Fall 2018

International Journal of the Academic Business World

Volume 12 Issue 2

International Journal of the Academic Business World

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FALL 2018, VOLUME 12 ISSUE 2

INTERNATIONAL JOURNAL OF THE ACADEMIC BUSINESS WORLD

JW PRESS

MARTIN, TENNESSEE

Published by

JW Press

P.O. Box 49

Martin, Tennessee 38237

Printed in the United States of America

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ISSN 1942-6089 (print)
ISSN 1942-6097 (online)

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Investigating Concussion Cost Management: Options for the NFL

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ABSTRACT

Americans have recently been made aware of the link between playing football and suffering from long-term brain injuries. On February 6, 2017, retired National Football League (NFL) players became eligible to register with the NFL Concussion Settlement (the Settlement). The Settlement will compensate thousands of former players who suffer from long-term neurocognitive diseases. According to the terms of the Settlement, two groups of players will not receive compensation from the settlement: those who declined to participate in the Settlement and those who retired after July 7, 2014. These players were not members of the settlement class and, thus, will retain rights to sue the NFL for their injuries. In order to protect itself from thousands of potential lawsuits, the NFL must limit its liability through the use of a trust or by revising the existing exculpatory clause in the NFL contract. The trust is the more expensive but the safer option, and the contract revision is the less expensive but riskier option. This paper examines both options.

Introduction

In 2011, the NFL and the sport of football in America were forever changed when thousands of former players filed suit for concussions and other head injuries they had sustained as a result of years spent playing for the League. The former players claimed the NFL concealed the link between playing football and suffering from long-term brain injuries. The case was eventually settled in 2015. While the Settlement will compensate numerous retired football players, any player having a retirement date after July 7, 2014, is not eligible to file a claim under the Settlement. Although the NFL has taken great measures to protect them, current players continue to receive head injuries due to the dangerous nature of football. Since these players were not included in the class that released all claims under the concussion lawsuit, they can file additional lawsuits against the NFL for their injuries. This project proposes two alternatives that the NFL may argue protects them from future litigation.

This paper is divided into three parts. The first part presents the history of the NFL in relation to the concussion

controversy and defines essential terminology regarding sports injuries to the head. The second part of this paper proposes the first alternative to the NFL's problem, the creation of a trust and describes three (3) existing trusts that provided the framework for the creation of this project's trust. The final part of this project details the second alternative, which is the revision of the current exculpatory clause found in NFL player contracts.

Definitions of Essential Terms

Football is classified as a collision sport, so players face a higher risk of injury than athletes in other sports. A common injury and the injury at the center of the NFL's recent legal controversy is the concussion. According to the CDC, concussions are defined as a type of traumatic brain injury caused by a hit to the head or body that causes the head and brain to move rapidly back and forth ("What is a Concussion," 2017). The other most highly publicized injury in the NFL's Concussion Case is the chronic traumatic encephalopathy (hereinafter referred to as "CTE"). The CTE Center at Boston University defines CTE as, "a progressive degenerative disease of the brain found in athletes with a history of repetitive brain trauma, including symptomatic concussions as well as asymptomatic subconcussive hits to the head" ("What is CTE," 2009).

Background of the NFL and Concussions

Concussions have been a problem for the NFL for the last two decades. In 1994, the NFL established the Mild Traumatic Brain Injury Committee (MTBI) to research brain injuries from football, and Merrill Hoge became one of the first players to explicitly mention a concussion as the reason for his retirement. In 1997, the NFL established a new concussion protocol. The American Academy of Neurology proposed that "players should be removed from the [game] if they lose consciousness or exhibit any concussion symptoms 15 minutes post-injury" (Ezell, 2013). This rule was the NFL's initial attempt to protect players from sustaining further brain damage after a concussion. From 1999-2006, the issues surrounding head injuries in football developed even more tension: Mike Webster blamed publicly his long-term head injuries on his career and died soon thereafter. Thus, neurologists soon proposed the link between sustaining a concussion and suffering from a long-term brain injury, and consequently, researchers published many articles related to risks associated with concussions, many of which the MBTI rebuked (Ezell, 2013). In 2011, Ray Easterling filed the first lawsuit concerning concussions, which resulted in the class action suit discussed later in this paper (Ezell, 2013). Finally, in 2013, the NFL instituted additional rules to protect players from concussions. Although the final approval of the Settlement would not happen for more than two years, the Settlement was proposed and accepted in August 2013 (Ezell, 2013). During the 2015 NFL season, concussion spotters became a mandatory addition to the press box during games. ("New Rules for the 2015-16 Season"). Also the NFL created policies for punishments for violations of concussion rules and protocols. The punishments included fining players and removing draft picks from teams (Belson, 2016).

In re. NFL Players' Concussion Injury Litigation

Introduction

Seventy-three former NFL players filed the first lawsuit concerning the concussion issue on July 19, 2011, in the Superior Court of California, Los Angeles County. After several similar cases were filed, the lawsuits were combined to form a multidistrict litigation (In re NFL Concussion, 2015). On June 7, 2012, a Master Administrative Long-Form Complaint and a Master Administrative Class Action Complaint were filed charging the NFL with a "duty to provide players with rules and information that protect [players] as much as possible from short-term and long-term health risks." The long-term health risks mentioned in the complaints include mild traumatic brain injuries from repeated hits to the head (In re NFL Concussion Complaint, 2012). The following are all complaints that the former players asserted: the NFL did not take proper precautions to protect players from head injuries, the NFL created a culture surrounding football which encouraged players to play despite being injured, the NFL and MTBI hid the link between football and brain injuries, and head injuries sustained in football games could lead to several other head issues.

An important factor to consider is the relationship of the NFL to the players. The NFL is an association of professional football teams that are independently-owned and operated. The Plaintiffs were not in the employment of the NFL; instead, they were employed by each of the individual teams. One of the named defendants is NFL Properties, LLC. That company is the successor-in-interest to the NFL Properties, Inc., and deals primarily with the equipment used by all NFL teams. Riddell, Inc. (also a named defendant) is involved in the "designing, manufacturing, selling, and distributing of football subject equipment, including helmets, to the NFL" (In re NFL Concussion Complaint, p. 8). From 1918 until 2013, Riddell was the

official helmet of the League. The other listed defendants fall under the control of Riddell.

Path to the Settlement

The NFL argued that both complaints should be dismissed because it asserted the claims were preempted by portions of the Collective Bargaining Agreement (p. 363). In July 2013, the parties were ordered to mediation. After negotiating for two months, the parties agreed to the initial terms of the Settlement which "included $765 million to fund medical exams and provide compensation for player injuries" (p. 364). Because the parties were negotiating the Settlement, the judge postponed her decision regarding the motion to dismiss (In re NFL Concussion, 2015).

After negotiating for an additional four months, the parties reached an agreement on the Settlement. The class action complaint was filed in January 2014 and "sought preliminary class certification and preliminary approval of their proposed Settlement" (p. 364). The motion was denied because the judge believed "the capped fund would exhaust before the 65-year life of the Settlement" (p. 364). If the fund were to run out before the life of the Settlement, former players who qualified for compensation would not receive it. The judge was also concerned this Settlement would free other football leagues at all levels, such as the NCAA, from claims previously made against them (In re NFL Concussion, 2015).

After negotiating for five additional months, the parties reached a three-part Settlement. This Settlement removed the fund cap for proper diagnoses so that all valid claims would be compensated over the life of the Settlement (In re NFL Concussion, 2015). In June 2014, the judge approved Class Counsel's motion for "preliminary class certification and preliminary approval of the Settlement" (In re NFL Concussion, p. 365, 2015).

Settlement

The Settlement contains three parts: the Monetary Award Fund (MAF), the Baseline Assessment Program (BAP), and the Education Fund. The MAF compensates players for their damages, the BAP provides claimants with neurological examinations, and the Education Fund educates players about the importance of brain health (In re NFL Concussion Case, 2015). The largest part of the Settlement is the MAF, which is defined as "an uncapped, inflation-adjusted fund that provides cash awards for Retired Players who receive Qualifying Diagnoses" (p. 365). The six qualifying diagnoses for which players can be compensated in order of increasing severity are Level 1.5 neurocognitive impairment (mild dementia), Level 2 neurocognitive impairment (moderate dementia), Alzheimer's Disease, Parkinson's Disease, and Death with CTE (In Re NFL Concussion, 2015), and Amyotrophic Lateral Sclerosis (ALS).

If a retired player receives a qualifying diagnosis from a qualified MAF Physician or a Qualified BAP Provider, he will receive an award, even if he cannot prove the NFL caused the injury. The maximum award a player may receive depends upon his diagnosis. Maximum awards amounts for Level 1.5 neurocognitive impairment, Level 2 neurocognitive impairment, Alzheimer's Disease, Parkinson's Disease, Death with CTE, and ALS are $1,500,000, $3,000,000, $3,500,000, $3,500,000, $4,000,000, and $5,000,000, respectively. In addition, if a football player is later given a more serious diagnosis, he will receive the difference between the initial award and the amount awarded to his new diagnosis (In re NFL Concussion Case, 2015). Several other factors determine the award a player will receive, such as, but not limited to, his age, the number of eligible seasons played, and subsequent strokes. Due to the uncapped nature of the fund, everyone who qualifies and who timely registers will receive an award (In re NFL Concussion Case, 2015).

Area of Study

Over the next several months, former NFL players will be allowed to begin filing claims under the Settlement. While this Settlement will aid numerous players, the ones who retire after July 7, 2014, will not receive any compensation for their injuries. To offer an additional level of analysis, these players fall into two subcategories, those players retiring between July 8, 2014, and December 31, 2016, and those players retiring after December 31, 2016.

Both of these groups can still sue the NFL for concussion-related injuries sustained while playing football. Although the NFL has taken safety measures by implementing new concussion protocol, players are still subjected to head injuries because of the nature of the game. The following two parts of this paper present two solutions to the NFL's liability problem: the creation of a trust and the revision of the existing exculpatory clause in the NFL contract.

Course of Action #1: Creation of an NFL Concussion Trust

According to the IRS, a trust is defined as, "a relationship in which one person holds title to property, subject to an obligation to keep or use the property for the benefit of another" ("Definition of a Trust," 2016). For a trust to be created, there must be a settlor, who creates the trust;

a trustee, who manages the trust; a beneficiary, who will receive the trust's benefits; and "corpus" (p.1171), which is the property in the trust (Mann & Roberts, p. 1169-1174, 2017).

Relation to the Asbestos Litigation Trust Funds

The trust proposed by this project will use elements of the Asbestos Trust Funds that were created to compensate victims of asbestos exposure. Although much of this exposure occurred decades ago, workers are still filing claims with the trust funds and receiving awards. Similarly, eligible NFL players will be able to file a claim under the concussion trust at any point after their retirement for injuries they sustained while playing football. The claims process used by the Asbestos Trust Funds will also be adopted by the concussion trust (United States Government Accountability Office, 2011).

In the early 1960s, American workers began filing claims against their employers and the manufacturers of asbestos for the injuries they sustained as a result of asbestos exposure. Due to the immense number of past and future claims against asbestos manufacturers, many companies were forced to file for Chapter 11 Bankruptcy (United States Government Accountability Office, 2011). Filing for Chapter 11 allowed these companies to establish a trust fund that compensates present and future claimants of asbestos related injuries." (United States Government Accountability Office, p. 8, 2011). The liabilities of the asbestos manufacturing companies were transferred to the trust, so the companies were no longer responsible for the claims (United States Government Accountability Office, p. 9, 2011).

A person seeking to file a claim may choose between two review methods: individual review and expedited review. Expedited review is similar to the process that a former NFL player will follow when submitting a claim under NFL Settlement. The claimants must submit paperwork establishing exposure to asbestos and a qualifying illness. Individual review, evaluates the claim on an individual basis (United States Government Accountability Office, 2011). "In the individual review process, the trust may be able to take into account factors relevant to the individual claimant (dependents, pain and suffering, for example) and factors relevant to the litigation posture of the claim were it to have been pursued in the tort system (such as the jurisdiction and the track record of the law firm representing the claimant)" (United States Government Accountability Office, p. 18, 2011).

Relation to the Black Lung Disability Trust

In addition to elements used from the Asbestos Trust Funds, the trust in this project will also use elements from the Black Lung Disability Trust. Black lung, formally known as pneumoconiosis, is a lung disease suffered by coal miners after inhaling coal dust over a significant period of time ("Pneumoconiosis," 2012). The United States Government established this trust to compensate both former and current coal miners with this disease and also the families of coal miners who died from the disease. (United States Department of Labor, 2001). The Black Lung Disability Trust resembles the trust being recommended in this project because both trusts have the capacity to compensate current and future claimants. Just as a great number of people still work in coal mines, NFL football players will once again display their athletic skills this fall. Unlike the Black Lung and NFL trusts, asbestos is no longer used in the United States. The recipients of awards from Asbestos Trust Funds are only former workers who had exposure to asbestos and suffer from an occupational disease.

The Gene Upshaw Players Association's Assistance Trust Fund

The trust proposed by this project will also incorporate elements from an unrelated trust created to help NFL players with a variety of problems. Former NFL player and Director of the National Football League Players Association Gene Upshaw established the Gene Upshaw Players Association's Assistance Trust Fund to address various needs of former players. This trust is funded partly by fines levied on teams and players in the NFL. Each year, collected fine money is split evenly between this trust and the NFL Player Care Foundation ("Fines and Appeals").

Establishing the NFL Concussion Trust

First, this trust will be termed the NFL Concussion Trust. In order to establish this trust, the four necessary criteria must be met. First, the settlor of the trust shall be the Professional Athlete Foundation (PAF), which oversees the Gene Upshaw Players Assistance Trust Fund ("Gene Upshaw Player Assistance Trust Fund"). Appointing the PAF as the settlor distances both the NFL and the teams from the trust. Second, a trustee must be chosen to manage the assets of the trust. The PAF would appoint a trustee for this trust as it has for the preexisting trust. Next, the beneficiaries will be all NFL players who retire after July 7, 2014. The "corpus" in the trust will be financial capital.

Funding the Trust

The money used to fund this trust will come from three sources: NFL fine money, the NFL, and the teams. The money will be deposited into the trust annually based on a predetermined amount the parties must contribute yearly with the exception of the larger amount that must be contributed in the first year. The annual contribution amount will be determined from amounts established in the NFL Concussion Settlement and amounts set in the actuarial report prepared for the NFL Concussion Case. The first year's contribution must accommodate players who have already retired and players who will retire during the first year.

The following sections of this paper explain the calculations employed to determine the contribution amount per year. The first calculation represents the amount of money to be contributed in the first year to compensate players who retired after July 7, 2014, but before December 31, 2016. The second calculation determines the amount of money that must be contributed each year for the average number of NFL players who will retire.

Calculations for the Previously Retired Player Amount:

Step 1: The Number of Players who Retired since July 7, 2014

The first step in determining the amount of capital that must be contributed in the first year for those players who have retired since July 7, 2014, is to determine the number of players who have retired since July 7, 2014. A total of 115 players retired between July 8, 2014, and December 31, 2016 (i.e., 18, 43, and 54 players in those respective years ("NFL Transactions," 2014-2016).1

Step 2: The Number who will Receive a Qualifying Diagnosis – Actuarial Report

The next step in calculating the first-year contribution for previously retired players is determining the percentage of players who have retired since July 7, 2014, who would participate in the Trust due to receiving a qualifying diagnosis. To find this percentage, data will be used from the actuarial report prepared for the lawsuit. The total number of players estimated to participate and receive a qualifying diagnosis (3,596) will be divided by the total number of people who have ever played in the NFL (21,100) to yield 17.04% of pre-existing retirees who are expected to receive a qualifying diagnoses. This percentage will then be multiplied by the number of retired players since July 7, 2014 (115). (Analysis Research Planning Corporation, 2014). The number of players (115) multiplied by this percentage (approximately 17.04%) equals approximately 19.599 players who have retired since July 7, 2014, will participate in the Trust, and would receive a qualifying diagnosis.

Step 3: The Cost for each Qualifying Diagnosis

The third step in determining the first-year contribution is identifying the percentage of the 19.599 players calculated in Step 2 who will receive each qualifying diagnosis. In the NFL Concussion Settlement, each illness was ranked according to its severity and given a maximum dollar value. Retired players are not, however, guaranteed this maximum amount. It can be reduced by several different factors including a player's age and the number of seasons he has played (In re NFL Concussion Case, 2015). The actuaries estimated the average award that each qualifying diagnosis will receive based on the offsets, and these estimates will be used in the calculation. The average awards for Level 2 Neurocognitive Impairment, Parkinson's disease, Alzheimer's disease, Death with CTE, and ALS are following: $140,000, $190,000, $190,000, $1,440,000, and $2,120,000 respectively. Although a Level 1.5 Neurocognitive Diagnosis exists (as was referenced earlier in this paper), the actuary who wrote the report stated that, "All Level 1.5 claims are assumed to progress to Level 2 and more serious levels" (Analysis Research Planning Corporation, p. 5, 2014).

To begin this calculation, the percentages of former players who will be diagnosed with each injury must be found. According to the actuarial report, 49.0%, 48.9%, 0.4%, 1.3%, and 0.5% will be diagnosed with Level 2 Neurocognitive Impairment, Alzheimer's Disease, Parkinson's Disease, Death by CTE, and ALS, respectively (Analysis Research Planning Corporation, 2014). Since 19.599 players will receive a qualifying diagnosis, we must multiply this number by the percentages of the actuarial in order to yield the number of retired players who will receive each specific diagnosis. When this equation is completed, the impact of the diagnosis is estimated to be 9.604 players with Level 2 Neurocognitive Impairment, 9.584 players with Alzheimer's Disease, 0.078 players with Parkinson's Disease, 0.255 players will die as a result of CTE, and 0.098 players with ALS (Analysis Research Planning Corporation, 2014). Now that these numbers have been calculated, the average award for each diagnosis can be determined. The average awards will be used because few to zero players will receive the maximum due to the offsets. When the number of retired players with each diagnosis is multiplied by the average award for each diagnosis, the following amounts would be needed for each in-

1 The end date for the purposes of this project was December 31, 2016, because January 2017 data was not available at the time of project completion.

jury: 1,344,560 for Level 2 Neurocognitive Impairment, $1,820,960 for Alzheimer's, $14,820 with Parkinson's, $367,200 for Death with CTE, and $207,760 for ALS. When these numbers are summed, we can determine that $3,755,300 must be contributed to the trust to compensate players who retired between July 7, 2014, and December 31, 2016 (Analysis Research Planning Corporation, 2014.

Calculations for the Amount to be Contributed Annually

Step 1: The Average Number of NFL Players who Retire Each Year

The first number to be calculated to determine the annual contribution amount for this trust fund is the average number of NFL players who will retire each year. The average number of retirements in a year is being used in this calculation because it is an appropriate level of funding for the trust. The average number of players who retire each year has varied over the last ten years. The number of retirements increased since the connection between football and long-term head injuries became public.

The authors of this paper chose ten (10) years as the sample size because it reflects the recent trend in player retirement, such as the concussion crisis. The average number of players who have retired from 2007-2016 was 34.3 players ("NFL Transactions," 2007-2016). This number is this project's estimate of the average number of players who will retire each year for the next several years. The proposed trust will have to reevaluate the climate surrounding football at a later date to determine if this number still accurately reflects the number of retirements. As players become more aware of the risks associated with playing football, especially the risk of long-term head injuries, they will be more likely to retire at a faster rate ("NFL Transactions," 2007-2016).

Step 2: The Number of Players who will Likely Receive a Qualifying Diagnosis

The second step in determining the amount that will be contributed annually is determining the percentage of players who will participate and likely receive a qualifying diagnosis. An average of 34.3 players have been predicted to retire each year, but not all of these players will participate and receive a qualifying diagnosis. To begin this calculation, the percentage of players who will file a claim and receive a diagnosis must be used and was previously calculated to be 17.04% (3,596/21,100) (Analysis Research Planning Corporation, 2014). This percentage should then be multiplied by the average number of players expected to retire each year (i.e., 34.3). The number of players who are expected to retire each year and who will participate and receive a qualifying diagnosis is 5.84 (17.04% x 34.3).

Step 3: The Cost for each Qualifying Diagnosis

The third step is to determine the cost for each qualifying diagnosis. As done in the previous calculation for the first-year's contribution, we will use the average award amounts. The initial step in this calculation is determining the percentage of players who will have each qualifying diagnosis. This result is found by multiplying the percentages contained in the actuarial report by the number of players who will retire every year and who will participate and likely receive a qualifying diagnosis. After these numbers are determined, they must be multiplied by the average amount for each diagnosis, which also comes from the actuarial report. Using the actuarial report previously described, the percentages of diagnosis multiplied by the number of players likely to receive a diagnosis results in 2.862 players with Level 2 Neurocognitive Impairment, 2.856 players with Alzheimer's Disease, 0.023 players with Parkinson's Disease, 0.076 players will die as a result of CTE, and 0.029 players will be diagnosed with ALS (Analysis Research Planning Corporation, 2014). Now that the number of players who will receive each qualifying diagnosis is determined, this number must be multiplied by the average award amounts (listed earlier) for each level of illness. The totals for each qualifying diagnosis are $401,800 for a Level 2 diagnosis, $545,300 for an Alzheimer's diagnosis, $4,370 for a Parkinson's diagnosis, $109,440 for a Death by CTE diagnosis, and $61,480 for an ALS diagnosis. The sum of these awards equals the amount to be contributed annually to the Concussion Trust Fund, which is $1,122,390 (Analysis Research Planning Corporation, 2014).

In conclusion, the total amount to be contributed in the first-year to accommodate previously retired players is $3,755,300. The annual contribution amount is $1,122,390 in order to maintain the trust. During the first year, a total of $4,877,690 must be contributed by all three parties to cover both previously retired players and players who will retire during the first year.

The Breakdown of Each Party's Contribution

Three (3) different sources will contribute to this proposed trust each year and that amount must be contributed in the first year. The first source of funding will be the capital collected when players and teams are fined during the season. Currently, the NFL gives all money collected in fines to the NFL Player Care Foundation and

the Gene Upshaw Players Association's Players Assistance Trust. ("Fines & Appeals"). This money must still be allocated to the other two player trusts, so it will be evenly divided between the three trusts annually. With the addition of the concussion-related fines, the total fine amounts should increase over the next several years ("NFL Fines & Suspensions," 2007-2016). If the upward trend continues, the money collected from fines will eventually satisfy the amount that must be contributed annually to the fund, even after dividing the total between the three trusts.

The second and third sources of funding are the NFL and the teams. The contributions of the NFL and teams will equal the previously determined amount of $1,122,390 less the amount paid in fines. In the first year a much larger contribution must be made by the NFL and teams to accommodate the players who have retired from July 7, 2014, to December 31, 2016.

The amount the NFL and teams contribute each year to the proposed trust will be calculated by subtracting one-third of the fine money from either $4,877,690 or $1,122,390, depending on whether it is the first year or any of the following years. The resulting number will then be divided by two, thus the NFL and the teams will contribute pro rata. From this point, the amount the teams owe will be divided among the respective teams. Each team will contribute funds in proportion to the percentage of concussion-related fines they are responsible for relative to other teams. For example, if a team is responsible 20% of all fines, they will be responsible for 20% of the teams' total contribution. If no teams receive concussion-related fines during the course of the season, each team will be responsible for an equal share of the amount that the teams owe. In the first year of the trust's existence, the amount teams owe will be divided on an equal basis since the amount owed will be larger than in later years. Also, it will be split evenly because these players retired before the concussion-related fine was created.

