which has typically been the case of the U.S. MNT.

	Women’s 2015 Prize Money	Men’s 2018 Prize Money (proposed)
Finish 1st World Cup Team	\$1.8 M	\$9.4M
Finish 2nd	\$780,000	\$6.25 M
Finish 3rd	\$480,000	\$1.25 M
Finish 4th	\$240,000	N/A
Semi-Finalists (team)	N/A	\$ 4.5 M
Quarter Finalists (team)	0	\$5 M
Round of 16 (team)	0	\$3.6 M
Group Stage (team)	\$345,000 each	\$2.5 M
Participation Bonus (team)	\$15,000 each	\$ 76,000

As Santhanam (2016) points out in a note to this table: “This table is very misleading and the amounts paid show a greater pay inequality between the men and women. The men’s performance bonuses aggregate if the men move further up the table. Women receive just the amount of final finish, starting with round of 16.”

There is also another source of pay for both the male and female national teams — the international “friendly matches”, or exhibitions against teams from other countries. The intent of these games is to allow the national team members to practice together in a less stressful environment, allow the coaches to experiment, and further stimulate interest in the sport of soccer at the highest professional level. Given that women’s professional soccer is a more recent spectator sport as compared to the men’s game, this would be an important venue for the U.S. WNT to generate more interest in the sport and encourage young females to consider playing soccer at the youth level.

However, since these games are primarily controlled by the US Soccer Foundation and other countries’ governing bodies, the pay between the MNT and WNT players suffers the same gender discrimination. The males and females are required to participate in 20 of the friendly matches each year. Because of the two separate collective bargaining agreements negotiated by their respective unions, compensation of the players in the national team are structured differently, but the pay earned during the year depends on how many games the teams win. The men are “paid-for-play” receiving a per-game bonus of \$5,000 per game if they are called in for a match and an average bonus of \$8,166 per win. Each female player receives a base salary of \$72,000 a year which is increased with a \$1,350 bonus for each win. As shown in Table 3 and Graph 1, assuming players (male and female) participate in all 20 matches, the men will individually earn more money during the year, even if they lose all 20 games, than the females can earn by winning all 20 of their games (Yourish, Ward, & Almuthtar, 2016).

The gender bias in pay is partially offset by the different approaches between the men’s pay-for-play and the female’s salary. If a member of the MNT does not play in an international friendly match for any reason, he does not receive any pay for that game and can effectively lose \$5,000 to potentially \$8,166 winning bonus. Despite losing a considerable sum of money, the men on the national team have the of falling back on a lucrative salary from the professional club. The women’s salary is a contractual agreement with the US Soccer Foundation and is more flexible in paying in the event a female cannot play in a game. The women have limited health benefits, payment in the form of severance pay if they are cut from the team,

TABLE 3
PAY PER PLAYER FOR
20 INTERNATIONAL FRIENDLIES
BASED ON NUMBER OF WINS

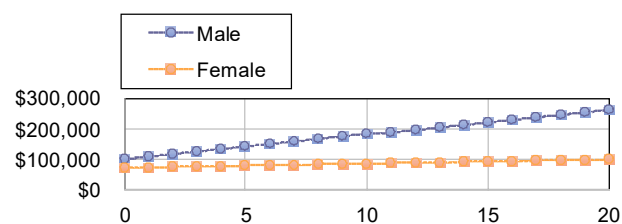
Wins	Male	Female	Wins	Male	Female
0	\$100,000	\$72,000	11	\$189,826	\$86,850
1	\$108,166	\$73,350	12	\$197,992	\$88,200
2	\$116,332	\$74,700	13	\$206,158	\$89,550
3	\$124,498	\$76,050	14	\$214,324	\$90,900
4	\$132,664	\$77,400	15	\$222,490	\$92,250
5	\$140,830	\$78,750	16	\$230,656	\$93,600
6	\$148,996	\$80,100	17	\$238,822	\$94,950
7	\$157,162	\$81,450	18	\$246,988	\$96,300
8	\$165,328	\$82,800	19	\$255,154	\$97,650
9	\$173,494	\$84,150	20	\$263,320	\$99,000
10	\$181,660	\$85,500			

and maternity leave at half pay (Yourish, Ward, & Al-mukhtar, 2016).

