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COST SAVINGS VERSUS REDUNDANT SYSTEMS: THE CASE OF THE BOEING 737 MAX DEBACLE

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ABSTRACT: It is difficult to find an issue of *The Wall Street Journal* published in 2019 or the early months of 2020 without one or more articles covering various aspects of the 737 MAX grounding stemming from two fatal crashes of the aircraft. This paper covers a number of failures that have been reported as likely contributing to the two fatal crashes. These failures included making “angle-of-attack-sensor” redundancy and other safety features optional upgrades for its Maneuvering Characteristics Augmentation System (MCAS) that is a cost saving measure, possibly insufficiently experienced pilots flying the 737 MAX planes that crashed, the lack of pilot training and training manuals covering the MCAS newly installed in the 737 MAX, and the failure of the FAA to conduct a sufficiently independent safety review of the aircraft before flight certification, although there are disagreements over whether or not there was a FAA failure that contributed to the two 737 MAX plane crashes. Also, Boeing’s responses are outlined.

Key Words: Boeing 737 MAX crashes; cost savings; redundant systems; safety; cost management.

INTRODUCTION

In order to secure a new order from American Airlines in 2011, facing fierce competition from the new Airbus A320neo, Boeing decided to update its 737 airplane over a six-year period rather than develop a new fuel-efficient jet airplane that would take 10 years to design and build (Gelles, et al., 2019). It was announced on November 30, 2011, that Boeing’s “board of directors had approved the launch of the new engine variant of the market-leading 737, based on order commitments for 496 airplanes from five airlines and a strong business case” (Boeing, 2011). Boeing workers designed and built the 737 MAX aircraft under the intense pressure of tight deadlines, with the initial 737 MAX 8 being completed in November 2015 (Gelles, et al., 2019). The 737 MAX 8 received FAA certification on March 9, 2017 (Boeing, 2017). The first 737 MAX 8 commercial flight took place on May 22, 2017, from Kuala Lumpur to Singapore, operated by the Malaysian airline Malinda Air (Hashim, 2017).

The Lion Air Flight 610 737 MAX 8 crash occurred soon after the plane took off from Jakarta, Indonesia, on October 28, 2018, with 189 fatalities. The Ethiopian Airlines Flight 302 737 MAX 8 airplane crash similarly took place soon after it took off from Addis Ababa, Ethiopia on March 10, 2019, which resulted in 157

fatalities. The second crash led to the grounding of all 737 MAX aircraft world-wide for well over a year at the time of writing and was still in effect when this article was published. The day after the second fatal crash, it was estimated the 737 MAX “fatal-accident rate” is 4 flights per million versus only 0.2 flights per million for the “prior version of the 737” (Newman, 2019). An emergency order stopping operations of the 737 MAX in the U.S.A. was issued by the FAA on March 13, 2019 (JATR, 2019, I), the final civil aviation authority (CAA) in the world to do so (Reals, 2019). A common problem in both crashes was an apparent failure of the angle-of-attack (AOA) sensor that controls the Maneuvering Characteristics Augmentation System (MCAS); e.g., see Pasztor, et al., (2019) and Wall, Pasztor, and Wexler (2019) for details of the first and second crashes, respectively, which are eerily similar. The MCAS system will be discussed next.

MANEUVERING CHARACTERISTICS AUGMENTATION SYSTEM

The MCAS was installed in Boeing 737 MAX aircraft as an “automated stall-prevention system” and was designed “to compensate for the extra pitch up caused by its bigger engines at elevated angle-of-attack (AOA)” (Pasztor, et al., 2019). Tabuchi and Gelles (2019) explain the MCAS system in layperson terms, as follows:

The jet’s software system takes readings from one of two vane[-]like devices called angle of attack sensors that determine how much a plane’s nose is pointing up or down relative to oncoming air. When MCAS detects that the plane is pointing up at a dangerous angle, it can automatically push down the nose of the plane in an effort to prevent the plane from stalling.

The 737 MAX planes have two AOA sensors but only one interacts with the MCAS at a time (Pasztor, Tangel, and Sider, 2019). It is remarkable to a layperson that a critical safety system in an aircraft would rely on the input of one AOA sensor only, with no redundancy. Even bookkeeping has been based on the double-entry system for many centuries, with its built-in redundancy. It was reported that using a single AOA sensor to trigger the MCAS system was a decision made early in the design process by Boeing engineers “to make the stall-prevention system simple” and “the plane maker’s analysis determined that a pilot would be able to address the flight-control system misfiring with switches to counteract it or turn it off” (Pasztor, et al., 2019). However, Nicas, et al. (2019) reported that the decision to rely on one AOA sensor, not two, was made only a year before the plane was completed.

Given that the AOA sensors are outside, one each side of the nose of the 737 MAX aircraft, they can be damaged in various ways, including lightning and bird strikes, as well as becoming frozen and being improperly installed (Devine and Griffin, 2019). The final report of the Indonesian investigators of the first 737 MAX 8 crash, stated: “The installed left AOA sensor had a 21° bias which was undetected during the installation test in Denpasar” (KNKT, 2019, xviii). In the case of the

second 737 MAX 8 crash, it is believed by investigators that “a bird strike damaged the captain-side vane” (Tangel, Pasztor, and Maremont, 2019). Also, it was reported that “[t]he FAA has received at least 216 reports of AOA sensors failing or having to be repaired, replaced or adjusted since 2004 [...] about one-fifth of which involve Boeing planes” (Devine and Griffin, 2019). However, 216 is an infinitesimally small number of sensor failures in comparison with the many millions of commercial plane flights that have taken place over the 15-year period from 2004-2019. Even so, when even one fatal crash might be avoided, it seems to a good idea from the flying public’s perspective for both 737 MAX AOA sensors to be monitored simultaneously and to report to the pilots whenever there is a significant disagreement between both measurements as a standard feature.

Interestingly, before the first crash, American Airlines and Southwest Airlines had already added an alert to indicate when there is disagreement between the two sensors and displays that show the actual sensor readings were added by American Airlines a long time before, and by Southwest Airlines, following the first crash (Pasztor, Tangel, and Sider, 2019). These features add about \$50,000 to the 737 MAX airplane cost, per government records, and are not purchased by many non-U.S. budget airlines (Pasztor, Tangel, and Sider, 2019). However, even with the additional safety features, American’s and Southwest’s 737 MAX aircraft were still grounded by the FAA and other CAAs. Clearly, the FAA and other CAAs are not convinced that even these enhanced MCAS systems provide sufficient protection for the flying public. It is interesting to note that United Airlines decided against purchasing both “the angle of attack indicator” option that shows the readings of both sensors, and the disagree light option that displays when both sensors give different readings (Tabuchi and Gelles, 2019). It was reported that a United Airlines spokesperson stated “the airline does not include the features because its pilots use other data to fly the plane” (Tabuchi and Gelles, 2019).

It might seem surprising that Boeing did not fix the software problem soon after the first crash in Indonesia on October 29, 2018, which was 133 days prior to the second crash in Ethiopia. However, Boeing had hoped to have a software repair by mid-January, 2019, but it was reported that its completion was delayed because of disagreements between Boeing and the FAA over the need for “mandatory cockpit alerts” about MCAS misfiring and whether two sensors were needed to be operating at the same time rather than one sensor only (Pasztor, Tangel, and Sider, 2019). Also, fatal airline crashes are remarkably rare and another similar crash might have seemed to have a low probability of occurrence. It was reported that the FAA and U.S. airlines stated that there was not one occurrence of MCAS failure in about 50,000 737 MAX flights through March 2019 (Pasztor, Tangel, and Sider, 2019). The Boeing 737 MAX Flight Control System Joint Authorities Technical Review (JATR, 2019) cover letter stated: “The FAA’s aircraft certification process has played a major role in producing airliners with an exemplary safety record consisting of a five-year worldwide average of only one fatal airliner crash for every 2 1/2 to 3 million flights, and a U.S. record of only one

airline passenger fatality in more than 10 years.” Also, Neil (2020) reported that “the fatality rate for commercial jet travel globally in 2018 was on the order of one death per three million *flights*, not flight hours.” These statistics represent enviable performance by commercial airliners in terms of passenger safety.

It might be significant that the 737 MAX crashes occurred in Indonesia and Ethiopia, which were both considered developing countries as of March 2018 (USTR, 2018), with, possibly, inferior aircraft maintenance facilities and less-well trained commercial pilots than in developed nations, such as the U.S.A. Pasztor, Otto, and Tangel (2019) reported that “Indonesian investigators blamed Boeing Co.’s design and inadequate U.S. safety oversight, combined with lax maintenance and poor piloting skills, for a Lion Air 737 MAX’s fatal nosedive into the Java Sea over a year ago.” Also, in response to early investigation crash findings in November 2018, it was reported that “Boeing issued a lengthy statement drawing attention to possible maintenance deficiencies and pilot error” (Pasztor, Tangel, and Sider, 2019). Further, it was reported that “a top Boeing official told a gathering of U.S. pilots they wouldn’t encounter similar problems, contending they were better trained than their counterparts in other countries, according to a person familiar with the meeting” (Pasztor, Tangel, and Sider, 2019). Also, it was reported that some pilots and safety experts in the U.S.A. were critical of some of the Ethiopian pilots’ actions prior to the second crash in March 2019 (Wall, Pasztor, and Wexler, 2019). Clearly, pilot experience and training are particularly important as the complexity of jet airliners increases. However, on page 5 of the “Lion Air Comments” to the Indonesian KNKT (2019, 316) report, comments from “a recently disclosed letter” were included from the famous Captain Sullenberger that began with the following two sentences (with [P] and emphasis included):

[P]ilots must be capable of absolute mastery of the aircraft and the situation at all times, a concept pilots call airmanship. **Inadequate pilot training and insufficient pilot experience are problems worldwide, but they do not excuse the fatally flawed design of the Maneuvering Characteristics Augmentation System (MCAS) that was a death trap.**

It is pertinent to note that an earlier version of MCAS used in the United States Air Force KC-46A Pegasus refueling plane was designed to be controlled by safety features, such as “inputs from multiple sensors and with limited power to move the tanker’s nose,” which complied with military specifications, that were omitted in the MCAS installed in the 737 MAX plane over a decade later (Sider and Tangel, 2019). Boeing decided that a single AOA sensor was enough for the 737 MAX and that “it complied with safety and regulatory requirements,” with pilots being able to “quickly identify” and successfully deal with a MCAS failure using “a longstanding cockpit procedure” (Sider and Tangel, 2019). Clearly, pilot action was unable to prevent the two 737 MAX crashes that appear to be linked to failure of the single AOA sensor in operation at the time. Indeed, Tangel, Pasztor, and Maremont (2019) graphically describe the actions of the two pilots during the terrifying six minutes of flight-time of Ethiopian Airlines Flight 302 before the

plane crashed in the ground at close to the speed of sound and then made the following salutary statement: “In designing the flight controls for the 737 MAX, Boeing assumed that pilots trained on existing safety procedures should be able to sift through the jumble of contradictory warnings and take the proper action 100% of the time within four seconds.” Next, cost savings versus redundant systems will be considered.

COST SAVINGS VERSUS REDUNDANT SYSTEMS

Having optional upgrades has a benefit for both aircraft manufacturers and the airlines. They are an additional source of revenue for aircraft manufacturers, such as Boeing and Airbus, and they give the airlines the choice to purchase the options or not to purchase them to reduce the cost of buying aircraft (Tabuchi and Gelles, 2019). Also, having optional upgrades saves aircraft manufacturers the costs of installing expensive features that the customer doesn’t value enough to purchase.

The FAA did not mandate the “angle of attack indicator” nor the “disagree light” that shines when the AOA sensors give different readings for 737 MAX aircraft (Tabuchi and Gelles, 2019). However, the FAA’s apparent indifference towards the importance of these two options for safety might be the result of ignorance on how the MCAS operates (e.g., see JATR, 2019). Tragically, it was reported that the crashes “might have been avoided, if employees and regulators had a better understanding of MCAS” (Nicas, et al., 2019). The preliminary investigative findings of The House Committee on Transportation and Infrastructure (THCOT&I, 2020, 7) criticized both Boeing and the FAA for failing “to appropriately designate MCAS a safety-critical system.”

The JATR (2019, VII) found that “the FAA had inadequate awareness of the MCAS function which, coupled with limited involvement, resulted in an inability of the FAA to provide an independent assessment of the adequacy of the Boeing proposed certification activities associated with MCAS.” Controversially, later “[a] federal advisory panel evaluating the safety-approval process for Boeing Co.’s 737 MAX concluded regulators adhered to policies in certifying the plane and determined it wouldn’t have been safer if it had received the scrutiny of an all-new aircraft” (Pasztor and Cameron, 2020).

One commentator stated the following concerning the importance of the AOA indicator and disagree light (Tabuchi and Gelles, 2019): “‘They’re critical, and cost almost nothing for the airlines to install,’ said Bjorn Fehr, an analyst at the aviation consultancy Leeham. ‘Boeing charges for them because it can. But they’re vital for safety.’” The Indonesian final report on the Lion Airlines 737 MAX 8 crash pointed out that the AOA Disagree alert has been a standard feature on 737 NG airplanes since 2006 and should have been on the 737 MAX, too, although Boeing did not consider it as a safety feature (KNKT, 2019, 45). However, the AOA Disagree alert was only operational on 737 MAX aircraft if the optional

AOA position indicator was chosen by an airline and only about 20 percent of airlines had selected this option at the time when the first 737 MAX accident occurred and Lion Airlines was not one of them (KNKT, 2019, 45-46). As Boeing did not consider the AOA Disagree alert as an aircraft safety feature or necessary for aircraft operations, it decided to wait to restore the operation of the AOA Disagree alert until “a display system software upgrade, scheduled for the third quarter of 2020” (KNKT, 2019, 46). Following the first 737 MAX crash, a Safety Review Board assembled by Boeing agreed that the absence of the AOA Disagree alert was not a safety issue, but Boeing decided “to accelerate the software change” (KNKT, 2019, 46).

The MCAS was designed to make the 737 MAX aircraft behave similarly to earlier 737 versions, which would help to achieve an objective of minimizing any extra training costs for airlines buying the 737 MAX (Pasztor, Tangel, and Sider, 2019). In particular, Boeing “had promised Southwest Airlines Co., the plane’s biggest customer, to keep pilot training to a minimum so that the new jet could seamlessly slot into the carrier’s fleet of older 737s, according to regulators and industry officials” (Pasztor, et al., 2019). Also, an ex-Boeing engineer, Mr. Ludtke, “recalled midlevel managers telling subordinates that Boeing had committed to pay the airline \$1 million per plane if its design ended up requiring pilots to spend additional simulator time” that was an unheard-of commitment (Pasztor et al., 2019). It was reported that another person who had worked on developing the 737 MAX airplane recalled the \$1 million commitment by Boeing, along with Mr. Ludtke (Tangel, Pasztor, and Maremont, 2019). THCOT&I (2020, 9-10) also reported this \$1 million commitment to Southwest Airlines. Southwest, Airlines, with a cost leadership strategy, is Boeing’s biggest customer of 737 planes and likely exerts great influence over the design of the various versions of the aircraft (e.g., see Sanders, 2010).

It was reported that one “Boeing Co. engineer involved in the development of the 737 MAX claims the aerospace giant’s managers overly prized controlling costs and schedules at the expense of safety, allegations that are currently part of a federal criminal investigation after two fatal crashes of the aircraft” (Tangel and Pasztor, 2019). Also, the Seattle Times was reported to have earlier written the following regarding this engineer’s complaint (Tangel and Pasztor, 2019): “His complaint, totaling more than 5,000 words, offers an inside glimpse at what one engineer alleges was a pattern of Boeing managers playing down safety threats over the years, using cost as a primary reason to reject various proposed design enhancements to make the 737 MAX and predecessor models less prone to accidents.”

Under the subheading of: “***Boeing Production Pressure – Costs, schedule, and production pressures at Boeing undermined safety of the 737 MAX,***” THCOT&I (2020, 5-6) gave several cost saving examples, including a business goal of excluding existing 737 NG pilots from simulator training, receiving an exception

from the FAA to not install an Engine Indicating and Crew Alerting System, and reducing the testing hours and engineering flight deck simulator hours in the 737 MAX program. In respect of simulator training being opposed, THCOT&I (2020, 10) later quoted from an email sent by Boeing's 737 Chief Technical Pilot to a colleague, stating: "Boeing will not allow this to happen. We'll go face to face with any regulator who tries to make that a requirement." Belatedly, Boeing now backs 737 MAX flight simulator and other new training for pilots (Cameron and Tangel, 2020a). The new Boeing CEO, David Calhoun, said: "It took us too long to do it" (Cameron and Tangel, 2020a).

Like many companies world-wide, Boeing has used lean manufacturing for many years that focuses on improving efficiency and reducing costs, facilitating competitive aircraft pricing (Jenkins, 2002). Also, Boeing was recognized as one of four companies using "best practices" in target costing that "can best be described as a systematic process of cost management and profit planning" (Swensen, et al., 2003, 12). However, cost management has been defined as: "The approaches and activities of managers to use resources **to increase value to customers** and to achieve organizational goals" (Datar and Rajan, 2018, 937, emphasis added). Increasing value to customers would include improved safety in the context of the flying public as the customer, even if reducing costs was one of the organizational goals.

STEPS TAKEN BY BOEING

On April 5, 2019, less than a month after the second 737 MAX crash, Boeing's CEO announced his request to the Board of Directors (BOD) for a four-person board-level investigation (Muilenberg, 2019). The committee was tasked with confirming "the effectiveness of our policies and processes for assuring the highest level of safety on the 737-MAX program, as well as our other airplane programs, and recommend improvements to our policies and procedures" (Muilenberg, 2019). This internal review by Boeing board members added to the investigations of "Federal prosecutors, congressional committees and regulators" (Tangel, 2019). Interestingly, the committee didn't identify any indications of "undue pressure or other lapses that compromised the safety of the 737 MAX or other aircraft" with the caveat that its "review didn't focus on the accidents specifically" (Tangel, 2019). This differs from the "undue pressures" reported by JATR (2019) and others (e.g., see THCOT&I, 2020, 6).

On September 25, 2019, Boeing's BOD announced that it had formed a new Aerospace Safety Committee at its August 2019 board meeting, with a "primary responsibility [...] to oversee and ensure the safe design, development, manufacture, production, operation, maintenance and delivery of the company's aerospace products and services" (Boeing, 2019). Along with helping to improve how design and safety matters are handled, the Aerospace Safety Committee "is aimed at giving senior company leaders and directors tighter oversight, **as well as**

reduce the influence of schedules and cost pressures on engineering decisions” (Tangel and Cameron, 2020, emphasis added). Boeing’s BOD also announced six recommendations following “the five-month independent review [...] by the Committee on Airplane Policies and Processes of the company’s policies and processes” (Boeing, 2019).

The BOD’s six recommendations largely pointed to Boeing making organizational changes to centralize the supervision of safety matters throughout the organization, to make sure no safety issues slip through the cracks and are overlooked. For example, the BOD’s second recommendation commenced with (Boeing, 2019): **“Realign the Engineering function:** The board recommends that engineers throughout Boeing, including the new Product and Services Safety organization, report directly to the chief engineer, who in turn reports directly to the company’s chief executive officer.” Implementation of this recommendation should mean that any engineering concerns, including safety issues, will receive proper attention at an executive level by a qualified engineer. Previously, Boeing’s top engineers would “report primarily to the business leaders for each airplane model, and secondarily to the company’s chief engineer” and, therefore, “engineers who identify problems that might slow a jet’s development could face resistance from executives whose jobs revolve around meeting production schedules” (Gelles and Kitroeff, 2019). The latest “737 MAX Updates,” which were grouped under six main headings at the time of writing, were posted on the Internet (see Boeing, 2020).

On September 30, 2019, it was announced by Boeing that the Product and Services Safety Organization had been formed to “centralize safety oversight,” as recommended by the BOD Committee on Airplane Policies and Processes (Cameron, 2019). Also, Boeing announced “that it had expanded an anonymous reporting system for employees to flag concerns and strengthened existing safeguards such as safety review boards” while earlier it had “amended its governance rules to make safety-related experience a criterion for choosing future directors” (Cameron, 2019). Consistent with this new criterion, Boeing announced on February 24, 2020, that “two new outside directors with safety and engineering experience” were nominated for Boeing’s board (Tangel and Cameron, 2020), which added more safety and engineering expertise at the highest level.

Poor management of the MAX crisis led to the CEO, Dennis Muilenburg, being fired on December 22, 2019, with David Calhoun named as his successor, commencing January, 2020, but some doubted that replacing the CEO would correct Boeing’s widespread management and cultural problems (Tangel and Cameron, 2019). For example, it was stated that the CEO was only *part* of the culture of excessive cost-control at Boeing that some believe stemmed from buying McDonnell Douglas in 1997 and the HQ move away from the engineering center in Seattle to Chicago (Sindreu, 2019). Interestingly, it is possible that “Boeing’s

cost-cutting culture” contributed to the delays in developing the 787 Dreamliner and its grounding in 2013 (Sindreu, 2020b).

A VERY COSTLY FAILURE

Whatever short-term cost savings were gained for Boeing and/or airlines by MCAS design decisions and reduced training decisions regarding the 737 MAX, they have been dwarfed by the long-term costs that are being incurred by Boeing and the airlines that adopted the 737 MAX aircraft, after the two 737 MAX 8 crashes, as well as the grief and sorrow of those who lost family members and friends in the crashes. For example, a family who lost a family member in the Ethiopian Airlines 737 MAX crash, filed a wrongful death lawsuit against Boeing, Ethiopian Airlines, and Rosemount Aerospace, Inc., which “accuses Boeing of putting ‘profits over safety,’ and rushing the 737 Max 8 to market to compete with rival Airbus and that company’s A320 aircraft” (Devine and Griffin, 2019).

Also, Boeing has “established a \$100 million relief fund to meet family and community needs of those affected by these [737 MAX 8] accidents” (Boeing, 2020). It was reported that “Boeing has set aside more than \$9 billion to cover customer compensation and higher costs to work through an order backlog of 4,500 MAX jets, but analysts expect this figure to climb to \$16 billion or more” (Cameron and Tangel, 2020a). In addition, it was reported that in 2019 Boeing experienced its first annual loss (\$636 million) in over 20 years, with more than \$19 billion in costs from the 737 MAX debacle (Cameron and Tangel, 2020b).

In 2019, Boeing delivered only 380 aircraft, lowest in 14 years, versus 806 deliveries in 2018 and 863 deliveries by Airbus in 2019; also, new orders for Boeing’s commercial jets were reported to be at a 16-year low (Cameron and Katz, 2020). Airlines cancelled about 200 737 MAX contracts in 2019 and there were zero Boeing jetliner orders in January 2020 (Warren, 2020). It was reported that Air Canada cancelled 11 out of its 61 orders for 737 MAX aircraft in March 2020, to gain “more fleet flexibility” according to its [Deputy CEO and] CFO (Horton, 2020). On May 12, Boeing announced that for the first time in seven years its jetliner orders fell below 5,000 as its customers continued to cancel orders for 737 MAX aircraft (Cameron and Tangel, 2020c).

The grounding of the 737 MAX aircraft following two crashes has severely hurt its suppliers and customers financially. It has led to worker lay-offs by some of Boeing’s suppliers (Cameron and Tangel, 2020b). General Electric experienced a \$1.4 Billion reduced cash flow impact in 2019 from the 737 MAX grounding (Gryta, 2020b). Because Boeing temporarily halted its 737 MAX production, GE sought new Airbus business for its engines (Katz, 2020). United Technologies expected its Collins Aerospace Division to experience a \$375 Million drop in adjusted operating income stemming from Boeing’s suspension of 737 MAX production (Gryta, 2020a; Sindreu, 2020a) It was reported that the 737 MAX

production halt would adversely impact Honeywell's aerospace business (Gryta and Sebastian, 2020). Also, hundreds of millions of dollars have been lost by its airline customers with the grounding of the 737 MAX airliner (Cameron and Tangel, 2020b).

In addition, Boeing's stock price dropped dramatically following the second 787 crash on March 10, 2019. For example, it was reported that the Boeing's stock reached its highest price of \$446 shortly before the second crash but was only \$154.84 about one-year later on March 12, 2020 (Gates, 2020). Exhibit 1 shows Boeing's 5-year stock price history from June 1, 2015, until May 11, 2020, with its stock price at only \$128.88 at 3.59 p.m. and \$128.91 at close (Yahoo! Finance, 2020). The 737 MAX problems, coupled with the Coronavirus Pandemic impact, had significant adverse impact on Boeing's stockholders, at least, in the short term.

On October 16, 2020, Boeing received some positive news regarding the 737 MAX that gave hope of the jet's return to service even before the end of 2020 (Philip, 2020). The Executive Director of the European Union Aviation Safety Agency (EASA), Patrick Ky, expressed his opinion in an interview that the "proposed changes sufficiently address problems with a faulty flight-control system implicated in two fatal MAX crashes" that was later confirmed by another EASA official (Grossman and Katz, 2020). It was reported that Boeing's share price increased by 1.9 percent on October 16, 2020, closing at \$167.35, with the news that indicated a return to service for the 737 MAX could be only a few months away, at least from a European Union perspective (Grossman and Katz, 2020). Also, it was reported that the stock price of two major Boeing suppliers, General Electric Co. and Spirit AeroSystems Holdings, Inc., rose in response to the good news (Philip, 2020).

Interestingly, it was reported that the EASA requires the "development of a so-called synthetic sensor to add redundancy [that] will take 20-24 months, [Patrick Ky] said. The software-based solution will be required on the larger MAX 10 variant before its debut targeted for 2022, and retrofitted onto other versions, 'Our analysis is showing that this is safe, and the level of safety reached is high enough for us,' Ky said in an interview. 'What we discussed with Boeing is the fact that with a third sensor, we could reach even higher safety levels.'" (Philip, 2020). Earlier, the FAA Administrator made positive comments after a personal test flight of a 737 MAX airplane on September 30, 2020 (Pasztor and Tangel, 2020b) but, unlike the EASA, the FAA had "held back from making predictions about timing" (Phillip, 2020). However, Boeing's share price rose by 1.0 percent on September 30, 2020, closing at \$165.26 (Yahoo! Finance, 2020).

Also, the 737 MAX grounding has hurt the U.S. economy significantly. As the USA's leading exporter, three economists forecast that Boeing's production halt would reduce the GDP of the first quarter of 2020 by 0.5 percent (Mitchell and

MacArthur

Cameron, 2020). This forecast was made before the negative impact of the Coronavirus on the U.S. economy.

Exhibit 1: The Boeing Company's 5-year Stock Price History, June 1, 2015 – May 11, 2020¹



¹ Source: *Yahoo! Finance*, Downloaded May 11, 2020, at 3:59 p.m., <https://finance.yahoo.com/quote/BA?p=BA>.

SUMMARY AND CONCLUSIONS

This paper discussed a number of failures that have been reported as likely contributing to the two fatal crashes of the 737 MAX aircraft and led to its grounding. The focus of the paper was on cost savings versus redundant systems in the context of the 737 MAX aircraft's recent history. One limitation of this study is that it is based on publicly available sources of information that are sometimes contradictory. Future research can explore the final events of the 737 MAX grounding. Also, some researchers may wish to investigate the entire 737 MAX grounding episode using avenues of research not related to cost savings and redundant systems.

The enhanced scrutiny of the 737 MAX aircraft means the flying public will benefit from the improved pilot training, safety and reliability features built into the Boeing 737 MAX and likely other Boeing aircraft. While installing updated software into a test 737 MAX plane, Boeing engineers discovered another software problem that is being corrected (Pasztor, 2020a). Inspections discovered debris in the fuel tanks of undelivered 737 MAX planes that needs to be cleared (Cameron and Pasztor, 2020). This could result in "a civil-enforcement action and [...] a multimillion-dollar fine" (Pasztor and Tangel, 2020a). The FAA identified

“assembly-line lapses that could result in dual-engine power loss in the event of a lightning strike” that requires 12 hours to repair each aircraft (Pasztor, 2020b). Also, the FAA required the modification of wiring on 737 MAX aircraft to comply with a 2009 regulation for wire separation that will reduce the remote possibility of a devastating electrical short circuit (Gates, 2020).

In conclusion, what lessons can be learned from Boeing’s experience with the 737 MAX jetliner? Some lessons to be learned are summarized as things to embrace and things to avoid in Exhibit 2.

Exhibit 2: Some Lessons to be Learned from Boeing’s Experience with the 737 MAX Jetliner

Embrace	Avoid
1. Cost management to satisfy customers’ safety and other needs and achieve organizational objectives that can include careful cost reduction.	1. Cost savings without satisfying the safety and other needs of all customers (e.g., airlines and airline passengers).
2. Safety first and cost savings second.	2. Cost savings first and safety second.
3. Sufficient consideration of the risk of extra long-term costs exceeding short-term cost savings.	3. Excessive focus on short-term cost savings and insufficient focus on the risk of extra long-term costs.