Filing a Claim and Receiving Payment through the Trust

The filing process of this trust will mirror the process of both the NFL Concussion Settlement and the Asbestos Trust Funds. Only retired players are eligible to file a claim with the NFL Concussion Trust. Retired players must complete a registration form and receive approval by the trustee or the trustee-appointed committee. After completing registration, the player will be evaluated by a trust-appointed physician to receive a qualifying diagnosis. This trust will adapt the two types of review from the Asbestos Trust Funds, expedited and individual review (United States Government Accountability Office, 2011). Expedited review, is similar to the process that the NFL Settlement will use. Once a player's registration has been received, he will be evaluated by a physician, receive a diagnosis, and then may receive his award based on his diagnosis and offsets. Individual review, will take longer but could potentially lead to the awarding of larger awards. Claimants who file under individual review will still receive an examination from a trust-appointed physician to determine the existence of a qualifying diagnosis but will also have other aspects of their lives taken into consideration such as a claimant's family obligations, pain and suffering, and financial situations.

In addition to the required information, the registration for the NFL Concussion Trust will also contain a "Release of Claims" section. This clause will state that a player who chooses to participate in the NFL Concussion Trust and who receives an award will release all claims against the NFL pertaining to the NFL Concussion Case. This section will mirror the section included in the NFL Concussion Case Settlement documents.

Course of Action #2: Strengthen the Wording of the Exculpatory Clause

This portion of the paper provides a different approach the NFL could possibly explore. This approach would involve amending the language of any new contract among future players, the NFL, and the teams. In Section 23 of the standard NFL Contract, the NFL is released from all liability concerning the case White v. National Football League (The Securities and Exchange Commission, 2012). White specifically addresses an "antitrust class action against National Football League (NFL) challenging NFL's employment practices" (White v. National Football League, p. 1389, 1993). In legal terms, this is known as an exculpatory clause–which excuses a party from its liability due to its own tortious conduct. This approach could potentially save the NFL thousands of dollars and any potential lawsuits from future retired players. A trust would still have to be established for the players who previously retired. The recipients of that trust would include all players who retired after July 7, 2014, and before the revision of this clause in the contract. Players who sign a contract after the addition of the exculpatory clause will release the NFL from all liability and, therefore, will not need to be compensated. The drawback to this option is the court's severe scrutiny of exculpatory clauses, illegality, and the public policy implications that arise when employers attempt to disclaim employee liability (Mann & Roberts, p. 272, 2017).

Suggested Revision of Section 23 of the Standard NFL Contract

This portion of the paper suggests a revision to Section 23 of the Standard NFL Contract in order to release the NFL from any claims pertaining to In re. National Football League Players' Concussion Injury Litigation. The additional language will also contain references about the dangerous nature of football and assumption of the risk.

The NFL Concussion Case has been highly publicized in sporting news for the last several years, and the NFL has changed tackling protocol, added concussion spotters on the sideline at each game, and levied new fines for failing to follow proper concussion protocol ("New Rules for the 2015-16 Season"; Belson, 2016). At this point, professional football players should be aware of the potential head injuries that can stem from concussions sustained while playing football. By signing this contract and continuing to play the game of football, players are acknowledging they are assuming the risk of injuries related to playing the sport (Turcotte v. Fell, p. 439, 1986). Now that all players are aware of the risks, signing the contract with a clause addressing the risks and releasing the NFL from liability would have a better chance of withstanding legal scrutiny in court. The following paragraph will contain the original section (which prevented players from being able to sue for claims established in the White case) with the added portion in bold font to solve the NFL's liability problem.

"Player waives and releases any claims that he may have arising out of, related to, or asserted in the lawsuit entitled White v. National Football League, including, but not limited to, any such claim regarding past NFL Rules, the College Draft, Plan B, the first refusal/compensation system, the NFL Player Contract, pre-season compensation, or any other term or condition of employment, except any claims asserted in Brown v. Pro Football, Inc. This waiver and release also extends to any conduct engaged in pursuant to the Stipulation and Settlement Agreement in White ("Settlement Agreement") during the express term of that Settlement Agreement or any portion thereof. This waiver and release shall not limit any rights Player may have to performance by the Club under this Contract or Player's rights as a member of the White class to object to the Settlement Agreement during its review by the court in Minnesota. This waiver and release is subject to Article XIV (NFL Player Contract), Section 3(c) of the 1993 Collective Bargaining Agreement (CBA)." The NFL player also agrees to waive all rights and release all claims stemming from In re. National Football League Players' Concussion Injury Litigation. Understanding that football is a collision sport, players assume the risk of head injuries and the illnesses that stem from them. These illnesses include, but are not limited to, the qualifying diagnoses that are outlined in the In re. National Football League Players' Concussion Injury Litigation Settlement.

Although preferable to establishing a trust, this option is riskier. Some courts do not favor exculpatory clauses and will not rule in in their favor. If the NFL wishes to include an exculpatory clause, it should be easy to detect by players signing the contract. Since players have been made aware of the risk of sustaining long-term head injuries while playing football, this clause will be more likely upheld by a judge if any player challenged the provision in court.

Conclusion

In conclusion, now that the public and all players have been made aware of the link between football and brain injuries, the NFL and football leagues at all levels will continue to face criticism, scrutiny, and lawsuits from those affected. Although the new rules and fines instituted by the NFL will encourage player safety, concussions and other brain injuries will continue to affect players unless the very nature of the game of football is changed, and quite possibly, football becomes outlawed. As long as players are injured, the NFL will continue to face the threat of lawsuits.

Both the creation of the NFL Concussion Trust to compensate retired players and the inclusion of an exculpatory clause in NFL contracts will protect the NFL from future lawsuits stemming from concussions. Although including an exculpatory seems to be the preferable option, establishing the NFL Concussion Trust would provide the NFL with a definite and reliable alternative. The success of the Asbestos Trust Funds, the Black Lung Disability Trust, and the The Gene Upshaw Players Association's Assistance Trust Fund are proof this idea has merit. The annual contribution needed by the NFL and the thirty-two teams will continue to lessen as the amount of fine money collected continues to rise. Eventually, fine money may cover the total amount to be contributed each year.

At this point in the process, no other plans have been proposed to limit the NFL's future liability, even though the question has been posed. The NFL may choose an option that is vastly different than the two proposed here, but if the NFL is to protect itself and the game of football, it may be required to take action in the near future.

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A Quantitative Analysis of how well Financial Services Operations Managers are Meeting Customer Expectations

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ABSTRACT

The financial industry has undergone changes in the last decade due largely to the emergence of omnichannel retail operations and digital self-service. We use an in-depth survey and detailed quantitative analysis to determine how well customers' expectations have been met by banks in nine different global regions, with consideration given to the cultural differences between these regions.

Now that the "digital disruption" has reached banking, the industry is predicted to lose millions of jobs over the next decade (Finextra.com, 2016). This transformation will necessarily influence customer relationships and institutions' ability to meet customer expectations. The primary question being explored in this paper is to quantitatively determine whether customers' expectations have been met during this time of digital transformation.

Keywords: Banking, Operations Management, Quantitative Analytics, Customer Satisfaction, Customer Expectations, Omnichannel

INTRODUCTION

The business world has experienced a major paradigm shift in the past decade. Entering the new millennium, businesses had the internet and email, but online shopping had not yet emerged significantly. Specific to the financial industry, online banking was still new, and branch banking, while struggling with its identity, was still the representative face of a very traditional industry.

In nearly two decades since then, however, the business world, including the financial industry, has seen an acceleration of technology never witnessed before. New studies are finding that personal preferences drive some customers' behavior, but even with those considerations, there is still a combination of channels used in many cases to make purchasing decisions simply because it is easier (Rodriguez-Torrico, et al, 2017). Previous introductions of new channels (ATMs and Contact Centers) took decades to become mainstream, but suddenly banks found online banking and mobile banking becoming commonplace in record time.

Add to that the less-regulated financial technology companies competing for a share of the demand for financial services and the result is banks sensing a need for accelerated strategic planning to be able to successfully compete (Vasiljeva & Lukanova, 2016), (Ghosh, 2016).

RESEARCH QUESTION

The key pursuit of this study is to provide a quantitative analysis of how well banks are meeting their customers' expectations considering the exponential transformation in channel adoption and digitalization. This study will examine the responses from 9,000 respondents (~1,000 from each of nine countries), which were asked to respond

to questions about their preferences for communications (Table 1), a judgment of their primary bank's ability to deliver services reasonably and securely (Table 2), and their personal preferences with regard to financial services (Table 3). The scores represented in Tables 1 – 3 are aggregate rankings based on respondent preference scores along each of these measurements.

Table 1
Results for Communication

Question	Mean
Meeting face to face with a bank representative	77.89
Talking to my financial institution on the phone	75.76
Communicating through…	
email	73.74
the financial institution's website on my computer	69.98
an app on my mobile phone or tablet device	55.90
text messages	49.63
regular mail	47.31
the financial institution's social media site	45.86
Meeting via video conferencing tools such as Skype or FaceTime	43.93

Table 2
Results for Services

Meeting Needs Through Services	Mean
Can be trusted to protect my money	85.63
Protects my personal identity	76.84
Doesn't have hidden charges or fees	76.26
Follows through on promises	65.52
Enables anywhere anytime access to my accounts through online and mobile banking	61.96
Provides easy to understand pricing and terms	60.76
Offers products that are easy to understand and use	54.99
Helps me gain control over my finances	52.76
Gives me advice I trust to help me manage my money	52.00
Provides consistent account information at all points of contact	48.24
Helps me achieve the goals that are important to my life	46.92
Provides me with digital payment options for financial transactions	42.14
Rewards me for my business	41.27
Tailors products to my needs	40.59
Provides face-to-face personalized service	38.09
Has systems in place that respond fast enough to keep up with me	35.89
Is a company that is socially responsible	29.98
Anticipates my future needs	26.06
Offers more innovative products than other financial institutions	25.06
Makes it easy to set up new accounts	24.64

Table 3
Personal Preferences Results

Self-Description	Mean
I am sensible when it comes to spending money	79.20
I typically take care of my own finances without help from others	73.69
I am comfortable using new technologies for making transactions	68.27
I am financially stable	64.89
I shop around for the best interest rates	63.93
I would like to keep all of my deposits and loans at one financial institution	57.58
I seek out personal, one-on-one service when banking	57.06
I prefer to get financial advice from an expert than to make financial decisions on my own	54.15
I go out of my way to do business with financial institutions that are involved in my local community	44.96
I am willing to take big risks with my money for the possibility of big rewards	36.27

DEFINITIONS

Branch Banking – A physical facility where the customer enters and transacts business with a physical banking agent or using an on-premise *self-service banking device*. Typically referred to as "full service banking" because the physical facility can offer all products and services (account opening and servicing, lending, trust services, safe deposit boxes, teller transactions, cash management).

Digital Banking – The use of any digital device (computer, mobile phone, tablet) to perform banking contact or transactions.

Fintechs – Financial Technology businesses, generally started to provide niche technologies necessary or important to the field of financial services, but many of which are now offering direct financial services, usually without the same levels of regulatory oversight as required for chartered banking institutions.

Mobile Banking – Use of a mobile device (smart phone or tablet) to perform banking contact or transactions via a mobile app.

Online Banking – Use of the internet and customer-based log-in authentication to perform banking contact or transactions.

Self-Service Banking Device – An ATM or kiosk owned or controlled by the financial institution, which allows the bank customer to perform banking contact or transactions.

Virtual Banking – A relationship with a financial institution (or division) that offers banking services without available physical premises. All transactions are conducted over the phone or digitally by use of *online banking*, Contact (Telephone Banking) Centers, ATMs/Kiosks, or *mobile banking*.

OMNICHANNEL RETAIL AND BANKING

Financial Institutions have not suffered alone. The entire retail industry has seen a massive transformation at an unprecedented rate, and it has affected consumer purchase behavior (Blom, et al, 2017). Consider consumer electronics, which originally served as the bread and butter for specialty stores (Radio and TV Sales and Repair stores). The move to department stores such as Sears and Montgomery Ward, which interestingly began as the precursor to online commerce with their catalog ordering systems, was gradual and natural and largely driven by suburban development and took well over a decade. The emergence of electronic specialty stores, CompUSA and Circuit City, for example, took significant portions of electronics sales from department stores, but did not significantly change the model used to sell these products. Instead the model was more focused on value add and a sales force with specialized knowledge.

The proliferation of the internet took some time to establish consumer confidence, but once that happened it was inevitable that consumers would take advantage of benefits like being able to compare prices and order with the comfort of knowing they could easily return items. The concept of multichannel created new choices for customers. Many retailers moved to that model where the customer could shop either in store OR online. However, it is the retailers that created the omnichannel paradigm (i.e., a shopping experience that leverages mobile, online AND the retail store all for one purchase) that redefined

shopping and survived the rapid shift in consumer expectations.

Banking has been navigating a similar redefinition of financial services. Simply adding a new channel is not enough to meet customer expectations. Instead, consumers want to be able to leverage any channel at any time and oftentimes multiple channels together to meet a need. For example, receiving a targeted offer online while surfing the bank's website, talking to an online sales representative about options, scheduling an appointment with a banker using their mobile device and ultimately going to the branch to close the sale in order to establish a personal relationship.

THE FINTECH EFFECT

According to a CitiCorp study (Finextra.com, 2016), 96% of eCommerce sales in Asia (China) are completed without a bank's involvement. The idea of banking consumption expanding without banks as a necessary piece of the transactional structure, is sometimes a difficult concept to imagine. This is especially true for commercial, or business, banking (Walker, 2014). But, even with consumer banking, the trust factor that has protected banks' relationships has devolved in recent years and may eventually be replaced by less regulated Fintechs, which have managed to build trust and seem to have a better grasp on technology and customer service [Worthington & Welch].

Digital Disruption and the Effect on Channels and Traditional Banking

Banking began expansion into the branch model early in the 20th century. The ATM emerged in the 1960s and grew throughout the following two decades. The need for telephone support – especially with extended hours – led to the creation of the Contact Center in the 1990s and the proliferation of each of these three channels took incrementally shorter periods of time.

Since that proliferation has been exponential, it has led to an even quicker introduction and adoption, first, of online banking, and more recently of mobile banking. The concept of digital banking has allowed nontraditional financial services providers, with a limited intrusion of regulatory compliance, to introduce a more threatening competitive advantage over traditional banks. If Fintechs are able to supply financial needs without a bank, then banks must adapt or become irrelevant. Cook (2017) shows that traditional banks have struggled specifically with digital competitiveness because of the heavy weight they carry with their legacy systems.

REGIONAL EFFECT

North America has set the adoption pace for global banking for decades, but the emergence of digital channels has shifted the paradigm. In regions, such as South America and Asia, where a lack of common, easy access to the internet on personal computers (home computers, laptops and internet cafes and access points) prevented as quick of a move from traditional channels has led to the opportunity for a more prominent adoption of mobile banking.

As an example, in just three years (from 2011 to 2014), the region known as Latin America & Caribbean saw an increase in percentage of adults with a bank account grow from 39% up to 51%. Also, 28% of adults make payments directly from their account using a debit card (The World Bank, 2014).

MILLENNIAL EFFECT

Currently, Millennials are 26% of the population and 34% of the workforce. Fintechs are expanding their digital offerings and millennials are obvious targets for their services. A BI Intelligence (2015) report predicts branches will become obsolete in the near term, based on the current frequency of use. It further states that banks must become customer-satisfaction oriented or lose relationships. ATMs are predicted to become the phone booth of the 21st century and smartphones will become the foundational banking channel (BI Intelligence, 2015).

The world of banking is different for Millennials, though, than for earlier generations. There is an element of distrust for banking – especially the mega-banks that came about with the breaking of regulation, such as the Glass-Steagall Act – among this young generation that was coming of age during the worst recession since the Great Depression (Ghosh, 2016). That lack of trust for banks combined with an inherent trust of retailers, such as Amazon, make retention of Millennials difficult as Fintechs begin to court them.

CUSTOMER PREFERENCES

There is still a desire for one-to-one attention from banking providers on the part of typical retail customers and especially for business clients. These customers prefer in-person assistance for financial decisions, like first-home mortgages.

Interestingly, the findings of this research show that customers of all ages, including millennials, prefer to visit a physical branch (The Financial Brand, 2016). However, as a warning, Millennials are also struggling with trust when it comes to financial advising. Cutler (2015) shows that

they would usually rather research their own financial needs and solutions than turn to a financial adviser.

BANKING CUSTOMER SURVEY

Fidelity National Information Services (FIS®) has developed an annual survey among bank customers to help them understand how customer expectations are met or not met by their financial services providers. This current research is based on the survey delivered in 2015 to participants in 9 countries, with results reported in 2016. There were ~1,000 responses from each country (resulting in a sample size of n = 9,000). The survey was administered by a paid survey organization and the questions focus on customers' preferences for banking and use of financial technology.

Survey Technique–Pairwise Comparison

The questions were structured in this way – "What one of these statements does a better job of describing you?" The customer is provided ten statements and their overall response was determined by use of pairwise comparison. All statements are compared to two other statements. The respondent receives points from 0 to 120 depending on preference and strength of comparison statement. This research design helps reduce halo effects and is an alternative to the collection of attribute ratings.

Scoring was determined as follows:

- A score of 60 for winning over an attribute that won in its other pair
- A score of 50 for winning over an attribute that tied in its other pair
- A score of 40 for winning over an attribute that lost in its other pair or tying an attribute that won in its other pair
- A score of 30 for tying an attribute that tied in its other pair
- A score of 20 for losing to an attribute that won in its other pair or tying an attribute that lost in its other pair
- A score of 10 for losing to an attribute that tied in its other pair
- A score of 0 for losing to an attribute that lost in its other pair
- Communications with the Primary Financial Institution

This section focuses on a customer's preferences for communicating with their bank. The question was structured this way – "If you had a service issue to resolve with your primary financial institution which one of these methods would you prefer to communicate with them?" Once again, pairwise comparison analysis design was utilized.

The results (Table 1) indicate that more customers prefer personalized contact over less personalized. The top choice is for a face to face meeting (77.78%). This is followed closely by telephone support (75.76%) and email (73.74%).

As part of our analysis, we conducted a One-Way ANOVA on the measured customer preferences for communications with the customer's primary bank. We ran this analysis on the highest ranked communications method (Meeting face to face with a bank representative). The groupings were based on country code and we compared the means of the nine countries' responses. Below is the result of the ANOVA.

This analysis makes it clear that there are significant differences between the nine countries with respect to some bank customers' opinions regarding their relationship with their bank. This will be the next step in our analysis, which is to determine where the differences exist across all three measurements and try to determine which aspect of regionality is driving those differences. This will be an important study variable, especially for global banks operating in multiple markets.

Importance of Financial Institution Services

This section focuses on which services are most important from a customer's primary financial institution. The statements were structured around this question – "Considering the importance of items related to how financial institutions serve your personal banking needs, among the

	Sum of Squares	Df	Mean Square	F	Significance
Between Groups	307811.979	8	38476.497	44.720	.000
Within Groups	7740099.182	8996	860.393		
Total	8047911.160	9004			

following please select the MOST important and LEAST important among each of the following groups."

The researchers conducted a maximum difference calculation. Each respondent saw eight sets of five statements and were asked to select the most and least important in each set. The research team then used hierarchical Bayes estimation to compute individual utilities, which were scaled from 0 to 100 and averaged across all respondents.

With this segment of the survey, the customer needs focused strongly around trust, security and transparency (Table 2). There is also a demand for personalized service that contributes to the client's personal well-being. Online leadership, social responsibility, and innovation – undeniable strengths of typical Fintechs – tend to settle to the bottom of the list of importance, which could keep the door to competitive advantage open for traditional banks, which are typically viewed with high levels of trust.

CONCLUSIONS AND FUTURE RESEARCH

According to the survey and the associated statistical analysis, traditional banks still can leverage existing channels to provide personalized service, which could prove to be an advantage over Fintech providers, which tend to be nonpersonal, especially for any face-to-face interaction (Breitenstein & McGee, 2015). This is especially true if banks focus on customers' preferences for how and when they wish to interact with their bank (see Table 3). According to the detailed analysis, customers prefer to talk to bankers in person or on the phone (77.89% and 75.76%, respectively) over any form of digital communication.

The primary challenges will likely happen on the services side, where traditional banks tend to focus more on fee-based services, and because of repercussions from several security breaches within the industry. Data from the survey reveals that 85.63% of bank customers see trustworthiness with personal funds as the most important service that the bank offers. This is followed closely by protection of the customer's personal identity at 76.84%. The third most important service is fee transparency at 76.26% (Table 2).

One key to understanding the future of the banking industry is determining how banks will react to the intrusion of these Fintech providers and a lack of regulatory response. In addition, will banks adapt in such a way that they can keep all current channels (branch, ATM, contact center, online and mobile), which requires a substantial annual investment, and allow that to differentiate them?

Some large banks see themselves as Information Technology (IT) companies first, and banks second. London-based Barclays is now seen as a massive, secured data-management company that is leveraged by the U.K. government (American Banker, 2016). Historically, consumers trust their bank and many in the banking industry see this as a way for traditional financial institutions to take advantage of that trust to help them grow. But, there is also a strong interest in consumer's preferences about fintech adoption that must be considered.

There is published research on consumer preferences and banking technology adoption that is specific to some of the countries surveyed in this study, as well as other countries in those regions. In particular, the country of India has been the topic of differences between private and public banking as well as the use of Internet and Mobile banking. Sharma (2009) explains how India is rapidly developing technology that is moving the country quickly to a virtual banking environment. This drive to virtual banking is being driven by consumer demand as well as competition in the banking market. This competition has been driven from the private banking sectors quickly adopting technology. In India the private banks have been the winner in terms of the use of technology, even though 65% of the banks are public. This is reflected in research studies, Sawant et al. (2013) compared public and private banks with regard to customer satisfaction and E-banking, while Gupta and Agarwal (2013) looked at just overall customer satisfaction in banking. They showed generally more customer satisfaction with private banks over public institutions. It is not surprising that the private banking industry has grown faster than the private banking industry in India (Agrawal and Yadav, 2015).

In other research on the adoption of banking technology, the issues surrounding the adoption of internet banking was the topic of a paper by Kesharwani and Radhakrishna (2013). They look at factors that improve and inhibit adoption. Inhibitors are centered on the consumers' perception of possible risks associated with online banking. Kumar, et al. (2011) use a technology adoption model to look at how the Indian population intend to use internet banking. This includes the benefits that the technologies bring to the consumer. The costs to the bank to service an online customer is about a tenth of the cost for a branch customer. Not surprisingly the youth are the most likely to adopt and use online banking technology. Singh (2014) explores customers' perceptions and reasons for adopting mobile banking. The research confirmed the need for addressing security issues with the consumer.

Research regarding adoption rates were done in Pakistan (Ahmed, 2009) and in Omar (AL-Hajri and Tainall, 2008). The slower than hoped rate of adoption was a result of the consumer being unfamiliar with the technology and worries about security. Abbad (2013) developed a model of consumer behavioral traits and their decision

to adopt banking technology in Jordan. One major result is that e-banking leads to a better experience for the customers that use the technology. Traits of the adopters of internet banking in Singapore was the topic of Liao and Wong's (2008) paper. The use of the consumers' demographic information and customer satisfaction with internet banking in Brunei Darussalam was the topic of Seyal and Rahim's (2011) research. Education and income were major determinants of the adoption of banking technology. It was also determined that banks were not using their internet presence to improve customer relationships.

Other countries studied include Iran (Farahani and Khansoz, 2014) on technology adoption and its positive affect on efficiency. Latvia's online banking and marketing were the topics of Rullis (2010). The authors suggest that much more research needs to be done on the factors that influence the consumer to choose e-banking options. Yang and Ching (2014) look specifically at ATM cards and its relationship to the consumer life cycle in Italy's banking industry and its consumers. The models they produced allowed them to determine a best bonus level for signing up and using the technology.