There are also other forms of payment to the members of the WNT and MNT which are much smaller in value but still have the appearance of gender discrimination. The women receive \$50 per diem for travel in the United States and \$60 per diem while traveling to foreign countries. The men receive \$62.50 and \$75 respectively for per diem pay. Additionally, men receive \$3,750 for a sponsor appearance while the females are paid only \$3,000 for each appearance. There is no doubt that the “fringe” payments are probably the most difficult numbers for the US Soccer Foundations to explain since there is no real justification. Ironically, the per diem payments and appearance payments were equal before 2015, when an adjustment was negotiated into the to the men’s CBA. As mentioned earlier, the WNT decided to enter into a memorandum of understanding to extend their CBA and did not have

GRAPH 1

Male v. Female Pay per Player for
20 International Friendlies
Based on Number of Wins



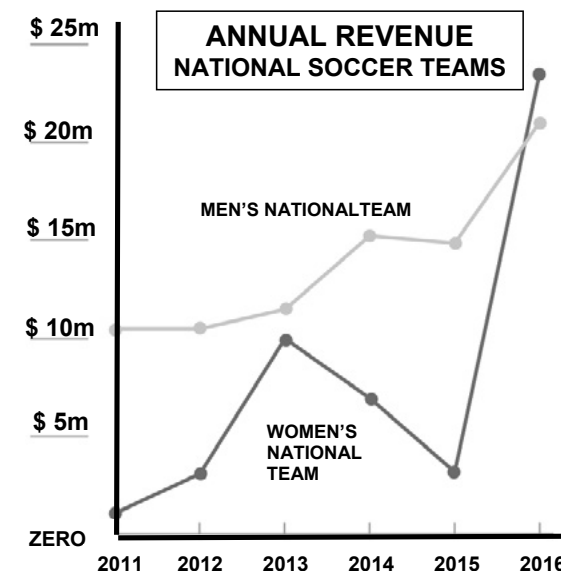
a chance to bargain for this increase. It is possible this discrepancy will be removed when the women negotiate the next CBA, and after the legal issues are resolved. It is also possible that the females may decide to negotiate a “pay-for-play” scheme similar to the men’s and give up the more stable, but lower rate of pay, salary scheme. The “pay-for-play” scheme would likely result in the higher pay the females are currently advocating as “equal pay” (Gaines, 2016).

Another difference in the benefits between the two national teams are that the men travel first class and stay in top quality hotels while traveling away from home. The WNT cannot see any justification for the difference in travel and hotel arrangements. Finally, there is the issue of the WNT having to play on artificial turf in many of their games while the WNT always plays on natural grass. There are ample examples of the injuries resulting from playing on artificial grass.

Up to now the discussion has focused on the payments made to female national team players as compared to the pay made to the men. It has been shown that at all levels of FIFA and US Soccer Foundation, starting at the top of the hierarchy (FIFA), there is evidence that there exists a gender discrimination of various magnitude with little, if any, rationale for the differences in pay between the men and women. However, there is a strong argument that the pay should reflect the revenue each national team earns during the year. In fact, in a statement made to *Sports Illustrated* several years ago, Sunil Gulati, the president of the United States Soccer Federation, challenged the term “deserve” when asked whether the women deserved more pay than the men. He said: “I don’t want to use the word deserve in any of this, I’d reverse the question: Do you think revenue should matter at all in determination of compensation in a market economy?” (Thomas, 2016).

In 2015, as seen in Graph 2, the WNT produced more revenue than the MNT, \$23 million, approximately \$2 million more than the males. Guilati pointed out that the revenue generated by the female team was inflated by the final rounds when they won the Women’s World Cup in 2015. He further stated that excluding revenue produced during a year in which a World Cup championship is not played, the men’s team consistently draw bigger audiences in stadiums and on television. As noted in *The New York Times*, the long-established men’s game has brought in higher game revenue in the past, as shown on the Graph 2 (Das, 2016).