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ACCOUNTING RECRUITS' PERCEPTIONS OF ALTERNATIVE WORK ARRANGEMENTS AND THE EFFECTS UPON FORMAL AND INFORMAL MEASURES OF PERFORMANCE EVALUATION

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ABSTRACT

This study examines how current accounting recruits perceive alternative work arrangements (AWAs) and gender to influence career success at accounting firms. Accounting firms have long used AWAs in recruitment materials. Prior literature shows that those already working in public accounting may have a negative bias toward AWAs in that they perceive those who utilize AWAs will be negatively affected through informal measures of evaluation. This study examines whether current accounting recruits already have negative biases toward AWAs and whether gender of those utilizing AWAs influences these perceptions. In spite of current recruitment materials promoting AWAs to incoming staff as an important employee benefit, results indicate current accounting recruits perceive AWAs as career limiting in an accounting firm. Also, contrary to previous research, gender of those utilizing AWAs no longer appears to influence these perceptions. Implications for the profession and future research are discussed.

Keywords: Alternative work arrangements, accounting recruits, work-life balance, gender discrimination, accounting profession

INTRODUCTION

Public accounting firms spend millions of dollars each year recruiting and retaining qualified staff. In fact, except for sole practitioners, finding and retaining qualified staff remains a top concern at most accounting firms (Drew, 2015). In order to win the talent war and keep qualified associates, accounting firms must understand the career perceptions and attitudes of those they recruit. Understanding accounting recruits' perceptions of traditional and non-traditional work arrangements and how gender influences these perceptions are important recruitment and retention issues.

Future accounting professionals will help set the tone and drive organizational culture at accounting firms as they begin and advance in their careers. Thus, studying their inherent beliefs regarding perceptions of career

success is vital. This study sets out to help understand the work-life balance perceptions of the imminent recruits and future decision-makers. In an experimental setting, this study examines future accounting recruits' perceptions of how alternative work arrangements ("AWAs") and gender contribute to perceptions of success (or lack of success) in public accounting firms.

Accounting firms have long touted the work-life balance opportunities available to their employees with one of the main opportunities being AWAs. They promote AWAs and other flexible work arrangements to their incoming staff as an important employee benefit. Currently, nearly all large public accounting firms offer AWAs, including all of the Big 4 and most of the other large firms (Johnson, Lowe, and Reckers, 2012; Schwartz, 1994; Almer and Single, 2007; Almer, Cohen, and Single, 2003; Levitt and Nicolaisen, 2008). According to the most recent CPA Firm Gender Survey conducted by the Women's Initiative Committee of the AICPA, 82% of firms surveyed had flextime work arrangements, and 79% had reduced hours (AICPA, 2017, p.6). The AICPA 2017 survey showed that these were the two most commonly used alternative work arrangements by CPA firms, and therefore this empirical study focuses on those two alternative work arrangements.

This study addresses the following questions: (1) What are current accounting recruits' attitudes toward AWAs? (2) Do current accounting recruits perceive career advancement of those senior accounting associates taking advantage of AWAs to be different from those pursuing a more traditional path? (3) Do current accounting recruits perceive differences between male and female senior associates in career success at accounting firms? (4) Do current accounting recruits perceive that male senior accountants taking advantage of AWAs are affected differently in their career advancement compared to female senior associates taking advantage of AWAs? This study discusses prior literature on work arrangements and gender in accounting firms, and develops hypotheses accordingly. Next, the research method will be presented, followed by the results, and concluding with implications, limitations, and directions for future research.

PRIOR LITERATURE AND HYPOTHESIS DEVELOPMENT

Work Arrangements and Formal Measures of Evaluation

Prior literature has shown that experienced practitioners did not perceive that individuals utilizing AWA's would be negatively affected in their **formal** evaluations in promotion to manager and partner (Johnson et al., 2008). Recently, the AICPA's Women's Initiatives Executive Committee surveyed CPA firms to determine the extent that firms used various alternative work arrangements and how many of those who advanced to partner had previously used modified work arrangements (AICPA, 2017). The two most popular alternative work

arrangements were flextime (82% of firms used) and reduced hours (79% of the firms used). Notably, in 2017 over 70% of the current partners had used alternative work arrangements before becoming a partner.

In the 2017 AICPA survey, a total of 96% of the firms thought these arrangements helped retain talent, and 67% believed they were useful in *attracting* talent. An important question is whether current accounting recruits would perceive that use of AWAs would not adversely affect a senior associate's ability to progress to manager and partner. Considering the millions of dollars that CPA firms spend in recruiting new talent, it is important to empirically examine the perceptions of these incoming recruits regarding how use of AWAs would affect their career progress. No literature has examined accounting recruits for this specific purpose. Since current college aged students have expressed that flexibility of work matters when choosing potential employment and when describing desired benefits from employment (Fratricova and Kirchmayer, 2017; Grow and Yang, 2018), accounting recruits may be actively searching for this benefit when they make their CPA firm selection. Since a defining characteristic of current college aged students is their ubiquitous interaction with technology, and AWAs may be preferred when technology skills are stronger (Turner, 2015), current college aged students may perceive that they would be able to be just as successful when using a *full-time flexible* working arrangement (e.g. shifting some of their work hours to a nontraditional work schedule, enabled by telecommuting, etc.), compared to working a full-time *traditional* work schedule.

This discussion leads to the first set of experimental hypotheses for the formal evaluation measures of the likelihood of being promoted to manager and the likelihood of being promoted to partner.

For **full-time flexible** work arrangement and **formal** evaluations:

H1A: Accounting recruits will perceive that use of **full-time flexible** work arrangements **will not lessen the likelihood** of a senior accounting associate being promoted to **manager**, compared to a traditional working arrangement.

H1B: Accounting recruits will perceive that use of **full-time flexible** work arrangements **will not lessen the likelihood** of a senior accounting associate being promoted to **partner**, compared to a traditional working arrangement.

Having experienced a childhood with a world in financial crisis and slow economic recovery, prior literature has shown current college aged students to be fiscally responsible, goal oriented, and realistic (Turner, 2015). Thus, although current college aged students may prefer and be supportive of peers in full-time flexible work arrangements, one could predict they would not be in favor of working a reduced work load, perceiving that as not meeting existing productivity goals of the organization (Fogarty 1992), with negative consequences in the formal

evaluation process. This discussion leads to the second set of experimental hypotheses for the formal evaluation measures of the likelihood of being promoted to manager and the likelihood of being promoted to partner:

For **part-time reduced load** work arrangement and **formal** evaluations:

H2A: Accounting recruits will perceive that use of **part-time reduced load** work arrangements **will lessen the likelihood** of a senior accounting associate being **promoted to manager**, compared to a traditional working arrangement.

H2B: Accounting recruits will perceive that use of **part-time reduced load** work arrangements **will lessen the likelihood** of a senior accounting associate being **promoted to partner**, compared to a traditional working arrangement.

Work Arrangements and Informal Measures of Evaluation

The likelihood of being promoted to manager and partner are **formal** measures of performance evaluation. While Johnson et al. 2008 found that use of AWAs was not perceived by CPA practitioners as adversely affecting these formal measures of performance evaluation, practitioners did perceive that use of AWAs (both full-time flexible and part-time reduced load work arrangements) would adversely affect **informal** measures of performance in two critical areas: (1) “scheduling”, which they defined as the desire to “aggressively pursue” the candidate for a future engagement, and (2) assigning the candidate to “less challenging work” in the future, which could hamper “career success”. These informal measures of performance evaluation may be subtle, as they are not part of the formal, documented performance evaluation system. Nevertheless, they could be important to the candidates’ progress, making it more difficult to progress if the candidate is not sought for future engagements and assigned to work that would be not as enhancing to career progress.

On the topic of **informal** measures of evaluation, it is an open question whether current accounting recruits would have views similar to the practitioners that were studied in the Johnson et al. 2008 study. Accounting recruits are typically exposed to practitioners through recruiting events and internships. In the absence of any specific research on accounting recruits in this area, this study hypothesizes that current accounting recruits will perceive that AWAs (both full-time flexible work arrangements and part-time reduced load work arrangements) will adversely affect senior associates on informal measures of evaluation (both the likelihood of being aggressively pursued for a future engagement and the likelihood of being assigned to less challenging work). This discussion leads to the third and fourth set of experimental hypotheses for the informal evaluation measures of the likelihood of being aggressively pursued for a future engagement and the likelihood of being assigned to less challenging work.

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For **full-time flexible** work arrangement and **informal** evaluations:

H3A: Accounting recruits will perceive that use of **full-time flexible** work arrangements **will lessen the likelihood** of a senior accounting associate being **aggressively pursued for a future engagement**, compared to a **traditional** work arrangement.

H3B: Accounting recruits will perceive that use of **full-time flexible** work arrangements **will increase the likelihood** of a senior accounting associate being **assigned to less challenging work**.

For **part-time reduced load** work arrangement and **informal** evaluations:

H4A: Accounting recruits will perceive that use of **part-time reduced load** work arrangements **will lessen the likelihood** of a senior accounting associate being **aggressively pursued for a future engagement**, compared to a **traditional** work arrangement.

H4B: Accounting recruits will perceive that use of **part-time reduced load** work arrangements **will increase the likelihood** of a senior accounting associate being **assigned to less challenging work**.

Gender

Early prior literature found evidence of a gender effect on career success in accounting firms (e.g., Anderson, Johnson, and Reckers, 1994; Johnson, Kaplan, and Reckers, 1998). Specifically, Anderson et al. 1994 found that when assessing the prospects for career success of peers being promoted, practicing auditors assign lower ratings to females. Furthermore, Anderson et al. 1994 found an interaction with family structure, where having children made female auditors even less likely to be perceived as promotable, with no such adverse effect of having children for male auditors. Johnson et al. 1998 found that audit managers who are less tolerant of ambiguity rated the substandard performance of a female senior lower than the managers who were more tolerant of ambiguity.

Not all literature has found evidence of a gender effect in public accounting (Johnson, Lowe, and Reckers, 2000). Johnson et al. 2000 found that females were not evaluated by practicing accountants (in one big public accounting firm) as being less aggressively pursued for a future engagement, a finding they attributed to the increased publicized concern for diversity at CPA firms in the 1990's, as reflected by CPA firm recruitment materials and various initiatives such as the KPMG program sponsoring diversity in accounting PhD programs.

Since the Johnson et al. study in 2000, diversity initiatives have continued to be promoted and have been expanded at CPA firms. For example, Deloitte has a formal program, the Initiative for Retention and Advancement of Women (WIN),

which has provided new thinking about how women and men could relate as leaders, business partners, and peers, enabling a culture of flexibility for all (Deloitte, 2018). As another example, KPMG is committed to fostering a culture at KPMG that is both diverse and inclusive, and believes that creating a work environment where women can thrive and implementing initiatives that support, advance, retain and reward them, is not only the right thing to do, it is a smart and strategic business approach (KPMG, 2018, p. 1). In that regard, the KPMG Women's Leadership Study, surveying over 3,000 professional working and college women, offers concrete steps that can be taken to move more women into leadership positions (KPMG, 2018).

Current accounting recruits, having been exposed to these expanded diversity initiatives through recruitment materials and events, may perceive that gender is no longer a limiting factor in career advancement at CPA firms. It could also be that current accounting recruits, due to a characteristic of being generally open-minded and desiring of AWAs, may perceive that flexible work arrangements are desirable for both men and women. This discussion provides the basis for the last hypothesis:

H5: Accounting recruits will not perceive females as being evaluated significantly lower than males on formal and informal measures of evaluation, and will not perceive that candidate gender affects formal and informal measures of evaluation for an individual using AWAs.

METHOD

Overview

The study examined gender and three types of working arrangements: traditional full-time working arrangements (traditional), flexible schedule full-time work arrangements (full-time flex), and part-time (reduced workload) arrangements in an experimental setting. The experimental setting allowed directly testing whether gender and work arrangement influence perceptions of likely career success, controlling for outside factors (Hooks 1992, Johnson et al., 1998). Both independent variables (candidate gender and work arrangement) were manipulated between subjects to avoid subjects being able to discern the purposes of the study. This resulted in six versions of the instrument (six hypothetical senior associate profiles), in a 2 (gender) by 3 (work arrangement) ANOVA between subjects design.

The study tests four different measures of perceptions of career success. The first two dependent measures of career success are informal measures of evaluation: the likelihood that the candidate will be pursued in the future ("Aggressively_Pursue"), and the likelihood the candidate will be assigned to less challenging work ("Less_Assign"). The next two dependent measures of career

success are formal measures of evaluation: the likelihood the candidate will be counselled out before reaching the manager level (“Not_Mgr”), and the likelihood that the candidate will advance to the rank of partner at the firm (“Yes_Part”). These measures look at perceptions of the likelihood of career success with greater values for Aggressively_Pursue and Yes_Part indicating higher perceptions of the likelihood of career success and higher values for Less_Assign and Not_Mgr suggesting lower perceptions of the likelihood of career success. The study uses four different measures to capture varying degrees of formal and informal feedback.

Research Instrument

The instrument adapts scales used in prior literature to capture the effects that gender and work arrangement have on formal and informal measures of career success (Anderson et al., 1994; Johnson et al. 2008). Anderson et al. (1994) and Johnson et al. (2008) use the formal measures of evaluation Yes_Part and Not_Mgr in their instruments. Johnson et al (2008) also use the informal measures of Aggressively_Pursue and Less_Assign in their instruments. The present instrument uses each of these measures as they each capture varying degrees of informal and formal feedback as well as various degrees of positive and negative feedback. Aggressively_Pursue and Yes_Part are positive and Less_Assign and Not_Mgr are negative. Having negative direction feedback serves as a manipulation check as well as allowing for assessment of factors that contribute to lack of success (Anderson, et al., 1994).

The instrument uses a rating task based on Anderson, et al. (1994) and Johnson et al. (2008) that required each subject to assess the career prospects for a senior associate. The information contained in each senior associate’s profile included selected personal factors and job performance indicators from among those included in actual public accounting firm engagement and annual performance evaluation forms. The instrument included information about family structure and performance ratings to provide subjects a richer information set, and these characteristics were held constant.

The instrument instructed subjects to record their perceptions of a single hypothetical senior associate’s potential for success within the public accounting firm on four separate measures. The first measure was the likelihood of aggressively pursuing the opportunity to work with the candidate again (Aggressively_Pursue). The second measure was the likelihood of the candidate being assigned to less challenging work in the future (Less_Assign). The third measure was the likelihood of the candidate being involuntarily counselled-out or dismissed before making manager (Not_Mgr). The fourth measure was the likelihood of the candidate advancing through the ranks to partnership at the firm

(Yes_Part). The gender (2) by work arrangement (3) experimental design resulted in six versions of the experimental instrument.

Subjects and Administration

The instrument was administered to upper level accounting students in three different classes at a large public university, resulting in 141 subjects. Participants had a median age of 22 and median accounting work experience of 4 months. Subjects were approximately split evenly between male (n=70) and female (n=71) participants.

Subjects randomly received one of the six versions of the instrument. The instrument instructed them to provide their perceptions of the chances for success or failure of one hypothetical peer on the four dependent measure scales (Aggressively_Pursue, Less_Assign, Not_Mgr, and Yes_Part) described above. Subject were then asked about their opinions on flexible work arrangements. A demographic questionnaire followed at the end of the instrument. A summary of the flow of the instrument and questions testing the hypotheses is shown in Figure 1.

FIGURE 1

Experimental Questionnaire and Tests of Hypotheses

STEP 1:

Read profile of a candidate for promotion at a CPA firm.

Candidate was either male or female.

Work arrangement was either traditional, full-time flexible, or part-time reduced workload.

STEP 2:

Answer four questions on evaluation of the candidate = dependent measures for H1 – H4.

STEP 3:

Answer three questions on opinions of flexible working arrangements = research survey questions Q1 – Q3.

STEP 4:

Answer demographic questions.

RESULTS

Subject Profile

Subjects had a median age of 22, with 70 men participating and 71 women participating. All but four of the subjects were single, and only two had children (one child in each instance). These were upper division accounting majors, with the median student having completed coursework beyond Intermediate Financial Accounting as follows: one semester course in Auditing, one semester course in Tax, and one semester course in Accounting Information Systems. Subjects had a median of 4 months of accounting experience, and worked a median of 20 hours per week while attending classes.

In response to the question of how much women earn annually compared to men, the median response was women earning \$80,000 on average (compared to men earning \$100,000), for a pay gap of women earning 80% of what men earn. This is comparable to the actual pay gap of 82% reported by the AICPA's Women's Initiatives Executive Committee, and this gap has been relatively unchanged since 2004 (AICPA, 2017, p.2). These subjects have grown up in an age where this pay gap has persisted, and apparently they were well aware of this gap. Likewise, the subjects were aware of a gender gap in the distribution of partners, responding on average that out of all full-time staff at U.S. public accounting firms, 45% of them were women, but only 30% of the partners were women (although, compared to the gender gap in pay, subjects on average were not as accurately aware of the actual size of the gender gap in partner distribution, as the actual figure reported by the AICPA in 2017 is approximately 50% of the staff being women and 22% of the partners being women). One could conclude that subjects were aware that there is currently a significant gender gap in both pay and partner distribution, and in this regard they were not naïve subjects.

Subjects' Opinions Regarding Flexible Work Arrangements

Table 1 presents the mean response and standard deviations for the three questions that surveyed subjects' opinions regarding flexible work arrangements. Responses to these questions were recorded on an 11 point scale, with 0=Strongly Disagree, 5=Indifferent, and 10=Strongly Agree. In response to the first question (Q1), subjects indicated they agreed (mean=6.83, std. dev. = 2.46) that "flexible work arrangements are an important benefit that accounting majors use to select the firm they plan to work for." In response to the second question (Q2), subjects indicated they agreed (mean=8.10, std. dev. = 1.65) that "flexible work arrangements generally enhance morale and improve the quality of life for those involved." In response to the third question (Q3), subjects indicated they disagreed (mean=1.33, std. dev. = 1.81) that "flexible work arrangements are a women's

issue; most men don't want or need these options." Collectively, these three responses indicate that subjects perceive flexible work arrangements desirable for selecting a firm, desirable for quality of life, and important for use by both men and women. This is consistent with current college aged students being presented in the literature as open-minded and desiring flexibility in their jobs.

TABLE 1
Research Survey Questions to Assess
Subjects' Opinions of Flexible Work Arrangements

For each question, subjects indicated their level of agreement by marking an 11-point scale, with anchors of "Strongly Disagree" = 0, "Indifferent" = 5, and "Strongly Agree" = 10.

Q1. Flexible work arrangements are an important benefit that accounting majors use to select the firm they plan to work for.

Mean response = 6.83 Standard Dev. = 2.46

Q2. Flexible work arrangements generally enhance morale and improve the quality of work life for those involved.

Mean response = 8.10 Standard Dev. = 1.65

Q3. Flexible work arrangements are a women's issue; most men don't want or need these options.

Mean response = 1.33 Standard Dev. = 1.81

Tests of Hypotheses 1 – 4

The ANOVA models for testing H1 – H5 were generally significant for the effects of work arrangements on the four dependent measures, and the corresponding detailed ANOVA results are presented in Tables 3 – 6, as discussed below. The pairwise comparisons of work arrangements effects for testing the hypotheses are included in Tables 2 – 5 and summarized in Table 6.

Table 2 presents results for the analysis of variance for the dependent measure Not_Mgr. There was a marginally significant main effect of work arrangement on Not_Mgr, $F(2,135) = 2.771$, $p = .066$. There was no significant difference between the mean for full-time flex (3.888) and traditional work arrangements (3.191), indicating H1A was supported. Candidates were rated significantly higher in the part-time reduced load work arrangement (mean=4.413) compared to the traditional work arrangement (mean=3.191), $p = .030$, which supports H2A.

Table 3 presents results for the analysis of variance for the dependent measure Yes_Partner. There was a significant main effect of work arrangement on Yes_Partner, $F(2,135) = 3.741$, $p = .026$. There was no significant difference between the mean for full-time flex (5.241) and traditional work arrangements (5.346), indicating H1B was supported. Candidates were rated significantly lower in the part-time reduced load work arrangement (mean=4.065) compared to the traditional work arrangement (mean=5.346), $p = .026$, which supports H2B.

Table 4 presents results for the analysis of variance for the dependent measure Aggressively_Pursue. There was a statistically significant main effect of work arrangement on Aggressively_Purse, $F(2,135) = 5.721$, $p = .004$. Candidates were rated significantly lower in the full-time flex work arrangement (mean=5.068) compared to the traditional work arrangement (mean=6.063), $p = .024$, which supports H3A. Candidates were also rated significantly lower in the part-time reduced load work arrangement (mean= 4.763) compared to the traditional work arrangement (mean=6.063), $p = .002$, which supports H4A.

Table 5 presents results for the analysis of variance for the dependent measure Less_Assign. There was a statistically significant main effect of work arrangement on Less_Assign, $F(2,135) = 8.305$, $p < .001$. Candidates were not rated significantly higher in the full-time flex work arrangement (mean=5.186) compared to the traditional work arrangement (mean=4.750), $p = .49$, which does not support H3B. Candidates were rated significantly higher in the part-time reduced load work arrangement (mean= 6.623) compared to the traditional work arrangement (mean=4.750), $p < .001$, which supports H4B.

Test of Hypothesis 5

As predicted by H5, there was no significant main effect of gender in any of the ANOVA models for the formal and informal dependent measures (Tables 2 – 5). Accounting recruits did not perceive that females would be evaluated less favorably. This is consistent with the findings in Johnson et al. 2000 and the expanded formal diversity programs developed by CPA firms since 2000.

Likewise, there was no interaction of gender with work arrangement in any of the ANOVA models for the formal and informal dependent measures (Tables 2 – 5). This finding of no interaction is contrary to the findings in Johnson et al. 2008, where practitioners evaluated males more negatively when males used AWAs, compared to females using AWAs. As indicated by subjects' response to the research survey question Q3 (Table 1, Question 3), accounting recruits perceive that flexible work arrangements are desirable for both men and women.

TABLE 2

**Analysis of Variance for the Dependent Measure:
Not Promoted to Manager**

Subjects responded to the following question: “How likely do you assess the chances that [name of senior associate] would be involuntarily counseled out (i.e., dismissed from employment) before reaching the rank of manager?”

Subjects indicated their level of agreement by marking an 11-point scale, with anchors of “Very Unlikely” = 0, and “Very Likely” = 10.

Panel A: ANOVA Analysis of Results for “Not_ Manager”

Source of Variation	Sum of Squares	df	F	p-value
Gender of Candidate (G)	9.04	1	1.44	.233
Work Arrangement (WA)	34.91	2	2.77	.066
G X WA	3.03	2	.24	.787

Panel B: Cell Means (Standard Deviations)

Gender WA	Male Traditional	Male Flex	Male Part-Time	Female Traditional	Female Flex	Female Part-Time
Cell Means	3.63	3.96	4.67	2.75	3.82	4.16
(Std. Dev.)	(2.22)	(2.37)	(2.51)	(2.42)	(2.72)	(2.73)
n =	19	24	27	24	22	25

Panel C: Treatment Means

Gender of Candidate:	Male	4.086
	Female	3.576
Work Arrangement:	Traditional	3.191
	Flex	3.888
	Part-Time	4.413

Panel D: Pairwise Comparisons

	Mean diff.	Std. error	Sig. (one-tailed)
Traditional < Flex	-.697	.535	.291
Traditional < Part-Time	-1.223	.519	.030
Flex < Part-Time	-.525	.508	.456

Adjustment method for multiple comparison: Bonferroni

TABLE 3

**Analysis of Variance for the Dependent Measure:
Promoted to Partner**

Subjects responded to the following question: “How do you assess the chances that [name of senior associate], if he [she] so chose, could advance through the ranks to partnership?”

Subjects indicated their level of agreement by marking an 11-point scale, with anchors of “Very Unlikely” = 0, and “Very Likely” = 10.

Panel A: ANOVA Analysis of Results for “Yes_Partner”

Source of Variation	Sum of Squares	df	F	p-value
Gender of Candidate (G)	14.05	1	2.17	.147
Work Arrangement (WA)	49.42	2	3.74	.026
G X WA	1.85	2	.14	.870

Panel B: Cell Means (Standard Deviations)

Gender	Male	Male	Male	Female	Female	Female
WA	Traditional	Flex	Part-Time	Traditional	Flex	Part-Tim
Cell Means	5.53	5.71	4.37	5.17	4.77	3.76
(Std. Dev.)	3.20	2.61	2.57	2.14	2.56	2.37
n =	19	24	27	24	22	25

Panel C: Treatment Means

Gender of Candidate:	Male	5.202
	Female	4.566
Work Arrangement:	Traditional	5.346
	Flex	5.241
	Part-Time	4.065

Panel D: Pairwise Comparisons

	Mean diff.	Std. error	Sig. (one-tailed)
Traditional > Flex	.106	.547	.499
Traditional > Part-Time	1.281	.532	.026
Flex > Part-Time	1.175	.521	.039

Adjustment method for multiple comparison: Bonferroni

TABLE 4

**Analysis of Variance for the Dependent Measure:
Aggressively pursue for future engagement**

Subjects responded to the following question: “How aggressively do you think supervisors will pursue the opportunity to have [name of senior associate] work for them?”

Subjects indicated their level of agreement by marking an 11-point scale, with anchors of “Would not pursue” = 0, and “Would pursue aggressively” = 10.

Panel A: ANOVA Analysis of Results for “Aggressively__Pursue”

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>df</u>	<u>F</u>	<u>p-value</u>
Gender of Candidate (G)	4.39	1	1.12	.275
Work Arrangement (WA)	41.83	2	5.72	.004
G X WA	5.42	2	.74	.478

Panel B: Cell Means (Standard Deviations)

Gender WA	Male Traditional	Male Flex	Male Part-Time	Female Traditional	Female Flex	Female Part-Time
Cell Means	6.00	5.50	4.93	6.13	4.64	4.60
(Std. Dev.)	(1.91)	(1.72)	(2.27)	(1.90)	(1.59)	(1.94)
n =	19	24	27	24	22	25

Panel C: Treatment Means

Gender of Candidate:	Male	5.475
	Female	5.120
Work Arrangement:	Traditional	6.063
	Flex	5.068
	Part-Time	4.763

Panel D: Pairwise Comparisons

	Mean diff.	Std. error	Sig. (one-tailed)
Traditional > Flex	.994	.407	.024
Traditional > Part-Time	1.300	.396	.002
Flex > Part-Time	.305	.387	.490

Adjustment method for multiple comparison: Bonferroni

TABLE 5

**Analysis of Variance for the Dependent Measure:
Assigned to Less Challenging Work**

Subjects responded to the following question: “How do you assess the likelihood that [name of senior associate] will be assigned to less challenging work, relative to other employees at the same stage of their career?”

Subjects indicated their level of agreement by marking an 11-point scale, with anchors of “Very Unlikely” = 0, and “Very Likely” = 10.

Panel A: ANOVA Analysis of Results for “Less_Assign”

<u>Source of Variation</u>	<u>Sum of Squares</u>	<u>df</u>	<u>F</u>	<u>p-value</u>
Gender of Candidate (G)	1.25	1	.22	.637
Work Arrangement (WA)	92.84	2	8.31	< .001
G X WA	9.34	2	.84	.436

Panel B: Cell Means (Standard Deviations)

Gender	Male	Male	Male	Female	Female	Female
WA	Traditional	Flex	Part-Time	Traditional	Flex	Part-Time
Cell Means	5.00	4.92	6.93	4.50	5.45	6.32
(Std. Dev.)	(2.36)	(2.55)	(2.06)	(2.32)	(2.46)	(2.44)
n	19	24	27	24	22	25

Panel C: Treatment Means

Gender of Candidate:	Male	5.614
	Female	5.425
Work Arrangement:	Traditional	4.750
	Flex	5.186
	Part-Time	6.623

Panel D: Pairwise Comparisons

	Mean diff.	Std. error	Sig. (one-tailed)
Traditional < Flex	-.436	.503	.499
Traditional < Part-Time	-1.873	.489	< .001
Flex < Part-Time	-1.437	.479	.005

Adjustment method for multiple comparison: Bonferroni

TABLE 6

**Tests of Hypotheses H1 – H4:
Summary of pairwise comparisons of work arrangement effects**

			Hypothesis	Mean diff.	Std. error	Signif. (one tail)
Dependent Measure: Not_Mgr						
Traditional WA	<	Flex WA	H1A	-.647	.535	.291
Traditional WA	<	Part-time WA	H2A	-1.223	.519	.030
Dependent measure: Yes_Partner						
Traditional WA	>	Flex WA	H1B	.106	.547	.499
Traditional WA	>	Part-time	H2B	1.281	.532	.026
Dependent measure: Agressively_Pursue						
Traditional WA	>	Flex WA	H3A	.994	.407	.024
Traditional WA	>	Part-time	H4A	1.300	.396	.002
Dependent measure: Less_Assign						
Traditional WA	<	Flex WA	H3B	-.436	.503	.499
Traditional WA	<	Part-time	H4B	-1.873	.489	<.001

IMPLICATIONS, LIMITATIONS, AND FUTURE RESEARCH

This is the first study to examine the expectations of current accounting recruits regarding AWAs. Based on the literature, current accounting recruits were expected to prefer AWAs and be open minded regarding their deployment. The results found this to be true when subjects were asked direct opinion survey questions. The strongest opinions expressed were those in favor of AWAs regarding improvement in the quality of life, and AWAs being applicable for both men and women (Table 1, questions Q2 and Q3). On the average, subjects also agreed (although not as strongly) that AWAs were an important benefit that accounting majors sought when looking to select a firm (Table 1, question Q1). This would seem consistent with the results of the CPA Firm Survey showing that approximately two-thirds of those surveyed felt that AWAs were useful in attracting talent (AICPA, 2017).