Extension and Future Research

An additional question to be explored is whether there are also differences between rural, suburban and urban customers (Tolbert, et. al, 2014; Acharya, 2006). Localized preferences could lead to potential efficiency gains through location specific placement of technology and branches. In the 2017 version of the PACE study by FIS, this segmentation was included and will be explored in future research. In addition, the 2017 survey adds Small to Medium Businesses (SMBs) to the survey and these results will also be analyzed to determine if banking preferences and satisfaction differ among businesses as compared to consumer banking.

Data in this study may also be comparable to similar data collected by the World Bank in its Findex database.

The authors of this study also intend to:

1. Develop a model for technology adoption in banking to support a strengthened operations management model.
2. Provide a comparison of countries' preferences to banking technologies.
3. Develop recommendations for future placement of banking branches and technology based on customer preferences, needs and competitive advantage.

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Unfunded Pension Liabilities' Impact on Security Returns by Industry

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ABSTRACT

With unfunded pension liabilities totaling in excess of $2 trillion, publicly traded firms face a "fiscal cliff" of their own when it comes to the effect that these liabilities in turn have on firm bottom lines. With regard to assessing the effect that these pension liabilities have on stock prices, scant research exists. Extant studies find that unfunded pension liabilities increase riskiness of firms, thus placing pressure on firms' ability to generate needed future capitalization. Most research is silent with respect to the direct effect that pension liabilities have on major industries..

This study assesses the role that pensions have on security returns. A twenty year analysis (1996-2015) is conducted which includes analyzing 1,907 firms with unfunded/underfunded pension plans and 710 firms with fully funded pension plans. Findings suggest that when a firm maintains an underfunded pension plan, that there exists a significant negative correlation between accounting earnings and stock return. When, however, a firm maintains a fully funded pension plan, there is significant positive correlation between accounting earnings and stock return. The result is not good news for pension fund managers of firms with unfunded/underfunded pension plans.

In addition, an industry analysis was performed of six major industries for the underfunded pension plan firms. Findings suggest that the industrials and utilities industries contain the highest significantly negative correlation with accounting earnings and stock prices. This indicates that firms in these two industries should be particularly concerned about unfunded or underfunded pension plans because of the effect that they may have on accounting earnings, investor reaction, and thus stock price.

INTRODUCTION

In a study conducted in January, 2014, it was found that currently in the United States, publicly traded firms account for more than $2.5 trillion in unfunded pension liabilities. Staggering as it may seem, it pales in comparison to the $4.5 trillion in unfunded pension liabilities reported by State and Local governments, and this does not even address the reported $4.4 trillion of unfunded pension liabilities the Federal government faces [Feldstein and Seligman (2014)]. Since publicly traded firms operate on the premise of returning a profit to their shareholders, and thus contain a direct correlation to the valuation of firms' wealth through stock prices and the ability to raise capital, this study will focus on the impact of unfunded/underfunded pension liabilities of publicly traded firms.

The unfunded pension obligations of telecommunications giants AT&T and Verizon Communications, Inc. could double within the next five years, thus dropping the plan below the mandated funded ratio of 80% and requiring even larger cash contributions into the fund. In fact, these two firms have the highest unfunded pension liabilities of any in the Standard and Poor's 500 index [Global Institutional Investors Survey (2015)]. U.S. Steel also under pressure because of their $2.5 billion unfunded pension liability, has recently begun to drop some retirees from their pension plan. The direct impact of these scenarios is to put pressure on firms' bottom line through the realization of greater pension expense during the current accounting period. It forces firms to pursue strategies which permit minimizing expenses in other areas of operation in order to compensate for the increase in pension expense. Many firms have had difficulty in achieving this goal. The end result by some is lowered income, reduced stock prices and eventual under capitalization as these firms find it harder to raise capital for the future.

Although this problem seems to have been a long time in coming, very little research has been conducted which fully assesses the impact of unfunded/underfunded pension plans on stock prices. This study will attempt to do just that. An analysis will be made of U.S. publicly traded firms that are unfunded/underfunded and a comparison will be made to firms with fully funded pension plans in order to assess any differences in security prices over time. In addition, this analysis will be stratified by major industry to assess whether or not certain industries possess greater concern in the pension liability threat.

LITERATURE REVIEW

Bulow, Morck and Summers (1987) utilize pension data from the 1980s and find that market valuation of firms reasonably reflect their pension funding structure. That is, availability and stability of a pension plan influences stock prices upward while termination and instability of a pension plan tend to influence stock prices downward. Other studies hint of stock price impact through the influence of the debt market. Ederington (1992) finds that bond ratings are an informational source to stockholders and thus impact stock prices. Iskandar and Emery (1994) identify underlying influencers which affect bond rating. Pension underfunding is one of those influencers. Carroll and Niehaus (1998) is the first study to focus solely on years after the passage of Statement of Financial Accounting Standard #87 (Accounting for Pensions) and finds that unfunded/underfunded pension plans reduce debt rating more than any other variable assessed. Thus a vital link is established from unfunded/underfunded pension plans to stock prices through the impact on a firm's debt rating.

Chan, Jegadeesh and Lakonishok (2006) assess the quality of earnings and its impact on stock prices. Their study shows that unfunded/underfunded pension plans have a negative impact on earnings quality and thus may affect stock prices. Fama and French (1993) analyze risk factors in security returns and find that highly unfunded pension liabilities represent a significant risk to the security returns of a firm. Francesco (2009) assesses firms that underfund pension plans versus those that overfund pension plans. Although the time period is brief and the sample small, their finding is that there is a significant difference in security price reaction.

HYPOTHESIS DEVELOPMENT

Three hypotheses are tested. First, Ball and Brown (1968), Beaver, Lambert and Morse (1980), Basu (1997) and Ball, Kothari and Robin (1998), all incorporate a research design that associates accounting earnings to changes in market values of equity. These studies indicate, (with varying degrees of significance depending on such factors as firm size, firm risk or industry of the firm), that there is an overall significant positive correlation between accounting earnings and a firm's security price. Drawing upon this literature, an in order to establish a baseline upon which to further this line of research, the following hypothesis is stated:

H1: The information content of accounting earnings is positively correlated with security prices for ALL firms selected in the study sample.

The second hypothesis draws from recent findings that investors react differently to firms that exhibit underfunding of pension plans versus those that overfund a pension plan, Francesco (2009). This finding is a secondary result of a study which assesses mainly cash flows and is limited in scope in that very few overfunding firms were targeted. The research follows that of Fama (1970), Jensen (1980), and Ding and McInish (2008) which find pension accruals relevant to investor behavior. This results in the second hypothesis, stated in the null form:

H2: The information content of accounting earnings is not significantly different for firms that underfund a pension plan versus those firms that overfund a pension plan.

The third hypothesis draws from literature that is still undergoing development; that is, industry impact on pension liabilities. Fields (2001) assesses specific stakeholder groups in industrial firms and the impact on accounting accruals. Findings suggest that firms with a strong presence of labor union activity results in downward earnings trends due mainly to pension and benefit accruals. Bova (2012) finds that managers in industries where labor unions are strongest face disincentives in reporting earnings due to the potential for earnings reduction as a result of union-bargained pensions. Allegretto and Jacobs (2011) find that unions in the private sector are as influential as those in the public sector, and the impact is affecting economic wealth of firms through long term pension and benefit liabilities: Although a central theme in these studies is the presence of union activity, that is not a prime area of research in this paper. Instead, these studies focus on industry groups. It would be noteworthy information if it can be ascertained that certain industries with unfunded/underfunded pension plans have a higher propensity for adversely affecting stock prices. This leads to the third hypothesis stated in the null form:

H3: The information of accounting earnings is not significantly different across Industry groups for firms that underfund a pension plan.

RESEARCH DESIGN

This study focuses on analyzing the effect on security prices of firms with unfunded/underfunded pension plans versus firms with fully funded pension plans. The Electronic Data Gathering Analysis and Retrieval system (EDGAR), is used to identify firm detail during the study period 1996-2015.In addition, for inclusion in the sample, the firms must have the following characteristics: 1. Inclusion in Compustat; 2. Inclusion in Center for Research in Security Prices (CRSP); and 3. Inclusion in Investment Brokers Estimate Service (IBES). Also, this study evaluates only defined benefit pension plans which is the traditional pension plan offered in the U.S. throughout the 20th century. Defined contribution plans, typified by the 401K model, are not included in this study. The sample of firms and their breakdown is detailed in Table 1.

TABLE 1
STUDY SAMPLE SUMMARY

1996-2015	Underfunded Firms	Firms Fully Funded
Forecasts identified by EDGAR	2,008	781
Firms removed due to insufficient Compustat data	(67)	(40)
Firms removed due to insufficient CRSP data	(34)	(31)
Final overall sample	1,907	710

Test of Hypothesis 1

H1: Test of overall information content of the full sample

The purpose of this test is to assess the relative information content of the unexpected earnings to the security prices of all 2,617 firms in the twenty year sample. 10-K audited financial data is typically released by each publicly held firm within 75 days after the close of their fiscal year. Based on this information, stock traders respond along with the stock price itself. The prime belief is that earnings, more specifically, "unexpected earnings" was causing the stock price to move. This is a belief that was postulated as early as Ball and Brown (1968) and shown in numerous studies thereafter. The Dow Jones News Retrieval Service (DJNRS) was used to identify the date that each firm released 10-K financial data for the study periods. This date of data release is known as the event date. The following model is established for determining information content:

$$CARit = a + b1(UEit) + b2Bit + b3MVit + eit$$

Where:

CARit = Cumulative abnormal return firm i, time t
a = Intercept term
UEit = Unexpected Earnings for firm i, time t
Bit = Market model slope coefficient as proxy for systematic risk
MVit = Market value of equity as proxy for firm size
eit = error term for firm i, time t

The coefficient "a" measures the intercept. The coefficient b1 is the response coefficient for measuring the effect of unexpected earnings on security prices for all 2,617 firms in the overall sample (no distinction is made between underfunded firms and fully funded firms). In order to investigate the effect of information content on security prices, there must be some control for variables found in prior studies to be determinants of information content. For this reason, variables b2, representing systematic risk, and b3, representing firm size are included as controls in the study.

Unexpected earnings (UEi) is measured as the difference between the management earnings forecast (MFi) and security market participants' expectations for earnings proxied by consensus analyst following as per Investment Brokers Estimate Service (IBES) (EXi). The unexpected earnings are scaled by the firm's stock price (Pi) 180 days prior to the forecast:

$$UEi = \frac{(MFi) - (EXi)}{Pi}$$

For each firm sample, an abnormal return (ARit) is generated around the event dates of -1, 0, +1 (day 0 representing the day that the firm's financials were available per DJNRS). The market model is utilized along with the CRSP equally-weighted market index and regression parameters are established between -180 and -91. Abnormal returns are then summed to calculate a cross-sectional cumulative abnormal return (CARit).

Results H1

As indicated in Table 2, the response coefficient b1, representing unexpected earnings for all firms during the study period was .10 with a p-value of .05. The other control variables were not found to be significant at conventional levels. This finding confirms similar results by Ball and Brown (1968) and numerous other subsequent researchers who found a significant positive correlation between accounting earnings and firm stock prices. The baseline hypothesis, hypothesis one, which suggests that informa-

tion content of all firms in the sample would be positively correlated with stock prices, cannot, therefore, be overturned.

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 (VIP) was utilized. Values of VIP exceeding 1Ø are often regarded as indicating multicollinearity. In the test of hypothesis 1, a VIP of 1.7 was observed, thus indicating the non-presence of significant multicollinearity.

Table 2
Test of Hypothesis 1

Model: CARit = a + b1(UEit) + b2Bit + b3MVit + eit

a	b1	b2	b3	Adj. R^2
.Ø4	.1Ø	.19	.1Ø	.223
(.45)	(1.88)a	(.77)	(.42)	

b1= information content of all firms in the full sample
b2= control variable systematic risk
b3= control variable firm size

a Significant at the .Ø5 level
Sample= 2,617 firms, 1996-2Ø15

Test of Hypothesis 2

H2: Test of information content in underfunded firms versus fully funded firms

The purpose of this test is to assess the relative information content of the unexpected earnings to the security prices of firms that have unfunded/underfunded pension plans during the study period versus those firms with fully funded pension plans during the same period. A regression similar to the one utilized in Hypothesis 1, with similar parameters is again used. The following model is established for determining information content:

CARit = a + b1(UUEit) + b2(FUEit) + b3Bit + b4MVit + eit

Where:

CARit = Cumulative abnormal return firm i, time t
a = Intercept term
UUEit = Unexpected Earnings for Underfunded firm i, time t
FUEit = Unexpected Earnings for Funded firm i, time t
Bit = Market model slope coefficient as proxy for systematic risk
MVit = Market value of equity as proxy for firm size
eit = error term for firm i, time t

The coefficient "a" measures the intercept. The coefficient b1 is the response coefficient for measuring the effect of unexpected earnings on security prices for unfunded pension firms during the study period. The coefficient b2 is the response coefficient measuring the effect of unexpected earnings on security prices for fully funded pension firms during the study period. Control variable b3 represents systematic risk, and control variable b4 represents firm size.

Results H2

As indicated in Table 3, the response coefficient b1, representing unexpected earnings for firms with underfunded pension plans during the study period was -.1Ø with a p-value of .Ø5. The coefficient representing firms with fully funded pension plans during the study period, b2, was .19 with a p-value of .Ø1. The other control variables were not found to be significant at conventional levels. These results indicate that firms that maintain unfunded/underfunded pension plans exert a downward pressure on stock prices, while firms that maintain a fully funded pension plan tend to influence stock prices upward. This is consistent with recent literature by Francesco (2Ø Ø9), which indicates, in part, that from a behavioral perspective, firms with fully funded pension plans appear to be more settled and less risky to investors. Therefore, the hypothesis that there is no significant difference in information content of accounting earnings on stock prices between the unfunded and fully funded groups must be rejected.

Table 3
Test of Hypothesis 2

Model: CARit = a + b1(UUEit) + b2(FUEit) + b3Bit + b4MVit + eit

a	b1	b2	b3	b4	Adj. R^2
.Ø5	-.1Ø	.19	.17	.Ø5	.239
(.62)	(1.77)b	(2.26)a	(.67)	(.58)	

b1= unfunded pension firms, n= 1,9Ø7
b2= fully funded pension firms, n= 71Ø
b3= control variable systematic risk
b4= control variable firm size

a Significant at the .Ø1 level
b Significant at the .Ø5 level
Study Period 1996-2Ø15

Also, an assessment of the presence of multicollinearity was performed and a VIP of 1.9 was observed, thus indicating the non-presence of significant multicollinearity.

Test of Hypothesis 3

H3: Test of information content on earnings by major industry groups for firms that underfund pension plans

The purpose of this test is to assess the relative information content of unexpected earnings to security prices of firms with unfunded pension plans by major industry grouping. Only unfunded/underfunded firms are selected since, as seen in hypothesis 2, these firms have a greater tendency to influence stock prices downward. Therefore, these firms have the potential of being more problematic with respect to the future of defined benefit pension plans. Table 4 lists the major industries identified in the underfunded pension plan sample along with the number of firms in each industry.

Table 4
Underfunded Pension Firms by Industry
1996-2015

Industry	Firms
Consumer	173
Energy	231
Healthcare	398
Industrials	526
Technology	270
Utilities	309
Total	1,907

A regression similar to the one utilized in Hypotheses 1 and 2, with similar parameters is again used. The following model is used for establishing information content:

CARit = a + b1(DnUEit) + b2Bit + b3MVit + eit

Where:

CARit = Cumulative abnormal return firm i, time t
a = Intercept term
DnUEit = Unexpected Earnings Dummy variable for firm i, time t
n=1 Consumer
n=2 Energy
n=3 Healthcare
n=4 Industrials
n=5 Technology
n=6 Utilities
Bit = Market model slope coefficient as proxy for systematic risk
MVit = Market value of equity as proxy for firm size
eit = error term for firm i, time t

Results H3

As indicated in table 5, the response coefficient, b1, is broken out for each of the major six industries identified in the study (i.e., 1...6). As can be seen from the results, the coefficient for each industry is negative with two industries, industrials (4), -.13 (p-value ,01) and utilities (6), -.20 (p-value .01) demonstrating a greater downward pressure on stock prices due to the presence of unfunded pension funds. This may be explained by the heavy presence of unions in these two industries, [Bova (2012)]. Other control variables are not significant at traditional levels.

Because of this finding, hypothesis 3, which states that the information content of accounting earnings on stock prices is not significantly different across industries with firms that have unfunded pension plans, must be rejected.

Also, an assessment of multicollinearity was performed and a VIP of 2.1 was observed, thus indicating the non-presence of significant multicollinearity.

Table 5
Test of Hypothesis 3

Model: CARit = a + b1(DnUEit) + b2Bit + b3MVit + eit

a	b1(1)	b1(2)	b1(3)	b1(4)	b1(5)	b1(6)
b2	b3	Adj. R2				
.03	-.03	-.05	-.07	-.13	-.02	-.20
.11	.06	.245				
(.44)	(1.61)b	(1.66)b	(1.75)b	(2.35)a	(1.71)b	
(2.40)a		(.66)	(.49)			

b1(1)=consumer industry
b1(2)=energy industry
b1(3)= healthcare industry
b1(4)=industrials industry
b1(5)= technology industry
b1(6)= utilities industry
b2=control variable systematic risk
b3=control variable firm size

a= Significant at .01 level
b= Significant at .05 level

Study Period 1996-2015

CONCLUSIONS

The purpose of this study was to analyze pension liabilities of publicly traded firms in the U.S. The study compared firms with unfunded/underfunded pension plans to firms with fully funded pension plans for the period 1996-2015. A total of 1,907 firms with unfunded/underfunded plans were evaluated while 710 firms with fully funded plans were used in the study. In evaluating pension plans, this study is the first to use a study period greater than 5 years (i.e., 20), and it is also the first to analyze a significant number of firms. Previous studies include 50 or fewer firms. The results, therefore, should be robust and indicative of most U.S. publicly traded companies due to sample size and sample period. The results indicate that there is indeed a significant difference between firms with unfunded/underfunded pension plans and firms with fully funded pension plans with respect to accounting earnings' effect on stock prices. Firms with unfunded/underfunded pension plans negatively affect stock prices while firms with fully funded pension plans positively affect stock prices. Factors such firm risk and firm size were controlled for in arriving at these results. Therefore, a difference in pension fund management is established.

In addition, this study also assessed the effect of industry membership of those firms with unfunded/underfunded pension plans, something not done in previous research. Evaluation of six major industries indicate that each industry's accounting earnings are negatively correlated to stock prices with the industrials and utilities industries indicating negative correlation at greater statistical values. One attribute of the industry finding is that these two industries possess a higher number of unionized workers, a finding that previous research points to as a factor in downward earnings pressure.

These finding should be of value to corporate managers of pension funds in addition to investors when making investment decisions.

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Volatility Spillover and Comovement Between Stock Markets: Comparative Study for the US and Greek Crises

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ABSTRACT

This study examined impacts of the US and Greek crises on stock markets for a period of January 2005 and June 2012. The GARCH model is used to analyze comovement and volatility spillover effect between stock markets in Asia, Europe, and the North America. Some notable findings are as follow. First, stock markets in these regions had not been fully integrated. Second, the adjustment speed of stock markets to innovations due to these crises increased in most markets. Third, strong volatility spillover and financial contagion had been observed from the US market to other markets during the US crisis. Fourth, the US market had been dominant in European markets with significant impacts, but not in Asian markets. Fifth, the (developed) US market had more significant impacts on other markets than did the developing Greek market.

Key words: Comovement, financial contagion, GARCH, volatility spillover, and adjustment speed.

Introduction

Fast flow of information, advancement of technology, and progressive abolition of capital controls in recent years have brought big changes in the financial markets. This trend has been largely the result of efforts aimed at liberalizing capital markets in a bid to bring more cooperation between countries for economic ties and free trades. In a fully integrated system, financial markets tend to co-move more closely, and innovations ("shocks") in one market are likely to be transmitted to other markets to accentuate the risk of unstable volatility spillovers and financial contagion, especially, during the periods of financial crises. The additional risks beyond any fundamental economic links have long been of great concern to policy makers, fund managers, and academics alike because returns of globally diversified portfolios might be seriously affected (unstable, high volatility). In recent decades, investors have been exploring emerging markets to enhance diversification strategy (Goetzmann et al., 2005; Worthington & Higgs, 2004). If emerging markets are weakly integrated with those in developed markets, external shocks might have limited impacts on emerging markets, and the developed markets' investors may benefit by including emerging market stocks. If the emerging and developed markets are highly integrated, low volatilities of developed markets could reduce the emerging markets volatility, and the emerging markets' investors will benefit from more diversification benefits and a low cost of capital (Li, 2007).

In the recent decades, there have been many crises, namely, the 1997 Asian economic crisis, the 1998 Russian default crisis, the 2000 US Internet bubble, the 1997-1992 and 2002 Brazilian market crashes, the 2008 US financial crisis, and the 2009 Greek sovereign debt crisis. Among others, this study is to analyze impacts of the US and Greek crises of differing causes and scales on inter-market linkages, financial contagion, volatility spillover, and the adjustment speed of one market to innovations, originated in the other markets. The 2008 US crisis broke out in a private sector (mortgage market) of a developed economy whereas the 2009 Greek sovereign debt crisis broke out in

the public sector (sovereign debts) in a developing economy. And these two crises had significant impacts on many economies, financial markets, corporations, and individuals.

In the US, the credit boom expanded fast with subprime mortgage loans between 2001 and 2006. When housing market collapsed in 2006, foreclosures and defaults of mortgage loans sharply increased, and many firms started withdrawing funds from their money market accounts (around $140 billion). As banks claimed for more credit default swaps insurance policies, many insurance companies (e.g., AIG) went bankrupt, followed by the US stock market collapse. To avoid the banking system collapse, the US government injected trillion of dollars into the economy in 2008 through various rescue programs such as $200 billion for Bear Stearns and AIG by the Federal Reserve, $700 billion bailout package by Congress, and $150 billion for Fannie Mae and Freddie Mac by the US Treasury. The US crisis fast spread to other markets, demonstrating "financial contagion" in the end.

On the other hand, the Greek crisis broke out in 2009 due to mounting sovereign debts in the public (government) sector of a developing country. Greece experienced a massive trade deficit (nearly 9% of its GDP) between 2001 and 2011, and its public debt level reached to as much as €323billion in 2015. The lack of confidence due to perceived risk of defaults, inflow of foreign funds sharply decreased. The Greek government was forced to substantially cut its budget deficit and devalued its currency to attract foreign funds. Despite various efforts of spending cut, fiscal stimulus through tax hike, and financial reforms in 2010 and 2016, Greek economy plunged into a crisis. Greece became the first developing country which failed to repay the IMF loan in 2016.

During these two crises, public debts increased fast and interest rates fell sharply in both developed and developing countries, but governments had no or very limited ability to fight the potential looming recession. The serious impacts and damages of these two crises on financial markets had been big challenges to many economists and policymakers alike. This study is to analyze impacts of the US and Greek crises on financial markets. Specifically, this study will provide answers to the following questions: 1) how the US and Greek crises affect the volatility spillovers and the comovements between stock markets in three regions, namely, Asia, Europe, and the North America; 2) whether volatility spillovers are uni-directional or bi-directional between developed and developing markets; 3) how fast ("adjustment speed") one market reacts to innovations, originated in other market(s); and 4) how financial contagion affects inter-market linkages. Empirical findings will be of great use to advance risk management practices and the application of various hedging strategies for policy makers, portfolio managers, and investors.