GRAPH 2



However, looking at this from the WNT’s perspective, it can be arguee that the women will continue to produce a large share of domestic revenue. This is reflected in the US Soccer’s budget projections which shows that: “Thanks to the Women’s World Cup, the women are expected to generate more revenue than the men in both 2016 and 2017” (Gaines, 2016).

Some people state that the overwhelming gap in compensation between male and female sports is due to not enough people watching. This statement was shattered when the Women’s 2015 World Cup championship match was the “most watched soccer match in American history” (Tuttle, 2015). Shane Ferro (2015) has something very interesting to say on this issue; he states that the reason he believes men make more as well as earn more “bonuses” for winning larger tournaments comes down to revenue. In an article in *Business Insider*, he goes on to state that sponsors’ revenue was significantly lower in the Women’s World Cup than the Men’s (\$17 million vs. \$529 million), and asked “...why fans and sponsors are less interested in supporting women’s sports” (Ferro, 2015). This points to an even bigger issue than equal pay. The men and women’s teams are playing the same sport against the same countries in a tournament of the same name. So why is there a difference in pay? It comes down to the fact that there are still basic gender gaps in the world, as simply men are more interesting to watch play sports than women.

It might be possible that the outstanding success of the Women’s National Championship World Cup Team in

2015 will result in the female team continuing to produce more revenue than the men well into the future, which would dampen the “revenue” argument. The WNT is starting to develop a dynasty. The WNT has gained worldwide respect because of its work, dedication, and contribution to the growth of soccer in the United States. Rather than marginalizing the achievements of the WNT, FIFA and the US Soccer Foundation should be very proud of them, promoting the team and what it has become. The success will only help soccer grow in the United States, no matter the gender of the players.

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LAUGH, LEARN AND LIVE

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ABSTRACT:

Our Target Audience was students ages 6 to 14. After reviewing the demographics of Wayne County, Indiana and observing that 80% of the Wayne County children qualify for free and reduced lunches it became quite apparent that this age class was in dire need of health and wellness programs. We engaged the audience through health and wellness learning activities/simulations at the Wayne County Boys and Girls Club. We surveyed the children before, during, and after the activities. This allowed us to tailor our education to fit our audience needs. We engaged the community by making them aware of what we were doing and asking them for input/assistance with making this learning successful. We partnered with several organizations to gain the most benefit possible for the learners, these partners included: a university nursing association, a university business team, a family dentistry, orthodontics office, a fire department, and Wayne County Boys and Girls Club.

Keywords:: Nursing, Business, Childs health, Fire, Health and Wellness, Hand washing, tooth brushing, laugh, live.

LAUGH

When working with children, we have the opportunity to teach and influence the future. Many times, we are teaching children without knowing the real influence we have on them. When working with students from an area Boys and Girls Club, we were discussing fire and smoke inside the home and the safety involved with exiting the home. The fireman explained the importance of getting away from the house and to safety outside away from the home, as he reviewed with the children, he asked a simple question, "What should you do if you smell and see smoke, at the same time your smoke alarms are sounding off?" A little boy quickly responded, "open a window and swing the broom in front of the smoke alarm", that's what my mom and dad does.

The lesson from this is the parents, as embarrassed as they would be knowing their child said this in public, must understand they have taught this child without explaining what is truly happening in the home.

According to a document offered by the Mayo Clinic there are short term and long term effects of laughter,

SHORT-TERM EFFECTS

A good laugh has great short-term effects. When you start to laugh, it doesn't just lighten your load mentally, it actually induces physical changes in your body. Laughter can:

- Stimulate many organs. Laughter enhances your intake of oxygen-rich air, stimulates your heart, lungs

and muscles, and increases the endorphins that are released by your brain.