To improve the usefulness of AWAs in attracting talent, it may be useful for firms to heed the results of this study, which show that although accounting recruits felt that using AWAs would not directly impact the formal evaluations of promotion to manager or partner, it would adversely impact the informal

evaluation measure of how aggressively the candidate would be pursued for a future assignment. Despite the widespread dissemination of recruitment materials officially touting AWAs, accounting recruits may believe that at the fundamental, personal level of informal evaluation (i.e., how aggressively they would be pursued for a future engagement), use of AWAs may have adverse consequences for their career success. Being aware of this “expectations gap” between what accounting recruits expect as the consequence of using AWAs and what the firms are promoting as attainable use of AWAs may assist the firms in devising ways to reassure recruits that the adverse consequences recruits might anticipate do not match with factual information. Factual information could be conveyed to the recruits by citing recent objective surveys, such as the AICPA 2017 survey that showed over 70% of current partners had used an alternative work arrangement before becoming a partner. Alternatively, reassuring information could be conveyed to the recruits with examples of staff who have enjoyed career success while using AWAs. Knowing that this form of expectations gap exists, regarding informal measures of evaluation, is essential for devising targeted ways of reassuring recruits. Also, it is important for developing firm training that would emphasize to managers the importance of AWAs for the benefits to employee morale and productivity.

Another important contribution of this study is the consistent finding that accounting recruits perceived that use of the *part-time, reduced work load* AWA would adversely affect performance evaluations on all four measures of evaluation: the two informal measures of not being aggressively pursued, and being assigned to less challenging work, and also the two formal measures of not being promoted to manager or partner. According to the AICPA 2017 survey, 79% of the firms used reduced hours AWAs, and thus they seem to be widely available. As stated in the AICPA 2017 survey, the firms make these reduced hour AWAs available to attract and retain talent.

Given the results of this study, it appears that there may be a consistent expectations gap between (1) what current accounting recruits expect with the adverse consequences across all measures of evaluation as a result of using a part-time reduced work load AWA, and (2) what the firms might expect they are effectively delivering as a promoted AWA benefit. Again, knowing that this specific expectation gap exists, as this study suggests, is important for the firm in devising recruitment materials and procedures to reassure accounting recruits, and also for devising training for their managers to assure they are personally convinced and accepting of the benefits of utilizing this particular AWA in terms of employee morale and quality of work-life.

These implications for firm recruitment procedures and the training of their managers are particularly important given the findings of the research survey (Table 1, Q2) indicating that accounting recruits on average strongly agreed that AWAs are important for employee morale and quality of work-life, as predicted

by the literature on current college aged students. Also, from the research survey (Table 1, Q1) it is clear that these accounting recruits on average do give consideration to AWAs when they select the firm they will work for. This does confirm the interest the firms have in promoting AWAs, and also points to the importance of (1) devising effective communication to the recruits that use of the AWAs will not have adverse consequences on their career progression, and (2) devising effective training of their managers on the benefits of employees utilizing AWAs.

In the research survey (Table 1, Q3), accounting recruits clearly answered that AWAs are desired by both men and women. This is consistent with the empirical finding that there was no interaction of gender with the use of AWAs in this study. This study also found no main effect of candidate gender on accounting recruits' perceptions of the four dependent measures of evaluation, consistent with the expanded diversity programs that CPA firms have instituted over the past several decades.

Collectively, the results of this study point a direction for firms to improve their communication of AWA benefits to accounting recruits and also to managers. These results are limited by the usual implications of using a laboratory case environment for the study. While this strengthens internal control by enabling the examination of the specific AWAs while holding constant other factors regarding background information of the candidate, the tradeoff is potentially a loss of external validity due to the inherent limited amount of information in the case. However, the case was comparable to that used in previous research and based on realistic performance evaluation criteria from CPA firms. Another potential limitation of the study is the use of accounting recruits from just one major university. Future research could examine accounting recruits from different regions of the country, perhaps using region as a blocking factor in a between subjects statistical design. Finally, further research could examine the effectiveness of various strategies for communicating the benefits of AWAs to recruits and to managers within the firm.

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TECHNOSTRESS IN HIGHER EDUCATION: AN EXAMINATION OF FACULTY PERCEPTIONS BEFORE AND DURING THE COVID-19 PANDEMIC

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ABSTRACT

Examining the technostress experiences of college and university professors was judicious before COVID-19 to support their health, wellbeing, and attitudes towards the use of information and communication technologies (ICTs). However, the rapidly changing educational environment coupled with the compounded demands placed on faculty due to the instantaneous pivot to online and blended learning models necessitated an immediate investigation. The purpose of this research study is to advance the understanding of technostress in higher education and the consequences to faculty, a relatively understudied area. A survey of 307 college and university professors predominantly teaching in various business-related disciplines was conducted to determine if there is a difference in the level of technostress creators perceived by educators before and during the COVID-19 pandemic. A Paired Samples *t*-test was performed to compare overall technostress scores of faculty currently teaching in postsecondary institutions. Results show a significant difference in overall faculty perceived technostress scores before the COVID-19 pandemic and during the health crisis.

Key Words: Coronavirus, COVID-19, technology stress, technostress, teaching, higher education, colleges and universities, quantitative

INTRODUCTION

COVID-19, a novel coronavirus (SARS-CoV-2) contagion that surfaced in late 2019, has spread around the world at a devastating rate. With over 26 million cases and nearly 875,000 deaths in 213 countries and territories since the global pandemic began only months ago, nearly every aspect of life as we know it has been upended (Centers for Disease Control and Prevention, 2020). Researchers predict that COVID-19 deaths in the United States could reach 300,000 or more by December, on track to be the third leading cause of death in 2020, trailing only cancer and heart disease (AJMC, 2020).

The United States declared a state of emergency in mid-March. Thereafter, a surge of cities and states across the country issued stay at home orders in an unprecedented act to slow the infection and save lives, triggering massive layoffs, furloughs, and business closures. What ensued was the worst unemployment crisis since the Great Depression. At its apex to date, the jobless rate in the U.S. climbed to 14.7% with over 40 million workers filing unemployment claims in a 10-week

period. In the U.S., at least 2% of small businesses and 3% of restaurants have permanently closed (Bartik, Bertrand, Cullen, Glaeser, Luca, & Stanton, 2020).

Also in March, as the virus raged out of control, most colleges and universities across the country made the decision to close their campuses, shutter dorms, and pivot the rest of the semester to remote learning. While this solution enabled students to complete coursework and avoid delays in their academic progress, faculty were provided with very little notice, some merely days, to transition in-person classes to the online environment. At the time of the sudden shift to distance learning, roughly 55% of faculty across the nation had never taught an online course, over 70% preferred face-to-face teaching, and 36% claimed that virtual instruction does not yield equivalent learning outcomes as compared to in-person delivery (Bauer-Wolf, 2019; Inside Higher Ed & Gallup, Inc., 2019). Prior to the pandemic, 6 in 10 faculty reported that they were uncomfortable with and inexperienced to use classroom technologies including the learning management system and 40% stated they did not have adequate onsite technical support or professional development to guide the design and delivery of online courses (Inside Higher Ed & Gallup, Inc., 2019).

Without a vaccine, institutions of higher learning were forced to reevaluate their fall semester reopening. The vast majority of Ivy League schools and scores of public and private colleges and universities across the country suspended plans to bring students back to campus and, instead, moved to a model of complete virtual instruction. Institutions who decided to open their doors had to rethink their fall operations and creatively reconfigure classroom capacities to meet physical distancing requirements. Some schools phased in classes with an online start followed by modified in-person classes after a week or two of adjustment whereas others opted to begin with face-to-face instruction from the start. Many modified their academic calendars to minimize breaks during the term along with the possibility of travel, and virus spread. Of the colleges and universities with in-person classes, blended or hybrid learning classroom configurations were the norm. Again, faculty were confronted with an abrupt transformation of the teaching landscape and had to precipitously adapt, the success of which was dependent upon their proficiency to merge and align information and communication technologies (ICTs) with teaching design and delivery strategies in distanced or blended learning ecosystems. Faculty who historically elected not to teach online have now been thrust into e-learning, a choice not of their own.

LITERATURE REVIEW

Since the first online courses were offered in the 1980's, colleges and universities have taken a quantum leap in teaching and learning pedagogies through the adoption of innovations in ICTs. These technological tools not only include computers and the internet but also interactive digital whiteboards, tablets, smartphones, smart pens, video conferencing, applications, learning management systems, augmented reality, 3D printing, and cloud computing. While ICTs generate substantial tangible and intangible benefits for institutions of higher learning including expanded student access, flexibility, and convenience along

with an enhanced quality of the educational experience online or otherwise, an increased use of them can escalate the stress suffered by their users.

To implement these classroom technologies effectively, faculty feel duty-bound to invest their time and efforts, often with an impairment to work-life balance, to upgrade their knowledge and skills. With altered work patterns, higher performance demands, role ambiguities, and subsequent role overload, outside of a health crisis, faculty are exposed to an increased risk of technology stress on a regular basis. Technostress, also known as computer stress, technological stress, and technophobia, is a maladaptive disorder that originates from and is aggravated by an inability to adapt to or cope with new technologies in a healthy way (Brod, 1984; Fuglseth & Sorebo, 2014). First reported as a disease, technostress was later described as the adverse effects that technology has on the mind and body of a user (Weil & Rosen, 1997, p. 5).

The purpose of this research study is to advance the understanding of technostress in higher education and the consequences to faculty, a relatively understudied area in this profession (Brooks & Califf, 2017). Examining the technostress experiences of college and university professors was judicious before COVID-19 to support their health, wellbeing, and attitudes towards the users of ICTs. However, the rapidly changing instructional environment coupled with the compounded demands placed on faculty necessitated an immediate investigation.

Technostress

Technostress, not unlike COVID-19, is a worldwide pandemic (Bozionelos, 1996; Khan, Rehman, & Rehman, 2013; Lee, Lee, & Yung, 2016; Tu, Wang, & Shu, 2005). The aftermath is widespread, echoing throughout the entire global economy. In the United States alone, the estimated annual value of stress, itself, is more than \$300 billion owing to lost productivity, absenteeism, job turnover, and workplace accidents (American Institute of Stress, 2007). Of the 550 million workdays lost in the U.S. each year to absenteeism, stress is responsible for 50% of them (2007). The literature has yet to value the annual impact that technostress has but the losses are almost certainly considerable.

Technostress scholarship generally follows two research paths, the person-environment (P-E) fit theory and the transaction theory (Ayyagari, Grover, & Purvis, 2011; Edwards, Caplan, & Harrison; 1998; Fuglseth & Sorebo, 2014). The P-E theory focuses on the alignment between a person and the environment in which they engage. With this theory, stress does not stem from the person or the environment in isolation; rather stress materializes when a misalignment occurs between the person and their complex multidimensional environment (Chuang, Shen, & Judge, 2016). Contrastingly, the transaction theory examines technostress from situation-based perspectives and consequences. This study builds upon the P-E theory of the person and environment and the influence between one another with respect to the provocation of technostress creators in addition to the transaction theory and the significance of the COVID-19 pandemic as a situational factor that enhances techno-trauma.

Tu et al. (2005) described technostress as the harmful effects on the thoughts, attitudes, and behaviors rising from technology use. A variety of physical and emotional symptoms may be exhibited by faculty who are techno-stressed such as anxiety, worry, irritability, headache, fatigue, inability to concentrate, fear, increased cortisol production, frustration, suspicion, obsessive thoughts, and depression (Cox, Griffiths, & Rial-Gonzalez, 2000; Mahalakshmi & Sornam, 2012; Riedl et al., 2012; Wang, Shu, and Tu, 2008). Researchers have embarked on a scholarly mission to investigate the causes and antecedents of this techno-user virus from a range of contexts (Ayyagari et al., 2011; Bradshaw & Zelano, 2013; Boyer-Davis, 2019a, 2019b, 2018; Day, Scott, & Kelloway, 2010; Doll & Torkzadeh, 1989; Ennis, 2005; Jena, 2015; Lu & Wang, 2020; Ragu-Nathan, Tarafdar, Ragu-Nathan, & Tu, 2008; Tarafdar, Pullins, & Ragu-Nathan, 2011, 2014; Tarafdar et al., 2007; Tarafdar & Tu, 2011a, 2011b; Wang & Li, 2019).

Technostress can exacerbate role overload, or the conflict between work demands and the resources (time, skills, and fitness) available to fulfill them (Maslach & Jackson, 1982; Tarafdar et al., 2011). Role overload has been identified as a precursor of poor work performance (Kahn, Wolfe, Quinn, Snoek, & Rosenthal, 1964; Lazarus, 1991). Technostress has also been linked to decreased productivity, job satisfaction, organizational commitment, innovation, and creativity (Brillhart, 2004; Burke and Greenglass, 1995; Hung, Chang, & Lin, 2011; Krinsky, Kieffer, Carone, & Yolles, 1984; Moore, 2000; Muir, 2008; Ragu-Nathan, et al., 2008; Shropshire & Kadlec, 2012; Simmons, 2009; Tarafdar et al., 2007, 2010, 2011). With prolonged exposure to technostress, faculty can burn out (Shropshire & Kadlec, 2012). Job burnout is evidenced to have a direct relationship with demotivation, performance problems, and job turnover (Simmons, 2009).

RESEARCH METHODOLOGY

Existing studies have evaluated technostress experienced by faculty in higher education but not from the hypothesized angle of how the COVID-19 pandemic may serve as a channel to further increase misalignment between person and environment (Wang & Li, 2019). To extend the literature related to technostress and its prospective impact on educators teaching within institutions of higher learning, the following overarching research question was investigated.

RESEARCH QUESTION. *In institutions of higher learning, is there a statistically significant difference in the level of technostress perceived by educators before and during the COVID-19 pandemic?*

OMNIBUS HYPOTHESIS. *There is not a statistically significant difference in the level of technostress perceived by educators in institutions of higher learning before and during the COVID-19 pandemic.*

ALTERNATIVE HYPOTHESIS. *There is a statistically significant difference in the level of technostress perceived by educators in institutions of higher learning before and during the COVID-19 pandemic.*

Sampling and Research Instrument

A survey was administered to the members of the American Society of Business and Behavioral Sciences (ASBBS), an interdisciplinary professional organization comprised of faculty members in business and behavioral sciences disciplines including, but not limited to, accounting, finance, management, marketing, organizational behavior, and computer information systems. The same survey was distributed to the Management and Organizational Behavior Teaching Society (MOBTS). Both professional organizations are well known and highly respected within the social sciences academic arena. In addition, the survey was channeled through another educational panel, one with a wider disciplinary net. The survey instrument was circulated electronically to thousands of college and university professors and instructors currently teaching in undergraduate or graduate programs with 307 respondents completing the survey. The instrument consisted of a seven-point Likert-scale survey containing questions from the Technostress Creators scale (Tarafdar et al., 2007). Demographic questions were also incorporated into the questionnaire.

A minimum total sample size of 128, or 64 participants per group, was estimated using G*Power 3.1.9, assuming an *a priori* power analysis, $\alpha = 0.05$, $\beta = 0.80$, and a medium effect size (Cohen, 1988). A total sample size of 307 exceeded the expected range required by the study. A random sample of the data population was obtained from the sampling procedure.

Technostress observations were measured using the Tarafdar et al. (2007) Technostress Creators scale. The Technostress Creators scale is comprised of 23 questions, grouped into five constructs: (a) Techno-overload, (b) Techno-invasion, (c) Techno-complexity, (d) Techno-insecurity, and (e) Techno-uncertainty. Aggregated, the construct scores measure technostress. An instrument should demonstrate a reliability of $\alpha = 0.70$ or greater (Babbie, 2010). The Technostress instrument has been tested and retested to yield a reliability of 0.71 α to 0.91 α (Tarafdar et al., 2007). In addition, each of the Technostress Creators was analyzed for significant differences in the scores before and during the COVID-19 pandemic.

Techno-overload is described as a condition in which university faculty are forced to work more and faster.

HYPOTHESIS 1₀. There is not a statistically significant difference in the level of techno-overload perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

HYPOTHESIS 1_a. There is a statistically significant difference in the level of techno-overload perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

Techno-invasion occurs when ICTs infringe upon and compel professors to stay connected during non-teaching, research, and service hours, upsetting the work-life balance.

HYPOTHESIS 2₀: There is not a statistically significant difference in the level of techno-invasion perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

HYPOTHESIS 2_a: There is a statistically significant difference in the level of techno-invasion perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

Techno-complexity is a product of the increased time and effort spent by educators to update their skills and learn how to operate new technologies in the classroom.

HYPOTHESIS 3₀: There is not a statistically significant difference in the level of techno-complexity perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

HYPOTHESIS 3_a: There is a statistically significant difference in the level of techno-complexity perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

Techno-insecurity arises from faculty concerns that those with more advanced technological skills will replace them.

HYPOTHESIS 4₀: There is not a statistically significant difference in the level of techno-insecurity perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

HYPOTHESIS 4_a: There is a statistically significant difference in the level of techno-insecurity perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

Techno-uncertainty is the apprehension that can perpetuate from the high-speed turnover of technology and the indeterminate future outcomes than can result such as university closures and budget cuts. For example, MacMurray College in Jacksonville, Illinois close in May after 174 years of operation (Hobson & Hagan, 2020).

HYPOTHESIS 5₀: There is not a statistically significant difference in the level of techno-uncertainty perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

HYPOTHESIS 5_a: There is a statistically significant difference in the level of techno-uncertainty perceived by educators teaching in institutions of higher learning before and during the COVID-19 pandemic.

ANALYSIS AND RESULTS

Paired Samples *t*-tests and descriptive statistics, including gender, age, and faculty rank were analyzed.

Descriptive Statistics

Faculty self-reported their gender as 68% male, 31% female, or 1% gender neutral, gender fluid, or no gender category selection was made. Faculty conveyed their age (in years) as follows: 25-34 (54%), 35-44 (22%), 45-54 (16%), 55-64 (5%), or 65 and older (1%). Faculty identified their academic rank as instructor/lecturer (17%), assistant professor (33%), associate professor (24%), full professor (23%), clinical professor (2%), or no response (<1%). Table 1 provides detailed information with respect to sample demographics.

Table 1
Demographic Information
Frequencies and Percentages (N = 307)

	Qty	%
Gender		
Female	95	30.9%
Male	208	67.8%
Gender-fluid	1	0.3%
Gender-neutral	1	0.3%
Not reported	2	0.7%
	307	100.0%
Age (in years)		
25 to 34	167	54.4%
35 to 44	66	21.5%
45 to 54	48	15.6%
55 to 64	17	5.5%
Greater than 65	4	1.3%
Not reported	5	1.6%
	307	100.0%
Rank		
Instructor/Lecturer	51	16.6%
Assistant Professor	102	33.2%
Associate Professor	74	24.1%
Full Professor	70	22.8%
Clinical Professor	8	2.6%
Not reported	2	0.7%
	307	100.0%

Statistical Analysis

IBM SPSS Statistics 27 software was used to conduct the statistical analysis. A Paired Samples *t*-test was selected for this study to measure the differences in technostress, in total and per individual sub-construct, between teaching before and during the COVID-19 pandemic. The dependent variable, technostress, and paired measurements were collected and recorded in separate variables. The comparative

subjects in each group, ‘before COVID-19’ and ‘during COVID-19’ were the same.

Assumptions

Observations were independent as the data collection process was random without replacement. A histogram was produced and inspected to test approximate normality and outliers were evaluated with boxplots. Of the outliers, 7 cases were removed because survey questions were left blank without responses.

Figure 1

Histograms, Faculty Technostress Perceptions, All Cases

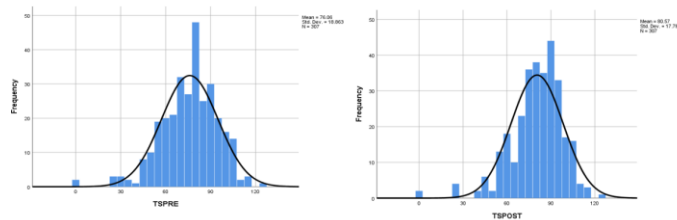
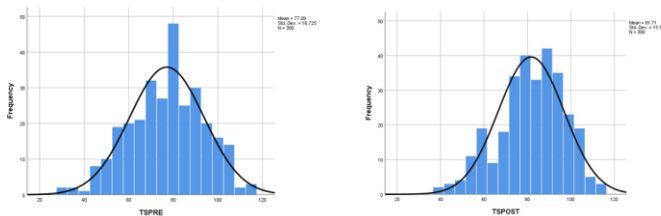


Figure 2

Histograms, Faculty Technostress Perceptions, Outliers Removed



Data Analysis

The Paired Samples *t*-test was performed to compare overall technostress scores of faculty currently teaching in undergraduate and/or graduate programs in higher education. Results show a significant difference in overall faculty perceived technostress scores before the COVID-19 pandemic ($M=77.09$, $SD\ 16.725$) and during the health crisis ($M=81.71$, $SD\ 15.118$); conditions $t(-5.791)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -6.194 to -3.052 . Faculty technostress creators sub-scores increased nearly 5 points during the COVID-19 pandemic. These results suggest that faculty were more technologically stressed once the pandemic took over the world.

Table 2

Paired Samples t-Test for Differences between Technostress Sub-Constructs Before and During the COVID-19 Pandemic ($n = 300$)

Paired Samples Test											
		Paired Differences									
		Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference		t	df	Sig. (2-tailed)		
					Lower	Upper					
Pair 1	TOVPre - TOVPost	-1.097	3.756	.217	-1.523	-.670	-5.057	299	.000		
Pair 2	TINVPre - TINVPost	-.937	3.009	.174	-1.279	-.595	-5.391	299	.000		
Pair 3	TCOMPre - TCOMPost	-.830	3.329	.192	-1.208	-.452	-4.318	299	.000		
Pair 4	TINSPre - TINSPost	-.983	3.329	.192	-1.362	-.605	-5.117	299	.000		
Pair 5	TUNCPre - TUNCPost	-.777	2.965	.171	-1.114	-.440	-4.537	299	.000		
Pair 6	TSPRE - TSPOST	-4.623	13.828	.798	-6.194	-3.052	-5.791	299	.000		

Table 3

Paired Samples t-Test Correlations of Technostress Sub-Constructs Before and During the COVID-19 Pandemic (n = 300)

Paired Samples Correlations			
	N	Correlation	Sig.
Pair 1 TOVPre & TOVPost	300	.556	.000
Pair 2 TINVPre & TINVPost	300	.628	.000
Pair 3 TCOMPre & TCOMPost	300	.748	.000
Pair 4 TINSPre & TINSPost	300	.737	.000
Pair 5 TUNCPre & TUNCPost	300	.663	.000
Pair 6 TSPRE & TSPOST	300	.627	.000

Table 4

Paired Samples Statistics of Technostress Sub-Constructs Before and During the COVID-19 Pandemic (n = 300)

Paired Samples Statistics				
	Mean	N	Std. Deviation	Std. Error Mean
Pair 1 TOVPre	17.33	300	4.111	.237
TOVPost	18.42	300	3.841	.222
Pair 2 TINVPre	13.27	300	3.583	.207
TINVPost	14.21	300	3.381	.195
Pair 3 TCOMPre	16.51	300	4.788	.276
TCOMPost	17.34	300	4.584	.265
Pair 4 TINSPre	16.11	300	4.699	.271
TINSPost	17.09	300	4.467	.258
Pair 5 TUNCPre	13.87	300	3.672	.212
TUNCPost	14.64	300	3.546	.205
Pair 6 TSPRE	77.09	300	16.725	.966
TSPOST	81.71	300	15.118	.873

The Paired Samples *t*-test was also conducted to compare each technostress creator sub-score, pre- and post-COVID19. Results show a significant difference in faculty perceived technostress sub-scores before the COVID-19 pandemic and during the health crisis as per below.

Techno-Overload

Results show a significant difference in techno-overload before the COVID-19 pandemic (M=17.33, SD 4.111) and during the health crisis (M=18.42, SD

3.841); conditions $t(-5.057)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -1.523 to -0.670. Faculty technostress creators sub-scores increased over 1 point during the COVID-19 pandemic.

Techno-Invasion

Results show a significant difference in techno-invasion before the COVID-19 pandemic ($M=13.27$, $SD\ 3.583$) and during the health crisis ($M=14.21$, $SD\ 3.381$); conditions $t(-5.391)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -1.279 to -0.595. Faculty technostress creators sub-scores increased about 1 point during the COVID-19 pandemic.

Techno-Complexity

Results show a significant difference in techno-complexity before the COVID-19 pandemic ($M=16.51$, $SD\ 4.788$) and during the health crisis ($M=17.34$, $SD\ 4.584$); conditions $t(-4.318)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -1.208 to -0.452. Faculty technostress creators sub-scores increased over 1 point during the COVID-19 pandemic.

Techno-Insecurity

Results show a significant difference in techno-insecurity before the COVID-19 pandemic ($M=16.11$, $SD\ 4.699$) and during the health crisis ($M=17.09$, $SD\ 4.467$); conditions $t(-5.117)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -1.362 to -0.605. Faculty technostress creators sub-scores increased over 1 point during the COVID-19 pandemic.

Techno-Uncertainty

Results show a significant difference in techno-uncertainty before the COVID-19 pandemic ($M=13.87$, $SD\ 3.672$) and during the health crisis ($M=14.64$, $SD\ 3.546$); conditions $t(-4.537)$, $df=299$, $n=300$, $p<0.05$, 95% CI for mean difference -1.114 to -0.440. Faculty technostress creators sub-scores increased nearly 1 point during the COVID-19 pandemic.

Table 5

Summary of Hypothesis Testing Results

Hypothesis	Variable	<i>p</i> -value	Results
H ₀	Technostress	0.000	Rejected
H ₁	Techno-Overload	0.000	Rejected
H ₂	Techno-Invasion	0.000	Rejected
H ₃	Techno-Complexity	0.000	Rejected
H ₄	Techno-Insecurity	0.000	Rejected
H ₅	Techno-Uncertainty	0.000	Rejected

The null hypothesis was rejected as there are significant differences in faculty technostress creators, comparing perceptions before and during the COVID-19

pandemic. Likewise, H₁, H₂, H₃, H₄, and H₅ were also rejected as faculty identified as suffering higher levels of techno-overload, techno-invasion, techno-complexity, techno-insecurity, and techno-uncertainty after the coronavirus infection spread and forced stay at home orders across the country.

DISCUSSION

The aim of the study was to investigate technostress and its effects on faculty in higher education both before and during the COVID-19 environment. The results showed that faculty experience significantly more technostress during the COVID-19 crisis than before the existence of the virus. This research topic was probed when the pandemic unfolded, to witness the impact and document the observations of this devastating event in real time.

Implications for Research

The implications of this examination are highly important to both theoretical paradigms that guide the study of technostress. For one, the pandemic caused a major upheaval in the teaching environment for faculty and complete and utter chaos for life in general. This analysis is the first pre- and post-study of its kind to scrutinize how changes in the environment can induce variations in technostress. Furthermore, the severe state of affairs at the onset of the pandemic and thereafter and the intensification of technostress as a result supports the transaction theory. A research gap was filled vis-à-vis this scientific inquiry and perhaps a connection was made that could unify both person-environment fit and transaction frameworks as the occurrence, event, or incident provokes a ripple effect, ensuing disruption through the environment and the person, augmenting technostress perceptions.