This paper is organized as follow. Section II reviews the empirical studies, and Section III discusses data and presents empirical findings. Section IV concludes this study with suggestions.

Literature Review

High volatility and correlations breakdown due to these two crises resulted in unstable volatility spillover, comovement, and financial contagion. Empirical studies are categorized in three different groups: The first group of studies examines financial market integration for diversification benefits; the second group dynamic inter-market linkages and comovements; and the third group volatility spillovers across stock markets and industries

In the first group, Lessard (1976) shows that equity markets became segmented, not integrated in 1970s. Roca et al (1998) note that ASEAN-5 (Indonesia, Malaysia, Singapore, Thailand, and the Philippines) markets are closely linked each other in the short run but not in the long run. Gosh et al. (1999) report that during the 1997 Asian crisis, a group of stock markets (Hong Kong, Korea, and Malaysia) was significantly affected by the US market, another group by the Japanese market (Indonesia, the Philippines, and Singapore), and the third group was not affected by any other markets (Thailand and Taiwan). Chai (2003) finds that in the 1990s, Asian markets became more integrated each other, and the US influence remained strong in Asian markets. Cifarelli and Giannopoulos (2002) provide empirical evidence of strong inter-market relationship between European and Asian markets, and the US market alone plays a pivotal role in the transmission of news among the major stock markets for a period of 1990 and 1998.

In the second group, Philippatos et al. (1983) report stable intertemporal relations between developed stock markets. Roll (1988) finds low correlations between international equity markets. Eun and Sim (1989) note that the US market consistently had significant impacts on foreign markets, innovations in the US markets were rapidly transmitted to other markets, but foreign markets had no impacts on the US market. Meric and Meric (1989) report that intermarket relationships are stable in the long run but not in the short run. Lau and McInish (1993) find a big increase in international stock market comovements after the October 19, 1987. Parhizgari et al. (1994) show that the NYSE is dominant, and the causality is strong from the NYSE to other markets. Forbes and Rigobon (2002) find strong comovements between stock markets after the Mexican peso crisis (1994) and the Asian cri-

sis (1997). Worthington et al. (2003) report that Asian markets became more integrated during the Asian crisis (1997); developed and emerging stock markets became less integrated; and four markets (Hong Kong, Japan, Korea, and Singapore) accounted for most of the causal relationships after the Asian crisis. Laurenceson (2003) shows that stock markets had not been fully integrated, compared to strong linkages in goods and services markets between China and ASEAN-5. Yang et al. (2003) note that the short-run causal linkages and the long-run cointegration became stronger during the Asian crisis, and the US market had significant impacts on Asian markets. Hsin (2004) provides empirical results of significant international transmission effects between major developed markets in terms of returns and volatility, and the US market is the leading market for others due to its persistent and significant impact. Darrat and Zhong (2005) find strong evidence of long-run relationships between Asian markets before the NAFTA, but no significant relationships after the NAFTA implementation. Fooladi and Rumsey (2006) show that strong comovement and integration between stock markets had been counterbalanced by increased volatility of exchange rates, but there are still diversification benefits (in US dollars) to be exploited by investors. Haque and Kouki (2010) show that 1) the US and other developed markets became more integrated after the 1987 US market crash; 2) the comovement sharply increased for a short term, three months for developed markets and six months for the emerging markets; and 3) economic and geographical factors are the main factors of integration and comovements. Machuga and Wahab (2011) report that Asia-Pacific stock markets display asymmetries, and some Asia-Pacific markets comove higher with the US when the US returns are positive and others co-move lower with the US when the US returns are negative.

In the third group, Kanas (2000) finds strong volatility spillovers from stock returns to exchange-rate changes in six developed countries (i.e., Canada, France, Germany, Japan, UK, and the US), but not the other way. Huang and Yang (2002) note that after the 1997 Asian crisis, the volatility in the London and New York markets leads that of Tokyo, and the New York market leads the London market. Rim and Setaputra (2012) show that the US market became less integrated with stock markets in Asia during the 2008 US crisis, indicating the existence of diversification benefits for investors in these regions. Rim et. al. (2012) find strong uni-directional volatility spillovers from the US market to Asian markets. Tamakoshi and Hamori (2014) provide empirical evidence of bi-directional volatility spillovers between Greek long-term interest rates and the banking sector equities of Portugal, Italy, and Spain during the 2011 European sovereign debt crisis, and of significant causality at the mean level from the bank equity returns in Portugal, Italy, and Spain to Greek bond yields. Li and Giles (2015) report that: 1) during the 1997 Asian crisis, significant uni-directional shock and volatility spillovers are observed from the US to the Japanese and Asian markets, and strong volatility spillovers are observed between the US and Asian markets; 2) during the 2007 US crisis, the US market had uni-directional spillovers to the Japanese and the Asian markets; and 3) significant bidirectional spillovers of volatilities and shocks are observed between the Japanese and other markets in Asia. Jebran et al. (2017) find significant bi-directional volatility spillover between stock markets of India and Sri Lanka and between Hong Kong and India, Pakistan and India before the 2007 US crisis, and those of Sri Lanka and Pakistan in the post-crisis period.

These results suggest that stock markets in developed economies have been fairly well integrated, but not those in developing ones. In empirical findings thus far, there is no consensus on inter-market relationships, integration, comovement, and volatility spillovers among stock markets. The objective of this study is to analyze impacts of the two crises of differing causes and scales on stock markets in three regions, Asia, Europe, and the North America.

Empirical Model and Results

To capture more volatility information, daily stock market indexes are collected from the Bloomberg Market Data for a period of Jan. 2005 and June 2012 to cover both the US and Greek crises. Stock market indexes of eleven countries are used in this study; 3 markets in Asia (Hong Kong, Japan, and Singapore,), 6 in Europe (France, Germany, Greece, Italy, Spain, and the UK), and 2 in the North America (Canada and the US). By using local currency indexes, market risk from currency risk can be segregated. To better account for the impacts, this period is divided into 4 sub-periods: Period 1 (pre-crisis period: 2005.1~2008.6), Period 2 (during the US crisis: 2008.7~ 2009.9), Period 3 (during the Greek crisis: 2009.10~2010.10), and Period 4 (post-crisis period: 2010.11~2012.6). Daily returns are expressed as a first difference of a logarithm of closing prices (in local currencies). The results from the unit root and Engle-Granger tests show that the series are stationary.

It is worth noting some interesting results from the coefficient of variation (COV) figures as a relative measurement of risk in Table 1. During the US crisis, Asian markets had the highest COV (5.20) in relation to Europe (-1.40) and the North America (-3.06). This indicates that export-oriented emerging markets in Asia had been

Table 1
Coefficient of Variations (COV) for four sub-periods

Region	P1	P2	P3	P4
North America	4.00	-3.06	1.14	-0.53
Europe	-4.89	-1.40	-0.83	-17.12
Asia	-0.45	5.18	-0.24	-19.48

(Note) Period 1 (P1; Before the crisis: 2005.1~2008.6);
Period 2 (P2; during the US crisis: 2008.7~2009.9);
Period 3 (P3; during the Greek crisis: 2009.10~2010.10);
Period 4 (P4; post-crisis period: 2010.11~2012.6).

significantly affected by the US crisis. During the Greek crisis, stock markets in the North America gained higher return (16.7%) than those in Asia (10.8%) and Europe (-1.1%). But the higher COV (1.14) of the North America confirms higher market risk, relative to Europe (-1.1) and Asia (0.24). In the post-crisis period, stock markets in the North America gained higher return (3.1%) than those of Europe (-21.5%) and Asia (-6.5%), and stock markets in the North America had least volatility (COV of -0.53), compared to those in Europe (-17.12) or Asia (-19.48).

The first step in empirical test is to analyze the changes of correlations. Table 2 shows an 8.7% increase of correlations (0.311 to 0.338) with an average of 0.326. The correlations increased in 21 cases and decreased in 31 cases, indicating that stock markets had not become more integrated. The decrease of intra-continental correlations suggests that stock markets within a continent became less integrated after the two crises. However, the increase of inter-continental correlations (the US—Europe, the US—Asia) confirms that stock markets across continents became more integrated. The low inter-continental correlations are supportive of less integration between Asia and Europe and between Asia and the US. During the US crisis, the US market had high correlations with four markets in Europe (France, Germany, Spain, and the UK). Interestingly, during the Greek crisis, Greek market had high correlations with the same four markets in Europe. In Asia, Japanese market had a high correlation with Singapore only, but Hong Kong had high correlations with Japanese and Singapore markets.

After the US crisis, the low inter-continental correlations (Asia-Europe) with an average of 0.352 suggest less integration between Asia and Europe. The decline of intra-continental correlations by 27.6% (0.51 to 0.369) supports decreased integration in Europe. The decrease of intra-continental correlations by 6.1% (0.673 to 0.632) also suggests less integration between Asian markets. The increased correlations by 46.2% (0.312 to 0.456) confirms that stock markets in the US and Europe became more integrated.

The increase of correlations by 140.9% (0.093 to 0.224) supports that the US market became more integrated with those in Asia. One interesting observation is the negative correlations between the US and Canada despite their geographical proximity (average of -0.110). During the Greek crisis, the US market had high correlations with four European markets (France, Germany, Spain, and the UK). In Asia, Hong Kong market is highly correlated with two markets (Japan, Singapore) whereas Japanese market had high correlation with Singapore only. In the post-crisis period, high correlations have been observed between the US and three markets in Europe (France, Germany, and the UK); France and three markets in Europe (Germany, Spain, and the UK); German and Spain markets; Japanese and two markets in Asia (Hong Kong and Singapore); and Japan and Singapore.

The second step is to use the Generalized Autoregressive Conditional Heteroscedasticity (GARCH) model (Engle, 1982; Bollerslev, 1986) to analyze impacts of the two crises on stock markets with time-varying volatility clustering. Since the dependent variables are expressed in terms of pre-determined lagged variables, relative importance of an individual market in generating variations in its own returns and the returns of other markets can be examined in the framework of vector auto-regressive (VAR) model. The dynamic response of each market to innovations ("shocks") in one market can be traced out by the simulated responses of the estimated VAR system. This process is useful in describing the nature of inter-market linkages.

The GARCH model is used as follow:

$$\mathbf{r}_{it} = \alpha + \mathbf{b}_{ij} * \mathbf{r}_{Jt} + \varepsilon_{it} \quad (1)$$

$$\sigma^2_{it} = w_{io} + \mathbf{a}_{i1}\sigma^2_{it-1} + \mathbf{a}_{i2}\mathbf{e}^2_{it-1} \quad (2)$$

where $\mathbf{r}_{Jt}$ is the J^{th} market return (experiencing innovations or crisis); $\mathbf{r}_{it}$ is the i^{th} market return at time t; $\mathbf{e}_t$ is an error term for "unexpected and idiosyncratic shock"; s_t^2 is conditional variance; $\mathbf{e}^2_{t-1}$ (ARCH effect; estimated as e(t-1)); and σ^2_{t-1} (GARCH effect; estimated as V(t-1)). In analyzing the impacts of financial crisis, $\mathbf{r}_{Jt}$ is replaced by $\mathbf{r}_{Gt}$ (Greek market return), and $\mathbf{r}_{ut}$ (the U.S. market return).

The empirical results from the GARCH (1,1) model are provided in Table 3. First, Greek market had significant impacts on all other markets before the crisis (Period 1). The US market had significant impacts on European markets but not on those in Asia. The significant GARCH terms support strong unidirectional volatility spillovers

Table 2
Correlation Coefficients for four sub-periods

		US	CAN	FRA	UK	GER	SPN	ITL	GRE	HK	SIN
CAN	**P1**	-0.113	1								
	P2	-0.241	1								
	P3	-0.043	1								
	P4	-0.044	1								
FRA	**P1**	0.521	0.098	1							
	P2	0.601	0.135	1							
	P3	0.694	0.097	1							
	P4	0.735	0.147	1							
UK	**P1**	0.502	0.113	0.913	1						
	P2	0.583	0.152	0.953	1						
	P3	0.661	0.087	0.933	1						
	P4	0.72	0.209	0.896	1						
GER	**P1**	0.493	0.105	0.939	0.866	1					
	P2	0.672	0.03	0.904	0.872	1					
	P3	0.683	0.1	0.951	0.918	1					
	P4	0.742	0.177	0.94	0.885	1					
SPN	**P1**	0.471	0.053	0.9	0.847	0.888	1				
	P2	0.59	0.146	0.935	0.903	0.842	1				
	P3	0.662	0.028	0.897	0.822	0.822	1				
	P4	0.6	0.113	0.832	0.732	0.778	1				
ITL	**P1**	-0.057	0.486	-0.083	-0.106	-0.07	-0.089	1			
	P2	-0.117	0.601	-0.077	-0.08	-0.088	-0.032	1			
	P3	0.075	0.581	0.022	-0.023	0.025	-0.028	1			
	P4	-0.03	0.579	0.051	0.021	0.04	0.103	1			
GRE	**P1**	0.281	0.187	0.66	0.622	0.634	0.635	0.096	1		
	P2	0.415	0.182	0.672	0.681	0.662	0.678	0.085	1		
	P3	-0.102	0.0	-0.076	-0.068	-0.041	-0.091	-0.049	1		
	P4	0.011	0.008	0.07	0.05	0.063	0.05	0.029	1		
HK	**P1**	0.07	0.495	0.27	0.29	0.254	0.233	0.424	0.399	1	
	P2	0.352	0.252	0.49	0.492	0.505	0.501	0.229	0.519	1	
	P3	0.209	0.395	0.396	0.416	0.364	0.348	0.289	-0.07	1	
	P4	0.189	0.524	0.367	0.404	0.373	0.257	0.394	0.065	1	
SIN	**P1**	0.115	0.424	0.394	0.397	0.352	0.355	0.323	0.448	0.712	1
	P2	0.336	0.245	0.485	0.506	0.497	0.519	0.228	0.558	0.798	1
	P3	0.265	0.318	0.489	0.503	0.464	0.412	0.193	-0.099	0.673	1
	P4	0.327	0.399	0.502	0.52	0.494	0.377	0.336	0.073	0.747	1
JAP	**P1**	0.094	0.438	0.314	0.293	0.303	0.275	0.428	0.382	0.657	0.65
	P2	0.182	0.481	0.48	0.484	0.445	0.498	0.418	0.482	0.709	0.637
	P3	0.157	0.468	0.315	0.289	0.257	0.24	0.436	-0.075	0.597	0.539
	P4	0.156	0.424	0.284	0.268	0.299	0.178	0.45	0.099	0.586	0.563

Table 3
Empirical Results from the GARCH (1,1) model

Period 1	US	GRE	ARCH	GARCH	Period 2	US	GRE	ARCH	GARCH
CAN	-0.1937**	0.2044**	0.0851**	0.8271**	CAN	**-0.2668****	**0.2111****	**0.1179***	**0.8636****
FRA	0.4722**	0.4448**	0.2117**	0.6181**	FRA	**0.4828****	**0.4071****	**0.1329****	**0.8624****
UK	0.4337**	0.3610**	0.1028**	0.8636**	UK	**0.3949****	**0.3803****	**0.2310****	**0.7364****
GER	0.4357**	0.4171**	0.1776**	0.7108**	GER	**0.4794****	**0.4007****	**0.1392****	**0.8360****
SPN	0.4258**	0.4053**	0.1628**	0.6994**	SPN	**0.4095****	**0.4198****	**0.1572****	**0.8034****
ITL	-0.0849*	0.1438**	0.1242**	0.8476**	ITL	**-0.1587****	**0.1794****	**0.1415****	**0.8389****
HK	-0.0027*	0.4244**	0.0975**	0.8928**	HK	**0.1089**	**0.4424**	**0.093**	**0.8777**
SIN	-0.0162	0.3430**	0.0745**	0.9130**	SIN	**0.1195****	**0.4098****	**0.0848****	**0.8957****
JAP	-0.0227	0.3613**	0.1274**	0.8451**	JAP	**-0.0551**	**0.3563****	**0.1851****	**0.7751****

Period 3	US	GRE	ARCH	GARCH	Period 4	US	GRE	ARCH	GARCH
CAN	-0.0653	-0.002	0.1304*	0.7984**	CAN	-0.0078	-0.003	0.0872**	0.8884**
FRA	0.9480**	0.0005	0.1859**	0.7670**	FRA	1.0168**	0.0408	0.0922**	0.8896**
UK	0.6683**	0.0092	0.1348*	0.8191**	UK	0.7627**	0.0139	0.1638**	0.7808**
GER	0.7651**	0.0159	0.1276*	0.8293**	GER	0.9857**	0.0414	0.0850**	0.8940**
SPN	0.9249**	0.0014	0.1705**	0.8121**	SPN	0.8290**	0.0229	0.0623**	0.9120**
ITL	0.1492**	-0.046	0.1780**	0.8027**	ITL	-0.0101	-0.003	0.0674**	0.9211**
HK	0.1932**	-0.019	-0.0056**	1.0017**	HK	0.2831**	0.0325	0.0731**	0.9077**
SIN	0.1712**	-0.017	0.0867*	0.8454	SIN	0.2706**	0.0346	0.0682**	0.9057**
JAP	0.1667*	-0.028	0.0559	0.8098**	JAP	0.2178**	0.0382	0.3110**	0.3093

(Note) The Ljung-Box statistics to minimize the AIC value suggest the GARCH (1, 1) model. Both * and ** indicate the significance at 5% and 1% level, respectively.

from the US and Greek markets to other markets. The significance of ARCH terms supports strong uni-directional financial contagion from the US or Greek markets to other markets. These results suggest that innovations in one market (e.g., the US) resulted in some undesirable changes in stock markets in Asia or Europe even though they do not share any common economic fundamentals.

Empirical results during the US crisis (Period 2) are similar to those in Period 1. One exception is that the US had significant impacts on Singapore market only. The significance of both the GARCH and ARCH terms supports strong uni-directional volatility spillovers and financial contagion from the US to other markets. During the Greek crisis (Period 3), the US market had significant impacts on all markets except Canada, but impacts of Greek market disappeared. The significance of both ARCH and GARCH terms supports strong unidirectional volatility spillovers and financial contagion from the US market to other markets. In the post-crisis period (Period 4), the US market had strong impacts on other markets except Canada and Italy, but Greek market had no impacts on other markets. The significance of both ARCH and GARCH terms supports strong uni-directional volatility spillovers and financial contagion from the US to other markets but Japan.

The third step is to examine the adjustment speed to innovations in the framework of VAR. The significant, negative $\mathbf{b}_{iu}$ coefficients suggest that the US market had strong negative impacts on stock markets in Canada and Italy in the pre-crisis period and during the US crisis. The negative impact of the US market on Canada is still a puzzle in consideration of their geographical proximity. The US market had negative impacts on other markets in the pre-crisis period and during the US crisis, positive impacts on

Italian market during the Greek crisis, but no impacts in the post-crisis period.

The two coefficients, $\mathbf{b}_{iu}$ and $\mathbf{b}_{iG}$, are used to measure the adjustment speed to shocks. The negative sign of adjustment speed suggests that Canadian market changed in an opposite direction to the US crisis. The coefficients for France, Germany, Hong Kong, and Singapore markets show the increased speed of adjustments to the US shock. The adjustment speed of the UK decreased during the US crisis, but increased during the Greek crisis and in the post-crisis period. The coefficients of adjustment speed changed signs from negative during the US crisis to positive during the Greek crisis for Italy, but became insignificant in the post-crisis period. One exception is an increasing speed of adjustment of Japanese market after the two crises.

Conclusion and Suggestions

This study examined impacts of the US and Greek crises of differing causes on stock markets in Asia, Europe, and the North America. Some notable findings are summarized as follow. First, the US market became more integrated with European markets but less with those markets in Asia and Greek. This result is in contrast to some previous findings (Roll, 1988; Darrat & Zhong, 2005; Rim & Setaputra, 2012). Second, the US had been dominant in European markets but not in Asian markets after the US crisis, supporting some previous findings (Eun & Shim, 1989; Chai, 2003). Third, Asian markets became less integrated with European markets. Fourth, adjustment speed to shocks significantly increased in European markets but decreased in Asian markets in the post-crisis period. Fifth, there had been observed strong uni-directional volatility spillovers from the US and Greek markets to other markets during the US crisis. This result is in congruent with previous findings (Parhizgari et al., 1994; Rim et al., 2012). Sixth, strong uni-directional financial contagion effects had been observed from the US market to other markets for the whole period.

The empirical results as a whole show that stock markets in Asia, Europe, and the North America had not been fully integrated; strong uni-directional volatility spillovers and financial contagion had been observed from the US market to other markets during the US crisis; and the speed of adjustments increased in most markets in the post-crisis period. The (developed) US market had much stronger impacts on other markets than the (developing) Greek market. The overall results are supportive of diversification benefits for investors in these regions. These findings are of great use to advance risk management practices and the application of various hedging strategies for policy makers, portfolio managers, and individuals alike. Thus, it is suggested for future studies to further investigate these issues by using other crises as in Europe (2011), Argentina (2018), Brazil (2018), Turkey (2018), and Venezuela (2018).

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Legal Issues in Higher Education Mergers

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ABSTRACT

This paper discusses the legal issues in higher education mergers and implications for administrators. Legal issues are identified and explained and recommendations for practice are provided.

INTRODUCTION

In the current business atmosphere, almost everyone can expect to experience at least one merger, acquisition or unification during his or her time in the workforce (Joslin 199Ø). Organization downsizing as well as global expansion cause mergers and acquisitions to become one of the most common means for survival and growth in both public and private institutions. The increases in mergers and acquisitions are a direct result of increased competition, government deregulation, technological advancements, mandate for cost-cutting measures due to lack of business, and declining enrollments at an institution of higher education (Marks, 1994). Nevertheless, most of these mergers fail to meet their financial projections regardless of how detailed it has been studied prior to implementation (Cartwright & Cooper, 1993). According to Senn (1989), approximately one-third of all mergers fail within the first five years. With all this information why do mergers fail to meet expectations so often? This happens largely because most mergers focus on the financial issues as opposed to human behavior aspects of merger or unification and the transition of the change.

Prior to making a final decision to acquire, merger or unify with an organization, each organization should do a complete assessment of a number of issues. Public-sector nonprofit agencies, including universities and colleges, when considering mergers should develop a comparison budget detailing each organization's finances separately and then combined for the current year to determine the potential cost savings of a merger (The Greater New York Fund/United Way 1981). If the potential for savings is limited, this may be considered a sign for reconsideration. According to Livingston, financial, operational, regulatory, legal, and tax aspects of any proposed unification of two separate organizations should be carefully appraised (1985).

The Greater New York Fund/United Way (1981) suggests having a committee composed of a broad range of stakeholders, including an external consultant to develop a plan that spells out the tasks and goals needed to accomplish a successful merger/unification. The plan should include legal issues such as corporate structure, charter to be retained, accreditations to be retained or dissolved, special licenses or certificates, and the selection of a law firm to handle and interpret various legal issues. This committee should also take into consideration governance issues such as board composition and organization selection of top leadership, and finally personnel issues such as staff morale, pay inequity, benefits and working hours (Singer and Yankey, 1981).