- Activate and relieve your stress response. A rollicking laugh fires up and then cools down your stress response, and it can increase your heart rate and blood pressure. The result? A good, relaxed feeling.
- Soothe tension. Laughter can also stimulate circulation and aid muscle relaxation, both of which can help reduce some of the physical symptoms of stress.

LONG-TERM EFFECTS

Laughter isn't just a quick pick-me-up, though. It's also good for you over the long term. Laughter may:

- **Improve your immune system.** Negative thoughts manifest into chemical reactions that can affect your body by bringing more stress into your system and decreasing your immunity. In contrast, positive thoughts can actually release neuropeptides that help fight stress and potentially more-serious illnesses.
- **Relieve pain.** Laughter may ease pain by causing the body to produce its own natural painkillers.
- **Increase personal satisfaction.** Laughter can also make it easier to cope with difficult situations. It also helps you connect with other people.
- **Improve your mood.** Many people experience depression, sometimes due to chronic illnesses. Laughter can help lessen your depression and anxiety and may make you feel happier.

LEARN

We collaborated with community members to build an educational activity to present to the students at the Wayne County Boys and Girls Club. This activity/simulation included oral health care, choose my plate, fire safety and evacuation, physical health, and infection prevention techniques. We also put together goodie bags that included supplies for a better health. This Project contributed to building a culture of health in our community by providing education and needed supplies to children and their families that might otherwise not have the resources to make healthy lifestyle choices. Through this project we helped develop strategic partnerships with the youth of the community and healthy organizations of the community. For example, the youth could develop community relationships with the organizations that help present the day of the activities. The team was also able to de-

velop community relationships with these organizations. These relationships will help promote a happier healthier community. We tried to build a project based on equity. Our project made health a shared value by bringing the children together to discuss the aspects of health. We fostered cross-sector collaboration to improve well-being by utilizing community support. We created healthier more equitable communities by educating our community over healthy lifestyle choices. We strengthened integration of health services and systems by bringing collaboration from each organization that participated in the project. We hope this collaboration and knowledge will be passed to future generations helping build a healthier community. We incorporated asset based community development by using the assets the community already had in place to help implement this project. The Boys and Girls Club serves all youth of need in the community, which allowed us to present to a group that we could make the biggest impact. We also collaborated with other assets from the community to help provide needed supplies and educational material

We increased and reasserted health related knowledge to the youth of the community, which helps build a healthier community for everyone. This was shown by the children's ability to answer three questions over the teaching material correctly before receiving their goody bag and leaving the activity.

We learned that a culture of health is so much more than just going to the doctor when we are sick. It includes many aspects of the community on many different levels. We especially learned that community involvement and collaboration play a major role in growth and change. Cooperation amongst organizations creates a situation of community support, and the group learned that it was fulfilling and rewarding to help others!

FIRE SAFETY

According to Kids Safe Worldwide, In 2013, 334 children died in home fires. Eighty-seven percent of all fire-related deaths are due to home fires, which spread rapidly and can leave families as little as two minutes to escape once an alarm sounds. Fires are not just a problem in the United States. In 2008, nearly 61,000 children around the world died due to a fire or burn.

1. Working smoke alarms reduce the chances of dying in a fire by nearly 50 percent. They are a critical first step for staying safe, but in order to be effective, they have to be working properly. For

the best protection, install smoke alarms on every level of your home and in every sleeping area.

2. Teach kids never to play with matches and lighters. Make a habit of placing these items up and away from young children.
3. Create and practice a home fire escape plan with two ways out of every room in case of a fire. Get a stopwatch and time how fast your family can escape. The kids will love it.
4. Children should know how to respond to the sound of a smoke alarm. Teach them to get low and get out when they hear it. A child who is coached properly ahead of time will have a better chance to be safe.
5. Use common sense in the kitchen. Limit distractions when cooking and don't leave a hot oven or stovetop unattended.
6. Blow out candles before you leave the room or before you go to sleep.