Implications for Faculty

The results emphasize that another silent disease began inflicting its ravaging forces upon faculty across the country at the onset of the pandemic at the point in time when reeling from the shock of a sudden world transformed. While faculty hurriedly flipped their face-to-face courses to the virtual domain, they were struggling with the torment that is technostress far more ominously than before the pandemic.

Even when institutions closed down, faculty rose to the occasion to serve their students, despite their level of expertise with online teaching. Instructors with significant online course design and delivery proficiency were not immune to the techno-overload as all faculty were up against the clock to pivot under extreme time constraints, having to rethink and redesign their entire course structures and pedagogic practices if not already e-teaching. The workload was overwhelming, especially because the online course shift was, for most, at the midpoint of the semester. Moving forward and until inoculation exists, colleges and universities that remain open run the risk of closing once again if not sporadically while unprotected from the virus if positive cases climb beyond a safe threshold. Once again, faculty will feel the pain of role overload.

However, lessons have been learned since the first shift. Faculty may be far more prepared to transition to virtual learning if the need arises. The trial by fire ignited by the COVID-19 pandemic may have seared faculty with the blistering plague that is technostress. Yet, during that time, faculty rose from the technophobic ashes like phoenixes, learning all that they could about online pedagogy and the technology that supports it to continue to conduct the business of higher education and fulfill our student stakeholder responsibilities.

While technology enabled faculty to work from home and continue to do their jobs during stay at home orders and beyond to support physical distancing safety precautions, work and life bled into one another, blurring the balance between home and the job. Faculty work is not 9-to-5 as a rule but COVID completely disrupted whatever stability may have been in place. The balance between work and home will continue to be a tightrope walk due to the technologic spillover at home until life can return to the pre-COVID homeostasis. Until then and thereafter, faculty should methodically strive to separate the two, schedule downtime, step away from the computer and connected devices, and invest in their mental and physical health. A similar strategy should be embraced by faculty who teach entirely online, vulnerable to techno-invasion on a regular basis, apart from the contagion.

LIMITATIONS

The study was limited in scope by the use of a survey panel of college and university faculty, primarily teaching business disciplines. The technostress views and beliefs of business faculty may vary with those teaching non-business disciplines. Educators from the K-12 system were not selected for participation in the research study. In the United States alone, over 3.2 million public school teachers were expected to teach during the 2020-2021 school year (Hussar et al., 2020). The K-12 educators segment is a sizeable one to omit from the study as only an average of 1 million college and university professors are employed in the United States (Hussar et al., 2020). Similarly, the technostress interpretation and outlooks comparing faculty from higher education and K-12 environments may not align.

Only faculty presently teaching in higher education were surveyed. Those who either separated or retired from institutions of higher learning were not considered. Qualitative responses, which could have extended the meaning of the research study and provided a greater understanding of the technostress observed by educators in environments before and during COVID-19, were not collected from the survey participants. The survey panel drew from both domestic and international populations. Technostress tolerances may not be universal, fluctuating between geographic borders and diverse societies.

The survey was conducted after the start of the COVID-19 pandemic. Views may have been shaped by the pandemic, itself, and not the role overload, invasion, complexity, insecurity, and uncertainty impelled by the stress from technology usage.

FUTURE RESEARCH

Technology stress, a nascent research area now nearly one generation old, warrants broader and deeper examination to understand how this phenomenon affects the faculty, students, and staff of the 5,300 colleges and universities in the United States and beyond (Hussar et al., 2020). Future research should tease apart the technostress perceptions of students and the impact on academic performance, retention, and persistence. Additionally, technostress perceptions evaluated across faculty ranks may establish if variations exist among them. Another study could compare the technostress experiences of faculty employed at public and private institutions. Further work in this area is essential to determine if technostress influences job turnover in higher education or potentially inhibits faculty from teaching in the online environment. Moreover, faculty technostress observations should be assessed when the global pandemic ends. Lastly, the identification of technostress-related coping mechanisms and management strategies is critical for institutions of higher learning to impede its detrimental physical and psychological effects and foster a healthy academic community.

CONCLUSION

Through the lenses of the P-E fit and transaction theories and the technostress creators framework, faculty were discovered to be statistically more techno-stressed attributable to the increased role overload, insecurity, complexity, uncertainty, and invasion brought about from the COVID-19 pandemic. Armed with this information, institutions of higher learning should expand their instructional design, professional development, and counseling services budgets and staffing. This investment is critical now and into the future to support their faculty to cope during this incomprehensible health crisis event with the technological stressors imposed upon them because of the unforeseen need to convert in-person classes to those delivered in online and blended learning environments with only a moments notice. Furthermore, faculty should also stage a personal intervention for themselves now to minimize the impact of technostress creators on their lives or suffer the continued consequences. The seismic aftershock of the tsunami that is COVID-19 will persist for our entire way of life for years if not decades to come.

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FLEXIBLE WORKING ARRANGEMENTS, WORK-LIFE BALANCE, AND WORKING WOMEN

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ABSTRACT

Many working Americans have longed for the opportunity to implement flexible working arrangements into their daily lives in hopes to achieve a better work life balance. While this desire may seem like a simple request made by many, a work-life balance is desired for various reasons including additional time to spend with children, pursuing hobbies, or having more leisure time. Working a job can be difficult, and without having time to enjoy additional activities, health can be negatively impacted, stress levels can rise, and relationships may suffer. This paper looks at the impact increased labor demands, and a non-work-life balance may have on families and children, company culture, employee motivation and retention, and women and provide insight and logical reasoning as to why a work-life balance is necessary and the ways to implement the balance.

Key words: Work-life balance, flexible working arrangement, working women, work schedule.

INTRODUCTION

Flexible working arrangements are used by many employees as a key component of hoping to achieve a better work-life balance. This has been a huge topic of discussion since the modern era and is seen as a hopeful tactic to better the working lives of humans. Flexible work arrangement meanings can vary depending on company policy and industry, but in general, most people define it as different work hours other than the standard 8:00 A.M. to 5:00 P.M. that many Americans typically work. The arrangements are also representative of a remote work option, half days and additional paid time off days, and longer lunch breaks.

Over time, employees have demanded a more flexible schedule that can be tailored to their personal needs, such as children, family, marriage, or additional life activities. In addition, work-life balance and flexibility has been a topic of discussion over the last few decades because of the changing nature of work, added pressures to succeed, and context of globalization (Shankar, T., & Bhatnagar, J., 2010). Employers, on the other hand, have deemed this sought-after schedule as a privilege or incentive rather than a right. But how can this idea be modernized so that both parties are content, and turnover rates diminish? The idea of having a

better work-life balance can even promote greater morale, better employee engagement, and overall effectiveness (Grzywacz and Carlson, 2008).

Women in the working world has also been a reason for the conception of flexible working arrangements. Since the 1960s, the number of women entering the workforce has significantly grown. As of 2018, almost half, or 48.8%, of all U.S. households that have a husband and a wife, are dual income families, and this number is projected to keep rising. (Bureau of Labor Statistics, 2019). However, what is it about women in the workforce that demands a greater work-life balance? Is there even any correlation at all? There are many different reasons that employees are requesting a flexible work schedule to maintain a better work-life balance. However, as time passes, companies will have to decide on whether to take flexible working arrangements and work-life balance into consideration when examining turnover rates, employee morale, and company culture.

This paper will examine the current situation that companies are facing and why employees are demanding a greater work-life balance. There will be a more detailed outlook on how and why labor demands can negatively impact families and children. In addition, this research will undermine how encouraging a work-life balance can improve employee motivation and retention, as well as sustaining a more sought-after company culture. Lastly, the research will focus on women, specifically in the workforce. After examining the reasoning and underlying thoughts about flexible working arrangements, work-life balance, and working women, a discussion and analysis will be well thought out to help explore new ideas that could change our modernized world. Lastly, the conclusion of this research will ultimately give a more enlightening summary on a topic that continues to be discussed, idolized, and debated throughout our country.

LITERATURE REVIEW

Pierce and Newstrom (1983) provide an in-depth study about the relationships of flexible work arrangements, employee attitude and morale, and behavior. They provide detailed knowledge on how these attributes play an important role in work performance and employee attendance. In addition, Artazcoz, Benach, Borrell, & Cortès (2005) divulge into the effect that flexible working arrangements can have on employees' health and lifestyles. Their study explains that, instead of the effects only altering morale and performance, non-work-life balance can also negatively impact the psychological and physical wellness of people. Schneider (2011) illustrates the negative impact that daily work schedules can have on families and children. The study explains the impact as a state of emotional well-being and how parents are making fewer accommodations for their children when there is little to no work-life balance. Staines and Pleck (1986) also studied the effect of flexibility in work schedules on families, but in this case, they used statistics to reach a conclusion. Their research also used demographic controls which included sex, parental status of having a child under the age of eighteen, and parents' occupations. The regression model used for the hypothesis made was a .05 level of significance.

To explain the different types of employment, Hiroki (2001), introduces part-time employees, contract workers, and overnight workers, and how their schedules are determined in the workplace. Specifically, this study was done overseas in Japan, which gives readers an understanding that working arrangements are not just a problem in the United States but are a worldwide phenomenon. Dalton and Mesch (1990) address the issues that the lack of flexible scheduling can have on company turnover, which in turn leads to negative outlooks. This research looks at flexible scheduling in terms of working anytime throughout the day if the hours at the end of the week total to forty. Halpin (2015), however, researched a study that took a different approach on employee scheduling. He studied a company that bases employees' daily schedules on that of the manager's discretion. In other words, schedules could change daily with little to no notice. The study goes into detail about the negative effects this uncertainty had on all employees. Halpin also studied the determinants of work-life balance using large scale surveys. The idea of these surveys was to study the social science of large groups of people to determine correlations between factors such as life satisfaction, happiness, subjective health, and emotional well-being. The study was also focused on different focus groups including females, economy style, and population aging, to name a few. In addition to a study about employee scheduling and conducting large scale surveys, Goldin, and Katz (2011) did a study on the cost of workplace flexibility. They were interested to see the trade-off between hourly earnings and the amenity of having more time off. By studying the effects of non-work-life balance on families, Christensen, and Schneider (2011) found that families with two adults working a regular 8:00 A.M. to 5:00 P.M. job were suffering in communication, relationships, and more. They also examined additional situations that would most likely arise including later retirement, increased demand and responsibility for elderly care, and stagnant incomes. Additionally, a hypothetical approach was researched on the effects that today's labor force has on women, specifically women with children.

Bianchi (2011) focused more on the effects that changing workplaces can have on families. She took a more informative approach in her research by explaining the differences in employment types and which ones are becoming more popular. She then proceeds to describe the mental and sociological effects these "odd hours" can have on children as parents are typically around less. In addition, her research is developed based on the classification of families (low-income, middle, and high) and how this might determine the factors that affect the children at present time and in the future. Wharton (1994) analyzes the effect of flexible work hours, specifically women with children. She goes into detail about different industries where several women are employed and how their professional careers can ultimately interfere with their personal lives. The data was collected from a sample of thirty women with children. A series of open-ended questions were asked in interviews with each. The research then goes into detail about the changes that can be made to make women with children happier in their jobs based on their work-life balance.

This research will begin by taking a deeper look at the positive and negative effects that flexible working arrangements and work-life balance have on families, with and without children. In addition, the research expands on the responsibilities that middle-aged workers will face while caring for their elderly parents. For example, additional time might be needed for doctor's appointments, and other challenges that come with aging parents.

CHARACTERISTICS OF A FLEXIBLE SCHEDULE AND WORK LIFE BALANCE

Flexible working arrangements can mean different concepts to different people. In general, flexibility in one's work schedule typically depends on the person and stage he is in his life. A few of the more typical employees who ask for flexibility in their work schedules include mothers with young children, Baby Boomers reaching retirement age or at retirement age, but who don't want to quit completely yet, and adults who are caring for aging parents (Greenberg, D., & Landry, E., 2011). There are also people who ask for a flexible schedule when they are going through a major life change. For example, someone who is dealing with the loss of a close family member or friend, or someone who is sick and needs accommodations for doctors' appointments and treatments, may need to have a flexible schedule for a short amount of time or indefinitely. Overall, the idea of having a flexible schedule is seen as a positive motivating factor that can lead to increased happiness and overall well-being.

However, in general, flexible work schedules and the need for a work-life balance is experienced when the demand for paid work becomes conflicted with the need for social or personal leisure time (Pichler, 2009). There are many different types of work schedules that employers and employees are pursuing. For example, nonstandard full-time work weeks, contract or temporary positions, and part time employment, are becoming more popular due to the flexibility that they provide. In addition, a flexible schedule might include a more compressed work week, unique morning and afternoon hours, working long days part of the week and shorter days the rest of the week, or choosing a variety of different times for a lunch break (Jang, S., Zippay, A., & Park, R., 2012). Not only is the flexibility present for the employee, but the same is true for employers. For example, having temporary positions or nonstandard work weeks can allow employers to have access to workers with a specific skill set, or have employee turnaround time more readily available when needed (Houseman, 2001). Satō (2001) describes nonstandard employment as 'atypical employment' as it is the opposite of 'typical employment' and involves a person who does not have a continuous full-time employment relationship within a company. Examples of atypical employment include part-time work, weekend work, and shift schedules.

Flexible scheduling is not necessarily hours "cut out" from the usual forty-hour work week, but more of a system that allows employees to pick when they arrive and leave work. In general, most employers ask that an employee be present for a total of nine hours during the day; eight hours of work and one hour for lunch.

However, a more relaxed approach is giving employees a time frame and allowing the hours to be chosen during the given frame. For example, one experiment by Dalton and Mesch (1990) studied a company that had a time during the day that all employees must be present. Perhaps these were the times that team meetings would occur, or other team and company related agendas would happen. The core hours were designated as 9:30 A.M. to 11:00 A.M. and 2:00 P.M. to 3:30 P.M. The rest of the hours were ultimately left to be determined by the employee. The hours that could be worked were from 7:00am to 6:00pm, as this was the time frame that the office was considered 'open'. For example, one employee picked hours from 7:00 A.M. to 11:00 A.M. and then returned to work from 2:00 P.M. to 6:00 P.M. This allowed three hours in between to schedule appointments, check on aging parents or young children, go to the gym or a yoga class, and more. This flexibility ultimately led to a happier employee that had the chance to make time for personal needs and leisure time.

Overall, "the goals and strategies of work-life balance derive both public and the private spheres, and the outcome of efforts to achieve this balance can be evaluated from two perspectives: personal satisfaction and the fulfilment of established social objectives" (Kucharova, 2009, p. 1284). In the next section, the research will provide more insight on how a non-work-life balance can negatively impact children and families.

EFFECTS OF CHANGING LABOR DEMANDS ON CHILDREN AND FAMILIES

Over the past few decades, implementing flexibility into ones' work schedule has been a debate for lower, middle, and upper-class working Americans. In greater detail, work-life balance became a true topic of discussion as more and more women entered the workforce and families dealt with two adults in the household providing for the entire family as opposed to just one (Lappegård, Goldscheider, & Bernhardt 2017). Since women started appearing more in the workforce, family instability has increased dramatically. In the 1950s and 1960s, most families had a father, or husband, who went to work and provided for the entire family. However, now, about sixty years later, women are consistently entering the workforce at a growing rate. The situations that are caused by both parents, or even a single parent working, can cause strain on child development and relationships, if a reasonable work-life balance is not obtained.

Now, almost two decades into the 21st century, more and more companies are adopting a certain form of flexibility in their employees' schedules in hopes to keep turnover low and employee morale high. But what about the effects of that imposed on children and families? To give some insight on how it is to have both a mother and father working more and having less time with children and additional family members, collected sample data can be measured. (Schneider, 2011) described the typical week for both parents as sixty-four paid and unpaid work hours each, along with additional overtime for parents who are in corporate and/or managerial roles. In addition to a typical workday, mothers will spend about

2.9 hours per day doing household chores and taking care of the needs of their children. For parents who often work overtime, taking their children to after school functions, transporting them, and providing dinner is often strained because time is limited. Specifically, the normal routine of having a family dinner provides a vital role in a families' well-being, and without it, tensions throughout the household can rise (Schneider, 2011). It is necessary for families to have bonding time, and often that time is at a dinner when the day's activities can be shared. This should be a vital part of every families' day.

In addition, schedules that involve nonstandard workweeks, meaning hours that are still considered full time (thirty-five to forty hours a week) but are not the standard 8 A.M. to 5 P.M., can negatively impact families. Research suggests that nonstandard work hours on evenings or weekends can negatively impact older children because of the lack of supervision and less family support while the child is not in school (Bianchi, 2011). On the other hand, nonstandard work hours may be beneficial to the child's overall welfare if parents coordinate properly and make at least one parent available while the other is at work. In addition, the overall care of the child may be more evenly distributed between both parents if one is at home while the other is at work and vice versa (Bianchi, 2011). In general, nonstandard schedules have been shown to reduce overall family time and important family arrangements. In turn, this can increase the amount of stress exposed to everyone in the family, including children. Overall, limited childcare is another huge setback from nonstandard work schedules. For example, a parent that must work night shifts typically does not have access to childcare services because most are only offered during standard daytime operating hours. In turn, the parent must adapt to additional childcare such as a nanny, which can be costly (Lozano, M., Hamplová, D., & Le Bourdais, C., 2016). This is just one vital effect on how an in-existent work schedule can negatively impact the lives of families and children. In addition to less time being allowed for families, relationships suffer, and divorce rates can rise. In today's time, one out of every two marriages end in divorce, and not only that, but 40% of U.S. births are to women out of wedlock. Although almost half of these births are cohabited by the mother and the child's father, 80% of these relationships will end by the child's fifth birthday (Bianchi, 2011). These circumstances ultimately lead to the mother of the child being the sole provider of the household for her and her child(ren), which in turn, can ultimately lead to increased work hours and less time at home with the children.

Increased care for older adults will also take a toll on the labor demands of people. The people who take care of the elders are typically their children or a close relative. The increasing number comes from the Baby Boomer generation which is currently more than likely at retirement age (Greenberg and Landry, 2011). A work-life balance may be needed for these people to accommodate the time needed to take an elderly relative to a doctor's appointment or therapy of any kind. Also, increased time may be needed so that the employees can spend additional time with a loved one who might be nearing the end of his lifespan. Although Millennials are slowly becoming the largest generation, Baby Boomers still take the lead as far as the largest generation on Earth. With these Baby

Boomers nearing retirement, if not already, additional health care will most likely be needed.

Overall, the demanding labor needs of people everywhere have a significant impact, not only on oneself, but also on the people around them. It is important for managers and employers to understand the negative consequences and side effects an overworked employee can have on the company and colleagues. The next section will discuss the positive and sought-after impacts that a manageable work-life balance can have on employee motivation and retention, as well as company culture.

IMPACTS OF WORK LIFE BALANCE ON COMPANY CULTURE, MOTIVATION, AND RETENTION

Company culture derives from many different aspects within an organization. In general, employees thrive on a positive and welcoming company culture. Company cultures can mean different ideas and some examples are an open-door policy, work hard to play hard mentality, philanthropic involvement, and more. In this context, however, what does a healthy work-life balance do to affect company culture? Not only will a great culture portray a positive effect on employees, but so will the five life attributes listed in the chart. The descriptive statistics below in Table 1, address the correlations between work life balance and factors that may constitute a 'good life' (Pichler, 2009).

Determinants of Work-Life Balance					
Correlations	1	2	3	4	5
1.WLB	1	-0.15	-0.14	0.09	0.25
2.Life Satisfaction	-0.15	1	0.67	-0.31	-0.36
3.Happiness	-0.15	0.68	1	-0.30	-0.37
4.Subjective health	0.10	-0.33	-0.33	1	0.35
5.Emotional well-being	0.25	-0.39	-0.41	0.38	1

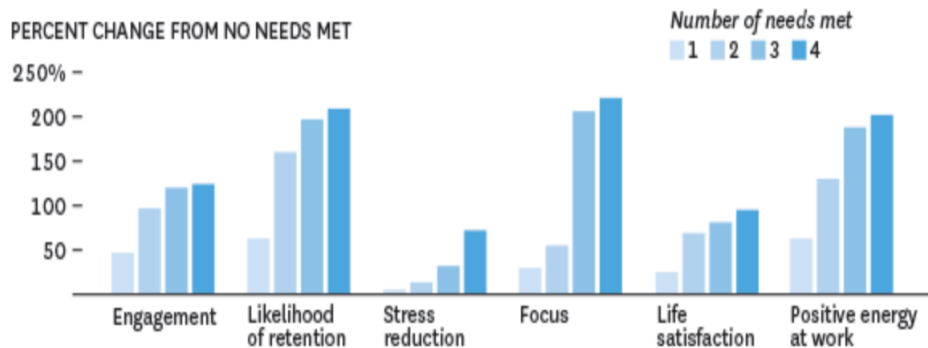
Pichler, F. (2009). Determinants of Work-Life Balance: Shortcomings in the Contemporary Measurement of WLB in Large-Scale Surveys. *Social Indicators Research*, 92(3), 449-469.

Work-life balance is expected to positively impact employee engagement within the workforce (Shakar and Bhatnagar, 2010). The correlation is expected because of the sense of freedom that employees feel when they receive such privileges. It is also thought of as a trustworthy notion from a manager to an employee. Building trust by allowing flexible arrangements can also be beneficial to the overall work engagement. In addition, Dalton and Mesch (1990), suggested that extrinsic and intrinsic employee motivation is affected directly with flexible working conditions. Their research suggested that extrinsic motivation would be improved because of the nature of flexibility and working conditions. Also, the flexibility would be intrinsically satisfying as employees would get a sense of more

freedom and personal time. In turn, both motivating factors would hopefully impact the nature of an employee's work in a positive way by increasing engagement and overall motivation.

Below is a chart from Harvard Business Review about the necessary factors that can affect employee engagement. The chart is read in terms of percent change. Based on the chart, when all four needs are met, the effect of engagement is expected to rise from about 50% to 125%, and in turn, profitability and retention will most likely increase.

THE EFFECTS OF MEETING EMPLOYEES' CORE NEEDS



Schwartz, T., & Porath, C. (2017, December 06). The Power of Meeting Your Employees' Needs. Retrieved from <https://hbr.org/2014/06/the-power-of-meeting-your-employees-needs>

Retention is also needed in the workforce as it shows a company's stability and ability to grow employees and perhaps maintain a 'promote within' mindset. Without good retention, companies may portray a negative image to the outside world. Recruiting efforts and hiring replacements may also be more difficult as the general employee finds that high employee turnover is a negative connotation towards any company. Dalton and Mesch (1990) also highlight the importance of retention in their historic research. They suggest that flexibility and promoting a much-needed work-life balance has a direct correlation with an employee's attitude towards an employer. In turn, this improved attitude leads employees to feel they are appreciated and thus feel more valuable in the workplace. This will ensure that they continue their involvement in the workplace which will hopefully lead to more tenured employees. In their research, Dalton and Mesch created a field experiment over a series of time to assess attendance and turnover within an organization. The experiment used employees that worked in a nontechnical white-collar position with an hourly wage. The experimental group involved the employees that could have an arranged flexible schedule while the control group did not have any flexibility in their normal working schedule. In short, at the end of the experiment, over the course of three years, there was a significant difference in the number of employees still at the company who were in the experimental

group as opposed to a decreased number of employees in the control group. There were also two dependent variables used to conduct this experiment: the rate of unexcused employee absences and voluntary employee turnover. The independent variable used in this experiment was the flexible scheduling, itself. Overall, this experiment provided additional research on how an intervention, such as allowing for a flexible schedule, can positively affect employee turnover and retention.

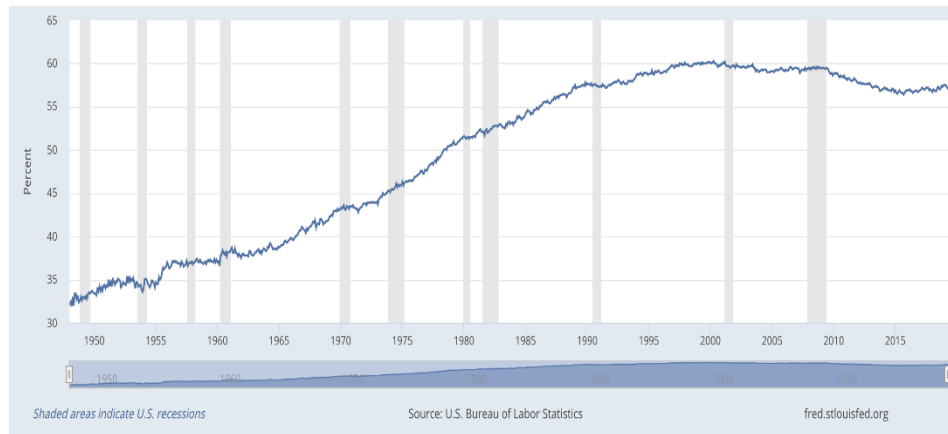
Overall, it is important for a company to maintain an agreed upon culture that is respected by employees and job seekers. This idea can increase team morale and ease recruiting efforts by engaging and selling people on why a certain company is great to work for. Part of this culture should be derived from an employee's well-being which is reflective upon a work-life balance. Not only will a work-life balance and an implementation of flexible scheduling correspond positively to a company culture, but it will also improve employee motivation and overall retention throughout.

WOMEN IN THE WORKFORCE

Women entering the workforce has made a huge impact in society in previous decades. Not only are women continuously joining the workforce, but they are also settling into management and executive level roles. In fact, about one in five of women in the workforce are in managerial role regardless of the industry they are in (Verma, M., Bhal, K., & Vrat, P. 2013). However, what does this mean for their flexibility and work-life balance? Although the effects on work-life balance and families was discussed above, this research will now touch on the effects of women in the workforce and how their role has changed over time.

To give some insight on just how many women have entered the workforce since 1950, the graph below, provided by the Federal Reserve of Economic Data, shows the growing number of civilian labor force participation by women. To obtain this data, the ratio of weighted women employees to the weight of all employees in the selected sample is assumed to be an equal ratio across the globe. Although the chart looks to be descending throughout the modern decade, the chance of a large decrease in women in the workforce is slim.

White and Maniam



Civilian Labor Force Participation Rate: Women. (2019, July 05). Retrieved from <https://fred.stlouisfed.org/series/LNS11300002>

Most families now consist of a dual income household meaning both, the man and woman, are working job. This aspect has created added pressures in different ways, such as decreased time with children, forceful action to men for contributing more at home, and increased stress and health effects (Lappegård, T., Goldscheider, F., & Bernhardt, E. 2017). However, what pressures are added towards women specifically? For starters, maternity leave is relatively short for most companies as the average is six weeks in total before and after the child is born. In this instance, being forced to return to work after six short weeks can add to the already assumed effects of childbirth. Physical effects such as scarring and weight gain are already normal effects, but there's also psychological effects that can come about from a strict, non-flexible maternity leave. Postpartum depression and separation anxiety are just a couple of effects that can be negatively altered by a short maternity leave. Givati & Troiano (2012) suggests that maternity leaves for women are longer at a company that is less tolerant of gender-based discrimination, which will allow for a longer and/or more flexible maternity leave. Not only that, but these companies will also encourage a flexible schedule upon return to work for reasons such as allowing time to pick up the newborn from childcare, attend follow up doctor appointments, and more.

Although gender gaps and gender inequality do exist, growth of women in the workforce can have positive impacts on our country's economy. In a study done by Klugman (2015), the results showed that the rising number of female workers could increase our GDP, or Gross Domestic Product, by up to five percent. However, although the outcome is positive for our economy, the outcome for average households is rather negative. In a recent study done by Harvard University students, adults, of both genders, that are single and in a committed relationship have roughly the same number of hours at work as they do at home. However, when committed relationships become marriages and children are born, the number of hours spent at work and at home are significantly different for a man

compared to a woman (Klugman, J., 2015). On average, a woman spends twenty or more hours per week on household duties compared to a man. These hours also account for time women spend with their children including picking them up from daycare or after school programs, taking them to doctor's appointments, or just spending additional time with them at home. However, although the amount of time spent compared to men is rather normal for women, most women are still expected to work the same amount of time as a man at a paying job. In addition, on average, most women only work forty-two hours per year less than men at their paid job. This amount does not include the hours that are also spent working at home. On average, a man spends about ninety minutes a day on unpaid labor and household duties.

As mentioned previously, the time most likely spent seems rather normal to most people, but overall, with more women in the workforce now more than ever, additional flexibility in work schedules should be assessed. While not every man or woman will need the flexibility, having the option can be a crucial component for the success and well-being of each employee and one's family.

DISCUSSION AND IMPLICATIONS FOR FUTURE

Flexibility and the option to have a better work-life balance is not sought after from all workers, but it is part of a necessity to fulfill happiness and sustain good health. It is a topic of discussion that is rather looked over and not taken as seriously in many companies. Although there are different ways to describe flexibility, in general, many people would want it for rather similar reasons, such as additional time with their children, added leisure time, or more time to focus on their own health and the health of others.