LEGAL ISSUES

There are several legal issues that arise in the context of mergers and acquisitions. Moreover, there is not a distinction when the merger or acquisition entails a university or college in higher education. With that being the case, some of the legal issues that arise in the context of mergers and acquisitions entail various areas of the law including structure and acquisition, including tax, accounting, corporate, securities, antitrust, trade regulation, environmental, intellectual property, insolvency, labor and employment law benefits. Other legal issues may include the rights and liabilities of the stakeholders, the institution, and the institution's creditors.. (Pillsbury, Winthrop, Shaw & Pittman, 2003)

It is important to note that the power to merge and or consolidate is conferred by statute; thus, state law is applicable in any transaction. A merger involves the legal combination of two or more institutions; and after a merger, only one of the institutions continues to exist. In a consolidation, two or more institutions combine in such a way that each institution ceases to exist and a new one merges. (Clarkson, 2011)

There are many issues that arise in employment law when dealing with mergers and acquisitions. Some of these include compensation, benefits, contractual obligations, employee overlap and reductions and liabilities. In higher education, most educational institutions claim that they pay their employees essentially what they are worth and largely pay the "market rate". (Zelle LLP, 2016) However, there can be great disparity between what one educational institution pays for the same level of work as compared to another. It is common knowledge that "different institutions have different salary scales for all kinds of reasons, and chances are unlikely that two combining institutions will have matching compensation for all jobs." (Zelle LLP) With that being the case, someone's salary is going to change. When this is an issue and when a merger is initiated; it is imperative that compensation differences be identified and for those who are being affected; that they are notified in a timely and reasonable matter. It is also crucial that these changes are not just directives but also fully explained. Another significant issue in employment law are the benefits packages. While individuals may pay close attention to issues with salary and pay, it is just as important to look at the entire benefits package, which includes health care benefits, paid leave, retirement benefits as well as many others. Just as in the case of compensation; it is crucial that any changes in benefits be explained to those who are impacted as soon as possible. (Zelle, LLP) In an acquisition, it is important to look at the pension plan. Generally, where the institution being acquired has a pension plan for its employees, the purchasing institution has several options. These options include the following: (1) continuing the plan, (2) freezing benefits under the plan, (3)merging the plan into an existing pension plan of the purchaser or (4)terminating the plan. (Pillsbury, et al)

An area that is often unfortunately overlooked in dealing with mergers and acquisitions are environmental liabilities. Environment liability is the principle-based obligation of a polluting party to pay for all damage the party caused to the environment. This can be applicable by an entity in an acquisition by statue of common law. A party can still be liable despite there being an agreement that the seller will accept all liability. It is important to note that the seller can agree to indemnify the buyer from liability. Environmental liability can be quite costly for a party and in many instances, the costs can be uncertain. It is very important that an entity makes this issue a priority in the negotiation process. When addressing this issue, an agreement between the parties should address environmental representations, warranties and indemnification and several other applicable issues.(Pillsbury, et al) It is of the utmost significance when negotiating these issues that legal counsel is retained to address this all important and often overlooked area because of the degree to liability that may be embarked upon by an entity.

Intellectual property is also very relevant in academia. When embarking on a merger or consolidation in higher education; an inventory and accounting of all intellectual property needs to be done with due diligence. Moreover, in addressing issues of intellectual property; there should be documents which address, the chain of title as well as an evaluation of rights, future plans and assignments, and filing costs. Once again, it is very important for legal counsel to address this area. (Pillsbury, et al)

In dealing with the legal side of things in a merger and acquisition, it is of grave concern to ensure that dispute resolution mechanisms are in place, which address alternative dispute resolution, such as arbitration. It is well known that provisions requiring arbitration are generally enforceable under Federal law. The main advantage of having a dispute resolution mechanism in place is that allows for a procedure that is well known and established and arbitrators can be appointed without much opposition. The process makes for a smoother transition in the event that there is conflict. Moreover, when there is an arbitration clause in place; forum, parties, applicable governing law, and liability can be streamlined. This can include issues dealing with attorney fees and costs and the selection or arbitrators. (Pillsbury, et al)

Policies within institutions area always an area that is of grave concern when there is a merger. It is imperative that human resources work closely with employees in identifying the changes and how they will be handled and ad-

dressed. In these situations, members should play a significant role in drafting a strategic plan, mission, and vision; exposing inequities; and addressing human resource issues (Williams, Roberts and Shires, 2018). This will assist in creating an environment of collegiality and togetherness from there the process can begin for developing a new culture. A new culture and identity will definitely emerge, and the transition can be one that is smoother; when employees are part of the process and they assist in the creation of the mission and vision. If they are not part of the process; it all the more challenging for employees to buy in and they see the process more as a take-over and less than a unification and merger.

One significant legal issue that is often not mentioned is the community asset controversy. This means that the best interests of the educational institutions are subordinate to the wishes of the local community and that decisions contrary to such wishes are violations of the public trust. In this context, when a university and or college is in the process of a merger and acquisition, they should look closely and examine the notion of the community asset controversy and the potential impact. The controversy at issue could have a large impact on community groups, donors and other stakeholders who believe that their input and value has not been considered when the decision was made. A recurring theme is often apparent in which the best interests of "education" are viewed as less than the wishes of the local community and that decisions that are being made are in stark contrast to the public trust. When making decisions about a merger, the parties should seek input from the community to avoid possible litigation and or lack of public support. While prior planning and input, would not cause all problems to cease, the aura of inclusion would be quite helpful in there being some transparency. (Peregrine, 2001)

While there are indeed benefits to an educational institution, being a part of a merger and or acquisition; there can be a great deal of anxiety and unrest for the individual and collective employees who are impacted by it. In these instances, it is necessary that there is ongoing communication and transparency. Inclusion and notice are keys to reducing uncertainty and, in many instances, can aid in reducing litigation that may arise in these circumstances. Furthermore, it is prudent that when dealing in negotiations in a merger and acquisition, that the entities hire well-trained and knowledgeable counsel to make what can often be a challenging process, one that runs far more efficiently with transparency. Following the rule of law by being proactive and with good faith can go a long way in building and gaining trust while also avoiding the threats and obstacles of litigation.

RECOMMENDATION FOR PRACTICE

A merger can create a clearer line of authority and responsibility early in the process, minimize disruptions around branding, and be minimally troublesome for a large part of the campus community. Yet a merger runs the significant risk of marginalizing the segment of the university community being absorbed. In addition, it may yield little incentive for change among the dominant partner's faculty and staff, which may result in the loss of an important opportunity for reassessment and transformation.

While consolidation has the potential to lead to the creation of something new and better, it risks alienating constituents among both university communities, muddling the lines of authority during the consolidation process, creating branding issues, and being more complex from a process point of view, though potentially less politically controversial among external constituents. (Azziz, 2013) Amid all these changes, administrators may think that all the legal issues are the universities legal teams problem not realizing how easily they can impact legal issues.

One way to view the job of the campus lawyer is to conceive of it as a set of relationships. The lawyer maintains relationships at every administrative and operational level within the institution. They perform distinctive duties at each level. The role played by the general counsel when advising the president or the governing board, for example, is substantively different from the role he or she plays when solving the day-to-day legal problems of program directors and administrators. Determining how to merge the legal offices of each institution should be one of your first priorities.

When undertaking a merger, your legal counsel can assist in providing a plan to handle potential legal risks. Preventive counseling on college campuses involves identifying high-risk or potentially high-risk areas and programs and creating a methodology or strategy for response to these risks. Characteristics of a good preventive law program, include the following: Regular communication between administrators and counsel on topics of mutual interest; management workshops and other training programs for administrators and faculty members, including programs designed specifically for people in a single department or operating unit as well as broader-gauged programs for staff across the board; regular legal audits by a team of lawyers and administrators; implementation of "early warning systems" designed to alert counsel to lurking problems as early as practicable. (White, 2008) During a merger educating all administrators of potential legal issues especially employment law issues can save future litigation.

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Managing for Sustainability: The realities

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ABSTRACT

It appears " green,: "sustainable," and "sustainability," are the buzzwords of choice in the current business environment. It seems there is a big rush to be able to claim that one is "green certified" or embracing "sustainable" practices to help the environment. This paper examines the "sustainability" movement, the issues, the proposed solutions, and the economic impact of embracing those solutions to manage for sustainability..

Key Words: Sustainability, Managing for sustainability, Global Warming, Climate Change

Introduction

Managing for sustainability seems to be a popular topic in management literature. It appears "sustainable," and "sustainability," are the buzzwords of choice for dealing with issues related to combating anthropogenic climate change/anthropogenic global warming. "Sustainable" has such a nice, politically correct, sound to it that makes it seem intuitively right. After all, isn't it right that we use our limited resources judiciously so that we leave some for future generations and protect our environment from the devastation of climate change? Because it seems so intuitively right, organizations across the U.S., both public and private, are rushing to become green certified or green compliant. They want to be able to proclaim to others that they are doing their part in managing for sustainability. If managing for sustainability was simply working to conserve resources or eliminate pollutants, it would be a lofty goal. But "sustainability" means something else to environmentalists and the United Nations.

Unfortunately, the terms "sustainable" and "sustainability" come straight from the language of the U.N.'s Paris Climate Accord, and can be traced back to the U.N.'s Agenda 21 initiative and the warnings of the Club of Rome in the 70s that we are running out of space and resources to feed, house, and clothe a growing world population. Why it is unfortunate is that the U.N.'s meaning of "managing for sustainability" runs counter to the tenets dear to those of us in the business and management disciplines who believe in free market capitalism.

From Agenda 21 to the Paris Climate Accord, it has been the goal of the U.N. to eliminate capitalism and bring about a socialist world and institute a massive redistribution of wealth. As much can be gleaned from reading the documents of Agenda 21 or the Paris Climate Accord. But, we also have the clear statement made by Christiana Figueres, the former Executive Secretary of the U.N.'s Framework Convention on Climate Change, who said in 2015:

> "this is the first time in the history of mankind that we are setting ourselves the task of intentionally, within a defined period of time, to change the economic development model that has been reigning for at least 150 years since the industrial revolution." (Investor's Business Daily. editorial, February 10, 2015).

Throughout the Paris Climate Accord it speaks of implementing "sustainable "growth using "non-market" means. "Non-market" can only mean government edict. In other words, we can no longer depend on market forces to determine the most efficient allocation of resources.

The U.N. has discovered climate alarmism to be an effective catalyst to bring the governments of the world together in agreement to battle climate change. Of course, the successful battle requires that we turn from capitalism to socialism. Climate alarmism was successful enough that over 190 world leaders met in Paris to agree to use "non-market" approaches to bring about "sustainable growth."

As was said earlier, the idea of sustainable growth, sounds like a good thing. That is, until you come to understand what the U.N. means by "sustainable." The U.N. views the appetites of the developed nations for consumption as unsustainable. Therefore, serious curbs must be placed to slow or halt such consumption. In practical terms, this means going back to a time when we had no air conditioners for personal residences. I mention air conditioners because the chairman of the Agenda 21 conference in Rio, Maurice Strong, opened the conference with a speech that focused on residential air conditioners as an example of the unsustainable consumption of developed countries. (https://en.wikiquote.org/wiki/Maurice_Strong, 3 June 1992). How do you curb the consumption of developed countries? You do it by making energy-based products too expensive to use.

Stop and think for a moment. The push is not to find ways to consume fossil fuels slower so that some is left for future generations but to completely wean us from fossil fuels altogether and move to renewable energy, such as wind and solar, and bio-fuels. By conservative estimates, we have enough crude oil, natural gas, and coal reserves to power us for at least 400 more years at current rates of consumption. One would think 400 years would be enough time to let us enjoy low-cost energy and give time for science to develop ways to make alternative energy economically viable as a replacement for fossil fuels. But no, we are being asked to abandon 400 years of low-cost energy to embrace expensive wind, solar, and bio-fuels, because fossil fuels are labeled as the demons responsible for CO_2 being spewed into the atmosphere, causing the chain reaction of global warming, climate change, and the resulting devastating weather events.

Some may say that is necessary to reduce emissions of CO_2 to combat climate change. The problem is the science is not settled, despite what President Obama and Bernie Sanders have said. This paper examines the claims of global warming/climate change alarmists, the proposed solutions, and the economic impact of embracing those solutions to manage for sustainability..

Historical context

Agenda 21, published by the UN Conference on Development and Environment, held in Rio de Janeiro in June, 1992, is a detailed plan of the United Nations to promote what it calls "sustainable growth." Agenda 21 claimed that current patterns of consumption by developed countries were not sustainable and that the developed countries had no chance to catch up. It called for a change in consumption, massive redistribution of wealth, slower population growth, and a move from fossil fuels to more sustainable sources of energy. (http://www.un.org/documents/ga/conf151/aconf15126-4.htm)

The U.N. appears to have found the "hot button" it needed to strengthen its relevance as a world body and help propel the implementation of Agenda 21. The IPCC has been the driving force behind the AGW movement ever since, such that global warming became a key plank in the U.N.'s Agenda 21 plan at the United Nations Conference on Environment and Development in Rio de Janeiro in 1992. Beginning in 1995, the U.N. has been holding annual climate conferences with the participants of the Rio conference.

The IPCC and the U.N.'s Agenda 21 have become political hot potatoes in the U.S., and other nations, with political conservatives claiming that the U.N. is using the environment as a tool to establish a single world government or to institute socialism as the economic model for the world economy. While establishing a single world government may be a stretch, the goal of establishing socialism in the world economy may not be so far-fetched, considering the massive redistribution of wealth called for in both Agenda 21 and its climate initiatives. It is clear that the U.N. has found a measure of success in using the environment to strengthen its influence on world governments. While sustainability embraces a wide variety of things such as minimizing pollution and resource depletion, the focus of the U.N. has been emissions of CO_2. The U.N., through its Intergovernmental Panel on Climate Change (IPCC) has proclaimed human generated CO_2 to be the chief pollutant and the principle driver of global warming and climate change. It seems that most world leaders have accepted AGW as fact and have committed to spending huge sums to combat AGW. Of course, the U.N. is the collector and distributer of those funds. After all, no government wants to be known as one that does not care about the environment. At the Rio conference in 1992, the U.N. was able to get most of the world governments, including the U.S. to commit to the principles outlined in Agenda 21. Further commitments were made at the conference in Kyoto, Japan, in 1997, known as the Kyoto Protocol. (https://en.wikipedia.org/wiki/United_Nations_Climate_Change_conference#1997:_COP_3.2C_The_Kyoto_Protocol_on_Climate_Change)

The Kyoto agreements somewhat fell apart because they were not binding agreements. At the climate summit in Paris in 2015, the U.N. was successful in getting 190 countries to agree to commit billions of dollars in transfer payments to underdeveloped countries and commit to more aggressive measures to reduce CO_2 emission by 2030. This is what is now known as the Paris Climate Accord. Unfortunately for the U.N. the Paris Climate

Accord is not binding and President Trump pulled out of the agreement shortly after he took office.

The commitments made were to reduce emissions of CO_2 and contribute massive amounts of money to the U.N. to aid underdeveloped countries cope with rising energy cost brought about by the world moving away from fossil fuels.. Reducing CO_2 necessitates the reduction of the use of fossil fuels, coal and oil, and switching from fossil fuels to more renewable sources of energy. Some countries have committed to reduce emissions by as much as 30% by the year 2030 and 50% by 2050. Generally, when the term "managing for sustainability" is used, what is meant is that organizations are taking measures to reduce their "carbon footprint" by reducing emissions of CO_2.

The science

The theory

The basic hypothesis of AGW, or climate change, is that CO_2 from the burning of fossil fuels is being dispersed into the atmosphere in excess of what the natural carbon cycle can accommodate. This excess CO_2 remains in the atmosphere and is claimed to do two things. First, it absorbs radiated heat from the Earth and radiates it back to Earth, which creates additional warming of the Earth and the atmosphere close to the Earth. Secondly, as a greenhouse gas, CO_2 in the upper atmosphere traps the heat from the Earth and lower atmosphere, preventing it from escaping into space. One scientist on TV likened this to a closed automobile sitting in the sun. He called it the "hot car syndrome."

The evidence supporting the hypothesis is garnered from historical temperature recordings from the various monitoring sites of the National Oceanic and Atmospheric Administration (NOAA) and temperature measurements from satellites of the National Aeronautics and Space Administration (NASA). This temperature data is then averaged to obtain an average global temperature. The average global temperature is then plotted on a graph to determine the trend.

"Evidence" of the impact of global warming is based on computer models and on other data showing such things as glaciers shrinking, sea level rising, sea ice retreating, animal migrations, widening of animal ranges, extreme weather events, unusual animal behavior, and other anomalies.

The problem with the "evidence" is computer models are not evidence of anything but the assumptions and hypotheses of the warmers. As has been shown, other anecdotal "evidence" proves nothing. Glacial shrinkage has been observed since the early 1900s, before the rise of CO_2 in the atmosphere. There is no evidence of abnormal sea level rise, and sea ice seems to be increasing now, thicker and faster than ever. There is absolutely no empirical evidence linking CO_2 to global warming or linking human-caused CO_2 emissions to climate change. The entire global warming/climate change narrative is based solely on the computer models.

Weaknesses in the theory

The role of CO_2 seems to be overblown. The warmers are quick to mention that we spew millions of tons of CO_2 into the atmosphere from the burning of fossil fuels, or that the 385 ppm of CO_2 is the highest level it has been in several hundred years but they are negligent to acknowledge that given that, the human-caused portion of CO_2 in the atmosphere is a mere .0016%. NASA has stated that human CO_2 emissions is the major driver of climate change (NASA/NOAA, 2015). The reality is that there is no empirical evidence, whatsoever, linking CO_2 or human-caused CO_2, to any change in climate or weather event.

The warmers seem to ignore the climatological history of our planet. The planet has gone through at least four ice-ages and as many inter-glacial periods. In the inter-glacial periods the Earth warmed and atmospheric CO_2 levels rose considerably, sometimes to levels much higher than we are experiencing now or expect to experience. The net result of this warming and rise of CO_2 was not more devastation of the Earth but the opposite. The interglacial periods were periods of tremendous greening of the Earth and increased biological diversity of plant and animal life. Glaciers melted, which provided more habitable land for human settlement.

To infer causation, the cause must precede the effect. Ice core studies, covering 420 thousand years reveal that warming of the Earth, during interglacial periods, always preceded the rise in CO_2 levels by 800 years, and the cooling of the Earth preceded the drop of atmospheric CO_2 by several thousand years (Petit, J.R., Jouzel, J., Raynaud, D., et.al., 1999). The same ice core studies have also revealed that global warming rose to several degrees higher during the previous four interglacial periods than it has during the current period (Petit, J.R. et. al., 1999).

The AGW hypothesis seems to be inconsistent with known laws of science. The theory says that the sun warms the Earth and the Earth radiates the heat back into the atmosphere which is absorbed by the CO_2 and re-radiated back to Earth, causing additional warming. The second law of thermodynamics states that heat only moves from a warm area to a colder area. For the heat to be radiated

back to Earth to cause more warming would mean that the CO_2 would have to be warmer than the Earth. Also heat transfer stops when there is temperature equilibrium across the two bodies.

Most of the heating of the atmosphere occurs close to the Earth and is by the process of conduction. In other words heat is transferred from the warmer Earth to the cooler atmosphere in contact with the Earth. The heat transfer stops when the temperature of the atmosphere in contact with the Earth reaches equilibrium with the temperature of Earth's surface. Because it is at equilibrium, heat cannot be re-transferred back to Earth. As the molecules of the atmosphere, including the CO_2, are heated they rise and instantly begin cooling. The cooling occurs at a known rate of 2° centigrade per 1000 feet of altitude. At some point the atmospheric temperature reaches the freezing point. The rate of cooling as air rises is called the adiabatic lapse rate. As the CO_2 is constantly cooling as it rises, it is not likely radiating heat back to Earth. Also, add to this the fact that the atmosphere further and further away from Earth gets thinner and thinner. That means that all the molecules in the atmosphere are dispersed further and further apart so that there are much fewer per unit of space than on Earth's surface. That is why commercial aircraft must have supplemental oxygen in case of sudden decompression at altitude, and pilots of unpressurized aircraft must be on supplemental oxygen when flying above 10,000 feet.

The idea that the "greenhouse" gases form a shield preventing heat from escaping defies logic. The "hot car syndrome" is an even more illogical analogy. Greenhouses have plastic and other materials that are impermeable. In other words, the air in the greenhouse cannot pass through the material. A car is even worse. It has glass and steel preventing the passage of the hot air out of the car. The plastic of a greenhouse and the glass and steel of a car do not themselves create heat. They merely prevent the heated air from escaping. The heat comes from the Sun's radiation being absorbed by the materials in the car's interior and being heated by that radiation. Remove the source of the heat, the Sun, and the greenhouse and car immediately start to cool.

The atmosphere is an open system made up of gases. Nothing prevents the warmer air below from rising into the upper atmosphere where it gets much colder in accordance with the adiabatic lapse rate. The value of the greenhouse gases is that they filter the radiation of the Sun so that humans, animals, and plants do not cook from the Sun's radiation. The filtering of the greenhouse gases provides a cooler, more hospitable environment for life on Earth to survive than it would be without them.

According to the warmist's theory, there should be a hot spot in the upper part of the troposphere where the warm air is "trapped." This hot spot has never been found, even though weather balloons are launched every day that ascend to the upper troposphere and send a continuous stream of temperature measurements. That the warm can rise and stay warm defies logic. As air rises it cools according to the adiabatic lapse rate.

Problems with the data

The data on which the narrative of climate change is built is not without its own problems.

The problems with the data began with the famed "hockey stick" graph that Al Gore presented when he began his crusade against global warming. The graph showed a drastic jump in global temperatures in the last years shown on the graph such that the trend line looked like a hockey stick. The graph was the product of Michael Mann, a climate scientist working with the IPCC. The problem with the graph is that the data was not really temperature data. The data on which the graph was made was from an analysis of tree rings (Bright-Paul, 2014). Tree rings showed changes in rates of growth, presumed to be from changes in rainfall and other climate conditions contributing to the growth rates. The particular tree rings in question showed tremendous growth rate for a period of a few years with biologists attributing the growth to increased rainfall. Michael Mann inferred the increased temperatures from the increased rainfall. Therefore the graph was not showing actual temperature data but guesses of what they thought the temperature might be. Mann's work discounts the various other factors that influence tree growth. The challenge to the "hockey stick" data was only the beginning.

The source of the temperature data has been subject to intense criticism. In 1990, NASA said that temperature data from satellite measurements was more accurate and should be used as the standard for measuring global temperature (Canberra Times, 1990). In 2015, when satellite measurements indicated that the Earth had not warmed in over 15 years, NASA ignored that data and went to ground-based measurements to show warming, or adjusted the satellite data to show warming. It claimed the satellite data was not accurate (Watts, A. 2016). Ground-based measuring stations tend to be biased toward warming because they are largely located in urban areas and pick up additional heat from concrete, asphalt, brick and other materials that absorb and retain heat in much greater measure than natural surroundings. A significant proportion of the Earth is not covered by any instrumentation and temperatures for those areas are

inferred. In other words, the temperatures attributed to those areas are mere guesses.

At a meeting last year, of Nobel prize winners in science, Dr. Ivar Giaever cast aspersions on the data of global warming by stating "global warming was a non-problem and that there had been no warming in 17 years, but was made to look like a problem because some scientists are "fiddling" with the data to make it show what they want to show."(Bastasch, M., 2015).

Calling it "fiddling" is probably a nice way of referring to it, but others have blatantly called it fraud. From where does this charge come? In 2009, hackers were able to hack into the computers of the Climate Research Unit (CRU) of the University of East Anglia in the United Kingdom. Emails and records were obtained that indicate a rather widespread practice of manipulating climate data in order to show global warming (Moore, 2009). One email that has received much attention is one in which the sender is saying that he just completed using the "trick" of making adjustments to 20 years of data to "hide the decline." The "decline" being a reference to the real data actually showing a decline in global temperature rather than an increase. Emails and documents also show that the climate scientists were colluding to rig the peer review process where their papers would get the most favorable treatment and the papers of skeptics would be excluded from publication. (Moore, 2009).