HAND WASHING

According to the Centers for Centers for Disease Control and Prevention,

You should wash your hands:

- Before, during, and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After changing diapers or cleaning up a child who has used the toilet
- After blowing your nose, coughing, or sneezing
- After touching an animal, animal feed, or animal waste
- After handling pet food or pet treats
- After touching garbage

This is how you should wash your hands:

- Wet your hands with clean, running water (warm or cold), turn off the tap, and apply soap.

- Lather your hands by rubbing them together with the soap. Be sure to lather the backs of your hands, between your fingers, and under your nails.
- Scrub your hands for at least 20 seconds. Need a timer? Hum the «Happy Birthday» song from beginning to end twice.
- Rinse your hands well under clean, running water.
- Dry your hands using a clean towel or air dry them.

TOOTH BRUSHING

According to the American Dental Associations, Brushing your teeth is an important part of your dental care routine. For a healthy mouth and smile the ADA recommends you:

- Brush your teeth twice a day with a soft-bristled brush. The size and shape of your brush should fit your mouth allowing you to reach all areas easily.
- Replace your toothbrush every three or four months, or sooner if the bristles are frayed. A worn toothbrush won't do a good job of cleaning your teeth.
- Make sure to use an [ADA-accepted](#) fluoride toothpaste.

EXERCISE

According to KidsHealth, Exercise helps kids achieve and maintain a healthy body weight. Regular physical activity helps build and maintain strong, healthy muscles, bones and joints. Exercise aids in the development of important interpersonal skills—this is especially true for participation in team sports.

Aerobic activity should make up most of your child's 60 or more minutes of physical activity each day. This can include either moderate-intensity aerobic activity, such as brisk walking, or vigorous-intensity activity, such as running. Be sure to include vigorous-intensity aerobic activity on at least 3 days per week.

LIVE

The few things we focus on in teaching the children about fire safety, health and wellness, exercise and good life skills, may not lengthen their lives, yet we do know the life we live should be a better quality of life when we do things the right way. Doing things the right way only come from the experience of learning.

CONCLUSION

The community offered many resources and advice leading us to change the smoke house activity to offering resources for the children to take home to families to help with obtaining free/reduced priced smoke detectors. The IUE Nursing Association gave us feedback about how much improvement the kids showed through the hand washing station; leading us to purchase a germ glow kit for the Boys and Girls Club's future use to improve hand washing technique among members. Through this project we provided the group with much needed supplies and knowledge that will benefit their current and future health.

At the beginning of our activity we faced a problem with the children answering the questions in the same way as their peers. At the end, we asked the same questions but changed to asking the questions independently of the children to make sure they were understanding the important parts of the education. This hindered the evaluation process because it made it very difficult to have an accurate evaluation of what they already knew and what they learned from our actual presentation. The ultimate outcome was for each child to recall the important parts of the education and this was still achieved

RESOURCES

Mayo Clinic, <http://www.mayoclinic.org/healthy-lifestyle/stress-management/in-depth/stress-relief/art-20044456>

Kids Safe Worldwide, <https://www.safekids.org/fire>

Centers for Disease Control and Prevention, <https://www.cdc.gov/handwashing/when-how-handwashing.html>

The American Dental Association, <http://www.mouth-healthy.org/en/az-topics/b/brushing-your-teeth>

KidsHealth, <http://www.kidshealth.org/en/parents/exercise.html>

REPATRIATION OF FEMALE SENIOR MANAGER EXPATRIATES

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ABSTRACT

International firms understand that expatriates experience cultural shock upon return from their assignments, feel a sense of isolation when they return, and lack an understanding of the current state of their home office (Bu & McKeen, 2002). Therefore, expatriates require support during repatriation. Mentoring works as means to facilitate learning across organizational boundaries, serves as a means of support, and stimulates learning among female managers (Harvey et al., 2009, p. 1357). Mentoring can aid women aspiring to obtain senior roles (Woolnough, & Lesley, 2014). The purpose of this research is to obtain a greater understanding of how mentoring can assist women in senior international positions.