Although it would be a general concept for certain people to want more work schedule flexibility than others, it is important for companies and employers to not discriminate on who may be granted additional flexibility. For example, the same privilege should be given under certain circumstances whether a parent of four is wanting it or an employee with no children requests it. In addition, although research shows that added women in the workforce has proven the need for additional flexibility, gender discrimination should be not condoned by only letting a specific gender have more of a work-life balance. For example, men should be given the opportunity for a flexible work schedule when a child is born or even when one is adopted, just as a woman would be given maternity leave.

Implicating the idea of having a fair and equal flexible schedule and work-life balance can be achieved in multiple ways. One of the more common ways is the idea of having an earned flexible schedule rather than assuming it is a right. In other words, companies can provide an added incentive by letting employees choose between flexible hours, additional half days, remote work, and other options based on employee performance and productivity. Another way for companies to adopt more flexibility in their employees' schedules is to have the privilege based on tenure rather than performance. This similar concept is derived from the idea that the longer an employee is at a company, then additional vacation

days or weeks are earned. In addition to the added number of paid vacation time per more tenured employee, perhaps employees can choose how they use their vacation time. For example, since not every employee uses all the paid time off allowed, he or she could in turn take less vacation time for a more flexible schedule arrangement. This idea can help meet the needs of everyone depending on motivating factors and added benefits throughout the workplace.

In addition to allowing flexible work schedules for both genders and tenured employees, consideration should also be given to those who show growth in desired metrics such as sales or production. This would allow all employees, lower level to managerial level, an equal opportunity to prove themselves and earn a sought-after reward. For example, a young first year employee at a marketing company who meets the set goals, should have the same chance at a flexible work schedule as a manager. This concept also encourages a company to refrain from employee discrimination based on hierarchy.

Although there are many ways to enhance a better work-life balance, it is important for a company to do so in a fair and logical way. As mentioned previously, companies should not provide a more flexible schedule for mothers only, or single parents in general, but rather to meet the needs of everyone respectively and consider tenure and growth metrics.

SUMMARY AND CONCLUSION

Flexible working arrangements have been a popular topic of discussion in recent years. Many factors have led to the issue including added health benefits, more time at home and with family, and additional time to enjoy life's activities. While there are different varieties as to how someone can achieve more flexibility and a work-life balance, many individuals choose to do so for happiness and overall well-being.

Although the outlook on flexibility is different for employers and employees, there can be added benefits for both parties if implicated in a positive way. From a company's perspective, maintaining a better and more profound company culture, less turnover, and better all-around productivity are just a few added benefits. On the other hand, the benefits for an employee could be less stress and better psychological health, increased happiness, and added energy and motivation. However, the key benefits can vary from everyone, and therefore the above research suggests that flexibility should be adjusted to match certain needs rather than just an added uniform incentive.

Women entering the workforce has also added to the concern of flexibility throughout the workday. Now that almost half of U.S. families are dual income families, meaning that both the husband and wife have a paid working job, flexibility for families is needed now more than ever. A better work-life balance can add a more stable environment for children, better discipline, and all-around better relationships for families. Children that have parents more present in their lives are more likely to grow up with less psychological stress and disciplinary problems and have an overall healthier lifestyle.

Overall, there can be an infinite number of reasons as to why someone may need added flexibility in his work schedule; however, without a multitude of outlooks and opinions, the topic will still be a continuous debate, rather than a desired benefit and motivator. The changes in one's work-life balance should be measured and looked upon in hopes to provide a more favorable future for men, women, and children.

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ETHICAL CLIMATE AND ETHICAL LEADERSHIP IN PUBLIC ACCOUNTING FIRMS

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ABSTRACT

The purpose of this paper is to explore the relationship between ethical work climate and corporate leadership. We discuss leadership style, ethical work climate, and ethical leadership. We seek to explore these relationships among established conceptual frameworks, and we intend to apply them to public accounting firms at the conceptual level. The paper concludes with a proposed model to empirically investigate how the frameworks and concepts apply to the public accounting setting. The goal is to ascertain whether the proposed relationships hold within the setting of professional service firms in order to better understand the factors impacting ethical behavior in public accounting firms.

Key words: ethical work climate, ethical leadership, organizational culture, public accounting firms

INTRODUCTION

Victor and Cullen's (1987, 1988) conceptualization of ethical work climate theory and subsequent development of the ethical climate questionnaire (ECQ) has supported numerous and significant research streams. Public accounting firms, as professional service firms, may be less influenced by organizational culture due to the impact of professional duties and obligations that transcend organizational membership. As such, ethical climate may be different in accounting firms and the role of leadership may be different in such professional service firms. Accounting firms are responsible for ensuring ethical financial reporting of businesses; it is of interest how the firms themselves employ leadership style to influence firm

culture and how both leadership style and organizational culture work together to establish and support an ethical work climate within the professional accounting firm. The objective of this paper is to explore the relationships between leadership style, organizational culture, ethical work climate, and ethical leadership with a specific lens of how these relationships may be different within public accounting firms as professional service firms. Additionally, we set forth a proposed method of empirical investigation into the relative importance of each construct in the determination of ethical behavior within public accounting firms.

LEADERSHIP AND CULTURE

Schein (1992) provides a discussion of the relationship between leadership and organizational culture. Leaders create (and potentially destroy) culture. Gottlieb and Sanzgiri (1996) discuss the reciprocal relationship between culture and leadership and illustrate assumptions embedded in culture that guide the ethical decision-making process. Carlson and Perrewe (1995) outline the elements of culture that combine with transformational leadership to create an ethical organization. Yet, when applied to the specific environment of the public accounting firm, the influence of external professional standards, codes of conduct, and government sanctions for SEC violations may alter the relative importance of leadership and culture. It is within this context that we seek to understand how the two constructs of leadership style and organizational culture jointly impact ethical behavior in public accounting firms.

Schein (1992) points out that “organizational cultures are created in part by leaders, and one of the most decisive functions of leadership is the creation, management and sometimes even destruction of culture” (p.5). Schein suggests culture emerges from three sources: beliefs, values, and assumptions of the founder; learned experiences of group members as their organization evolves; and new beliefs, values, and assumptions brought in by new members and leaders. The founder’s role in setting and establishing the culture is critical. Bass and Avolio (1993) suggest that “founders often create an organizational culture from a preconceived ‘cultural scheme in their heads’” (p. 114).

Bass and Avolio (1993) discuss the importance of leadership style in the formation of culture and suggest a reciprocal relationship between culture and leadership. Effective leaders develop and maintain a strong

culture that supports the organization's vision. The authors contrast transactional leadership, where leaders approach subordinates with a series of transactional exchanges that assumes a give-and-take workplace environment conducted primarily through negotiation, with transformational leadership, where negotiation gives way to shared vision, subordinate empowerment, and leading by example. They suggest how the two styles can produce dramatically different cultures. Gottlieb and Sanzgiri (1996) discuss the pervasive nature of the reciprocal relationship between organizational culture and leadership, pointing out that "included in organization culture are basic ethical assumptions concerning what is right and wrong, proper and fair. It acts as an unconscious judge for ethical behavior and ethical decision making" (p. 1278).

Leadership style must adjust to different organizational environments (Schein, 1992). On the one hand, transactional leadership may be appropriate for an organization comfortable with its ethical and cultural domain. On the other hand, an organization experiencing tension from challenges to its moral underpinnings may require more transformational leadership. Carlson and Perrewe (1995) suggest that certain characteristics of transformational leadership are well suited to influence the development of a "strong" organizational culture including vision, understanding of human needs, and a strong set of personal core values. In other words, they have the ability to "transform their followers by activating higher order needs, emphasizing the value of certain outcomes, influencing followers to put organizations before their own self interest" (p. 831).

Schein (1992) outlines five primary mechanisms leaders use to influence culture: a) what they pay attention to, what they measure; b) reaction to critical incidents; c) deliberate role modeling; d) criteria leaders use for allocation of rewards and status; and e) criteria for recruitment, selection, promotion and retirement. These five items may be understood as important parts of a transformational leadership approach, particularly deliberate role modeling. Leaders of newly formed organizations are in a unique position to actively shape a culture that embraces and institutionalizes the highest ethical standards. Using stories of leaders as role models serves to reinforce the pivotal impact of organizational leaders and of organizational founders in particular.

Sims (2000) also emphasizes the role of leadership in developing and then actively managing a culture that integrates ethical standards.

Culture plays a central role in the socialization process and must clearly signal that the organization supports ethical behavior. The author also emphasizes the role of the leader in newly formed organizations: “the goal of today and tomorrow’s leader should be to ensure that they build and maintain a strong ethical organizational culture from the start so they won’t have to undertake the challenges of turning around an unethical culture” (p.76). Park and Kang (2014) investigated the role of the founder’s ethical leadership and reported that ethical leadership impacted the organization’s ethical climate not only in the initial stage of the organization, but also at later points in time throughout the life cycle of the organization. Choi, et al. (2015) found that ethical leadership impacts employee attitudes toward corporate social responsibility.

Brown, et al. (2005) provide a concrete definition of ethical leadership that clearly delineates it from leadership in the broader sense, along with an instrument to measure ethical leadership (the Ethical Leadership Scale, ELS). While ethical leadership bears resemblance to transformational leadership (e.g., Zehir, et al. 2014), there are aspects of transactional leadership that would be found in ethical leaders as well. The authors suggest that ethical leadership encompasses being an appropriate and legitimate role model, making desired behaviors explicitly known throughout the organization, and reinforcing those behaviors via rewards for appropriate behavior and discipline for inappropriate behavior. Brown, et al.’s (2005) definition of ethical leadership is “*the demonstration of normatively appropriate conduct through personal actions and interpersonal relationships, and the promotion of such conduct to followers through two-way communication, reinforcement, and decision-making*” (p. 120, emphasis in original). Not only is an ethical leader someone who serves as a role model, but an ethical leader must also clearly communicate appropriate behaviors and expectations and then follow through with methods of reinforcement of such behaviors. Brown and Trevino (2006) provide a conceptual framework for how ethical leadership impacts several follower outcomes, including ethical decision-making. They suggest that both situational influences and individual characteristics impact the construct of ethical leadership and that ethical leadership has a direct impact on follower outcomes.

ETHICAL WORK CLIMATE

Arguing that individual characteristics were insufficient to explain determinants of ethical decisions in an organizational context, Victor and Cullen (1988) developed the concept of ethical work climate which they defined as: “the prevailing perception of typical organization practices and procedures that have ethical content” (p.101). The approach used to develop a theoretical typology of ethical work climate was based on theories of both moral philosophy and sociology. From moral philosophy, the ethical dimensions were based on egoism, benevolence, and deontology. These roughly correspond to the levels of cognitive moral development espoused by Lawrence Kohlberg (1969). As Kohlberg’s theory is based on individual moral judgments and ethical work climate is a group level phenomenon, the second dimension of climate is based upon the referent group (or level) considered when making ethical judgments. Victor and Cullen (1988) suggest that any one of the three ethical dimensions may operate at the individual, company or cosmopolitan (broad social) level.

Victor and Cullen (1988) argue that ethical climates are multidimensional and represent normative control systems molded by societal norms, organizational form, and certain firm specific factors. Vidaver-Cohen (1998) argued that Victor and Cullen’s (1988) model and ensuing Ethical Climate Questionnaire (ECQ) left several important questions unanswered. Specifically, she points out that the “model does not (a) guide prediction about when, where or how a certain climate type might emerge, nor does it (b) tell managers and field researchers precisely how organizational processes must be changed to transform moral climates in the firm” (p. 1221). When applying this concern to the public accounting profession, we are interested in whether ethical climates are cohesively perceived within firms, whether such ethical climates impact the thinking and behavior of accountants within the firms, and how stable climates emerge given the high turnover at the staff level in public accounting firms.

Trevino, et al. (1998) also suggested a broader view may be more appropriate and that empirical evidence of the relationship between ethical climate and ethical behavior is lacking. Further discussion ties ethical work climate and ethical environment under one umbrella while continuing to distinguish between leaders and non-leaders and their corresponding ethical perceptions. For example, partners in the tax profession perceive the ethical environment to be stronger than non-partner professionals (Bobek, et al.

2015). Among firm leaders, a strong public interest orientation (i.e. feeling a responsibility to serve the public interest) and a higher frequency of receiving mentoring are associated with such stronger perceptions of the ethical environment (Bobek, et al., 2015). The higher level of perceived fit to the ethical climate of a firm was associated with higher levels of perceived job satisfaction (Domino, et al. 2015), organizational commitment (Domino, et al., 2015; Dermittas & Akdogan, 2015; McManus & Subramaniam, 2014), and lower turnover intentions (Demirtas & Akdogan, 2015). Within professional accounting firms, where turnover tends to be high (Johnson & Pike, 2018), the relationship between climate fit and organizational commitment warrants further specific investigation.

Additionally, we feel more attention needs to be focused on the relationship between ethical climate and ethical leadership. Demirtas and Akdogan (2015) found that ethical leadership helps shape perceptions of ethical climate. The authors used Brown, et al.'s (2005) Ethical Leadership Scale and Victor and Cullen's (1988) Ethical Climate Questionnaire. Their findings of ethical leadership having both direct and indirect effects on the specific outcomes of affective commitment and turnover intentions may have specific implications for the public accounting profession. The indirect effect of ethical leadership found by Demirtas and Akdogan (2015) was that ethical leadership shapes perceptions of ethical climate. We are particularly interested in the strength of that relationship within the public accounting profession.

PUBLIC ACCOUNTING FIRMS AS UNIQUE WORKPLACE ENVIRONMENTS

Given the paramount importance of ethical behavior (both real and perceived) by accountants, and given the heightened scrutiny of accounting firms (McManus & Subramaniam, 2014) and emphasis given to improved audit firm behavior upon the passage of the Sarbanes-Oxley Act of 2002, we intend to add to the literature investigating aspects of public accounting firms that either promote or deter ethical behavior among accounting professionals. It is understood from the literature discussed above that both organizational ethical climate and ethical leadership play important roles in creating a culture that encourages ethical behavior within corporations. The public accounting profession is one where there are simultaneously professional standards guiding appropriate behavior along with the potential

impact of accounting firm leadership and accounting firm culture. As a result, it is unclear as to whether ethical leadership plays as pivotal a role in enforcing ethical behavior in accounting firms as it does in the corporate setting. Similarly, the importance of a firm's ethical climate to the individual accountant's ethical decision-making process is also worthy of investigation because of historically high turnover rates (Johnson & Pike, 2018), the presence of external professional standards, and the potential of government-imposed sanctions and penalties may play a larger role than the perceived climate or the leadership style of firm managers and partners, or both in concert. We posit that leadership style and ethical climate will still be important in fostering a supportive environment that encourages ethical behavior, but we are interested in determining the relative importance of external regulations, ethical leadership, and ethical climate. The goal of the research is to discern how to positively influence employees' ethical behavior as applied to the public accounting profession and the mission of maintaining the public's trust. While research has increased the knowledge base of the topic over the past two decades, we concur that much is yet to be understood about ethics and unethical choices (Kish-Gephart, et al., 2010).

FUTURE RESEARCH

Our intended sample includes accounting firms of varying sizes and we will include individuals at all levels of the firms included in the sample. The survey instrument will consist of Brown, et al.'s (2005) 10-item Ethical Leadership Scale, Victor and Cullen's (1988) 26-item Ethical Climate Questionnaire, and a series of questions soliciting information about perceived importance of external expectations of the wider profession, internal firm expectations of behavior, and individual perceptions of morality. We will compare responses among various levels within the firms, from staff accountant to senior to manager to partner. The goal is to improve understanding of what the major influencers are to ethical behavior in order to ultimately promote and increase ethical behavior within the public accounting profession.

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THE BEHAVIOR OF U.S. INVESTORS: AN EMPIRICAL INVESTIGATION OF THEIR CONFIDENCE AND RISK PREFERENCES

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ABSTRACT

Numerous studies in behavioral sciences are built on the underlying assumption of rational behavior including the choice theory of behavioral finance. Investigators frequently use objective risk-aversion measures that require the assumption that an investor's choice in the face of uncertainty is conducted in a rational manner. Consequently, these measures tend to be descriptive rather than predictive, and likely will not represent the perplexing level of uncertainty and plausibly fail to explain the honest choices of investors. This study investigates U.S. investors' willingness to engage in risky decision-making measured as a function of socioeconomic factors using wealth/income levels, gender, age, marital status, education level, financial literacy, and confidence level of financial market. The study uses a large tracking-data of households/investors in the United States (a combined data of the fourth wave of 2018 of the National Financial Capability Study (NFCS) and 2019 Investor Survey), all from Financial Industry Regulatory Authority (FINRA). These surveys are national data sets that comprise information on financial risk tolerance of US investors, and their background information. Further, this study compares differences in risk aversion levels, and investigates the confidence level of investors as they relate to their demographics. Previous studies of demographic determinants of financial risk aversion have shown contestable outcomes. Therefore, the study attempts to expound the controversial issues of these consequences by studying the extenuating role of investors' confidence levels in relation to financial risk aversion preferences.

Keywords: Financial Risk Preference, Background Risk, Financial Knowledge, Investor Confidence.

INTRODUCTION

Theoretical background and decision making under risk

The rational choice theory is essential to the debate of social sciences because of its adherence to a restricted view of investor's rationality canon. It requires consistency among preferences that categorically deemed capable of classifying rational modes of conduct. Debates internal to the social sciences have tended to focus on complex distinctions of the formal theory as well as the suitability of associating consistency of choices characterized by restrained self-interest. It is generally agreed that behavioral choice is based on assumptions, and generally,

investors are not completely rational they are influenced by perceptions and by confidence level. However, confidence is not necessarily justified by economic factors that render investors' expectations habitually subjective. Investor's risk behavior can be viewed via three theories: rationalization of expected utility theory (EUT) of Neumann and Morgenstern (1953), explanation of modern portfolio theory mean-variance (M-V) analysis (MPT) of Markowitz (1959), or experimentation of individual's behavior of prospect theory (PT) of Kahneman and Tversky (1979).

Much of the theoretical explanation of this study relies heavily on Said and Powell (2020) elucidating the different kind of investor's utilities when facing decision under uncertainty. They show that a normative (as appose to descriptive) decision-making is when an investor is challenged with a choice of alternatives subject to several levels of probability, the 'optimum' decision will be the one that maximizes the expected value of the utility.

Modeling EUT is used as the primary model by researchers to explain how investors behave when facing uncertainty. Even though EUT is highly authoritative in economics analysis of decision under risk, but it has been challenged, mostly by PT. The MPT developed by Markowitz and advanced by Tobin (1958) is an extension of EUT, used to construct a diversified investment portfolio that maximizes the utility of a risk-averse individual. There are two advantages of the MPT namely its simplicity and uniqueness of the risk-return trade-offs of an investor with risk-averse utility function to be willing to take additional risk for an additional return. Using only the first and second moments of the return distribution it lends itself to two-dimensional graphical analysis (mean and variance). On the other hand, PT reveals that investor gives greater weighting to a small certain gain over a probable larger gain. It also shows a risk-loving behavior preference of a loss that is probable over a small loss that is certain. The PT explanation is that potential losses and gains are recognized differently by investors based on perceived losses instead of perceived gains. The usual definition of risk aversion, developed by Pratt (1964) and Arrow (1971), defined the characteristics of utility function of a rational decision maker that describe Decreasing Absolute Risk Aversion (DARA) using Neumann-Morgenstern (NM) axioms of formulation. The NM utility theorem provides necessary and sufficient conditions under which EUT holds.

While it is safe to say that the mathematical foundations of EUT are not unshaken by the empirical evidence, but if an investor's decision-making is not adequately described by the five axioms of rational behavior, then it becomes necessary to rethink the descriptive validity of EUT. It was acknowledged by Gilboa et al (2014) that some axioms could be violated in real life experiences; nevertheless, these settings could be interpreted as 'axioms' of rational choice. Using experiments, Levy (1994) provided evidence that DARA is undeniably supported. Ross (1981) shows that estimation of risk aversion can be generalized

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to support the introduction of background risks. Pratt and Zeckhauser (1987), and Kimball (1993) derived several sufficient and/or necessary conditions that adding a background risks make individuals become more risk averse. Guiso et al. (1996) show that a consumer's perception of a riskier distribution of human-capital (uninsurable) income is negatively related to the proportion of risky assets held in his investment portfolio. Therefore, it is essential that researchers place more effort on empirical research intended to refine our understanding of risk aversion with background risks. Individuals make choices under risk and uncertainty practically in the background of other risks.

Characterization and Measuring Risk Aversion (or Risk Tolerance)

Typically, attitude towards risk varies with investors, and for different reasons. They may have low level of risk aversion for different reasons (health conditions, driving habits, profession, financial knowledge, milieu, employment, other societal factors including gender, race etc.). Based on the shapes of their utilities starting from current state of wealth, investors who may be willing to accept a fair gamble are labelled risk neutral, risk averse investors will always reject a fair gamble, but risk lovers (gamblers) will accept it. A fair gamble has expected outcome of zero dollar, e.g., a fair gamble that cost \$200 to enter the game, and you have a chance of 20% to receive \$1,000 or (80%) to receive nothing, the expected value is $\$0 = (-\$200 + .2 \times \$1000 + \$0 \times .8)$. Speculators and investors are generally risk averse individuals, but gamblers are risk lover. Alternatively, individuals who only seek expected gain and are indifferent to its variability are risk neutral (a business entity). Furthermore, risk-averse investors still prefer more potential gain to less, but prefer less variability to greater variability. Thus, investors are more willing to accept a smaller gain with certainty than expected value of a risky prospect. The study concentrates only on risk averters and less on risk neutrals types of utilities.

Figure (1) Utilities/ Indifferences: Risk averse (red), Risk Neutral (blue), Risk Loving (green)
(A) (B)

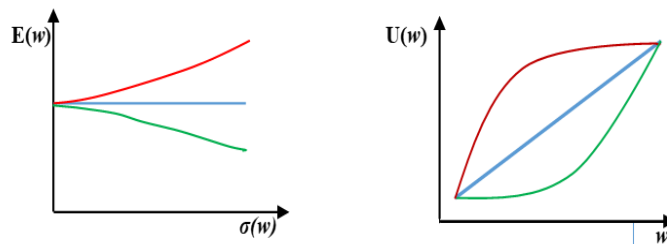


Figure (1) shows indifference curves (panel A) and utilities (panel B) for the above three types of investor preferences towards risk in expected wealth-risk and utility-wealth spaces respectively. As can be seen from Figure (1-B), risk averters have ever-increasing strictly concave utility functions (in wealth), while risk neutrals utility is a linear one also increasing as wealth increases. A risk neutral investor

has a constant marginal utility of wealth, whereas a risk averter has a diminishing marginal utility.

Pratt (1964) and Arrow (1971) defined a measure of Absolute Risk Aversion (ARA) for a given level of wealth. It answers the question that when a person's wealth increases would his ARA increase, decrease, or stay constant. Empirical evidence is mostly consistent with Decreasing Absolute Risk Aversion (DARA). Previous empirical tests support economic reasoning that as wealth increases the investor's ARA decreases (DARA). If an investor has constant absolute risk aversion (CARA), then as wealth increases they will invest the same dollar amount in risky assets. CARA is not a desirable property because it fails to represent rational decision-making. Most empirical studies in economics reject the assumption of CARA (Bougherara and Nauges, 2018). ARA formula is shown to be equal to the negative of the second derivative divided by the first derivative of the utility function with respect to wealth, and the inverse of ARA is often defined as risk tolerance (RT) that is the reciprocal of Absolute Risk Aversion ($1/ARA$). Mathematically, Absolute Risk Aversion (ARA) = $- [U''(W) / U'(W)]$. Note that if $U'(W) > 0$ and $U''(W) < 0$, then $U(W)$ is increasing and concave function, and its $ARA(W) > 0$. If ARA is multiplied by the wealth level, the result is known as the Relative Risk Aversion (RRA). RRA measure is defined as the relative (proportional) risk aversion to the initial wealth rather than an absolute value. Thus, the degree of risk aversion is measured by the coefficients of ARA and RRA. Meyer (2014) shows that these two coefficients are positive numbers for risk-averse individuals and they increase with the degree of risk aversion, and are independent of wealth level.

The function that holds for both DARA and Constant RRA (CAAR) is the log function for a risk averse person and here is our example:

$U = \ln(W)$, the function should be continuously differentiable, with $W > 0$

$U'(W) = 1/W > 0$: First derivative of utility with respect to wealth, marginal utility, measuring how utility changes as wealth changes,

$U''(W) = -1/W^2 < 0$: Second derivative of utility WRT wealth, measuring how the rate of utility itself changes as wealth changes

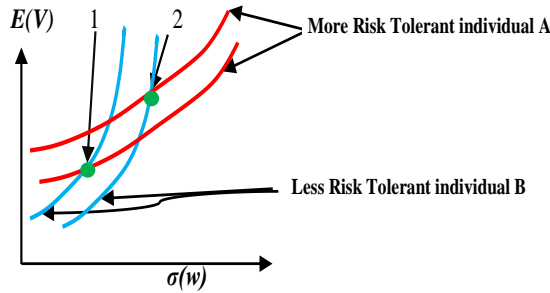
ARA Coefficient: $- [U''(W) / U'(W)] = - [-1/W^2 / 1/W] = 1/W > 0$

RRA Coefficient = $W \cdot \{- [U''(W) / U'(W)]\} = W \cdot \{ARA\} = W \cdot \{1/W\} = 1$, unitary elastic constant.

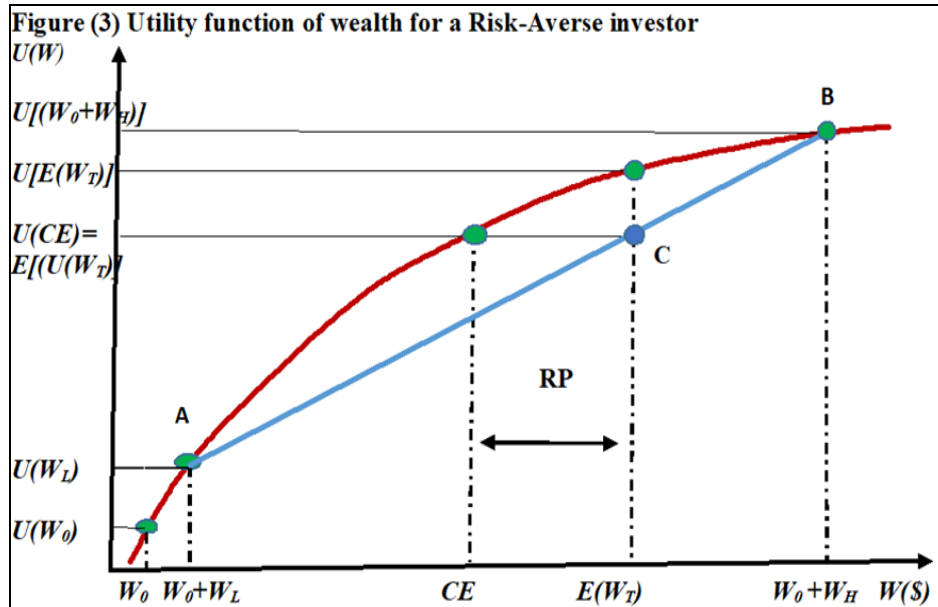
Every investor has different shape of utility function (or disutility, i.e., indifference curves) and perhaps changes with age (life-cycle phase). Figure (2) depicts two risk averse utilities for A and B investors with two risky opportunities 1 and 2. The $E(V_2) > E(V_1)$ and $\sigma(V_2) > \sigma(V_1)$. Since investor A is more risk tolerant, he has flatter indifference curves than individual B, who is less risk tolerant (steeper indifference curve). Investors choose their opportunities based on their degree of risk tolerance levels and shape of their utility functions.

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Figure (2) Indifference Curves of More Risk Tolerant (Red) and Less Risk Tolerant (Blue)



Accepting above proposition, it is the utility function that matters, and not wealth level per se, hence, the reality that no two preferences are alike, the investor's risk aversion can vary widely across gender, age, and other background factors. As stated before, a risk neutral investor will be willing to accept a fair gamble, but a risk averse investor will not, that is because a fair gamble's expected value is \$0. Generally, if the expected value of a gamble for a risk averse investor is greater than \$0, he may or may not choose to participate in it depending on his utility function and his current wealth level (W_0). For exposition of whether a risk-averse investor will accept or reject a gamble, please reference Figure (3) and the example that follows.