Dr. William Gray, Emeritus Professor of Atmospheric Science at Colorado State University, stated in an op-ed that the "'Climate-Gate' revelations coming out of the UK University of East Anglia are but the tip of a giant iceberg of a well-organized international climate warming conspiracy that has been gathering momentum for the last 25 years. (Gray, 2009). Dr. Gray also said that there has been slight warming of the globe but not caused by man-made CO_2 emissions, but from changing ocean currents.(Gray, 2009).

Christopher Booker, a reporter for the Sunday Telegraph in the UK claims that the fiddling with temperature data is the biggest science scandal ever (Booker, 2015). Booker tells of a researcher, Paul Homewood, who compared published temperature data charts from regions around the world to the actual recordings and found that all of the recorded data had been changed in the published data to show a warming trend. These published records were made by the US government's Global Historical Climate Network (GHCN). They were then amplified by two of the main official surface records, the Goddard Institute for Space Studies (Giss) and the National Climate Data Center (NCDC), which use the warming trends to estimate temperatures across the vast regions of the Earth where no measurements are taken. Yet these are the very records on which scientists and politicians rely for their belief in "global warming" (Booker, 2015). A researcher with programming experience looked into the computer code of the data sets and found evidence of methodical alteration of data (The Tribune Papers.com, 2013).

In January 2015, NASA/NOAA, in a published article admitted that the global warming trend line had "flattened" for the last 15 years (NASA/NOAA, 2015). "Flattened" means there was no warming trend. Subsequently, NOAA has applied "correction factors" to the data to show a warming trend because it was presumed that the recorded data were wrong (Curry, 2015).

On June 29, 2015, John Casey of the Space and Science Research Corporation (SSRC), a leader in climate prediction, stated in an article on http://www.spaceandscience.net, that the SSRC was dropping the U.S.'s ground-based global temperature data set because it was deemed unreliable. Casey said that the data sets of NASA and NOAA lost their credibility because of allegations of data manipulation to support President Obama's policies on climate change (Casey, 2015). Casey also accused the Obama administration of developing "a culture of scientific corruption permitting the alteration or modification of global temperature data in a way that supports the myth of manmade global warming.(Casey, 2015)." Casey gave an example of the political agenda driving NOAA statements. In June NASA/NOAA came out saying that May 2015 was the warmest May since 1880. SSRC says the statement is not true and that the satellite measurements for May 2015 show May as being in the normal range of temperature for the last ten years.

The question arises regarding the motivation for reputable scientists to manipulate data and promote a false narrative regarding climate change. Money has been suggested as a prime motive. One scientist, for example, Phil Jones, received over $22 million dollars in grants to provide climate research on global warming (Shedlock, 2009). The NSF reports that it has issued over $29 million in research grants listing a George Mason University scientist, Jagadish Shukla, as the primary researcher (Lott, M. 2015). An additional $12 million in grants has been issued to a research group founded by Shukla (Lott, M., 2015). Shukla, also, was one of the scientists who recently urged the government to prosecute businesses, that opposed the global warming narrative, under the RICO laws (Lott, M., 2015). Insuring the research supports global warming keeps the grant dollars flowing.

Alarmism

Alarmist warnings by the academic and scientific community, and environmentalists are not new. This

writer is old enough to remember hearing warnings on the radio in the 1960s warning of a coming ice age. The age-old story of Chicken Little bespeaks of the fact that alarmism has been around much longer than we would like to think and such alarmist rhetoric is often found to be nothing more than misguided thinking or active imagination. The media is complicit in the alarmism because alarmism brings more attention, sells books and newspapers/magazines, and drives TV ratings.

Claim: more frequent and extreme weather events

The media quickly and repetitively carry the alarmist stories and rarely present stories that weaken the alarm. Every major weather event news story seems to be preceded with the word "unprecedented," and the event is usually blamed on global warming. We hear about the unprecedented flooding in Houston, or the unprecedented heat of 2014, or the unprecedented severity of recent hurricanes. The truth is that these events are not unprecedented. For example, the recent flooding in Houston, Texas was described as unprecedented. However, Houston has had serious flooding events, that matched the 2015 flooding, in 2009, 2006, 2001, 1998, 1994, 1989, 1983, and 1979, to name a few years. The media presented an aerial photo of Houston to show the extent of the 2015 flooding. The problem was that the picture was taken in 2001.

Another example of media hype is the coverage of hurricane Patricia in October of 2015. This storm was hyped as the biggest and strongest to ever hit North America, or the worst tropical storm in history. The reality was something not so remarkable and the storm fizzled when it made landfall. Despite the hype, there have been numerous tropical storms in history that were worse than Patricia. (Harris, T. & Ball, T. 2015).

Politicians and the media love to predict doom and gloom. It has been said that AGW would cause more frequent and more severe hurricanes and tornadoes. It would cause deadly heat waves, drought, and more frequent and devastating forest fires. A *Reuters* article in June, 2015 stated "The direct health impacts of climate change come from more frequent and intense extreme weather events, while indirect impacts come from changes in infectious disease patterns, air pollution, food insecurity and malnutrition, displacement and conflicts."

Reality has proven such predictions wrong. Climatologist and former NASA scientist, Dr. Roy Spencer reported in October, 2014 that we had 3,264 days, nearly nine years, without a major hurricane, cat 3 or above, making landfall in the U.S. The U.S. tornado count has plummeted to record lows for 2011 to 2013 and was on track for a record low count in 2014. (climate depot, 2014). Flooding has not increased in the U.S. over records of 85 – 127 years (Pielke, 2011). The frequency of 90 degree heat days has plummeted with three of the mildest summers occurring since 2004 (Climate science, 2014). 2014 was the quietest fire season of the decade (Morano, 2014). The world-wide percentage of drought has not changed since 1901 (McCabe & Wolock, 2015).

Claim: glacial melt and flooding

Catastrophic glacial melting is another claim of AGW that does not seem to be consistent with reality. Six years ago the BBC predicted that the Arctic would be ice free by 2013. It is now 2017 and data shows that Arctic ice is growing, not retreating (Choy, 2013).

Horror stories of glacial melting are often accompanied with film showing a portion of a glacier breaking off and falling into the sea. What the story tellers do not mention is that the breaking off of the portion of the glacier is called calving and is a normal process and indicates glacier growth and has been occurring as long as there have been glaciers. Evidence seems to indicate that glacial melting is cyclical. There was massive melting in the 20s and 30s, prior to the rise of CO_2 from the industrial revolution, and then a refreezing that ended in 1979 (Choy, 2013). With the current growth in Arctic ice, some scientists are saying that the earth is in a cooling trend that may extend to the middle of the century (Choy, 2013). In fact, an article was published July 12, 2015, in which UK scientists predict that we will be in a mini-ice age in 15 years, based on solar cycles (http://www.aol.com/article/2015/07/12/)..

Claim: 97% of scientists believe that climate change is real

President Barrack Obama once said that global warming/climate change is the greatest security threat facing the U.S. He claimed that there was 97% consensus of the scientific community on global warming/climate change. Such claim is not in step with the facts. Over 31,000 scientists in the U.S. have signed a petition opposing the AGW hypothesis and urging President Obama not to spend money on combating AGW (http://www.petitionproject.org/). At a recent meeting of Nobel Prize-winning scientists, nearly half of the 70 attendees refused to sign a declaration supporting the AGW hypothesis Bastasch, M., 2015).

With the "97% consensus on global warming" apparently falling apart, the question is from where did that claim

arise? Adrian Vance, author of *Vapor Tiger* (2014) decided to investigate the origin of the 97% consensus claim. Vance found that the number came from a study done by Dr. Naomi Oreskes, of the Scripps Institute in 2004. Dr. Oreskes claimed to do a survey of the ISI Web of Science database of 928 papers and found 97% to agree that global warming was real. Vance also discovered that a Dr. Ben Peiser of John Moores University examined the work of Dr. Oreskes and found it lacking. The work had actually been done by students, which was forbidden by all professional journals. The ISI database had actually contained 12,000 papers. The students were told to choose only the abstracts that supported AGW. An examination of the 928 abstracts by Lord Monckton found that less than half of the 928 abstracts actually agreed with the AGW hypothesis (Vance, 2014).

Claim: apocalyptic predictions for 2015

On June 12, 2008, correspondent Bob Woodruff was on ABC's *Good Morning America* to promote an upcoming ABC special on global warming called *Earth 2100,* which would offer predictions of what the world would be like by June 2015 if global warming continued unabated, without any human intervention (Whitlock, S. 2015). *Earth 2100* was aired June 2, 2009. Among the predictions is that New York city would be destroyed by flooding, a "storm of the century" would wipe out Miami, Las Vegas would be abandoned, and there would be flames covering hundreds of miles. It was also predicted that conditions resulting from global warming would cause tremendous inflation of consumer product prices such that a gallon of gasoline would be close to $9 and a carton of milk close to $13 (Whitlock, S., 2015).

It is now well past June of 2015 and none of the dire predictions have occurred. Were the "warmers" wrong or did we humans intervene sufficiently to halt global warming? It is probably safe to say that CO_2 emissions have not been reduced in the intervening years, at least not to the extent the "warmers" said would be necessary to stop global warming. Some scientists say the earth has been in a cooling trend for 17 to 18 years while others fiddle with the data to claim we are still warming (Bastasch, M., 2015).

So what can be concluded? If earth has been in a cooling trend for 18 years and CO_2 levels are still high and climbing, can we conclude that the elevated CO_2 levels have nothing to do with global warming? If we are still in a warming trend, as NASA claims, can we conclude that the warming will not cause catastrophic events as predicted? After all, historical data shows that we had 3,264 days without a major hurricane, cat 3 or above, making landfall in the U.S.; the U.S. tornado count has plummeted to record lows for the last three years and is on track for a record low count this year. (climate depot, 2014); Flooding has not increased in the U.S. over records of 85 – 127 years (Pielke, 2011); The frequency of 90 degree heat days has plummeted with three of the mildest summers occurring since 2004 (Climate science, 2014); 2014 was the quietest fire season of the decade (Morano, 2014); and, the percentage of world-wide drought has not changed since 1901 (McCabe & Wolock, 2015). Probably the safest conclusion to make is that computer models cannot be depended on to accurately predict weather phenomena, and its impact, 5, 10, 20, or even 100 years out. They, often, cannot accurately predict weather three to five days in the future.

The cure

There is no empirical evidence linking human generated CO_2 with devastating weather events or climate change in general. None. Yet, with every devastating weather event, the media clamors to claim the event is linked to climate change and CO_2 emissions. Every devastating weather event is called "unprecedented" and the worst in history, when historical data proves otherwise. The fear mongers, such as Al Gore are telling us that we are close to the point of no return. If we do not act now to reduce CO_2 emissions, we will doom the planet to certain destruction, including the possible extinction of humans.

So what is hoped for with the fear mongering? First, abandon fossil fuels for the renewables such as wind, solar, and bio-fuels, and second, abandon the use of those products that use fossil fuels or depend on fossil fuels for their existence, or generate CO_2.

Economic Impact of "Managing for Sustainability"

The first impact of switching from fossil fuels to wind, solar, or bio-fuels will be a significant rise in energy costs for all consumers of energy. While some may debate this, it is generally known that wind, solar and bio-fuels are not economically viable as a replacement for fossil fuels. It is estimated that the total share of electricity from U.S. wind and solar combined is expected to reach only 6 percent by 2040 (Moore, S. & White, K.H. 2016). It takes a massive investment in land and materials to construct a wind or solar facility that is only capable of producing a fraction of the electricity produced by a coal or gas fired facility on a much small piece of land. Then there is the infrastructure that must be built to transmit the energy produced by the solar and wind facilities. This, too, is a

massive undertaking because the solar and wind facilities must be located a considerable distance from populated areas. For fossil fuel electricity generating facilities, and even nuclear facilities, the infrastructure is already in place, and paid for in most cases.

Many products will have to be redesigned and reengineered to operate with alternate fuels, which will drive the costs of those products higher. An example of this is the automobile. Electric and hybrid cars are considerably more expensive than gasoline or diesel vehicles. California recently proposed a law banning the sales and use of gasoline/diesel powered vehicles by 2030.

The costs of other consumer goods will increase because the manufacturing processes will be required to switch to alternative sources of power. The cost of transporting those goods by rail and truck will increase as transportation switches to alternative fuels. Meat will become more expensive because growers of cattle, swine, and other meat products will be pressured to reduce their herds because the animals expel CO_2 during respiration. Fruit and vegetable prices will rise because farmers will have to switch to equipment that does not run on fossil fuels. Some products, such as plastics and products made with plastic, may disappear altogether because they are made from petroleum products and CO_2 is emitted during the process of heating and manufacturing.

The high cost of alternates sources of energy will, in turn, cause prices of consumer products to soar sky high, because of the costs will be passed on to the consumer. Consumers will consume less and lower their standard of living. Under the Paris Climate Accord, the developed countries will transfer billions of dollars to the U.N. to disperse to undeveloped countries so they can cope with the loss of low cost fuels and be on a par with the developed countries. The economies of the developed countries will become less vibrant and the income gap between the developed countries and undeveloped countries will narrow. The U.N. is positioning itself to be the arbiter of all things relating to preventing climate change and will be in a position of great power because it will control the vast sums of cash flowing in from the developed countries. Under the Paris Climate Accord, the U.N. becomes a de facto socialist world government.

CO_2 is not a pollutant but is an essential element of all life on the planet. It is essential for plant growth, and food plants are essential in the diets of all civilizations. Reducing the level of CO_2 in the atmosphere will likely caused a world food shortage because food crops will yield less per acre and not be able to handle the stresses of drought and other growth issues. Some plants and food crops may not even survive. Food shortages will also cause prices to soar. The harm will be mostly felt on the poorer nations, and the poor in any country. (Richard, 2015.)

But are wind, solar, and biofuels really renewable and sustainable? Not really. Just take the most obvious factor about wind and solar. The Sun does not always shine and the wind does not always blow. Therefore, the power from these sources is not consistent and cannot provide the levels of power needed to power the needs of the country.

Additionally, the market demand is not there. This caused the Obama administration to attempt to force a market where none exists, by limiting the availability of fossil fuels through regulatory measures. The EPA has already forced the shutdown of many coal producers and has limited drilling and oil exploration. This, in turn, caused many jobs to disappear. The Keystone Pipeline from Canada was touted as a way of getting less expensive North American oil pumped into the U.S. but the Obama administration refused to approve the pipeline. President Obama's expectation was to drive the price of gasoline to $6 a gallon or higher in hopes of making the switch to electric cars more acceptable. The problem that arose to thwart those plans was the advent of fracking. Fracking became economically feasible when gasoline prices rose. Then Saudi Arabia decided it wanted to do something to halt fracking. It flooded the market driving oil prices down, making fracking less profitable. Low oil prices pulled gasoline prices way down such that consumers are thinking less about electric cars. Events, such as this, is why the U.N. called for non-market approaches to achieving sustainable growth.

Another economic consideration relates to whether sustainability efforts will have any discernable impact on climate. Given that CO_2 cannot be linked to climate change by any empirical evidence, it would seem the push for sustainability is an exercise in futility that will impose massive costs on businesses and consumers, and even countries, that is unnecessary. Many climate scientists tell us that doubling the current level of CO_2 will not cause a significant rise in Earth's temperature. Any minimal rise in temperature will also be beneficial. Growing seasons for food crops will be extended. The CO2 will provide the food to cause crops to be more productive as well as cause trees, and other plants to flourish.

Environmental Impact

From an environmental viewpoint wind and solar create larger problems. It takes a massive amount of land to construct a solar farm or wind farm large enough to generate a reasonable amount of electric energy. For example, the Ivanpah Solar Power facility occupies around 3500 acres of fragile Mojave Desert land and

generates around 392 megawatts of electricity. (Burnett, H.S., 2017) A gas powered facility takes less than 50 acres and generates over 1000 megawatts. (Burnett, H.S., 2017) Wind farms guzzle similar tracts of land and both wind and solar farms are a visual blight on the landscape. The visual blight alone has caused some communities to squelch plans for solar and wind farms in their area. (Cohen, B.R., 2016)

Another environmental concern with wind and solar farms is the danger to wildlife and the wastes generated. It is estimated that solar farms kill a bird every two minutes. Wind farms present electrocution hazards as well as hazards from the turbine blades. Many endangered eagles are known to be killed by the wind turbines and the operators of those facilities must get special permits to keep them from being prosecuted for killing endangered species. Solar and wind farms are also restricting the range of many animal species.

Wind turbine blades are made of composite materials and cannot be recycled. It is estimated that at least 47 million tonnes of wind turbine blades will be headed to land fills by 2050. Also, wind farms use 460 metric tons of steel and 870 metric tons of concrete per megawatt produced where a natural gas plant uses only 3 metric tons of steel and 27 cubic meters of concrete per megawatt (Moore, S. & White, K.H., 2016). The bottom line is that wind and solar power are not free and create their own environmental problems.

What will happen to all of those gasoline vehicles that must be given up for electric cars? They will have to be recycled or crushed and sent to land fills. The process of recycling will likely cause a release of CO_2 along with real pollutants.

Conclusion

The bottom line is that sustainability is an elusive goal. Embracing sustainability, as it is defined by the U.N., is an expensive proposition that may not be worth the effort. Climate changes naturally and CO_2 is not a culprit that must be managed or eliminated.

President Trump, with a different viewpoint, has reversed many of the Obama energy policies and he has instructed the EPA to rescind many of the oppressive regulatory measures that were killing coal and oil production. Still, there are many state and local governments seeking to continue to march to the drumbeat of the Paris Climate Accord, and are themselves, passing measures to restrict fossil fuel use. For example, as was mentioned earlier, California recently proposed a law banning gasoline powered automobiles by 2030. Be careful what you wish for.

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A New Measure of Organization Culture for Business Innovativeness in Practice

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ABSTRACT

Purpose: While the importance of organization culture as a determinant of company innovativeness and business innovation success has been widely accepted intuitively, the empirical evidence has been controversial. A new measure based on the opinion of practitioners from successful companies is proposed toward a new more useful measure for cultures conducive to innovation

Design/methodology/approach: Top managers from highly successful innovators participated in an interactive process to generate a set of culture traits which coincide with their respective company culture.

Findings: A list of 14 culture traits has been created and grouped into four headings groups addressing organization awareness, seeking improvement, goal achievement, and trust and cooperation.

Research limitation/implications: While the content validity of the measure seems very high, the sample size is too small to fully assess its psychometric qualities, further independent research will be needed to ensure construct validity and reliability.

Practical implications: Once the measure is validated researchers will be able to explore the relationships between organization culture and a host of other constructs such as company innovativeness, business innovation success, and various measure of company performance.

Originality/value: Presently there is no valid measure for organization culture and a great deal of confusion and controversy. Hopefully this new measure will do the job in this important area.

Introduction

The critical importance of business innovation for the survival and prosperity of individual business organizations has been widely recognized for a long time but as the world increasingly experience hyper competition this importance grows (Noblet, Simon & Parent, 2015; Popaitoon & Siengthai, 2014; Elbashir, Collier & Sutton, 2014; Kohlbacher, Weitlaner, Hollosi, Grunwald & Grahsl, 2013). Just as widely recognized has been the importance of organization culture for improving their ability to innovate. The large number of reports on the connection between organization culture can be organized in terms whether they are more descriptive versus prescriptive, are based on educated opinion versus empirical evidence, and the extent to which their results can be useful in practice versus representing merely and academic exercise.

Guimaraes et al, (2016) have proposed a relatively broad integrated model for the determinants of company innovation success which has been empirically validated in

several industries. The latest version of this model included company absorptive capacity defined as the ability of company employees to acquire, share, and use knowledge relevant for business innovation (new products, processes, etc.) as a major determinant of organization innovation effectiveness. As defined in the literature, organization absorptive capacity addresses its ability to acquire and integrate knowledge from within and outside the firm, to share, transform/commercialize the knowledge by turning it successful products, services, and other improvements to the company.

Based on a survey of the relevant literature regarding the relationship between organization culture and innovativeness, the main objective of this study is to develop a more practical and prescriptive measure more likely to lead to an organization culture which actually promotes business innovativeness.

Theoretical Background

Dependent Variable–Organization innovativeness or capacity to innovate

The business literature has much about the relatively new concept of organization knowledge absorptive capacity and its importance as a requirement for companies to manage and prosper in a business environment heavily dependent on innovation (Noblet, Simon & Parent, 2015; Popaitoon & Siengthai, 2014; Elbashir, Collier & Sutton, 2014; Kohlbacher, Weitlaner, Hollosi, Grunwald & Grahsl, 2013). Knowledge absorptive capacity has been originally defined as "the ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990, p. 128). In the realm of management research, this absorptive capacity encompasses a wide range of theories including organization learning (e.g. Lane et al, 2001), innovation (e.g. Tsai, 2001), a knowledge-based view of the firm (e.g. Zhao & Anand, 2009) and organization's dynamic capabilities (e.g. Zahra & George, 2002). According to the dynamic capabilities theory, firms need to adjust their resource base constantly to cope with the changing environment, thereby generating a competitive advantage (Teece, Pisano & Shuen, 1997).

As an organization's dynamic capability, knowledge absorptive capacity is embedded in organizational processes considered important enablers for successful organizational change and growth (Zott, 2003). Teece (2007) has emphasized the important role of strategic leadership in developing absorptive capacity and providing the necessary resources for this critical component of a company's managerial infrastructure. In this study, we view absorptive capacity as such, while providing the conduit for information from strategic leadership, competitive intelligence, management of technology, and the individual change processes themselves to flow through the entire organization affecting the decision making process of managers and lower workers alike.

Cohen and Levinthal (1990) viewed absorptive capacity as a three-dimensional construct composed of identifying, assimilation, and exploiting external knowledge. Since then it has undergone several modifications and extensions (Lane et al, 2006; Lewin et al., 2011; Todorova & Dunsin, 2007; Flatten, Greve, et al. 2011). Zahra and George (2002) proposed it as a four-dimensional construct which has been validated by several studies (Brettel et al., 2011; Flatten, Engelen, Zahra, & Brettel, 2011; Jansen, van Den Bosch, & Volberda, 2005). The four dimensions or capabilities are: 1) Acquisition which refers to the identification and intake of external knowledge potentially relevant to the firm. 2) Assimilation of the knowledge that has previously been acquired through its analysis, understanding, and interpretation. 3) Transformation which focuses on combining prior existing knowledge with newly acquired knowledge to update underlying processes. 4) Exploitation focused on fostering the commercial application of the new knowledge.

Zahra and George (2002) noted that the first two dimensions (acquisition and assimilation) are capabilities exploring potentially relevant knowledge, thus they are jointly called potential absorptive capacity, expressing a firm's ability to identify and gather external knowledge. The last two (transformation and exploitation) are capabilities exploiting relevant knowledge and realizing commercial gains from it, thus jointly they are called realized absorptive capacity, expressing a firm's ability to employ and leverage absorbed knowledge converting such knowledge into new or improved products and processes, (Flatten, Greve, et al., 2011).

In this study we surmised that even though the infrastructure (equipment, employee recruitment, training, etc.) enabling potential absorptive capacity and realized absorptive capacity can be developed and employed separately, they must exist simultaneously in order to achieve the beneficial organizational results (Zahra & George, 2002). Indeed, an extension of the theoretical absorptive capacity concept is the work of Tondorova and Durisin (2007) which assumes feedback loops between the potential and realized absorptive capacity concepts and propose that firms with higher levels of absorptive capacity will have an advantage identifying, gathering, assimilating, and exploiting further relevant knowledge in the future. Therefore, we should expect that knowledge absorptive capacity represents an important component

of the company innovation management infrastructure and a strategic determinant of company innovativeness and overall innovation success.