Keywords: Repatriation, Female, Expatriates, Mentoring

INTRODUCTION

International firms understand that expatriates experience cultural shock upon return from their assignments, feel a sense of isolation when they return, and lack an understanding of the current state of their home office (Bu & McKeen, 2002). Therefore, expatriates require support during repatriation. Mentoring works as a means to facilitate learning across organizational boundaries, serves as a means of support, and stimulates learning among female managers (Harvey et al., 2009, p. 1357). Mentoring can aid women aspiring to obtain senior roles (Woolnough, & Lesley, 2014). The purpose of this research is to obtain a greater understanding of how mentoring can assist women in senior international positions.

Research suggests that repatriation may perhaps be considered the most problematic stage of an expatriate's assignment (Adler, 2001; Stahl, 2000; Stahl et. al, 2002; & Tung, 1998). Companies are challenged with retaining professionals that have international assignments (Black et al., 1999). Meziar and Scandura (2005) recommend mentors to assist expatriates facing a high level of doubt and uncertainty from their international assignments. In an effort to procure support during international management assignments, women often obtain mentors. Several organizations are establishing formal mentoring programs to address the disparities that women encounter in organizations (Blake-Beard, 2001).

INTERNATIONAL MANAGERS

As firms expand their operations internationally, the demand for managers with transnational experience is increasing (Insch, McIntyre, & Napier, 2008). Multinational enterprises must utilize all of their talent to effectively compete against foreign multinational enterprises (Varma & Russell, 2016). According to a 2009 Mercer report, the number of expatriates is estimated to be near one million worldwide and is likely to increase (Firth, Chen, Kirkman, & Kim, 2014). To remain competitive, the global economy requires organizations to cultivate and maintain both male and female expatriates (Cole & McNulty, 2011). International firms often send key managers on overseas assignments (Jassawalla, Asgary, & Sashittal, 2006). These international assignments can be seen as a pivotal part of career development for rising senior managers (Hard, 2004). However, as the number of international expatriates increase, the number of women expatriates and females in international management positions remains insufficient compared to men (Varma & Russell, 2008).

FEMALE INTERNATIONAL MANAGERS

During the past two decades, women have entered the workforce in increasing numbers worldwide (Burke, 2001). The rise of women in the workforce has resulted in women wanting to both pursue senior management positions and be seen as partners in the work place (Lipinska-Lipinska-Grobelny et. al, 2010). Expatriate assignments are sighted as critical growth opportunities that lead to considerations for senior management positions; thus, the

participation of women as expatriates is essential to obtaining diversity within top positions in the firm (Shortland, 2011). During the 1980s, few women embarked on expatriate assignments, and in the 1990s, women expatriates remained outnumbered by men (Altman & Shortland, 2008). However, during the first decade of the twenty-first century, women's assignments increased and are more prominent than ever (Altman & Shortland, 2008). According to Hardm (2004), women made up 3 percent of international managers in the 1980s and about 15 percent of the expatriate managers in the early 2000s. But since the latter part of the twentieth century, one of the most noteworthy features of the international labor market has been the increase of women (Black, Gregersen, Mendenhall, & Stroh, 1999; Caligiuri and Tung, 1999). According to Alvarado and Lynham (2005), as societies strive to diversify more, women managers will be essential for companies to remain competitive and better serve the needs of the consumers.

Barriers Women Experience

Even though the number of women is increasing, women in expatriate positions are not equal to men (Hard, 2004). Few women have reached senior management international positions because of a varying array of barriers that limit the advancement of their career (Burke, 2001). Adler (1997) states that women senior managers face more dynamic issues than even women managers. Women are not being promoted to senior international management positions at the same rate as their male counterparts (Linehan, Scullion, & Walsh, S., 2001). In fact, female international managers might even experience more problems than men because they are considered pioneers (Linehan & Scullion, 2002). Female international managers have to overcome barriers to be considered for senior management positions (Linehan et. al, 2001). However, five to six years after entering an organization, women's careers are critically delayed compared to their male peers (Blake-Beard, 2001). According to Bu and McKeen (2002), some of the barriers women expatriates encounter include "lack of mentors, role models and networks, the negative stereotypes and expectations of male managers towards women managers, and the perceptions of women's family roles and their career commitment" (p. 48). The "glass ceiling" and "glass borders" are also cited as issues that impact women's international careers (Van, 2003).