If an investor is offered a free choice between taking a gamble with two mutually exclusive risky opportunities (A and B), or not to engage in the gamble. Outcome A of the gamble may increase his current wealth from W_0 level to $W_0 + W_L$ and outcome B could increase his from W_0 to $W_0 + W_H$. Discernibly, the investor will

pick the gamble. Because it will either increase his utility [$U(W) = \ln(w)$] from current wealth (W_0) to either point A i.e., $U(W_L)$, which is slightly higher than current utility $U(W_0)$, or greatly more to point B $= U(W_0 + W_H)$. He can estimate the expected value of his terminal wealth ($E(W_T)$), that is based on the gamble with probabilities, p and $(1-p)$ across the two opportunities (A or B). The Utility of expected terminal wealth is $U(E(W_T)) = U[p \cdot (W_0 + W_L) + (1-p) \cdot (W_0 + W_H)]$. For a risk-averse investor, the points on the red curve are what matter not the points on the cord (the blue line). For this investor, his utility of $U(E(W_T)) > E(U(W_T)) = p \cdot U(W_0 + W_L) + (1-p) \cdot U(W_0 + W_H)$. There is exist some guaranteed amount, which is called the certainty equivalent (CE), that if an investor receive now would provide the same utility as if the gamble were certain. The guaranteed amount (CE) if added to the gamble would make a risk-averse investor indifferent between the gamble and that guaranteed amount. For an investor, the CE of a cash flow is the expected value of the probable cash flows minus the Risk Premium (the risk premium is calculated as the risk-adjusted return minus the risk-free return). CE is the amount of payoff an investor would require to be indifferent between the payoff and a given gamble. Thus, $U(CE) = E(U(W_T))$. The difference between the ($E(W_T)$) and CE is called the risk premium, ($RP = E(W_T) - CE$). These terms are measured in monetary units (\$). The RP is always positive amount, but the cost (value) of the gamble could be positive, zero, or negative. The cost of the gamble depends on the probabilities of the gamble; it also depends on how much it is expected to change the investor's current wealth level (W_0). The cost of the gamble is $W_0 - CE$, thus, as an investor risk aversion rises, he demands more risk premium. For a risk neutral investor, his risk premium is zero because his $E(W_T)$ of the gamble and his CE are the same.

An Illustrative Example of Risk Aversion

A very simple example may be in order to illustrate calculation of risk premiums and the cost of the gamble using Markowitz and Pratt-Arrow approaches. Defining the utility function as a natural log of wealth ($\ln(W)$), it will satisfy DARA and CAAR characteristics. Assume an investor is offered a gamble with the following characteristics: $W_0 = \$100$, Gamble = $\{P = .95, A = \$200 \text{ or } (1-P) = .05, B = \$1000\}$. Hence

$$E(W_T) = (1) \times 100 + [.95 \times 200 + .05 \times 1000] = \$340.$$

$$U(E(W_T)) = U[100 + 195 + 50] = U(340) = \ln(340) = 5.8289 \text{ Utils}$$

$$E(U(W_T)) = p \cdot U(W_0 + W_L) + (1-p) \cdot U(W_0 + W_H) = .05 \times \ln(1,100) + .95 \times \ln(300) = 5.7688 \text{ Utils}$$

$$E(U(W_T)) = U(CE) = 5.7688$$

Since the natural logarithm function $\ln(x)$ is the inverse function of the exponential function e^x and vice versa, then $e^{5.7688} = CE = \$320$, (if $\ln(e^x) = x$ and $e^{\ln(x)} = x$, then $\ln(e^{CE}) = CE$ and $e^{\ln(CE)} = CE$)

The $RP = E(W_T) - CE = \$340 - \$320 = \$20$, this is the exact RP measure according to Markowitz approach. The cost of the gamble $= W_0 - CE = \$100 - \$320 = -\$220$, the cost of the gamble is negative. Thus, the investor would pay up to \$220 to engage in the gamble, and if he were more risk tolerant, he would pay even more.

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Pratt-Arrow RP measure is an approximate one and it requires two assumptions; symmetric probability distribution and a small fair gamble, and the above example does not hold for neither. Their measures produce similar results and here is Pratt's measure formula:

$$\mathbf{RP} = (1/2) (\sigma^2_G) \{- [U''(W) / U'(W)]\} = (1/2) (\sigma^2_G) [\mathbf{ARA}]$$

From above $U = \ln(W)$, for $W > 0$, $U'(W) = 1/W > 0$, $U''(W) = -1/W^2 < 0$,

ARA Coefficient: $- [U''(W) / U'(W)] = - [-1/W^2 / 1/W] = 1/W > 0$

RRA Coefficient = $W \cdot \{- [U''(W) / U'(W)]\} = W \cdot \{\mathbf{ARA}\} = W \cdot \{1/W\} = 1$

(σ^2_G) is the variance of the gamble = $[p \cdot (W_0 + W_L - E(W_T))^2 + (1-p) \cdot (W_0 + W_H - E(W_T))^2]$.

$$(\sigma^2_G) = [.95 [(300) - (340)]^2 + (.05) [(1100) - (340)]^2] = 30,400$$

$$\mathbf{RP} = \frac{1}{2} (30,400) (1/100) = \$152$$

The \$152 Pratt-Arrow RP is much higher than \$20 Markowitz RP, however, Markowitz measure of RP is superior for large and more asymmetric risks. The reason for the investor to accept the gamble is that his W_0 is lower than the W_L and that both possible outcomes of the gamble produce higher utilities than $U(W_0)$, thus it is advantageous to pay for the gamble.

FACTORS INDUCING RISK AVERSION, DATA AND HYPOTHESES

Over past few decades, research has and still dedicated to comprehension of risk aversion and factors that impact risk-averse behavior of investors. Theoretical and empirical research advances over half of the 20th century tried to gauge an individual's attitude regarding his behavior that breakdowns in four directions:

(1) risk-taking propensities, (2) investment, speculation, and gambling, (3) severity, that is probability of gains/losses exposures (from none to catastrophic), and (4) knowledge, experience, and value judgement. Breaking apart the investor risk profile into risk tolerance, risk capacity, and risk confidence is growing goals of both academicians and practitioners' interests. Assessing investor's financial risk aversion is an elusive concept that is multidimensional. Researchers attempted to explain risk aversion and decision-making through normative and descriptive models. While the EUT theory is primary normative model, descriptive models tend to be based on behavioral, psychological frameworks. An investor's risk aversion has a significant consequence on his financial decisions, it is crucial to have a conceptual understanding of factors that compelled him to make such judgment. The CFA Institute has asked academics and practitioners to encapsulate the current state of knowledge about risk profiling in different areas. Assessing an investor willingness to take on risk to pursue an uncertain positive outcome, or potential negative outcome depends on what the goal is in the first place and whether such a goal can be achieved in due time horizon. The mere fact that an investor can afford to take risk or needs to take risk does not mean willingness to take risk. Unlike tolerance, *risk capacity* is the amount of risk that an investor needs to take in order to reach financial goals. Klement, (2018), describes "*risk capacity*" to mean the ability to take risk, it is to determine whether an investor

can financially afford to take a certain amount of risk with current wealth at a particular point in time. It is a function of the investor's liquidity needs, the investment's time horizon, and its significance among other assets. Thus, it is essential to separate the investor's risk tolerance from his risk capacity. Risk tolerance is the level of risk that an individual can accept per (downside) risk exposure, whereas risk appetite is the total risk that an investor can accept in a given risk profile, usually expressed in aggregate. Risk tolerance is related to the acceptance of the outcomes of a risk should they occur, and having the right resources and control mechanism in place to "tolerate" a given risk, expressed in qualitative and/or quantitative risk criteria.

In addition to the wealth factor, multiple other factors (demographical, psychological, and sociological) play a considerable part in decision-making associated with financial risk aversion. When investors are surveyed regarding their levels of risk tolerance, the measure only gauges a small part of the multidimensional facets of their risks, and these surveys miss characterization of risk. For instance, risk perception according to Nobre and Grable (2015), is the investor's subjective evaluation of the riskiness of the decision outcome. Risk preference is a person's general feeling that one decision choice is superior to another. Financial planners often see client's behavior change over a period of time that is the result of a perception variation in one of these factors driving the change, rather than a significant real modification in the client's attitude towards risk. A subjective risk is like 'yellow warning sign' in the cognizance of an investor. Many have argued that the best way to concisely identify an investor's risk tolerance is to use an assessment instrument designed specifically to measure subjective risk tolerance using multidimensional financial scenarios and situations. Past literature (Chaulk, Johnson, and Bulcroft, (2003); Grable & Lytton, (1999,); show that several underlying factors determine the level of Financial Risk Tolerance (FRT). Among the most important demographic factors are gender, age, and marital status, income, education, financial knowledge, retirement plans, knowledge sophistication, change in wealth, and accessibility of sources of information. All background factors directly or indirectly effect the investor's course of action leading to changes in his FRT attitude. In 2016, The Financial Literacy and Education Commission of the US Treasury Department established goals to increase financial literacy and improve individual financial well-being. Their strategy included goals of awareness and assessment of effective financial education, to determine and integrate core financial competencies to improve financial education infrastructure, for identifying, enhancing, and sharing effective practices.

Objectives of the Study and Data

The overall objective of this study is to contribute to the interconnections between financial risk aversion (tolerance) and the risk-taking behavior within the fields of (consumer) economics and finance. The specific objectives, however, are empirically assessing the risk tolerance level of US investors using recent national data to identify the demographic factors on which risk tolerance is dependent, and

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identify the socioeconomic factors that influences the risk tolerance level. Recent studies by Said and Powell (2020), Chatterjee, Fan, Jacobs, & Haas, (2017), and Van Rooij & Lusardi, (2012), show that financial literacy has a positively impact on wealth accumulation, retirement and savings plans of households after controlling for risk tolerance. Few studies have looked at this interaction and it is the intent here to fill an important hole in the literature by examining the latent factor of financial knowledge and investor confidence effects on risk aversion decisions. Risk profiles are typically identified with the help of a profiling questionnaire. The data of this study is from the most recent (2018 wave) of the Financial Industry Regulatory Authority (FINRA), National Financial Capability Study (NFCS). This NFCS national dataset includes extensive information on the socioeconomic and demographic characteristics of US households participating in the 2018 survey. The NFCS survey is state-by-state online survey of American adults (roughly 500 per state, plus the (D.C.). This study combines the 2018 NFCS with the Investors' data of December 2019 that included 2018 information for 2000 participants who owned separate investments in non-retirement accounts (NRA). Those investment accounts included different financial instruments (stocks, bonds, mutual funds, ETFs, Life insurance, Annuities etc.). The values of these NRAs vary from a low of \$2,000 to over a million dollars in assets. The data includes information on many of the factors above including risk tolerance, financial market, investors' confidence, and socioeconomic items.

In this study, the analysis is restricted to 20,813 observations of US households (excluding missing, non-responses, and currently unemployed individuals). The study also used a unique identifier for participants who later also participating in the 2019 Investors survey in addition to the 2018 NFCS survey that are employable. The final count for current study is 1546 US investors who participated in both surveys and included in the study sample.

Hypotheses

The study investigates the special effects of demographic characteristics on financial risk tolerance. Therefore, one of objectives of this study is investigating the direct effect of investors' confidence on risk tolerance. This study will also investigate the level of risk tolerance (aversion) levels as they relate to demographic characteristics. Thus, this study will test the following Hypotheses:

- H1:** There exist relationships between the investor's demographic variables (age, gender, ethnicity, education level, income level, marital status, financial knowledge, and his/her financial risk tolerance.
- H2:** There exist a relationship between the investor's confidence in U.S. Financial Markets and his financial risk tolerance, and higher level of financial confidence is expected to associate positively with lower risk tolerance level.

Financial Risk Tolerance Scale

Risk preference has long been known to be too complex to be described by a single parameter. There literature on measuring normative relative risk aversion are more

than a few, nevertheless, there is no one commonly acknowledged estimate. Perhaps the most commonly accepted measures of the coefficient of relative risk aversion set between 1 and 3, but there is a wide range of estimates ranging from a low of 0.2 to a high 10 or more depending on assessment methods, sample size, validity of data, country development, and assumption in assessing the utility function of a person. The most common approaches in assessing risk tolerance used by many studies, (Campo et al. (2011), Gandelman and Hernández-Murillo (2013), l'Haridon, O., and F. M. Vieider (2019)), are asking hypothetical questions with cautiously stated scenarios measuring actual behavior or collecting data from a small sample. Sometimes, researcher rely on data obtained from local or international for-profit-organizations that provide risk tolerance profiling services (e.g., FinaMetrica and PlanPlus Global are the two largest for profit services of individual risk-profiling service). Instead, the current study uses a US nonprofit data-collecting foundation, NFCS, which has developed four waves of datasets since 2009, and two waves of investor's survey since 2015.

The investor's Risk Tolerance Level (RTL) constitutes one question that is answered differently in the two surveys. The NFCS 2018 participants had to answer this question: "*When thinking of your financial investments, how willing are you to take risks?*" Then participants assign this subjectively measured question a score from 1 to 10. This is an ordinal scale of the investor's RTL (i.e., his Risk Aversion Level=RAL). Each participant assigns (1) for "*not at all willing to take risk*", which is the lowest step on his RTL scale, and if he assigns 10, representing a highest step on the RTL scale, then he is "*very willing to take risk*". Even though this research is emphasizing only different degrees of risk averse investors, the original scale is regrouped into four levels in the 2019 Investor survey, the ordinal scale is regrouped into four levels (Very Low, Low, Moderate, and High Level of Risk Tolerance). This categorization will still accomplish the purpose of gauging investors in terms financial risk apparatus. Distributions of the investors' responses for both scales are shown in Table (1).

Methodology

The appropriateness of testing the two hypotheses above has dictated the deployment of the two dissimilar models used in this study: Multiple Logistic Regression (MLR), and Analysis of Covariance (ANCOVA) to test the two hypotheses above. The first hypothesis is tested using the MLR model and the second hypothesis is tested using ANCOVA model. While the four-categories of RTL are nominal and they represent the dependent variable in the MLR model and the independent variables are both nominal and continuous. For the second hypothesis, the dependent variable (Financial Markets Confidence = *FMC*, a continuous or metric variable) is measured by probing each investor's confidence level with regard to his trust in U.S. financial markets, and the independent variables are both nominal and continuous. One of the independent variable is a score of general financial knowledge posed to all investors in the 2019 investor survey, and this study formulated it as a single composite answer. All ten questions probing how much investors really know about investing are presented in appendix

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(1) and their composite financial knowledge score (SCFNLKOW) is included in assessment of the two hypotheses above.

Table (1) The Scales of Risk Tolerance Levels							
10 Level Scale (2018 NFCS) Survey				Four Level Scale (2019 Investors) Survey			
RTL Levels	Level Freq.	Cum. Freq.	Category % of Total	RTL Levels	New Grouping of RTL Levels	Category Frequency	Category % of Total
1	3165	3165	15%	1	VLRT=VHRA	185	12%
2	1524	4689	7%	2	LRT=HRA	816	53%
3	2225	6914	11%	3	MRT=MRA	444	29%
4	2173	9087	10%	4	HRT=LRA	101	7%
5	3013	12100	14%	Total		1546	100%
6	2384	14484	11%	VLRT=VHRA is very low risk tolerance/very high risk aversion			
7	2605	17089	13%	LRT=HRA is low risk tolerance/high risk aversion			
8	1700	18789	8%	MRT=MRA is moderate risk tolerance/ moderate risk aversion			
9	704	19493	3%	HRT=LRA is high risk tolerance/low risk aversion			
10	1320	20813	6%				
Total	20813		100%				

Since RTL (willingness to take risk) is a categorical variable, the MLR model is used, and it is represented as follows:

$$f(RTL) = f(AGE, TRADE/Yr., FMC, INFOACC, SCFNLKOW, WHL, PRIMDEC, GEN, INVSTVAL, STOCK)$$

As for the second model, ANCOVA, it is formulated as follows:

$$f(FMC) = f(GEN, FAIRMKT, SCFNLKOW, RTL, IFOACC, TRADE/Yr., INVSTVAL)$$

All variables definition are listed in Table (2)

Table (2) Variables Definitions			
Var. Name	Description	Var. Name	Description
AGE	18-34, 35-54, 55 plus	TRADE/Yr	No of trades per year
ETHN	Ethnicity: White/Non White	FMC	Financial Market Confidence
IFOACC	Accessibility of Information	WHL	Whole Life Insurance
SCFNLKOW	Score of Financial Knowledge	PRIMDEC	Household primary decision-maker
SLFRES	Investor Self-research	GEN	Gender F/M
INVSTVAL	Investments Value	ETHN	Ethnicity W/Non-white
RTL	Risk tolerance levels	STOCK	Having>50% in stocks investment
EDLVL	Educational level	FAIRMKT	Financial market fair to investors

RESULTS AND ANALYSIS

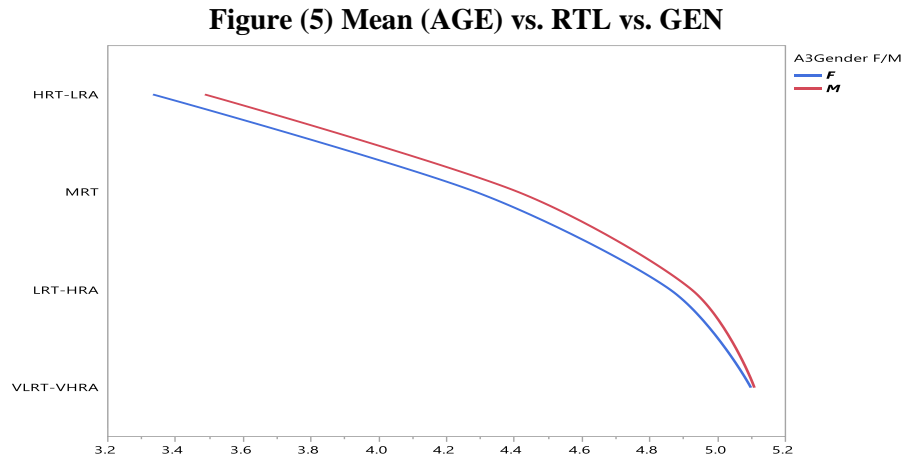
As expected, many of the demographic variables (e.g., GEN, AGE, FMC, SCFNLKOW) and their relationships with RTL confirm the results of previous studies of Fisher and Yao (2017) with respect to gender, and Yao and Hanna (2005) regarding gender, marital status, and ethnicity respectively. For example, male-GEN have assumed more risk tolerance with high support in the literature over female-GEN. The contingency Table (3) shows the account of GEN and ETHN by RTL and a significant ChiSq with probability <0.0001.

Table (3) Contingency tables of GEN by RTL and RTL by ETHN											
Contingency Table of GEN by RTL						Contingency Table of RTL by ETHN					
Count	VLRT-VHRA	LRT-HRA	MRA-MRA	HRT-LRA	Total	Count	VLRT-VHRA	LRT-HRA	MRA-MRA	HRT-LRA	Total
Total %						Total %					
Col %						Col %					
Row %						Row %					
F	102	367	163	27	659	NW	29	121	79	37	266
	6.60	23.74	10.54	1.75	42.63		1.88	7.83	5.11	2.39	17.21
	55.14	44.98	36.71	26.73			15.68	14.83	17.79	36.63	
	15.48	55.69	24.73	4.10			10.90	45.49	29.70	13.91	
M	83	449	281	74	887	W	156	695	365	64	1280
	5.37	29.04	18.18	4.79	57.37		10.09	44.95	23.61	4.14	82.79
	44.86	55.02	63.29	73.27			84.32	85.17	82.21	63.37	
	9.36	50.62	31.68	8.34			12.19	54.30	28.52	5.00	
Total	185	816	444	101	1546	Total	185	816	444	101	1546
	11.97	52.78	28.72	6.53			11.97	52.78	28.72	6.53	

Table (3) Contingency Tests							
Tests GEN by RTL				Tests RTL by ETHN			
N	DF	-LogLike	RSq (U)	N	DF	-LogLike	RSq (U)
1546	3	15.47	0.009	1546	3	12.738	0.007
Test	ChiSq	Prob>ChiSq		Test	ChiSq	Prob>ChiSq	
Likelihood Ratio	30.94	<.0001*		Likelihood Ratio	25.48	<.0001*	
Pearson	30.46	<.0001*		Pearson	30.41	<.0001*	

Figure (5) illustrates the difference between means of male and female RTL given the AGE factor. It shows the male is dominating the female on all AGE levels. The difference between male and female reading RTL given their differences in income level measured by log of income is also illustrated in Figure (5).

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Testing the first hypothesis requires using a categorical depending variable, RTL, representing the four categories shown in table (1). The independent variables are metric that could be nominal, ordinal, or continuous, thus, the MLR is justifiably used. It is used to predict the probabilities of the different possible outcomes of a categorically (nonmetric) distributed dependent variable, given a set of independent variables (which may be real-valued integer; AGE, binary; GEN, or categorical; RTL, etc.). Potential applications of the MLR model include new product testing success or failure, classifying student as to vocational interest, type of car for a particular group of customer, determining the category of credit risk for a person.

The results of our application of the model are shown in Figure (6). Looking at P-values of the effect summary, with the exception of last interactions variable all the independent variables are significant at the .001 level. The whole model using Chi Square is significant R^2 is a little over 15%. The model is fit and the likelihood ratios tests are significant as well with the exception of ETHN and STOCK. The effect of the independent (explanatory) variable on the predicted probabilities of all RTL categories are shown in the last panel of Figure (6).

Table (4) show the Pearson correlation between variables, many of them have positive correlation with the exception of AGE with FMC, FAIRMKT, and IFOACC even with RTL and possibly significant. The highest positive correlation is 0.5864, and that is between FMC and IFOACC variables, that typically explains having good access to information is highly associated financial market investor confidence (FMC).

Figure (6) Multiple Logistic Regression (mlr) for RTL		
Effect Summary		
Source	Log Worth	PValue
AGE	12.806	0.000
TRADE/Yr	10.624	0.000
FMC	5.869	0.000
INFOACC	4.136	0.000
SCFNLKOV	4.004	0.000
WHL	3.59	0.000
PRIMDEC	3.109	0.001
EDLVL	2.512	0.003
GEN	1.733	0.019
SLFRES	1.541	0.029
INVSTVAL	1.275	0.053
ETHN	0.995	0.101
STOCK	0.967	0.108

Effect Likelihood Ratio Tests				
Source	Np	DF	L-R ChiSq	Prob> ChiSq
SCFNLKOV	3	3	21.13	<.0001*
GEN	3	3	10.01	0.0185*
FMC	3	3	30.04	<.0001*
INVSTVAL	3	3	7.68	0.0531
INFOACC	3	3	21.76	<.0001*
AGE	3	3	62.69	<.0001*
WHL	3	3	19.13	0.0003*
EDLVL	3	3	13.88	0.0031*
STOCK	3	3	6.08	0.1078
PRIMDEC	3	3	16.80	0.0008*
SLFRES	3	3	9.04	0.0288*
ETHN	3	3	6.23	0.1011
TRADE/Yr	3	3	52.47	<.0001*

Effect Likelihood Ratio Tests				
Source	Np	DF	L-R ChiSq	Prob> ChiSq
SCFNLKOV	3	3	21.13	<.0001*
GEN	3	3	10.01	0.0185*
FMC	3	3	30.04	<.0001*
INVSTVAL	3	3	7.68	0.0531
INFOACC	3	3	21.76	<.0001*
AGE	3	3	62.69	<.0001*
WHL	3	3	19.13	0.0003*
EDLVL	3	3	13.88	0.0031*
STOCK	3	3	6.08	0.1078
PRIMDEC	3	3	16.80	0.0008*
SLFRES	3	3	9.04	0.0288*
ETHN	3	3	6.23	0.1011
TRADE/Yr	3	3	52.47	<.0001*

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Table (4) Multivariate Correlations								
VARIABLE NAME	INC	RTL	SCFN- LKOW	AGE	INST VAL	FMC	FAIR MKT	IFO ACC
INC	1.00	0.10	0.18	0.04	0.39	0.08	0.02	0.08
RTL	0.10	1.00	0.11	-0.25	0.02	0.30	0.19	0.23
SCFNLKOW	0.18	0.11	1.00	0.15	0.19	0.28	-0.02	0.23
AGE	0.04	-0.25	0.15	1.00	0.24	-0.05	-0.04	-0.06
INSTVAL	0.39	0.02	0.19	0.24	1.00	0.13	0.10	0.10
FMC	0.08	0.30	0.28	-0.05	0.13	1.00	0.30	0.59
FAIRMKT	0.02	0.19	-0.02	-0.04	0.10	0.30	1.00	0.24
IFOACC	0.08	0.23	0.23	-0.06	0.10	0.59	0.24	1.00

The analysis of covariance ANCOVA is usually employed to test the main and interaction effects of categorical variables (RTL) on a continuous dependent variable (score on Financial Knowledge = SCFNLKOW) controlling for the effects of selected other continuous variables, which co-vary with the dependent. The independent variables are called the covariates. ANCOVA model shows the total variability as a function of performance on a predictor variable (or covariate, e.g., GEN, AGE, or ETHN). Treatment effects are presumably independent of the predictor variables, except for random fluctuations. Since one purpose of ANCOVA is to estimate and test differences among adjusted means (i.e., the differences between the means of HRT, MRT, and LRT levels), it is very important to recognize the factors that affect these adjustments. The relative size of the pooled within-group regressions coefficient and the mean difference on the covariates all play part in the adjustment process. Non-normality in the dependent variable has little effect on the ANCOVA F value in most behavioral studies. In ANCOVA, one looks at the effects of the categorical independents on a metric dependent (i.e. SCFNLKOW) variable, after effects of interval covariates are controlled.

Before discussing the results of the ANCOVA model, one may narrate the two basic advantages of using ANCOVA over ANOVA. First, ANCOVA has greater power, and second the reduction of bias caused by differences between groups that exist before the treatments are administered. According to Huitema (2011), in most behavioral studies the covariates employed are generally a crude approximation of normally distributed variables, thus non-normality in the dependent variable has little effect on the ANCOVA F value. The results of ANCOVA are shown in Table (5). The model is limited to only significant independent variables namely; FAIRMKT, SCFNLKOW, RTL, IFOACC, TRADE/Yr., INVSTVAL, and GEN. The model RSquare is significant at about .42, and is able to estimate FMC based on these significant factors.

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Table (5) ANCOVA of FMC and Risk Tolerance		
Effect Summary		
Source	LogWorth	PValue
FAIRMKT	125.331	0.000
SCFNLKOW	11.829	0.000
RTL	6.015	0.000
IFOACC	4.588	0.000
TRADE/Yr	1.744	0.018
INVSTVAL	1.601	0.025
GEN	1.169	0.068

Summary of Fit Analysis of Variance	
RSquare	0.420
RSquare Adj	0.417
Root Mean Sq. Error	1.669
Mean of Response	7.229
Observations	1546
Source	DF
Model	9
Error	1536
C. Total	1545

Parameter Estimates				
Term	Estimate	Std Error	t Ratio	Prob> t
Intercept	2.160	0.23047	9.37	<.0001*
INVSTVAL	0.041	0.01845	2.24	0.0251*
SCFNLKOW	0.139	0.01946	7.14	<.0001*
RTL[VLRT -VHRA]	-0.604	0.11137	-5.43	<.0001*
RTL[LRT -HRA]	-0.030	0.07189	-0.41	0.6812
RTL[MRT]	0.134	0.08349	1.61	0.1086
GEN[F]	-0.082	0.04488	-1.83	0.0677
FAIRMKT	0.507	0.01930	26.29	<.0001*
TRADE/Yr.	0.106	0.04475	2.37	0.0180*
IFOACC	0.155	0.03665	4.22	<.0001*

Sum of Squares	Mean Square	F Ratio
3100.6	344.51	123.615
4280.9	2.787	Prob > F
7381.5		<.0001*

Effect Tests					
Source	Nparm	DF	Sum of Sq	F Ratio	Prob > F
INVSTVAL	1	1	14.01	5.03	0.0251*
SCFNLKOW	1	1	141.89	50.91	<.0001*
RTL	3	3	86.50	10.35	<.0001*
GEN	1	1	9.32	3.34	0.0677
FAIRMKT	1	1	1925.69	690.95	<.0001*
TRADE/Yr.	1	1	15.63	5.61	0.0180*
IFOACC	1	1	49.65	17.81	<.0001*

All parameter estimates were significant at a P-value of less than 1%, some are positive for example FAIRMKT, SCFNLKOW and RTLs (in VLRT, LRT and MRT) have a positive effect on FMC, but GEN have produced less mean for the

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non-white relative to the white individuals.