Measuring Organization Innovativeness or Knowledge Absorptive Capacity

This represents the "ability of a firm to recognize the value of new, external information, assimilate it, and apply it to commercial ends" (Cohen & Levinthal, 1990, p. 128). Over time the measure has been expanded and modified. For this study we chose the measure validated by several studies (Brettel et al., 2011; Flatten, Engelen, Zahra, & Brettel, 2011) including four dimensions or capabilities addressing the identification and intake of external knowledge potentially relevant to the firm, assimilation of the knowledge that has previously been acquired, transformation of this knowledge by combining prior existing knowledge with newly acquired knowledge to update underlying processes, and exploitation of the knowledge to produce new products and processes benefitting the company. Respondents were again asked to use a seven-point scale (1 = strongly disagree to 7 = strongly agree) to rate the fourteen items measuring this major variable, The specific groups of questions are:

Please specify to what extent your company uses external resources to obtain information (e.g., personal networks, consultants, seminars, internet, databases professional journals, academic publications, market research, laws and regulations). The search for relevant information concerning our industry is every-day business in our company. Our management motivates the employees to use information sources within our industry. Our management expects that the employees deal with information beyond our industry.

Please rate to what extent the following statements fit the communication structure in your company. In our company, ideas and concepts are communicated cross-departmental.

Our management emphasizes cross-departmental support to solve problems. In our company there is a quick information flow, e.g., if a business unit obtains important information it communicates this information promptly to all other business units or departments. Our management demands periodical cross-departmental meetings to exchange information on new developments, problems, and achievements.

Please specify to what extent the following statements fit the knowledge processing in your company. Our employees have the ability to structure and to use collected knowledge. Our employees are used to absorb new knowledge as well as to prepare it for further purposes and to make it available. Our employees successfully link existing knowledge with new insights. Our employees are able to apply new knowledge in their practical work.

Please specify to what extent the following statements fit the commercial exploitation of new knowledge in your company (Please think about all company divisions such as R&D, production, marketing and accounting). Our management supports the development of prototypes. Our company regularly reconsiders technologies and adapts them accordant to new knowledge. Our company has the ability to work more effective by adopting new technologies.

Independent Variable – Organization culture

While the importance of organization culture has a strong intuitive appeal as a determinant of company innovativeness and performance, from the beginning researchers have had difficulties producing conclusive results, let alone being able to make sound recommendations to practitioners about how to change their company culture to improve innovativeness. Ogbonna and Wilkinson (2003) have recognized some difficulties with the body of research on the organization culture, innovativeness, performance links. They posit that, similar to the organizational behavior literature, some researchers in the human resources area question the importance of the culture concept and the wisdom of planned culture change. However, despite academic research confusion, company managers remain highly interested in managing their organization culture.

Many authors in the early 1980s were proposing that company culture was important for company prosperity (Peters & Waterman, 1982; Davis, 1984). According to Büschgens, Bausch, and Balkin (2013) the literature was based on two major propositions: first, cultures reflect the values and actions of the senior leaders; second, cultures are important determinants of firm performance. More recently Schneider, Ehrhart, and Macey (2013) survey of the literature about organization culture showed little empirical evidence for these assumptions.

Similarly, in the context of the organization culture-performance relationship, researchers have had conceptual difficulties defining culture (Schneider et al., 2013), and experienced methodological issues due to small sample sizes, construct measurement issues, and variance created by trying to compare multi-industry assessments (Detert, Schroeder, & Mauriel, 2000). Even though the academic research on culture has become more sophisticated methodologically, individual researchers have used diverse measures of company culture and performance, making cross studies comparisons more difficult (Sackmann, 2011; Hartnell, Ou, & Kinicki, 2011).

If in general company innovativeness is intuitively linked to company culture why have researchers not been able to conclusively demonstrate this link? Büschgens, Bausch, and Balkin (2013) provided some possible reasons. First, many firms well known to produce and commercialize new products and services become superficially known for some unique aspect of their corporate culture, so 3M explains its innovativeness as being essentially a science-based organization, and. Apple's innovativeness comes from promoting the idea of employees focusing on larger product visions leading to the creation of new major ground-breaking technologies. Much of Google innovativeness is credited to its employees' individuality and broad freedom. This superficial analysis of existing cultural traits which have led to successful innovativeness is misleading because it should be rather obvious by now that company innovativeness will require more than one cultural trait no matter how important. This adds to the confusion and represents the other side of the spectrum where a very large number of culture traits have been shown in the literature discussed next as being mostly empirically irrelevant as determinants for company innovativeness.

Further, as stated by Büschgens, et al. (2013), "the heterogeneity of culture in practical examples is mirrored by a multitude of cultural values that has been investigated scientifically." In their literature review they identified more than 40 different cultural traits supposedly related to company innovativeness, comprising a wide range of broad variables such as "innovation culture" (Chandler, Keller, and Lyon, 2000; Gumusluoglu, and Ilsev, 2009) or "supportive culture" (Abbey and Dickson, 1983; Berson, Oreg, and Dvir, 2008; Wei and Morgan, 2004) to very specific cultural traits like tolerance for failure (Danneels, 2008) or participative decision-making (Hurley and Hult, 1998). Some confusion is likely to emanate from the wide diversity of traits being investigated, if one assumed a positive culture–innovation relationship. Some studies assuming a positive culture–innovation relationship produced counter intuitive results, showing negative correlations for "supportive culture" (Berson et al., 2008) and culture stability (Jaskyte, 2004). Given the confusion about the various interpretations, their measurements and relationships to company innovativeness and performance, we must with the statement by Büschgens, Bausch, and Balkin (2013) that "a compelling theoretical explanation for the relation of organizational culture and innovation is still missing."

Regarding the construct of culture as a determinant of company innovativeness, the primary issue seems to be related to construct measurement and validity. Only after this issue is resolved will researchers be able to empirically test its relationship to organization innovativeness. Specifically, the primary issue now is the content validity of a measure of culture which can explain a substantial percentage of the variance in the better established constructs of company innovativeness and business innovation success. In an effort to cut through all the conceptual and measurement difficulties, this study tried a new approach to develop a measure for company culture useful in practice which is described next.

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.

Knowledge Collection Procedure

The sample selected for this study came from the 87 firms which were previously rated as the most successful innovators in a prior study regarding the success factors for business innovation and a more detailed description of that sampling process for the first study has been published in (Guimaraes, Thielman, Guimaraes, Cornick, 2016). Innovation Success or company effectiveness implementing business innovation was defined to represent 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). The ratings for the four areas were averaged to produce a single measure for effectiveness in implementing business innovation. In the earlier study the field test used a mailed questionnaire to collect data from the Internal Auditor Director (IA) of each company. IAs were chosen as target respondents because, from a corporate perspective, they are 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.

For this study the IAs from the 87 companies rated "most effective innovators" were sent by regular mail a relatively long list of cultural traits which the literature proposes as important determinants of organization innovativeness and subsequently organization success in business innovation. As a courtesy to the respondents were also sent a copy of the published report which was accompanied by the cover letter: a) explaining the follow up nature of the

study and, b) asking the IAs to invite their HR director to jointly participate in selecting the ten most important culture traits they believe are responsible for their company previously rated outstanding innovativeness and business innovation success. The respondents were instructed to "please use the long list of possible culture traits provided strictly as a starting point and feel free to simplify, add, merge, summarize, and re-word as they saw fit to describe the traits they deemed relevant to their company success in innovation." The list of culture traits sent to prospective respondents is shown in Table 1.

TABLE 1
SUGGESTED LIST OF COMPANY CULTURE TRAITS

Definition: Organizational culture encompasses values and behaviors that "contribute to the unique social and psychological environment of an organization." It represents the collective values, beliefs and principles of organizational members, including the organization's vision, values, norms, systems, symbols, language, assumptions, beliefs, and habits.

Instructions to Respondents: The list of culture traits provided below is meant strictly as food for thought to compose your own list. While building your company's list of 1Ø traits that you and your HR director believe are the most important reasons why your company has been extremely innovative and successful at business innovation, please feel free to dismiss, add, modify traits as you see fit.

	LIST OF ORGANIZATIONAL CULTURE TRAITS:
1.	An inspiring, shared mission at the company core.
2.	Capable leadership in place and in development.
3.	Openness and humility from top to bottom of the organization
4.	An environment of accountability and personal responsibility
5.	Freedom for risk-taking within appropriate limits
6.	A fierce commitment to "do it right"
7.	A willingness to tolerate and learn from mistakes
8.	Unquestioned integrity and consistency
9.	A pursuit of collaboration, integration, and holistic thinking
1Ø.	Courage and persistence in the face of difficulty
11.	Managers are seen as coaches and team leaders. They are valued for these skills.
12.	Leadership is participative and flexible.
13.	Organizational policies and procedures are developed to help people get the job done.
14.	Organizational policies and procedures are readily reviewed and changed as needed.
15.	Joint decision making occurs routinely.
16.	Information is readily shared.
17.	Problem solving is highly pragmatic.
18.	People work informally and are not preoccupied with status and territory.
19.	Conflicts are addressed openly and respectfully.
2Ø.	Productivity is measured by the results achieved.
21.	Common objectives are widely shared and energy is channeled toward meeting the objectives.
22.	The responsibility is shared.
23.	Nonconformity is accepted.
24.	People are expected to present innovative ideas. People feel free to brainstorm.
25.	There is a high level of trust that people will do the right thing and policies and procedures reflect this.
26.	Problems are dealt with by the supervisors when they occur.
27.	Collaboration is freely entered into. Competition is fair, open, and in pursuit of a shared goal. Relationships are honest.
28.	People get on-going feedback about their performance in a constructive, helpful manner.
29.	Poor performance is confronted and a resolution-oriented action plan is put into place.
3Ø.	People are highly motivated. They seize opportunities for personal growth. People view work as important and fun.
31.	Risk taking is supported as a part of growth and change.
32.	Mistakes are viewed as opportunities for learning and re-examining the process.
33.	The organization is future-focused and adapts quickly to changing demands.
34.	People can articulate common goals and are aware when organizational goals are achieved.
35.	Achievements are celebrated.
36.	Communication is frequent, informal, interactive, and multi-directional. People feel well informed.
37.	People experience the organizational culture as being customer service driven and our commitment is demonstrated in everything that we do.
38.	Our structures, processes and interactions are built to assess and fulfill our customer needs.
39.	Strategies are data driven. Customer needs and issues are tracked and the wider environment is routinely scanned.
4Ø.	The data is collectively analyzed and strategies and operational plans are developed from what is learned.
41.	There is an on-going cycle of gathering, analyzing, and making changes as needed.
42.	We move quickly to address any situations that appear to fall outside expectations.
43.	Innovation is an integral value of the company business philosophy.
44.	We always take the lead.

45.	We have an effective infrastructure enabling smooth flow of information for collaboration.
46.	An innovation-friendly environment that supports creativity at every step.
47.	Our organization applies metrics tools to their creative and development processes because our success depends on how much time and money is spent on implementing innovation.
48.	We are not afraid to take risks and experiment with new ideas
49.	We fund creative training programs
50.	We reward creative talent
51.	We have a leadership team that inspires new ideas
52.	Top managers have a shared definition of innovation
53.	We have the intellectual, technical and financial resources to make an innovative concept a reality.
54.	We have an artistic workplace that induces creativity and stimulate new ideas.
55.	We are never complacent, always looking for creative and novel ideas..

The list of each company's ten chosen culture traits were emailed back to the researchers who summarized and merged the lists from the respondents, combining the closely related traits but making sure that every identified trait was represented. As hoped for this process severely reduced the list of traits which was then emailed back to the respondents for comment with a request to "please make sure that all the company culture traits important to their company innovativeness was represented in the list." This iteration process went on for up to six rounds with a fewer and fewer companies until the list stabilized producing the fourteen "most important culture traits" agreeable to the final 38 respondent organizations.

Sample Description

Through the procedure described above, the 38 usable responses provide a response rate 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 using t-tests comparing the 87 highest rated (average of 6/7 or above) organizations against the 38 which responded for this study along their size, and ratings for its major constructs: absorptive capacity, competitive intelligence, management of technology, project management characteristics, and strategic management. The t-tests results indicated no differences between the two groups. As shown in Tables 2 and 3, this small sample represents a wide variety of organizational settings based on industry sectors and companies' gross revenues.

Table 2
Company Industry Sectors

Industry Sectors	No. of Companies	%
Manufacturing	10	26.32
Financial Services	3	7.89
Banking	3	7.89
Other	4	10.53
Retailers	2	5.26
Health Care	3	7.89
Merchandising	2	5.26
Transportation	2	5.26
Utilities	1	2.63
Communications	3	7.89
Wholesalers	2	5.26
Insurance	2	5.26
Mining	1	2.63
Total	38	100.00

Table 3
Company Gross Revenues

Gross Revenues	No. of Companies	%
Less than $100M	0	0.00
$101M-$300M	0	0.00
$301M-$500M	1	2.63
$501M-$700M	4	10.53
$701M-$1B	3	7.89
$1B-$2B	5	13.16
$2B-$5B	8	21.05
$5B-$10B	10	26.32
Over $10B	7	18.42
Total	38	100.00

Results

Table 4 shows the final list of culture traits produced by the knowledge collection process described earlier. After a superficial analysis of the fourteen organization culture traits, the researchers intuitively grouped them into four separate groups addressing organization awareness, seeking improvement, goal achievement, and trust and cooperation.

Table 4
Most Important Organization Culture Traits for Business Innovativeness

Organization Awareness

- People in this organization have a sense of direction, a vision for its future, with clearly defined goals, objectives, and responsibilities.
- People are tuned in to what is going on in the market place regarding customers, competitors and their products/services, suppliers, etc.

Seeking Improvement

- New ideas are encouraged and seriously evaluated.
- People are interested in improving how they do their jobs.
- People are interested in learning about and applying new technologies.

Goal Achievement

- Goals and tasks assignments are discussed and agreed to by the people involved.
- The goals set are challenging but attainable.
- People are accountable for what they agreed to do.
- People are willing to personally sacrifice a little to accomplish their tasks and goals.
- People are rewarded for good performance toward their goals.
- We use metrics on our creative and development processes to track how much time and money is spent on creating and implementing innovation.

Trust and Cooperation

- In this organization employees trust each other, communicate and cooperate freely.
- There is a good balance between specialization and ability to step in to do someone else's work.
- In this organization employees trust their superiors.

Summary, Conclusions and Recommendations for Researchers and Practitioners

Despite the intuitive importance researchers and practitioners have assigned to organization culture as a determinant of company innovativeness and business performance, the concept has been less than useful in practice and the empirical research results have been controversial at best, and many times confusing.

In an effort to develop a more effective measure for organization culture, one more aligned with experienced practitioners with a track record of company innovativeness success, managers from companies previously highly rated as business innovators were asked to input the company cultural traits they thought most important for their superior innovativeness. The results represent a new measure for desirable company cultures more conducive to business innovativeness which hopefully can produce more useful results in practice.

For researchers this represents a unique opportunity because while this study produced a measure with considerable content validity, the sample size is too small to explore the psychometric qualities of the measure, its construct and discriminant validity and reliability. 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. We propose the need for independent researchers to test the four intuitively defined four factors comprising organization culture. Further we look forward to empirical tests with larger sample sizes of the relationship between organization culture and innovativeness and success in business innovation in general, and business process re-engineering and/or new product development in particular.

The measure proposed here may represent an important extension of the business innovation success factors model empirically tested by Guimaraes, Paranjape and Cornick (2016) shown in Figure 1. To extend the model, a valid measure for organization culture should be tested as an independent variable with a direct relationship to company knowledge absorptive capacity discussed earlier. The latter construct would become an intermediate or mediating variable to product innovation or some other dependent variable representing business innovation success.

Another way in which company culture may enable the model extension is as a possible moderating variable. It would stand to reason that innovative cultures should have a positive effect on the relationships between the five independent variables in the Guimaraes, Paranjape and Cornick model. The use of structure equation modeling tools such as PLS with a larger sample size is likely to reveal some interesting connections among the powerful determinants of business innovation success possibly measure in several different ways: business innovation success broadly defined, new product innovation success, business process re-engineering, company profitability, etc.

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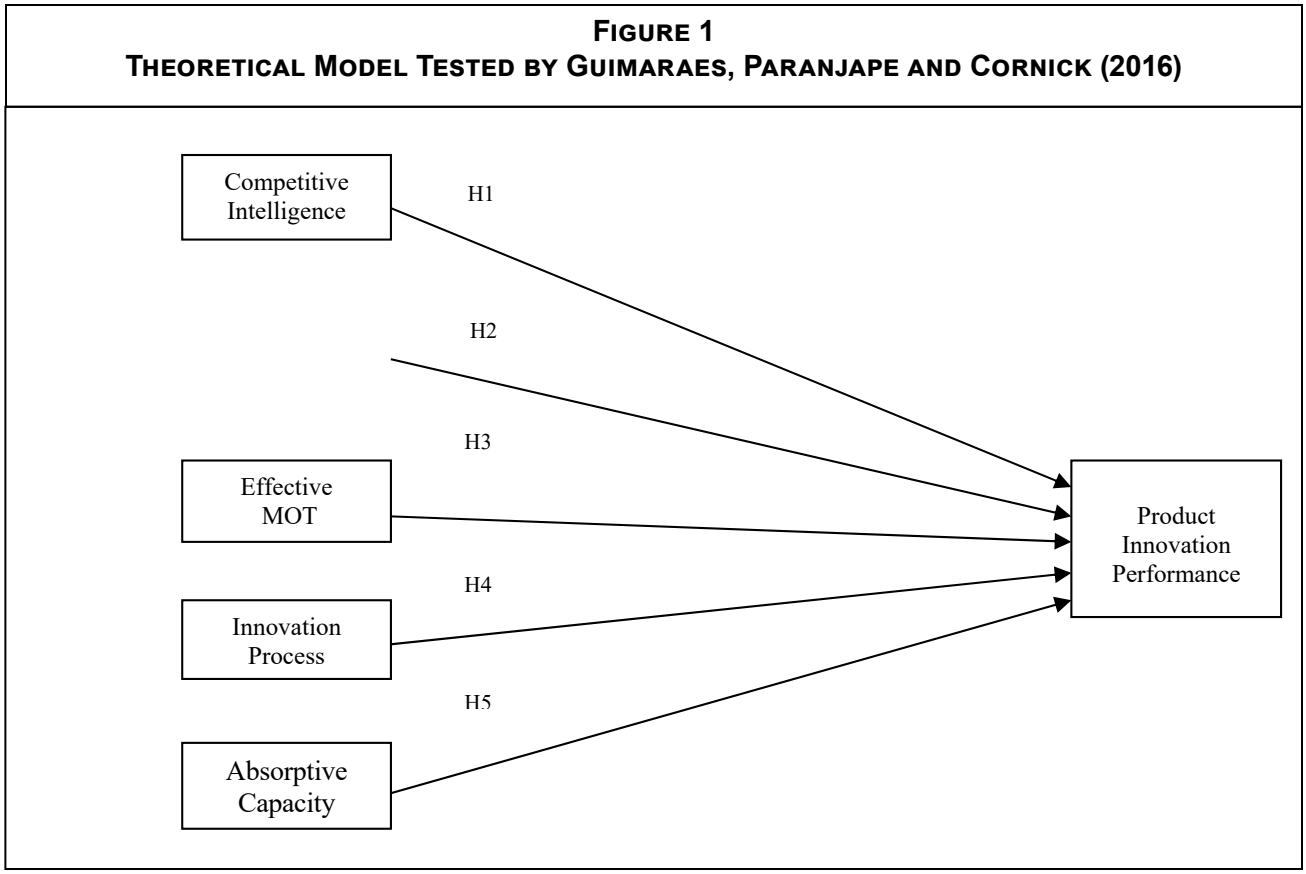
Figure 1
Theoretical Model Tested by Guimaraes, Paranjape and Cornick (2016)



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Green House Gases and Carbon Accounting

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ABSTRACT

The primary goal of this article is to describe and define issues surrounding "financial carbon accounting" that is, accounting for financial instruments that represent the value of some volume of greenhouse gas (GHG) emissions. In an effort to inform future research, the paper introduces the reader to the background and context of carbon accounting. The work identifies and explains the markets for Green House Gas (GHG) credit instruments, defines the meaning of "carbon" as used in this context, traces the emergence of what today we call carbon markets, and outlines the epistemological origins of carbon accounting.

Introduction to Carbon Markets.

What is "Carbon"?

A major problem relating to the debate and discourse of the climate change is that many terms used in that discussion lack definitional clarity For example, ask one hundred people what they believe the word 'sustainability' means and you will likely get a wide range of answers. For example, it is important to clarify precisely the word "carbon" as used in the term "carbon markets". In the current context, "carbon" is a synecdoche for the seven greenhouse gases that the Kyoto Protocol derives reduction targets from for its participating parties. These gases include carbon dioxide (CO_2), methane (CH_4), nitrous oxide (NO_2), sulfur hexafluoride (SF6), nitrogen trifluoride (NF_3)[1], perfluorocarbons (PFCs), and hydrofluorocarbons (HFCs)[2]. All of these gases contribute to the similarly named 'greenhouse effect,' whereby gaseous particulates tilt the balance of radiation moving into and out of the Earth's atmosphere to the effect of warming the planet. Attempts of the Kyoto Protocol and other elements of climate change-conscious regulatory architecture to curb the emissions of these gases is rooted in the scientific understanding of their effect on climate. Primarily that the excessive presence of these gases in the air will create warming that will continue to cause, by virtue of lock-in behaviors inherent in natural feedback loops to have potentially catastrophic consequences for the planet and its ecosystems. The reason 'carbon' is chosen, as opposed to anything else in the above list, is the use of the Intergovernmental Panel on Climate Change's (ICCC) calculated 'global warming potentials' for these gases, which quantify, to avoid more complicated terminology, their abilities to absorb energy over various time horizons relative to that of CO_2, which bears a self-referential benchmark of one.3 Below for the sake of illustration are selected global warming potentials as adapted from the Intergovernmental Panel on Climate Change's Second (SAR), Fourth (FAR), and Fifth (FAR) Assessment Reports:

For instance Figure 1 indicates that, as calculated by the IPCC's Fifth Assessment Report, one unit of methane emitted into the Earth's atmosphere has an atmospheric impact over a 100 year time horizon as 28 units of carbon dioxide.

Emergence of Carbon Markets.

The precursor to carbon markets as they exist today was the American efforts to regulate emissions from sulfur

1 This gas was not in the basket when the Kyoto Protocol was published but was added later.

2 Strictly speaking, HFCs and PFCs are technically *groups* of several gases each but are sufficiently chemically similar to be lumped together as such.

3 This often also gives rise to expressions of volumes including a multitude of GHGs in terms of CO_2e, 'carbon dioxide equivalent'.

Figure 1
IPCC global warming potentials
Sources: IPCC (1996), IPCC (2007), IPCC (2013)
Compiled by Brander (2015)

Kyoto Protocol Greenhouse Gases	Atmospheric Life (Years)	Atmospheric Concentrations (PPM*)	GWP** (SAR)	GWP** (AR4)	GWP** (AR5)
Carbon dioxide (CO2)	variable	395.4	1	1	1
Methane (CH4)	12.4	1.893	21	25	28
Nitrous oxide (N2O)	121	0.326	310	298	265
Hydrofluorocarbons (HFCs)	1.4–270	Varies	140–11,700	124–14,800	-
Perfluorocarbons(PFCs)	2,600–50,000	Varies	6,500–9,200	7,390–12,200	-
Sulphur hexafluoride (SF6)	3,200	0.000007	23,900	22,800	-
Nitrogen trifluoride (NF3)	740	-	-	17,200	-

***Parts per million;**
****Using time horizons of 100 years.**
Typical time horizons in GWP calculations are 20, 50, and 100 years.

dioxide and nitrogen dioxide that were influencing public health, including generating famously termed 'acid rain' (Panter, 2017, p. [9]). The policy conversation that took place throughout the passing of the Clean Air Act in 1970 and subsequent amendments in 1977 and 1990 gave birth to the core mechanism of financially incentivizing emissions reduction and offsetting. They provided a number of key structural lessons, particularly given the programs' resounding successes (Panter, 2017, p. [9]; Burtraw and Szambelan, 2009; Hansjurgens, 2011).