EXPATRIATES

One of the greatest barriers for women, yet a vital requirement for women to succeed in the workforce, is having a mentor (Marrujo & Kleiner, 1992). Yet, few women re-

port having a mentor (Nelson and Burke, 2000). Varma and Russell (2008) define an expatriate "as an employee sent to another country specifically for a long-term work assignment" (p. 201). The three key stages of an expatriate's assignment are pre-departure, going on assignment, and post-return or "repatriation" (Varma and Russell, 2008). During each of these stages, female employees encounter trials and difficulties different from their male colleagues. Thus, organizations need to provide support for these females in order to increase the number of female expatriates (Varman and Russel, 2008). According to Vance and Paik (2002), many expatriate managers have serious problems during their foreign assignments. These challenges include trying to understand varying societal norms and adjusting to living in an unfamiliar country (Mezias, & Scandura, 2005). Varma and Russell (2008) describe three factors that impact the number of women on expatriate assignments. First, the value and level of pre-assignment training available to women is not equal to that of men. Expatriate pre-departure training has traditionally been lackluster (Vance and Paik, 2002). Second, while on assignment, the amount of information given to the expatriate is directly related to the ability to accomplish tasks and ease of adjustment. Finally, the return or "repatriation" method the organizations utilizes is an essential determinant of acceptance of the assignment (Varma and Russell, 2008).

REPATRIATION

According to Scullion, there is a limited number of international managers because of a multitude of variables which include repatriation (1994). In fact, research states that repatriation is more difficult than expatriation (Gregersen & Black, 1996; Gregersen & Stroh, 1997). Repatriation has received very little attention from researchers because problems were expected to be associated with departure, not returning (Torrington, 1994; Vidal et al., 2008). Literature on returning to the home country suggests the problems that occur during the repatriation phase often result in the expatriate leaving the organization (Bennett, 1993; Crawford, 1993; Feldman & Thomas, 1992, Scullion, 1994; Linehan & Scullion, 2002a). While on assignment, the parent company could have experienced strategic realignment and restructuring of top executives (Linehan & Scullion, 2002c). Expatriates will obtain new skills and talents during their overseas assignments that oftentimes attributes to their new behavior when they arrive home (Brett & Stroh, 1995). Linehan and Scullion's (2002a) review of literature on repatriates concludes expatriates managers have the following problems (p. 651):

- repatriates experience significant changes in their individual and professional lives
- repatriates' newly acquired skills are unrecognized and not utilized by organization
- repatriates feel neglected by headquarters and feel overlooked for career advancement
- repatriates feel they have outgrown their organizations
- repatriates and their families have difficulty adjusting to home culture
- repatriates feel that long term career goals aren't effectively managed.

Companies should focus on the retention of expatriates to increase their competitive advantage (Vidal et al., 2008).

In the paper titled "The repatriation of female international managers: An empirical study," Linehan and Scullion (2002a) examine the return of senior female managers from their international assignments. In this study, 50 senior female managers were selected from Fortune 500 companies. Each of these women had to be in senior management and had to have a minimum of one international assignment. Linehan and Scullion's study was based on the observations of 32 of the 50 managers. Initially, interviews conducted in 1998 primarily focused on the career move. Then in 2000, another interview was conducted that focused on the repatriation phase of the career move. These in-person interviews utilized an interview guide to maintain accuracy of the questions.