Figure (7) Effect Details RTL			
Level	Least Sq Mean	Std Error	Mean
VLRT-VHRA	6.630	0.130	5.96
LRT-HRA	7.206	0.059	7.17
MRT	7.369	0.082	7.64
HRT-LRA	7.734	0.171	8.28

Least Squares Means Table			
Level GEN	Least Sq Mean	Std Error	Mean
F	7.15	0.079	6.94
M	7.32	0.068	7.46

Least Sq. Means Plots

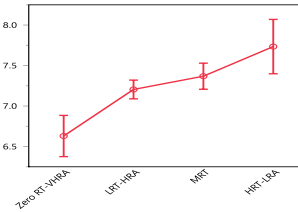
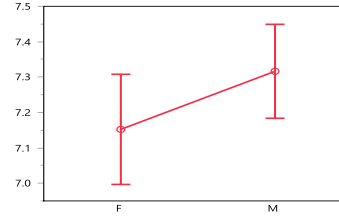


Figure (7) shows the effects of financial knowledge (SCFNLKOW) on the two factors GEN and RTL; where the variable financial knowledge (score was able to discriminate between the white and nonwhite groups and have influence for the classification of risk tolerance levels. Furthermore, the table in Figure (7), the least square means of both factors are presented as significant evidences of the two-factor effect US investors RTL. Confirming pervious findings, the results shown here is that higher levels of risk tolerance are associated with higher level of financial knowledge. The results show that other influential factors besides literacy are also influencing the risk tolerance level, some these factors are characteristically demographic in nature (age, gender, and ethnicity), others are behaviorally or socially developed traits or factors, such as investment value or financial education, or just feeling financially satisfied.

SUMMARY AND IMPLICATIONS

The present research builds on the recent outcomes of Said and Powell (2020), and recognizes that uncertainty is not always stated objectively as pronounced in expected utility theory and viewed in rational risk-taking behavior. One objective of this paper is to review the risk aversion literature by comparing the environment and level of risk preferences of US investors. The paper appraises some of the theoretical advancements in modern portfolio theory and reflect on few of the most common shapes of investor utility functions, giving hypothetical illustrations of levels of risk averse investor. The aim of the study was to re-examine empirically the ample supply of differences between the theory and the applications of risk aversion practices of US investors. Previous researchers utilize a small and limited size of questionnaires to measure the level financial risk tolerance in delivering their discoveries. This study opted to test risk aversion of US investors using two

large recent datasets from a quasi-government agency (NFCS), a FINRA foundation. The objective of the research is to review the risk aversion literature by comparing the invariant yet dynamic nature of risk preferences. Furthermore, the study sought to empirically survey the level of risk aversion as it relates to the confidence level of US investors of financial market given their background information. The combined effect of background risk and investor preference is very perplexing and are influenced by a variety of economic, political, human, or even sociocultural risk factors. The study uses two methodologies (covariance and multiple logistics regression) to test two hypotheses. The results demonstrated that investor confidence has strong positive relationship with risk tolerance of all categories and many other factors that are associated positively with financial market expectation. This study confirms several previous findings regarding demographics of US investors and their tendencies to engage in risky activities. This research found that gender, age, financial knowledge, and risk capability and capacity are highly associated with higher risk tolerance levels. Nevertheless, it is possible to diverge from objective to subjective risk measurements due to other background risk factors that may need further investigations.

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Appendix (1)

Listed below are the ten questions from the 2019 Investors survey (Investor Knowledge Quiz). In the study, the questions are combined into one score (variable) called SCFNLKOW, which measures the general financial knowledge of basic investing.

- 1) If you buy a company's stock...
 - a) You own a part of the company
 - b) You have lent money to the company
 - c) You are liable for the company's debts
 - d) The company will return your original investment to you with interest
 - e) Don't know
 - f) Prefer not to say
- 2) If you buy a company's bond...
 - a) You own a part of the company
 - b) You have lent money to the company
 - c) You are liable for the company's debts
 - d) You can vote on shareholder resolutions
 - e) Don't know
 - f) Prefer not to say
- 3) If a company files for bankruptcy, which of the following securities is most at risk of becoming virtually worthless?
 - a) The company's preferred stock
 - b) The company's common stock
 - c) The company's bonds
 - d) Don't know
 - e) Prefer not to say
- 4) In general, investments that are riskier tend to provide higher returns over time than investments with less risk.
 - a) True
 - b) False
 - c) Don't know
 - d) Prefer not to say
- 5) The past performance of an investment is a good indicator of future results.
 - a) True
 - b) False
 - c) Don't know
 - d) Prefer not to say
- 6) Over the last 20 years in the US, the best average returns have been generated by:
 - a) Stocks
 - b) Bonds
 - c) CDs
 - d) Money market accounts
 - e) Precious metals
 - f) Don't know
 - g) Prefer not to say
- 7) What is the main advantage that index funds have when compared to actively managed funds?
 - a) Index funds are generally less risky in the short term
 - b) Index funds generally have lower fees and expenses
 - c) Index funds are generally less likely to decline in value
 - d) Don't know
 - e) Prefer not to say
- 8) Which of the following best explains why many municipal bonds pay lower yields than other government bonds?
 - a) Municipal bonds are lower risk
 - b) There is a greater demand for municipal bonds
 - c) Municipal bonds can be tax-free
 - d) Don't know
 - e) Prefer not to say
- 9) You invest \$500 to buy \$1,000 worth of stock on margin. The value of the stock drops by 50%. You sell it. Approximately how much of your original \$500 investment are you left with in the end?
 - a) \$500
 - b) \$250
 - c) \$0
 - d) Don't know
 - e) Prefer not to say
- 10) Which is the best definition of "selling short?"
 - a) Selling shares of a stock shortly after buying it
 - b) Selling shares of a stock before it has reached its peak
 - c) Selling shares of a stock at a loss
 - d) Selling borrowed shares of a stock
 - e) Don't know
 - f) Prefer not to say

SAFETY PAY\$: THE OIL INDUSTRY AND THE TRAGIC ODESSA, TEXAS SHOOTING

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ABSTRACT: Odessa, Texas experienced a tragic mass shooting on August 31, 2019 and the shooter was an oilfield services employee who had just been fired. The purpose of this research is to simply share some of the experiences to let others learn from the lessons associated with this tragedy. It is important to think about the possibilities and to try to prevent these work-related tragedies from also expanding to the general public.

Key words: Workplace safety, Oil Industry, Active Shooting Prevention

INTRODUCTION

The Permian Basin region of Texas produces significant amounts of oil and is considered a great asset to the United States. However, this region was tragically affected recently because an oilfield services employee became an active shooter immediately after he was fired. The most tragic aspect of this case was that he spent almost an hour shooting innocent members of the Odessa, Texas community and none of these people even worked for the company. While no one knows for sure whether this tragedy could have been prevented, the purpose of this research is to provide some lessons learned by the experience.

LITERATURE REVIEW

Hart and Heybrook (2017) provided a broad working definition of workplace violence as “any type of violence that involves a company employee and often is in the form of acts and threats of physical violence, harassment, intimidation, bullying and other disruptive behaviors.” LaDuke (2019) describes the different types of workplace violence. Anyone who is murdered in the workplace is by definition a victim of workplace violence. The major types of workplace violence are robbery, being attacked while providing services as a employee, mass shootings, violence by a coworker, and violence by a family member or domestic partner.

Hamilton (2014) asserted that active shooter incidents were finally being reported around the world and they are the most disturbing type of workplace violence problem. The availability of guns, especially when the Assault Weapons Ban expired in 2005, increased both the frequency of violent incidents, as well as the number of victims killed and injured in each incident. One of the keys to understanding the increase in incidents in the US was that a crucial Assault Weapons Ban expired in 2005, allowing access to assault weapon purchases.

Sullivan (2004) conducted preventative workplace violence research after surging financial scandals and conflict in the workplace resulted in tragic deaths. She identified characteristics of a risky work environment, provided loss of life examples in corporate America, and offered suggestions for creating a less risky workplace with a step-by-step approach. While many of the suggestions have been implemented in many corporations, the workplace violence incidences continued to increase. Walter (2013) described how domestic violence can escalate into workplace violence and offers practical steps to be prepared and to establish policies with prevention in mind. Bentley et al (2013) provided an international perspective for workplace violence research and broadened the scope to include both threats of violence and psychological aggression. The physical, emotional, and economic costs of workplace violence motivate managers to develop preventive measures. Their finding was that workplace violence is a psychosocial hazard which all organizations must manage through appropriate intervention targeting those areas of risk most relevant.

Greenberg and Barling (1999) studied workplace aggression and even created a model concerning the prediction of employee aggression against supervisors. They found that, after controlling for the effects of demographic variables, aggression against a coworker was positively significantly predicted by both personal behaviors (amount of alcohol consumed and history of aggression), but not by the workplace factors. However, job security and procedural justice interacted with the amount of alcohol consumed in predicting both aggression against a coworker and aggression against a subordinate. These findings were helpful in terms of finding a starting point for prevention of employee aggression.

Stephenson-Laws (2018) found that job-related physical and mental health issues that can most trigger workplace violence are stress, anxiety, depression. According to the American Psychological Association (APA), work-related stress can contribute to workload aggression. Many people often resort to unhealthy coping mechanisms like heavy drinking to deal with this stress.

One IOMA Safety Director's report (2003) found troubling results based on a comprehensive survey of employees:

- 42% of workers report an increase in complaints among coworkers. Only 9% have seen a decrease.
- 20% report a rise in the number of arguments between coworkers. Only 9% said there has been a decline.
- 24% report an increase in rudeness. Only 11% said rudeness is decreasing.
- 33% report an increase in gossip. Only 5% say gossip is decreasing.
- 27% said morale is lower than it was a year ago. Only 17% said it has improved.
- 29% report an increase in anger. 24% of workers admitted to feeling angry at work; 8% said they feel "quite" or "extremely" angry
- Despite rising stress levels in the workplace, 67% of workers said their boss is not giving the issue additional attention.

Wood et al (2013) also described how discrimination can increase the likelihood of workplace aggression and this issue is very important considering all

of the social justice movements and the public violence activities currently taking place in the United States. Thatcher (2013) actually discussed how personal freedoms have suffered since the most significant workplace violence tragedy – September 11th. Additionally, the study found that even the cost of living has gone up because the cost of doing business and the cost of regulations have taken their tolls. While there was no discrimination with the tragedy in this research, the concepts of public violence and terrorism are relevant because of how the initial workplace firing activity escalated into a public violence and even a local terrorism tragedy for the people in Odessa, Texas.

THE TRAGIC ODESSA SHOOTING

There were early warning signs with Seth Ator and his lifestyle as well as work-related activities. He had failed a criminal background check to qualify for gun purchases so it is questionable whether he should have even been working for his oilfield services company. In spite of failing the criminal background, he was able to purchase guns because of a loophole in the gun sales laws. Another early warning sign involved a neighbor calling the sheriff's department because he was shooting animals with his rifle in the middle of the night. Since this was technically not a violation of the law, the sheriff's department did not respond to Seth Ator's neighbor's complaints.

August 31, 2019 was a beautiful Saturday and the beginning of the Labor Day Holiday weekend. Yet, Seth Ator was "acting crazy" and screaming at his oilfield services company boss this day. He was making statements about the other workers and dispatchers tracking his whereabouts without his consent. His boss, Angel Madrid, fired Seth Ator because of contactors' complaints this day and the workplace aggression problem began. Mr. Madrid would not let Mr. Ator leave until he turned in his keys and the gate receiver equipment.

Mr. Angel Madrid fired Seth Ator, but would not let him leave until he turned in his gate receiver equipment. In response, Mr. Ator called 911 to complain about being kidnapped and then Ator broke through the company gates with his car. Mr. Madrid then called 911 and a police officer arrived to survey the damage and started processing a criminal report associated with just the property damage. Mr. Ator called 911 again to explain that he had to break out through the gates to escape. Dispatch put him on hold so Mr. Ator would hang up and call 911 again – he even demanded to speak to the FBI. As Mr. Ator was continuously acting very irate to the Dispatch, one Odessa officer asked the Dispatch to "patch" him through to Seth Ator's phone and they were able to transfer him to the officer's phone. This officer tried to deescalate the situation, but Mr. Ator did not trust him and talked about how a conspiracy caused his sister to commit suicide back in 2015.

Strangely enough, the Odessa Police Department had already been contacted by the FBI earlier because the FBI had identified a video of a person singing a song that described driving around and killing people. In the video, the author posted #odessacheck as a possible clue to his location. In this conversation with the Odessa police officer, he mentioned something about an internet address

number, yet the officer had no idea what he was talking about so Mr. Ator hung up. Somehow the link between the FBI concerns and this conversation was not made so the problem continued.

Mr. Ator first went back to his job site, but law enforcement officials there caused him to divert his path. Instead, he drove out to Interstate 20 and shot multiple people driving on the highway. A DPS trooper, unaware of the danger taking place, pulled his car over for erratic driving and was shot by Mr. Ator. After shooting people who were driving on the Interstate as well as the DPS trooper, Seth Ator exited the highway and continued into the city of Odessa. He next killed a US Postal Worker who was simply delivering mail in the neighborhood and then two young men ran out of their home to see who was firing a gun in their neighborhood. He shot and killed both of these young men too. At this point, he made a very unusual action that allowed him to continue his shooting spree – Seth Ator took the US Postal Worker’s van so he was now in a vehicle that no one would not suspect an active shooter to be in an US Mail van. Mr. Ator continued driving through Odessa shooting people at stop lights and in public places. A teenage girl was killed as she shopped with her family at a car dealership. Another father and husband was killed at a stoplight as he was driving his family to take a family portrait.

Mr. Ator was finally stopped and killed before he was able to launch an active shooter attack on the local Cinergy Theatre through the heroic efforts of police officers that were going well beyond the “call of duty”. One officer was one the UT Permian Basin police officers and another Midland, Texas police officer also assisted in protecting many people who were enjoying their day with the entertainment activities at this theatre. Odessa police officers as well as these officers were able to ram the US Mail van and engaged in a gunfight that ended Mr. Ator’s life. The Midland police officer lost an eye in the gunfight and some other officers were slightly injured, yet no one at the theatre was hurt or killed.

The end result of this escalated workplace violence was that 8 people died (including the active shooter) – the youngest person was 15 and the oldest person was 57. More than 25 other people were injured in the shootings, including a 17-month-old child. A DPS trooper was one of the injured people.

LESSONS LEARNED

There are many lessons to be learned from this tragedy. Whenever a person is being fired, it is important to pay attention to the physical signs of reaction. Siniard (2016) provides some physical signs that a person may be becoming violent as follows:

- Flushed or pale face
- Sweating
- Pacing, restless, or repetitive movements
- Trembling or shaking
- Clenched jaws or fists
- Exaggerated or violent gestures

- Loud talking or chanting
- Shallow, rapid breathing
- Scowling, sneering or use of abusive language
- Glaring or avoiding eye contact
- Violating your personal space, standing too close

Simply paying more attention to Mr. Ator's behavior and changes taking place with the early warning signs may have prevented this Odessa tragedy.

Hart and Heybrock (2017) provided some excellent components for a Violence Prevention Plan that focused on being proactive as well as supported by top management and understood by all employees. They assert that the policy should clearly send the message that the organization has zero tolerance for any type of workplace violence. Organizations should consider violence prevention plans as an investment in human capital rather than an expense. These plans enable employers to better address a possible threat of violence in its infancy, potentially saving employees from harm, injury and/or death. It also mitigates the cost of a violent incident-including medical bills, lost workdays and even litigation.

Key features of a best-in-class written violence protection policy that:

- Provides a concise definition of workplace violence, including examples of unacceptable behaviors, actions and working conditions
- Accurately describes the consequences of making threats or committing violent acts
- Encourages reporting of all violent incidents and clearly outlines the reporting process
- Provides access to a confidential ethics and compliance program
- States the confidential process of the plan and ensures that employees will not suffer any repercussions for making a report
- Outlines the company's commitment to provide resources to victims of violence
- Lays out the framework for researching and resolving complaints.
- An assessment of existing security measures and a commitment to implement new procedures and policies for increasing the safety of all employees that may include:
 - Security guard and/or staff, especially with layoffs or firing activities
 - An integrated safety and human resources structure
 - Guests sign in on arrival
 - Employee identification protocol; key card or badge system.
 - Posting of applicable safety laws and policies

The Department of Labor has discovered several traits and warning signs of an employee who may be at higher risk for violent behavior, such as:

- Change in temperament (irritable, impatient and/or negative attitude)
- Mood swings and/or emotional outbursts
- Change in work performance (missing deadlines, lower quality of work, atypically disorganized)

- Withdrawn, absent-minded or preoccupied
- Tardiness and/or absenteeism
- Lack of interest in projects/activities the employee normally had taken pleasure in
- Change in weight/personal hygiene.

One way to prevent or limit workplace violence is to build a culture of psychological health for each employee within the organization. This includes support for employees' physical, emotional, and financial health. Perhaps addressing complaints before the firing process would have helped mitigate the overall scene taking place at the oilfield services company.

IOMA Safety Director's Report (2003) also provides some broader-based suggestions as follows: Collect internal data. Whenever you have an incident, the violence prevention team should learn about it and there needs to be a central place so that repeated episodes can be detected.

- Find partners. Safety directors who work in an environment where workplace violence prevention is not a priority should seek partners-among human resources personnel and legal counsel-to bolster their case.
- Collect national and local data. Use dollar figures and incident data to educate management on the cost of workplace violence versus the cost of prevention programs.
- Collect liability "horror" stories. These are really 'reality' stories and collecting figures from cases involving companies in your region and industry is helpful in terms of preventing litigation settlements.
- Educate management on the costs associated with "minor" incidents. Companies can suffer financially from workplace aggression-even without a tragic fatality. Threats, harassment, bullying, and stress are expensive, too. If a company has two people quit because of a negative work environment, the replacement costs are more than the cost of a comprehensive prevention program
- While a violent workplace incident can result in large legal bills or a jury award, but minor workplace aggression issues (harassment, bullying, threats, intimidation, hostility) can have large costs with:
 - Decreased employee morale
 - Productivity declines, wasted time
 - Increased absenteeism
 - Increased stress
 - Increased turnover: hiring and training costs
 - Lost sales
 - Management distraction
 - Workers' compensation and medical claims

- Severance costs
- Sabotage, damage, and theft

Stell (2009) describes a relatively new workplace security plan that involves the West Texas, but was actually conceived in South Texas by oil and gas operators along with OSHA. It is called STEPS and the acronym is based on service, transmission, and exploration and production safety. STEPS is gaining popularity nationwide, and especially in the Permian Basin, to encourage corporate use of safety scorecards. The purpose of STEPS was to create a regional network of oil and gas operators in order to share lessons learned from previous adverse events. While many of the topics addressed involve chemical issues, fall protection, and weather-related problems, a system to mitigate workplace violence was recently brought to a meeting. This may have been the result of the Odessa shooting tragedy. Additionally, efforts are being made to create alerts for the public (similar to Amber alerts) for active shooter situations in Texas and this technology improvement for the public would benefit everyone in Odessa.

CONCLUDING REMARKS

A nice Labor Day holiday for most people in Odessa, Texas turned into an active shooter tragedy after the shooter was fired from his oilfield services company. While these tragedies may not be totally prevented, lessons learned from this research can perhaps mitigate the problems associated with workplace violence and generally protect innocent communities better. By promoting enhanced employee wellness, taking significant steps to make the workplaces safer, and even documenting incidences for better knowledge, workplace violence and loss of operating efficiency even without actual violence will be addressed by oilfield services companies. Will these activities require additional investment of time and money? Yes. Can the investments be justified? Yes, the life that may be saved could be your life!

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THE ILLUSION OF EMPLOYEE PRIVACY

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ABSTRACT

Although the rise of social media has been a positive force for advertising and marketing executives, it has forced human resources professionals and employers to alter the way they monitor their employees' interactions with each other and the public. Specifically, corporations have had to create social media policies for their employees in order to avoid the specter of corporate liability for their employees' social media footprints. This paper analyzes various private-sector corporate social media policies and the lawsuits those policies have spawned, owing largely to employees' erroneous beliefs that their rights to freedom of speech and privacy have been infringed. It is clear that today's workforce is unaware of what these rights mean and how they apply (or do not apply, as the case may be) in the workplace. It is imperative that all employees, whether entry-level or corporate management, understand to what extent their employers' social media policies give the employers the right to monitor when, how, and with whom they interact—on company time, when using company devices, and on personal time, when using personal devices.

Key Words: *First Amendment, Employee Privacy, Employee Devices, Employee Employment Policies,*

LIMITATIONS TO THE FIRST AMENDMENT

To understand the extent of an employee's freedom of speech and privacy in the workplace, it is important to debunk common misconceptions. Typically, the most disputed issue concerning freedoms in the workplace centers around political and social thought. In 1891, Oliver Wendell Holmes, Jr. stated, "An employee may have a constitutional right to talk politics, but he has no constitutional right to be employed." (Novack). Most Americans assume that the First Amendment applies to every citizen in every situation in its entirety. That is, however, simply not the case, particularly within the private-sector. According to FindLaw, "employees who work in the private-sector do not, as a rule, have First Amendment protection for their speech in the workplace" (Sutherland), but there are anti-discrimination laws, such as Title VII, state discrimination laws and whistleblower laws that "provide a level of protection for certain types of expression in the workplace."

(Kim). However, these laws do not provide employees with the freedom to openly express their views on politics and social movements. Anti-discrimination laws, like those previously mentioned, are primarily focused on allowing employees protection from religious and ethnic oppression. Currently, there are no laws or policies that protect employees from being fired, demoted, or oppressed in any other way by their employer for voicing their political beliefs.

As political and social unrest have continued to grow nationally, so have the amount of cases in which employees have been fired from their jobs for having political opinions which were opposed to the opinions of their employers. Lewis Maltby's book, *Can They Do That?*, provides several examples of how political and social progression within the workplace have intensified within the twenty-first century:

“When [Lynne Gobbell's] employer, a vocal Bush supporter, fired her from her insulation-packing job because he disapproved of the John Kerry bumper sticker on her car. Similarly, Michael Italie lost his job as a machine operator because he appeared on a local radio program in which he discussed his socialist views and his wildly impractical bid for Miami mayor on the Socialist Workers Party ticket. Even more bizarrely, Tim Torkildson, an instructor at an English-language school, lost his job in 2014 when his boss mistakenly concluded that a blog post he wrote to explain homophones (words that sound alike but are spelled differently) would associate the school with ‘the gay agenda’” (Maltby).

Although not all cases are as extreme, these cases are indicative of the power many employers possess to terminate employees for expressing opinions on political issues.

Although these terminations may be distasteful, under the current state of the law, the employers' actions are not illegal. The harsh reality is that at-will employees may be terminated for anything they say or do, as well as things they fail to say or do when requested to affirmatively speak or act, as long as the termination is not made with discriminatory animus.

When an employee's speech begins to affect a company's image or morale among employees, employers often will not hesitate to intervene. When at-will employees are involved, an employer's only duty to them is to ensure that they are not discriminating based upon race, religion, gender, color, or national origin. As long as an employer is not violating these prohibitions found in Title VII, courts have largely failed to intervene on behalf of the terminated employees. Thus, employers have found the courts to be generally supportive of their right to terminate at-will employees, leaving the employees with no recourse in the eyes of the Equal Employment Opportunity Commission, based on non-discriminatory claims.

THE VIEWPOINT OF THE COURT

When examining cases of employees suing for infringement of personal freedoms and privacy, the first thing the court will do is “look to company policies, procedures, and conduct” to see if the employee was made aware of “the employer’s policies regarding the use of any technological medium” (“What Are the Limits of Employee Privacy?”). If the employee had actual knowledge of the policy, usually demonstrated by signing an acknowledgement that the policy has been received and/or reviewed, then the employer generally cannot be liable for following its policy. Because social media in the workplace is such a new and evolving issue, “courts have been reluctant to adopt wholesale a new framework for analyzing employee privacy as it relates to developing technology, fearing that too much elaboration could lead to unpredictable future implications.” (“What Are the Limits of Employee Privacy?”). Since courts are loathe to enunciate new standards for protecting employees’ privacy in the workplace, they instead rely heavily on old common-law principles of privacy, in addition to the employer’s technology usage policies. By utilizing these two sources of information, the courts have fashioned a framework that allows the employer to prevail more frequently than the terminated employees. If the employer has clearly outlined their expectations and policies regarding the use of technology and has “comple[d] with the notice and consent requirements under [federal and state] laws” (Gross), the employee is responsible for understanding and adhering to said policies. Additionally, courts have advised that “employees need to be aware of the need to separate work and personal e-mails, as well as other forms of technology,” (“What Are the Limits of Employee Privacy?”) so that they do not give an employer the reason to more closely monitor their communications via technology.

THE EXTENT OF EMPLOYEE PRIVACY VIA DEVICES

It is imperative that employers know the limitations applicable when monitoring their employees’ technology usage. The federal Electronic Communications Privacy Act of 1986 (ECPA), 18 U.S.C. §§ 2510-2523, protects wire, oral, and electronic communications while those communications are being made, are in transit, and when they are stored electronically. Although the ECPA allows companies to monitor employee emails when there is a need to protect the business or when an employee has given consent to do so, it does not allow for an invasion of privacy that goes beyond the employee’s scope of employment. As a general rule, “any activities outside of work are off limits to an employer” (Hartline); however, while that may be the case, many states do not prohibit employers from gathering information on employees when they are off the clock. There are only two states, Connecticut and Delaware, that require employers to notify employees that their e-mail is being monitored. (Midwest New Media). Stated differently, the monitoring of employees’ technology usage is legal in every state, with only Connecticut and Delaware requiring prior notice to the employee. However, it is

generally illegal for employers to intercept private e-mail communications or use employees' personal accounts and passwords to access e-mail accounts or social media sites. Employers are limited to intervening only when there is a serious concern regarding workplace safety, whether that be of a violent or sexual nature, or a significant loss of productivity among employees. Outside of those two reasons, employers do not have a significant need or ability to monitor or control employees' technology usage in the workplace.

Unfortunately, many employees are not aware of their employer's right to monitor their usage of devices that are issued to them by the company or their usage of their own devices while connected to the company's wireless network. Generally, it is understood and accepted among courts that employees do "not have a reasonable expectation of privacy when using a device owned and issued by the employer. Therefore, employers that provide [employees] with a computer system and Internet access are free to monitor almost everything that [employees] do with the computer and Internet access with which [they] have been provided." (Midwest New Media). The law is clear that an employer can view every Internet search, e-mail, instant message, or document that you save, download or share on a company-issued device or while using the company wireless network with any device. Further, the law is clear that this electronic monitoring does not constitute an invasion of the employees' privacy. For example, in one court case, "the court ruled that even though the employer told its employees that their e-mail communications would not be intercepted, and that the employees would not be reprimanded or terminated based on the contents of their e-mails, the terminated employee could not assert that his reliance on these employer promises should prevent his termination by the employer." (Midwest New Media).

The monitoring of employees' technological communications is not just limited to their company- issued laptop, cellphone, personal data assistant, or tablet. Employees are essentially "inviting the employer into those more private repositories of information" (Bellis) that their personal devices hold by sending texts, e-mails, web links, or photos from their smart phone, personal tablet, or laptop, even if done for work purposes. Many employers have begun to add 'Bring Your Own Device' policies to their employee handbook and contracts to prevent liability on their part when employees are using their personal devices to conduct business. These policies enacted by employers are designed to safeguard sensitive information and reduce the risk of legal liability. (Bellis). The policies outline all aspects of the employer's ability to access information on an employee's personal device, detail the employee's responsibilities with regard to the upkeep and security of the device, ownership of confidential business information stored on the device, and what happens to the information on their personal device when the employee leaves the company. Generally, there are two common reasons that might spur a company to scroll through their employees' photos or look through an employee's emails: the first is when an employer is subject to a lawsuit in which the employee could be a witness, and the second is when the employee and the

employer find themselves at odds with each other. (Bellis). Outside of these two reasons, it seems to be rare that an employer would feel the need to go through an employee's device; however, it is still imperative that companies create and implement BYOD, or Bring Your Own Device, policies to prevent vicarious liability on the employer's part.

BRING YOUR OWN DEVICE GUIDELINES AND STANDARDS

While there is not a 'standard' for BYOD policies in the workplace, these policies are drafted to deal with similar issues. First and foremost, the purpose of these policies is to prevent liability for employers. According to Fast Company's article, *The Privacy Issues You Should (And Shouldn't) Worry About With BYOD*, most employers are sure to include policies that will take into consideration their need to protect their business while balancing it "with employee privacy" (Bellis). While these policies vary from company to company, they often contain similar elements. Typically, the main focus of these policies is to protect the company while allowing the employees to understand their rights within the workplace. According to Fast Company, an employer to do within bounds of a BYOD policy may specify that they may:

- Lock, disable and data wipe – the employer may have retained the right to remotely lock or disable the employee's personal device or delete any and all data contained on the phone;
- Access the device;
- Access phone records or contacts;
- Access social media or other account username and passwords;
- Monitor GPS and location information;
- View Web browsing history;
- View pictures, video, or other media;
- View personal emails;
- View chat and messaging histories; and/or
- Limit the use of cloud services. (Bellis).