A lack of explicit citations within the Kyoto Protocol aside, it is unquestionable that America's innovations were on the minds of the architects responsible for its three 'flexible mechanisms' that allow for emissions trading: the Clean Development Mechanism (CDM), Joint Implementation (JI), and International Emissions Trading (IET). The CDM allows Annex I parties to the protocol, which comprise developed and developing economies, to generate Certified Emissions Reduction (CER) credits for emissions reduction compliance by investing in projects in non-Annex I countries. JI allows Annex I parties to generate Emission Reduction Units (ERU) credits for the same purpose by investing in projects in other Annex I parties, and IET espouses the fungibility of credits for parties' use in achieving their assigned targets (UNFCCC, 1995, pp. [11-12, 6-7, 15]). The Protocol further encourages joint action "in the framework of, and together with, a regional economic integration organization" (Ibidem, p. [5]). The landmark example is the construction and perpetuation of the European Union Emissions Trading Scheme (EU ETS), first active in January 2005 and then and still the largest such scheme to date, regulating, as of September 2016, roughly 45% of the EU's greenhouse gas emissions (European Commission, 2017). The CDM has been more utilized and renowned than JI and has informed experimentation elsewhere in the globe. China has been piloting eight sub-national ETSs for comparative analysis. Results from the pilot will be a basis to extrapolate to a national scheme.

These schemes do not represent all efforts to pursue a market solution to emissions reductions, nor are they the sole approach but rather a part of a larger compliance-oriented policy suite available most notably including carbon taxes (see Appendix A). Voluntary markets, by contrast, have taken a somewhat different path by their very nature but have experienced a manner of growth spillover from the ambition present in the Kyoto Protocol and activity that has taken place since its enactment. Whether market participants are procuring and trading allowances as a matter of compliance or a purely voluntary motivation is the most general manner in which markets can be distinguished.

Compliance Markets vs. Voluntary Markets.

Compliance (cap-and-trade) Markets.

Compliance (or mandatory, or cap-and-trade) markets operate under the basic constraint of an aggregate emissions cap over some geographical boundary. This aggregate cap is divvied-up in some fashion amongst those firms obligated to participate in the scheme. At the beginning

of a compliance period, some number of allowances, depending on the particular scheme's structure, can be auctioned or grandfathered to participants. At the end of a compliance period, participants surrender to regulatory architecture the number of allowances purporting to represent their emissions over the period, not the magnitude of their caps. If, as the end of the compliance period is near and a particular firm possesses fewer allowances than necessary for its surrender, then it must dip into the market and purchase some allowances held by firms who have emitted beneath their caps and thus have a surplus of allowances on hand. Additional control instruments can complicate firms' strategies. For example, the EU ETS allows for two-sided inter-temporality, whereby firms can bank (hold onto current year's supply for future years' compliance) and borrow (dip into future years' supply for current year compliance). This scheme applies a linear reduction factor that ensures caps become more stringent as the market matures, and it employs a market stability reserve (MSR) that injects or retracts market supply contingent upon predetermined triggers.

Voluntary Markets.

Voluntary markets were-not spawned overnight, so to speak, or dramatically propelled forward by pieces of international (or domestic) legislation in the same way that compliance markets have been. Indeed, voluntary activity less constituted a similarly full-fledged market from the outset as a set of disjointed ad hoc transactions lacking information of a uniform quality and accessibility (Bayon, Hawn, and Hamilton, 2009). The lack of legislative or political oversight, as it has turned out, afforded voluntary activity the breathing room requisite for improvement to occur organically. Voluntary project developers drew upon the CDM's wealth of methodological content, monitoring/reporting/verification (MRV) practices were honed, and the key component of regulatory microstructure – registries – emerged to supervise transactions globally. The crucial difference relative to mandatory schemes is that there is no aggregate emissions cap over a geographic region; allowances are not held out of a looming obligation to surrender them to a regulatory body but rather are procured to offset (or, if some manner of idealism is allowed, perhaps even surpass) an entity's emissions, either partially or in full. Allowances can be informally taken out of the market when an entity simply sits on them with no intention to sell, or can be formally retired by a process undertaken with the relevant registry. Compliance markets' academic analyses have largely been concerned with structural evolutions and econometric analyses of price drivers, while voluntary markets have been more observed for their status as fertile ground for experimentation and innovation among different project types that is not burdened by regulations in compliance markets and can outpace their change (Ecosystem Marketplace, 2017; ibidem, 2016; ibidem, 2015). While these voluntary and compliance markets trade instruments that represent volumes of emissions that present their own unique accounting issues, accounting of an unusual kind had to take place behind the scenes.

Social, Environmental, and Carbon Accounting.

Accountants, guided by the principles of professional due care, transparency, reliability, materiality, and decision-usefulness are responsible for providing information that is useful to various stakeholders. Stakeholders look to disclosed information for narrative that helps them understand specific situations and events. This information when presented with narrative consistency is useful. In the broadest sense, social and environmental accounting bucked narrative trends with their introduction of novel classes of accounting information that disrupted traditional narrative structure. For example, supplementary disclosures arose to contain accounts informed by mathematically dense social welfare functions and estimations of natural capital (see e.g. Aronsson and Löfgren, 2010). However, the lack of an ex ante consensus regarding the identification and monitoring of implementation avenues for this information's incorporation has largely relegated the development of a social and environmental accounting discourse to a dependent and disruptive role devoid of a "strong epistemological discipline from a single point" (Unerman, Bebbington, and O'Dwyer, 2007, p. [33]; see also ibidem, 2014). Situated within this muddled mixture is carbon accounting. A concept that is itself a sweeping term encapsulating the measurement, reporting, and disclosure methods for that accounting information either itself an expression of greenhouse gas emissions or an attempt to express these emissions by representative transitivity – for example, a European Union Allowance (EUA) used for compliance purposes within the EU ETS. The nascence and fragmentation of the carbon accounting discipline also characterize its academic analyses and normative implementation. For example, as illustrated in the definitions depicted in Ascui and Lovell's (2011) As Frames Collide: Making Sense of Carbon Accounting, it may be preferable, to stress that there are multiple carbon accountings rather than to refer to a singular idea of 'carbon accounting'.

Much of the academic literature on carbon accounting concerns its juxtaposition and interaction with social and environmental accounting (Ascui, 2014). However, some

overarching implications of this fragmentation are visible. These generally include disclosure content pressure, uncertainty regarding disclosing entities' functional roles, the potential for frictional interactions between stakeholders, and any uncertainties surrounding what data represent and the mechanisms that maleate and produce them.

Prior research has found negative correlations between a firm's emissions level and market value and positive correlations between disclosure level and market value, with higher emissions volumes strengthening the relationships (Saka and Oshika, 2014, p. [38]). The goal is for carbon disclosures to make clear the quantifiable financial consequences of firms' emissions behavior. However past findings indicate that the informational value provided by this disclosure does not influence the trading and investment strategies of all investor profiles (Kolk and Levy, 2008; Harmes, 2011, p. [99]). Carbon accounting information when provided in financial reports along with supplementary corporate disclosures about corporate environmental targets provide a confluence of environmental and financial data (e.g. Hoffman and Busch, 2008; Trexler and Schendler, 2015). The ability to measure corporate 'carbon performance' has drawn significant private sector interest.

The term carbon accounting means many different things to different people thus clashes between various "frames of reference" occur. (Ascui and Lovell, 2011, p. [991]; see also ibidem, 2012). This phenomenon is exacerbated by the peculiarities of emissions data and measurement infrastructure; data are relatively vague, and the proliferation of calculation approaches and control they afford management means that, in some sense, the data and meaning they impart are significantly malleable (Haigh and Shapiro, 2011; Lippert, 2012; ibidem, 2014; ibidem, 2015). These issues remain at the forefront of carbon accounting in an academic sense and demand further research, particularly since ambition exists to develop a field of 'climate accounting' that would draw upon the wider umbrella of environmental accounting and of which carbon accounting as it exists would be only a part (see Stechemesser and Gunter, 2012).

Carbon accounting seems somewhat inconvenient and tough to pin down and get right. Why, then, as the question may arise, even bother? Does carbon accounting matter substantially? The answer is a resounding yes. Quoting Peter Drucker, "What gets measured gets managed."

Without the use of financial accounting to systematically capture, measure, compartmentalize, communicate, and verify important financial information and the trends of those informational elements over time, one cannot expect an entity (say, a municipality) to enact policies designed to reduce greenhouse gas emissions and, environmental impacts for which it is responsible. The first step in the process has to be creating and implementing methods that capture, measure, compartmentalize, communicate, and verify information about those greenhouse gas emissions. This is where carbon accounting comes in. A cursory, but by no means exhaustive, list of what it can help achieve is bulleted below (Brander, 2015):

- "Assessing and determining whether a company is "low-carbon";
- Informing environmentally-conscious consumers' decision-making;
- Appraising the effectiveness of environmental policies;
- Identifying opportunities for emissions reductions;
- Revealing environmental marketing opportunities;
- Quantifying reductions for purposes of obtaining tradable carbon allowances;
- Identifying 'worst offender' companies or industry sectors; and
- Supporting emissions reduction target setting and monitoring progress."

Measuring emissions, and emissions mitigation outcomes are the basis for the valuation, accounting, and reporting for the instruments representing the emissions credits.

Physical Carbon Accounting.

The key typology considered by this paper is the dichotomy alluded to in the previous section. On one hand is physical carbon accounting, concerned with the development of emissions inventories and observance of changes in emission flows (ideally, their removal) over time, over geographical or organizational boundaries, resulting from particular projects, policy decisions, or actions. On the other hand is financial carbon accounting, concerned with those financial instruments purporting to represent them (see Figure 2)

A mention is made here of the former before proceeding towards the latter for the remainder of this paper both for the sake of completeness and because physical carbon accounting must take place before any financial carbon accounting can. This half of the dichotomy can itself be broken down into attributional and consequential methods. The former is the measurement of emissions and removals over time, while the latter measures a system-wide change that is generated by a decision or action (e.g. a project or government policy) in addition to those

FIGURE 2
AREAS OF CARBON ACCOUNTING
SOURCE: BRANDER (2015)
(LCA = LIFE CYCLE ASSESSMENT)

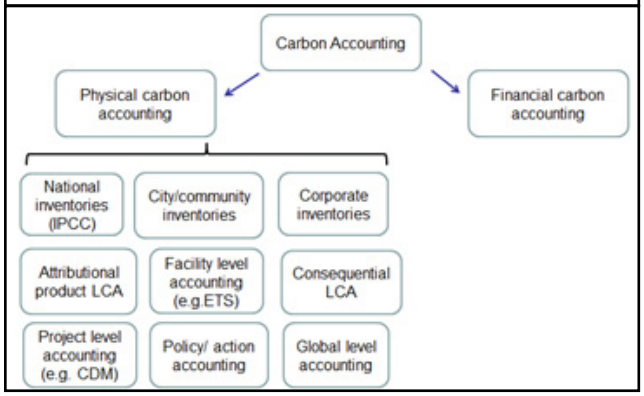


FIGURE 3
ATTRIBUTIONAL CARBON ACCOUNTING.
SOURCE: BRANDER (2015)

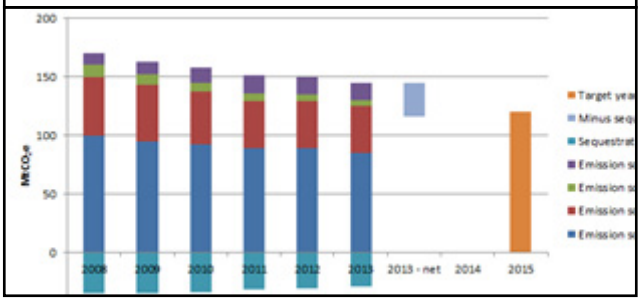
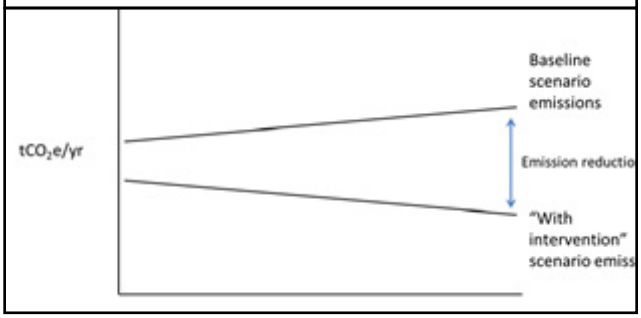


FIGURE 4
CONSEQUENTIAL CARBON ACCOUNTING.
SOURCE: BRANDER (2015).



emissions reductions that would have taken place without the presence of that decision or action (see Figs. 3, 4).

hose attributional components of Figure 4 include national inventories, city/community inventories, corporate inventories, attributional product LCA, facility-level accounting, and global-level accounting, which is itself less a different field than an aggregation exercise. National inventories receive measurement guidance from the IPCC's (2006) work. City/community (see BSI, 2013b; ICLEI, et. al., 2014) and corporate inventories and other facility-level work (see WRI, 2014a; BSI, 2012a) have emissions demarcated into three 'scopes' that emissions are categorized into depending upon whether their source was inside or outside of the geographical or organizational boundary over which the inventory is being assessed. Scope 1 contains those emissions whose source of origin within the geographical boundary of the inventory, Scope 3 contains those emissions that do not occur within the inventory boundary but whose source of origin is, and Scope 2 contains those emissions resulting from grid-supplied energy (electricity, steam, heating, cooling) within the inventory boundary but might leave it. An attributional product life cycle assessment is what colloquially receives more attention and discussion as a 'carbon footprint'; it examines those emissions attributable to all activities in the cradle-grave life cycle of a product (or service) (see WRI, 2014c; BSI, 2013a). Those consequential methods then left in Figure 4 are consequential product LCA, project-level accounting, and policy/action accounting. Consequential product LCAs, in contrast to their more attributional counterparts, place priority on the marginal impact of continuing to manufacture a product or provide a service over the system the product or service impacts (Plevin, Delucchi, and Creutzig, 2014).

The areas of physical carbon accounting most directly related to financial carbon accounting are project-level (see BSI, 2012b) and policy/action (see WRI, 2014b) accounting. Both involve the calculation of a 'business-as-usual' (BAU) case or baseline of emissions over the life of the project considered and a methodological determination that the project will cause emissions reductions additional to those emissions reductions that would have occurred without the project taking place (BAU) in pursuit of any of a number of emissions target types.

Financial Carbon Accounting.

The direct intersection between carbon accounting and financial accounting begins when a project generates credits and brings forward an immediate question that is fundamentally one of classification – what is an emissions allowance or offset? A cursory glance at the introductory chapters of any intermediate financial accounting text yields a clear list of options: assets, liabilities, equity, investments by owners, distributions to owners, comprehensive income, revenues, expenses, gains,

and losses.4 Of these, assets, liabilities, and expenses stand out, and, importantly, without clear mutual exclusivity:

Are they assets? The most obvious option for both the voluntary and compliance cases is to call these allowances or offsets assets as they are simply tradeable financial instruments. In the compliance case, they also represent the benefit of a legal right to pollute.

Are they liabilities? As described, a key structural element of the compliance case is that participating firms must surrender some amount of allowances at the end of the compliance period in accordance with their actual emissions over that period – that is, there is a clear obligation to surrender to economic resources.

Are they expenses? A tangential argument exists for the compliance case that purchased allowances can bear the qualities of expenses. That is, if needed to cover a shortfall in anticipation of compliance, their purchase constitutes an outflow of resources that are part of the firm's ongoing operations (in that its operations literally produce the emissions the allowances represent) and are necessary to operate within jurisdictional law.

Conclusion

The future of carbon markets worldwide will be one of linkage. Allowances or credits from one market will be accepted for compliance purposes in other markets, given some set of controlling exchange rules agreed upon ex ante by the jurisdictions' regulatory architecture and governing bodies. Under the assumption that linkages proliferate in the future, the determination of exchange rates, which is likely to both be the primary determinant of trading behavior and be most informed by perceptions of one jurisdiction's perceptions of the stringency and robustness of another's climate policies and reductions claims, will prove quite vexing. The issues raised by EFRAG concerning measurement and timing mismatches will be exacerbated as schemes with different structural arrangements and different (including no) compliance arrangements and periods link with one another. Very precise and meticulous ex ante negotiations and accepted accounting practices could serve an assuaging purpose.

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The Reality from Virtual Reality

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ABSTRACT

Technology leads us through change and once we grasp the change many time we become delighted by the results of the change. In this paper, we recognize change Virtual Reality has create for a television show, the change of environment on a university campus and even a change of how we recruit, retain and educate students.

Virtual Reality, VR?

We know the world through our senses and perception systems. In school we all learned that we have five senses: taste, touch, smell, sight and hearing. These are however only our most obvious sense organs. The truth is that humans have many more senses than this, such as a sense of balance for example. These other sensory inputs, plus some special processing of sensory information by our brains ensures that we have a rich flow of information from the environment to our minds.

Everything that we know about our reality comes by way of our senses. In other words, our entire experience of reality is simply a combination of sensory information and our brains sense-making mechanisms for that information. It stands to reason then, that if you can present your senses with made-up information, your perception of reality would also change in response to it. You would be presented with a version of reality that isn't really there, but from your perspective it would be perceived as real. Something we would refer to as a virtual reality.

Our First Experience with VR:

After eleven years of filming a popular television show utilizing the same television set, we went with a beautiful virtual set. Now our guest want to come sit on the stage and enjoy the modern set utilized for In Your Business television. The show is filmed with a boring, awful looking green set while the computer turns the set into a beautiful, colorful setting surrounding a nice stage.

With the green screen, you can create an animated environment and place the person in the studio straight in the middle of it. Motion capture cameras allow you to transfer the movements captured by the main camera that's broadcasting into the animated world. Combined, they enable you to do multiple-camera filming from a virtual studio environment. (kehointeractive, 2017)

From Television to the Classroom:

OCULUS Rift was the first VR experience we offered to the students and it was at the request of the students. One of our students had utilized the OCULUS at a technology conference and was so excited they shared the idea with us. Not understanding the advance computer needs to support VR, we utilizes a laptop to run the OCULUS with lots of lagg yet we had several hours of fun. The lagg could be attributed to a few things, it was the beta unit, the operating system we used was a laptop computer and we were so new to the VR that we did not know what we were doing.

Oculus Rift, VR, is a great way to gain the attention of the students. Some individuals wanted to watch the VR interaction, some wanted to experience while others just wanted to discuss VR and emerging technologies.

For educational purpose, Oculus Rift is a great case study to understand crowd sourcing and Kick Starter works and what it can mean to individuals and business. Understanding that the founder set a goal to raise $250,000 and was successful at raising 2,437,000 with Kick Starter before selling the product to Facebook for $2.3 Bil. What a great hands on way for students to learn about today's business environment.

The basic functionality of VR in education is to bring learning to life via a virtual environment. The more a learner is able to participate in life-like engagement, the

easier it is to personally feel a connection to the subject material, making it easier for application and retention of the subject matter. (Virtual Reality, 2017)

Advances in Technology brings us VIVE:

Today we utilize VR in the lobby of the university to recruit, retain and entertain students. There is no doubt that rapid technological advances are changing the nature of work – not just in terms of the jobs that we do, but the way we do them, who we work with, the systems that manage us, and how we plan for the future. Opinions on the future of work and the impact of emerging technologies like artificial intelligence are many and varied, and have generated much debate around whether they will proliferate in work at the expense of humans. (The real impact of emerging technology)

No more lagg and the options are unlimited. Our students, our community and our donors can see the future of technology.

Opportunities:

As the popularity and awareness of Virtual Reality has increased across campus, we offered and hired a freshman Informatics students to spend 12 hours a week demoing VR.

Showcasing VR to the students, teaching and exploring with the faculty and staff while impressing our supporters, additional opportunities include course curriculum development and the development of a VR Lab. Regional high schools and community members visit the university Virtual Reality experience on campus regularly.

Majors accomplishments that I am proud of include collaboration among the IU systems, a wonderful working relationship between the Center for Entrepreneurship and UITS, the newly form VR committee among all IUE faculty and the students engagement.

So, in summary, virtual reality entails presenting our senses with a computer generated virtual environment that we can explore in some fashion.

Virtual reality is the creation of a virtual environment presented to our senses in such a way that we experience it as if we were really there. It uses a host of technologies to achieve this goal and is a technically complex feat that has to account for our perception and cognition. It has both entertainment and serious uses. The technology is becoming cheaper and more widespread. We can expect to see many more innovative uses for the technology in the future and perhaps a fundamental way in which we communicate and work thanks to the possibilities of virtual reality.

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JOINT CONFERENCE
2019
Nashville, TN

International Conference on Learning and Administration (ICLAHE.org)

All too often learning takes a back seat to discipline related research. The International Conference on Learning and Administration in Higher Education seeks to focus exclusively on all aspects of learning and administration. We wish to bring together, a wide variety of individuals from all countries and all disciplines, for the purpose of exchanging experiences, ideas, and research findings in the processes involved in learning and administration in the academic environment.

We encourage the submission of manuscripts, presentation outlines, and abstracts in either of the following areas:

Learning

We encourage the submission of manuscripts pertaining to pedagogical topics. We believe that much of the learning process is not discipline specific and that we can all benefit from looking at research and practices outside our own discipline. The ideal submission would take a general focus on learning rather than a discipline-specific perspective. For example, instead of focusing on "Motivating Students in Group Projects in Marketing Management", you might broaden the perspective to "Motivating Students in Group Projects in Upper Division Courses" or simply "Motivating Students in Group Projects" The objective here is to share your work with the larger audience.

Academic Administration

We encourage the submission of manuscripts pertaining to the administration of academic units in colleges and universities. We believe that many of the challenges facing academic departments are not discipline specific and that learning how different departments address these challenges will be beneficial. The ideal paper would provide information that many administrators would find useful, regardless of their own disciplines

Academic Business World International Conference (ABWIC.org)

The aim of Academic Business World International Conferences is to promote inclusiveness in research by offering a forum for the discussion of research in early stages as well as research that may differ from 'traditional' paradigms. We wish our conferences to have a reputation for providing a peer-reviewed venue that is open to the full range of researchers in business as well as reference disciplines within the social sciences.

Business Disciplines

We encourage the submission of manuscripts, presentation outlines, and abstracts pertaining to any business or related discipline topic. We believe that all disciplines are interrelated and that looking at our disciplines and how they relate to each other is preferable to focusing only on our individual 'silos of knowledge'. The ideal presentation would cross discipline. borders so as to be more relevant than a topic only of interest to a small subset of a single discipline. Of course, single domain topics are needed as well.

Conferences

Academic Business World sponsors an annual international conference for the exchange of research ideas and practices within the traditional business disciplines. The aim of each Academic Business World conference is to provide a forum for the discussion of research within business and reference disciplines in the social sciences. A secondary but important objective of the conference is to encourage the cross pollination of disciplines by bringing together professors, from multiple countries and disciplines, for social and intellectual interaction.