According to Linehan and Scullion (2002b), few organizations provide the necessary support during the repatriation of an international assignment. Upon return from an international assignment, there might not be a job identified for the expat and it might take anywhere from 6 to 12 months to assimilate back into the organization (Linehan and Scullion, 2002a). The 32 female managers reported they experienced tokenism, seclusion, banishment, and difficulty obtaining a favorable job assignment (Linehan and Scullion, 2002b). The female managers "believed that if they had the support of mentors or networks during their international assignments the re-entry process might have been easier, as they would have been informed of developments in their home organizations while abroad" (Linehan and Scullion, 2002b, p. 654). The managers that had received mentorship in the study credited these relationships with the advancement of their careers. Linehan and Scullion (2002b) conclude "in an international management context, and particularly at the repatriation stage of the international career move, a mentoring relationship is even more important than in a domestic management" (p. 654). The mentors provided

the female international managers with guidance and useful preparation throughout the return phase of their international assignment.

In the second paper titled "Female Expatriates: The Model Global Manager," Tung (2004) examined 160 male and female expatriates. Tung asked the question, "How satisfied are women with expatriation and repatriation?" (2004). Most of the expatriates cited their expatriation enjoyable but were displeased with the repatriation. According to Tung, if a job was secured upon arrival back to the host country after the assignment was complete, responses were favorable. Compared to the men in the study, females reported a lower level of approval of the repatriation (Tung 2004). Tung (2004) concludes females reported a negative view of repatriation because of the numerous barriers they still had to overcome.

MENTORING

Current research advocates mentoring is potentially more essential for the advancement of a women's career compared to men (Linehan, 2002, Burke & McKeen, 1994; Collins, 1983). In an effort to remain globally competitive, many firms have to realign rapidly and modify processes frequently (Harvey, McIntyre, Thompson Heames, & Moeller, 2009). In response to these changes, firms have begun to cultivate a learning environment throughout their organizations and is an integral part of the improvement of female global managers (Harvey et al., 2009). Eight out of 10 executives from firms interviewe, identified support provided to expatriates upon return as a significant function (Bailey & Dragoni, 2013). These executives also stated that support is achieved through an array of processes, one of which was the use of mentors for expatriates (Bailey & Dragoni, 2013). According to Whitely, Dougherty, and Dreher, mentoring is an "intense development relationship of relatively long duration in which protégés receive a range of career and psychosocial help exclusively from one senior manager (1991, p. 333). Higgins and Kram (2001) state that mentoring is a network of relations that span the entire career of a protégé. Studies associate having a mentor with increase of job satisfaction (Kammeyer-Muller and Judge, 2008) and credit mentors with career advancement (Scanddura, 1992, Whitley et al, 1991, 1992).

CONCLUSION

Managers view international assignments as essential to their career advancement both in their current organization or elsewhere, but express concern regarding repatriation (Stahl, Miller, & Tung, 2002) To remain competitive in today's economically diverse environment, companies

have to excel at both recruitment and retention of expatriates (Stahl et al., 2002). If companies desire to retain employees upon repatriation, they will need to do a better job of mentoring these employees (Stahl et al., 2002). According to the 2013 Brookfield Global Trend "Services Report," 76 percent of repatriates leave the organization within two years of returning to their home country (Varma and Russell, 2008, p. 203). Unfortunately, literature on women in senior-level management positions is lacking (Adler, 1997). In particular, there is a limited number of studies focusing on the repatriation of women corporate executives (Linehan, & Scullion, 2002b). Additional research should focus on the impacts of mentoring programs during the repatriation phase of female senior managers. There may be a lasting negative impact on the performance of the firm directly resulting from the lack of consideration placed on the repatriate process (Linehan, & Scullion, 2002b).

The research conducted by Linehan and Scullion can be used by global firms to identify the needs of female senior managers and foster collaboration throughout the organization. Tung's (2004) study concludes that women are suitable for international assignments, and more importantly, they possess the wherewithal to overcome the barriers that await them when they arrive back to their host country. Individuals that have successfully completed assignments abroad add value to the firm and high focus should be placed on their retention (Martin & Anthony, 2006). Organizations can use the findings in this article as a foundational tool to minimize the deficiencies in the repatriation processes and to gain a competitive advantage. In addition, the findings can be used to address the low numbers of female expatriates on assignments.

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