As long as an employer is maintaining a balance between protecting the company from liability and clearly disclosing the boundaries of their BYOD policies, courts have largely not interceded on the employee's behalf.

One company that has appeared to have success with BYOD policies is the popular tech company Intel. They were one of the early adopters of the BYOD policy movement and have found it to be well received by employees and overall, a successful endeavor. IT Tool Box outlines how exactly Intel has been able to find such success with Bring Your Own Device Policies:

"One of the major issues surrounding any BYOD policy is the general lack of trust between workers and management, especially when management has the potential to access personal data on employee devices. Many employees aren't even aware of just how much information management

can see on a typical device. To combat this issue, Intel has established clear communications with their employees, telling them exactly what information can and can't be seen when administrators manage personal devices. Intel is quick to answer any questions employees have regarding BYOD, ensuring workers have all the information they need. The company also allows employees to choose what level of access they receive, with each tier accompanied by different levels of security. All of these practices keep employees in the loop and aware of how Intel's BYOD policy affects them." (Gimmeson).

By being upfront with employees about how and to what extent their devices are being monitored, Intel has found that the employees are more receptive of the new policies. By outlining expectations and guidelines, Intel opens dialogue with their employees and establishes trust between both parties.

EMPLOYEE PRIVACY AND SOCIAL MEDIA

Another privacy issue that employees and employers struggle to agree upon is social media. In the past, employers did often concern themselves with monitoring their employees' actions during their off time; however, with the advent of social media, it is now wise for companies to do so. Social media allows for the nearly instantaneous spread of information across the world, making employees' statements and opinions, even when posted on their personal pages and even if posted during personal time, of interest to employers.

Even though freedom of speech exists, it is extremely limited within the private-sector workplace, and this carries into an employee's use of their private social media. As an employer, anything that an employee posts on social media could be viewed as a reflection of the company and the company's values. Thus, "an employer can fire [an employee] for having a personal website or blog that it deems inappropriate, with very [few] exceptions... if they feel the content on [the employee's] personal site or blog is offensive to them or to potential clients, or reflects badly on the company." (Midwest New Media). An employer's right to monitor their employees' social media usage outside of the workplace is largely governed by state law, which is currently not consistent between the states. For example, Workplace Fairness's article, *Social Networking & Computer Privacy*, outlines the different laws that govern several states' employee privacy policies:

"California, Colorado, Connecticut, Illinois, Minnesota, Nevada, New York, North Dakota, and Tennessee all have laws that prohibit employers from firing an employee for engaging in lawful conduct, or for using lawful products (ex: cigarettes) during off-duty hours. However, courts in these states will weigh the employee protections against an employer's business interests, and typically rule that those interests outweigh employee privacy concerns and permit the employer to be exempt from the law. Some laws provide explicit exemptions for employers: in Colorado, employers are exempt if an employee's off-work activities

relate[s] to a bona fide occupational requirement, or is reasonably and rationally related to their work activities.

Some state laws regarding personnel records may protect an employee's off-duty Internet activities. For example, in Michigan and Illinois employers cannot gather or keep information of an employee's communications or non-employment activities, without the employee consent. However, exceptions exist in both states that allow employers to keep records of an employee's criminal activity, activity on the employer's property, or activity on the employer's time which may cause damage to the employer's business. Outside of these exceptions, employers may be liable for violating these laws or retaliating against an employee on the basis of improperly gathered information" (Midwest New Media).

Because employee privacy laws can vary from state to state it is imperative that employers (and employees) are up to date on these laws. It is also important for large businesses who have employees in more than one state to recognize that the laws which apply to their employees may vary since their employees are located in different states.

Although employers cannot always fire employees based upon posts on their personal websites and social media pages, employers can continually gather that information without infringing on the employees' privacy rights. Again, the laws that govern employer's actions with regard to their employees' off duty activities vary from state to state. Typically, "any activities outside of work are off limits to an employer. While some state constitutions prevent employers from looking into employees' off-hour lifestyles, others do not stop the gathering of information, but prohibit it from being used against staff members at the office." (Hartline). While these activities outside of the workplace are not supposed to affect employees within the office, they inevitably do. Whether it be an employee who is overlooked for a promotion or laid off, as long as it cannot be proven that the employment decision was based upon their off duty activities, these actions may be considered; however, there are some guidelines that employers should consider when doing so:

"Although an employer might be able to legally fire you for your content on social networking and social media websites, the National Labor Relations Board (NLRB) has stated that, under Section 7 of the National Labor Relations Act (NLRA), workers' social networking and social media usage can be protected if it is "concerted activity" for the purpose of collective bargaining, mutual aid or protection. Thus, protesting about working conditions might be protected, while complaining about a boss might not be. If an employer's social networking policies are broad and vague, that works against the employer during Section 7 considerations done by courts.

An employer may be violating federal law if they access Facebook posts of an employee, when the employee intended the posts to remain private

by adjusting the privacy settings to limit access only to the employee's Facebook friends, the employer is not a Facebook friend of the employee, and they access the posts without authorization, or intentionally exceeds authorization. In *Ehling v. Monmouth-Ocean Hosp. Serv. Corp.*, 961 F. Supp.2d 659 (D. N.J. 2013), a co-worker of a registered nurse took screenshots of the nurse's Facebook wall posts, and sent them to a hospital manager. The court ruled that Facebook wall posts are electronic communications, transmitted by an electronic communication service, placed in electronic storage, and can be deemed private if the Facebook user set her privacy settings to limit access to information on the user's Facebook profile. However, because the co-worker who provided the screenshots to the manager was a Facebook friend of the nurse, an exception to the Stored Communications Act applied, meaning the hospital for which the manager worked was not liable for any wrongdoing under the Act." (Midwest New Media).

Employers must carefully navigate the few privacy limitations that protect employees. Generally, employers should not pursue extreme policies of monitoring their employees unless there is a reason to believe that the employee is violating the policy or damaging the company.

CONCLUSION

Although employees may feel that their electronic communications are covered by the First Amendment, that impression does not accurately reflect the law. Employers have the right to monitor employees' own devices as well as the networks that the employers own and operate. Employees should assume, unless told otherwise, that technology usage is being monitored by their employer. It is imperative that employees fully understand the extent to which their employer can monitor their electronic communications and safeguard what little privacy rights remain in the employment context. Likewise, employers must know their limitations and enact policies that will protect the company from liability.

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INVESTOR DISTRACTION AND INFORMATION OVERLOAD: EVIDENCE TO HELP MANAGERS STRATEGICALLY TIME EARNINGS ANNOUNCEMENTS

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ABSTRACT

The objective of this study is to assist managers who wish to strategically time their earnings announcements to receive more or less attention in the stock market. We first review prior literature on investor distraction/inattention, and conclude that the primary source of investor distraction is information overload. Our study next analyzes patterns in the number of earnings announcements over various time intervals. We find, for example, that a large majority of companies announce earnings outside of trading hours, and that a plurality do so in the first 30 minutes after the market closes. Thus, managers who want to *maximize* investor attention should consider announcing their earnings during the trading day, while managers who want to *minimize* investor attention should consider doing so immediately after the market closes. We furthermore document that a plurality of companies announce earnings on Thursdays, and that in calendar quarters 2, 3 and 4, a large majority of firms announce earnings during weeks 4 through 6.

Key Words: Earnings Announcements, Strategic Timing, Investor Distraction and Information Overload

INTRODUCTION

Earnings announcements are the primary source of information on the financial performance of publicly traded companies. They are widely anticipated by investors and analysts and are a signal of a company's future

prospects. When the announced earnings differ from market expectations, the company's stock price (often) changes accordingly. However, prior research has found that, depending on a number of different factors, the market frequently overreacts (e.g., Bathke, Mason and Morton, 2016) or, more commonly, underreacts to earnings news (e.g., Ball and Brown, 1968; Bernard and Thomas, 1989). One of the most important of these factors is investor distraction. In an influential paper, Hirshleifer, Lim and Teoh (2009) document that due to limited attention, investors underreact to earnings news on days when there are a lot of earnings announcements. One critical piece of information for managers who want to strategically time their earnings announcement to receive more or less attention, therefore, is when other firms announce their earnings. The objective of this study is to assist managers in this regard by providing that information. Specifically, we document very significant, and highly predictable intertemporal variation in the number of earnings announcements. Most companies announce their earnings in the 30 minutes after the stock market closes, on Thursdays, and during weeks 4 through 6 of calendar quarters 2, 3 and 4. In calendar quarter 1, there is less clustering of earnings announcements by week.

MOTIVATION

Earnings Announcement Requirements

Every quarter, companies are required to file financial reports containing earnings information with the SEC; Form 10-Q after quarters 1, 2 and 3, and Form 10-K (i.e., the annual report) after quarter 4. Form 10-Q has to be filed within 40 days of the fiscal quarter end for firms with a public float of \$75 million or more, and within 45 days for smaller firms. Form 10-K has to be filed within 60 days of the fiscal year end for firms with a public float of \$700 million or more, within 75 days for those with a float between \$75 and \$700 million, and within 90 days for smaller firms. Generally speaking, however, companies announce their earnings in a press release before the corresponding filing with the SEC; and in most cases, actually, do so before the completion of the audit (e.g., Bhaskar, Shefchik, Hopkins and Schroeder, 2019). Within these parameters, the exact timing of the earnings announcement is entirely at the discretion of the company.

Strategic Timing of Earnings Announcements

Several studies, dating back to Patell and Wolfson (1982), document that earnings announced on Fridays and after the market closes, contain worse news than earnings announced at other times (see also Penman, 1987; and Damodaran, 1989). These studies argue, though do not investigate, that managers choose to announce “bad” earnings news at these times because investors pay less attention after hours and/or on Fridays. Two papers formally investigate this argument. First, DeHaan, Shevlin and Thornock (2015) document that companies vary the date and time of their earnings announcement, thus creating the opportunity to strategically do so without that being attention-grabbing in and of itself. In addition, they show that bad earnings news is indeed more frequently announced during “low-attention” times. Second, Michaely, Rubin and Vadrashko (2016) show that some companies with bad earnings news seem to opportunistically shift their earnings announcement to occur after the market closes on Fridays. In addition, they show that these announcements experience the greatest investor distraction. Other research confirms that managers strategize in the dissemination of earnings news. For example, Jung, Naughton, Tahoun and Wang (2018) show that firms use social media much more heavily in the dissemination of good news than bad news.

Investor Distraction

There are numerous studies in accounting and finance which document underreaction to information events (e.g., Bernard and Thomas, 1989; Ikenberry, Lakonishok and Vermaelen, 1995; and Dichev and Piotroski, 2001). In an effort to provide a unifying theory for these findings of underreaction, Hirshleifer et al. (2009) propose and test the so-called “investor distraction hypothesis.” This hypothesis argues that because investors are limited in the amount of attention they can pay to information, they get distracted at times of information overload, resulting in an underreaction to that information. They find, consistent with this hypothesis, that on days when there are many earnings announcements, the underreaction to earnings news is much larger than on other days.

DeHaan et al. (2015) analyze investor distraction around earnings announcements using four different measures of attention: the number of related news articles, Google search volume, analyst forecast revisions, and downloads of SEC filings. They confirm the findings in Hirshleifer et al. (2009) that attention paid to earnings news on days with many announcements is lower. In addition, they document that attention paid to earnings announcements after the market closes, is lower also. This is consistent with our finding that most companies announce their earnings after-hours. It is also consistent with Patell and Wolfson (1982), who argued that managers strategically announce bad earnings news at this time to attract less attention.

Besides information overload, there are several other sources of distraction. The most prominent one is the weekend. In a heavily-cited paper, DellaVigna and Pollet (2009) document that the market underreacts to earnings announcements made on Fridays. Michaely et al. (2016), however, show this is limited to only those announcements made after the market closes. Similarly, underreaction has been shown around religious Holidays (e.g., Pantzalis and Ucar, 2014) and during World Cup soccer games (e.g., Ehrmann and Jansen, 2017).

These other sources of distraction notwithstanding, during a “regular” trading week, investor distraction is driven by information overload. Earnings announcements in particular receive a lot of attention in the financial press; more than any other type of corporate news event (e.g., Engelberg, Reed and Ringgenberg, 2012). Moreover, while other corporate news arrives mostly at random, earning news arrives in clusters. It is for this reason, also, that Hirshleifer et al. (2009) used the daily number of earnings announcements as a proxy for information arrival in the market. And it is for this reason that in this study we investigate and document intertemporal variation in the number of earnings announcements, to assist managers in assessing when the market is more and less likely to experience information overload.

DATA

We obtain earnings announcement dates, and the exact time of the announcement, from the Institutional Broker's Estimate System (IBES). We identify the 30-minute time period during which the announcement is made, the weekday, and the week of the year. We define the first week of the year as the 7-day period starting on January 1—not on the first Sunday of the year, as is conventional—to maintain consistency across the years. We obtain all 77,781 quarterly earnings announcements from IBES during the last five years, from 2014-2018.

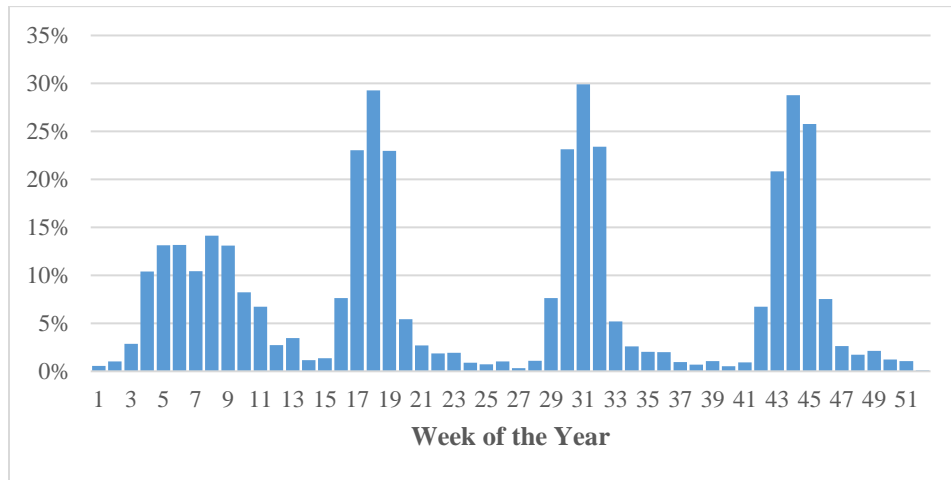
RESULTS

We document variation in the number of earnings announcements on a weekly, daily, and intra-daily (i.e., 30 minute) basis. We limit our sample to the most recent five years because the clustering that we document over this time period is nearly constant from year to year, and thus is likely to be most informative for future years.

Earnings Announcements by Week During the Year

Figure 1 below shows the percent of quarterly earnings announcements by week during the year. Note, first of all, the four peaks. These peaks correspond to the so-called quarterly earnings seasons, during which firms with a March 31, June 30, September 30, and December 31 fiscal year-end tend to announce their earnings. These peaks occur because of the SEC filing requirements, combined with the fact that a large majority of firms have a December 31 fiscal year-end. There is less clustering in the first calendar quarter because this is when December 31 fiscal year-end firms announce their annual earnings and (a) it takes longer to compile the annual earnings number, (b) it, unlike the quarterly earnings numbers, is required to be audited, and (c) as a result, the SEC filing requirements allow firms more time to file their 10-K, annual report.

Figure 1: Percent of Quarterly Earnings Announcements by Week

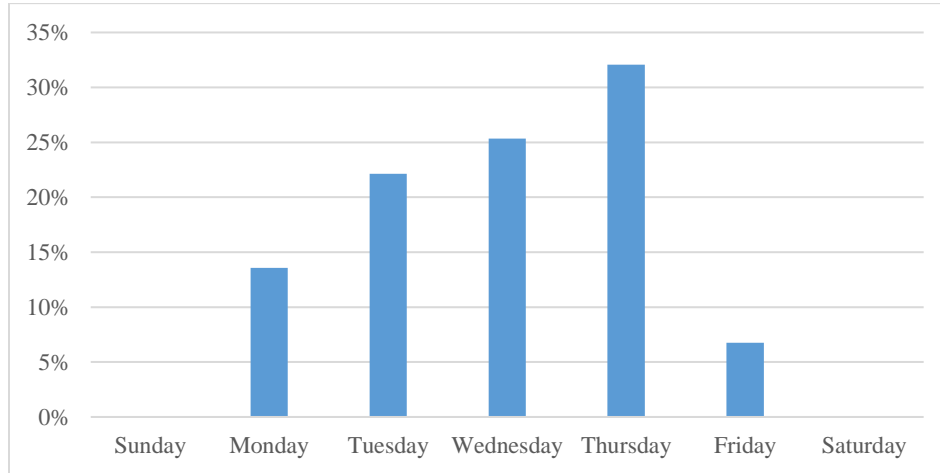


In calendar quarters 2, 3 and 4, the peaks are very distinct. More than 70% of publicly traded firms announce their earnings in weeks 4, 5 and 6 of those quarters. While many firms are probably not able to shift their earnings announcement more than a week or two, Figure 1 nonetheless shows that doing so can have very significant implications for how many “attention-competing” earnings announcements are made. In calendar quarter 1, this opportunity is much more limited since the distribution of announcements across the weeks is much more uniform.

Earnings Announcements by Day of the Week

Figure 2 shows the percent of weekly earnings announcements by day of the week. The pattern documented here is consistent across all weeks of the year. Not surprisingly, very few firms announce their earnings on the weekends (when the market is closed). On average, five firms each quarter announce their earnings in a press release on either a Saturday or Sunday, not enough for informative analysis. There are two other features of the pattern during the week that stand out. The first is that only 7% of weekly earnings announcements are made on Fridays. It thus appears that a manager who wants to maximize attention paid to their company’s earnings, should want to announce on this day of the week.

Figure 2: Percent of Weekly Earnings Announcements by Day

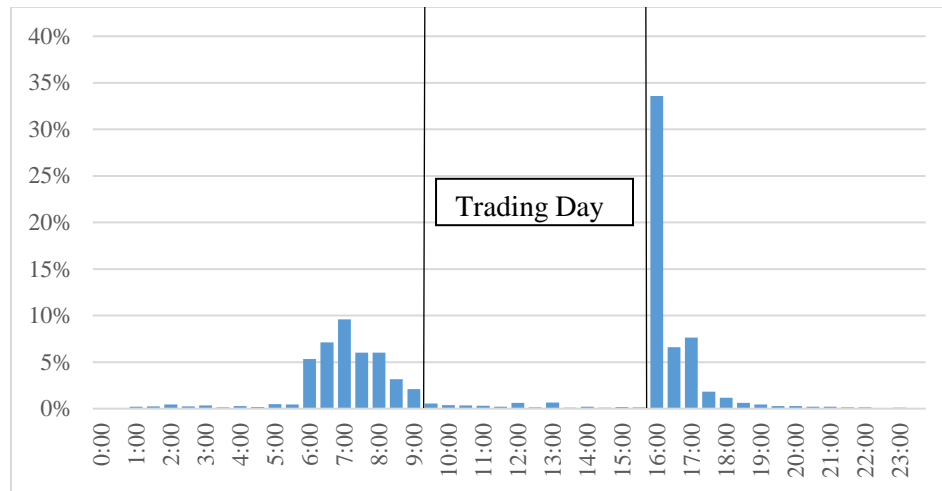


The second feature that stands out in Figure 2 is the steady increase in the number of earnings announcements made during the rest of the week, from about 14% on Mondays to more than 30% on Thursdays. It is not clear why more firms announce as the week progresses, but this very significant variation offers a clear choice for managers who want to announce their earnings on a day with either more or fewer competing earnings announcements.

Earnings Announcements by Time of Day

Finally, in Figures 3 and 4, we report the percent of daily number of earnings announcements made by time of day, in 30-minute intervals. We do so separately for Monday through Thursday (in Figure 3) and Friday (in Figure 4) because the intraday pattern is very different for the latter from the other days of the week.

Figure 3: Percent of Daily Earnings Announcements by Time of Day: Monday-Thursday



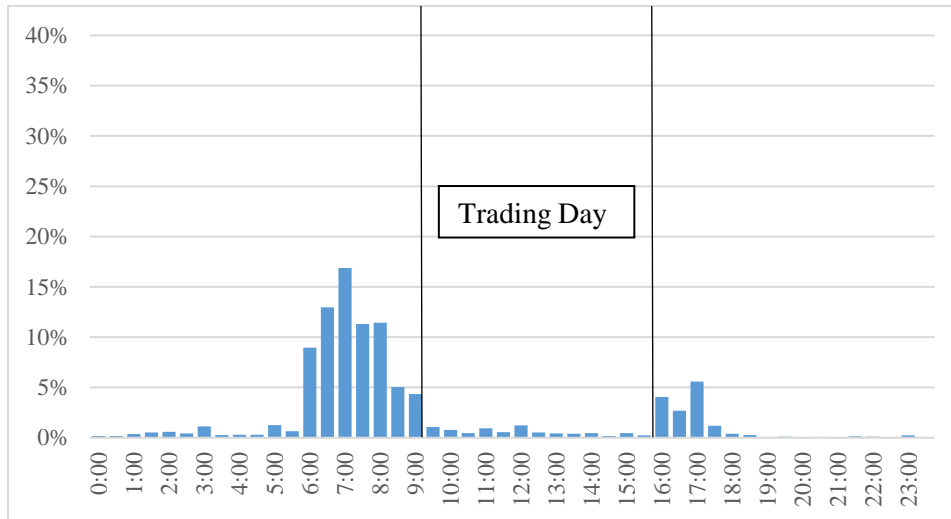
Perhaps the most noticeable part of the intraday pattern is the near absence of earnings announcements during trading hours. Figure 3 shows that, for firms that announce their earnings on Monday through Thursday, less than 4% of the 72,511 quarterly announcements occur during the trading day. Figure 4 shows that on Friday this is slightly higher, at near 8%. The practice of announcing earnings primarily outside of trading hours is a relatively recent phenomenon. In the year 2000, for example, more than 40% of firms announced during the trading day. Over our sample period of 2014-2018, the intraday pattern as represented in Figures 3 and 4 has been very stable. While there is no consensus as to why firms have moved their earnings announcements outside of trading hours, the commonly accepted explanation is that companies want investors to be able to process the earnings information without being able to trade on it right away, and thus avoid unnecessary volatility in response to their earnings news. That said, it is clear that a firm seeking maximum attention from investors, would face very few competing earnings announcements during the trading day.

The other noticeable part of the intraday pattern is that most companies release their earnings news either just before the market opens, or just after it closes; with the single busiest 30-minute period, by far, being the half hour following the market close (34%) on Monday through Thursday.

Consistent with distraction from information overload at this time, DeHaan et al. (2015) indeed show that earnings announcements made after hours receive less attention than those made at other times.

Figure 4 shows that the intraday pattern of earnings announcements on Friday is noticeably different from the other days of the week. Of the 5,257 Friday quarterly earnings announcements, a large majority (77%) of firms announce their earnings before the market opens, and only about 15% announce their earnings after it closes. Finally, both figures show that very few firms announce their earnings in the evening and overnight hours, between 6pm and 6am, on any day of the week. It is unlikely, however, that investors would be paying much attention to earnings announcements at this time. Moreover, by the time they likely would pay attention to them—that is, before the start of the next trading day—other firms are announcing their earnings in large numbers, thus competing for investor attention.

Figure 4: Percent of Daily Earnings Announcements by Time of Day on Friday



CONCLUSION

This study documents very significant variation in the number of earnings announcements by week, day of the week, and time of day. Because prior

research has shown that investors have limited attention and get distracted by information overload in processing information, these results are relevant to managers who want to strategically time their earnings announcements (or other corporate news releases) to receive more or less attention.

We document that most firms announce their earnings in weeks 4 through 6 during calendar quarters 2, 3 and 4. In calendar quarter 1, earnings announcements are less clustered, as a result of the wider SEC window to file annual reports. As for day of the week, the number of earnings announcements steadily increases during the week, to reach its peak on Thursday, after which it drops to the lowest number of announcements on Friday. Friday announcements made after the market closes, however, receive less attention due to distraction related to the upcoming weekend. Finally, there are very few earnings announcements made overnight and during the trading day. Most (i.e., more than 90%) of the announcements are made in the 3-4 hours before, and especially the 2 hours after the trading day. The single busiest half hour is between 4 and 4:30pm. Prior research (e.g., DeHaan et al., 2015) confirms that after-hours announcements receive less attention, consistent with information overload causing distraction. The results in this study, therefore, are useful to managers who want to assess when investors are most and least likely to experience information overload.

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DATA ANALYTICS AND SOCIAL MEDIA AS THE INNOVATIVE BUSINESS DECISION MODEL WITH NATURAL LANGUAGE PROCESSING

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ABSTRACT

Business Data Analytics is vital for both the effective methods of communicating data insights and the deployment of business recommendations. It is necessary for innovative data-driven concepts that use and are based on analytics to identify effective business strategies to increase efficiency, effectiveness and quality business decision making. Recent studies related to the business decision models found that artificial intelligence plays a significant role in this process. Previous studies on big data analytics with natural language programming have not examined the incorporation of these elements into the automated business decision model solution with the unstructured data mining. This research's principal objective is to investigate whether big data analytics and social media can significantly support the formation of the innovative automated business decision model in a real business situation. This study provides a novel approach to quantifying text from a questionnaire research instrument using the natural language algorithm for data insight business decisions. The concurrent mixed methods research presented here confirms that the natural language algorithm and the human domain knowledge interpretation can support the current public or private leadership to better understand the essential business decision as part of the modern behavioral prescriptive analytics. Therefore, this research study should be of value to practitioners that wish to improve their automated business data insight for business strategy decision.

Key Words: Financial Analysis, Innovation, Big Data, NLP Modeling, Business Decision,

INTRODUCTION

This concurrent mixed methods research study aims to explicitly elaborate social media analytics and business intelligence by leveraging a novel research approach

with the natural language processing algorithm (NLP) and the big data automated analytics analysis. The general problem is that leadership within industrial organizations does not understand the importance of designing the automated business decision model with big data analytics and social media for the essential business decision. The first and second parts of the study were conducted with the grounded theory research design, and the natural language processing algorithm respectively.

LITERATURE REVIEW

Big data and social media analytics great opportunity for decision making practices following the technological development through artificial intelligence and other similar predictive software or algorithmic practices (Balan & Rege, 2017; Gabel et al., 2019). While exploring during a state of economic uncertainty and market volatility we found that, the degree to which business decision making can benefit from aspects such as machine learning, artificial intelligence and the like could provide an understanding of the humanistic, theoretical and practical sides of innovative approaches (Liu et al., 2020; Righi et al., 2020). For example, the extent to which big data and social media information and data sets are understood as well as how these can inform decision making reflects multiple dimensions of understanding, comfortability and application (van Dieijen et al., 2020).

Utilizing artificial intelligence during decision making can readily relate to business leadership and management acumen around big data and social media analytics. This can further trust in the provisions of automation as well as the degree to which the business is set up to gather, clean and ensure in terms of making decisions the application decision making wise aligns with the strategy, mission and vision of the organization (Abdellaoui & Wakker, 2005). In recent startups, descriptive analytics are easy to follow in terms of decision making as they relate to overhead, revenue, asset amortization, liquidity among others (Bratasanu, 2017; Bryant, 2014). All of these data elements provide key financial indicators for the real time understanding of applications. However, this understanding or knowledge and information may not impel innovative practices, sustainable growth, or the ability to weather the volatility and uncertainty of the current market (Gabel et al., 2019; Liu et al., 2020). In the case of mortgage borrowers, Chiang and Tsai (2020) assert that automation or artificial intelligence methods or software execution can aid in future considerations for client bases, provide innovative solutions and help companies to be feasibly more perceptive.

Traditional decision-making models such as in finance or marketing may be considered obsolete or render managers and leaders alike in that they to

comprehend the vastness of information or data, and apply analysis techniques that could help pivot their businesses more readily in these uncertain times (Samuel et al., 2018; Song et al., 2019). The literature that is still burgeoning in this area shows marked sides to the use of innovative approaches related to predictive analytics using big data and social media, juxtaposed to the facets of human elements of decision making and traditional company practices (Bratanu, 2017; L'Haridon & Paraschiv, 2013). Seemingly, when profit, ethical practice and relative application are considered, the subsets of knowledge acquisition, sharing and transference whether at the management or leadership level have a multiplicity of sorts (Bryant, 2014). Knowing what information to use, discerning what the data entails and trusting the information and the newness of the proliferation of artificial intelligence have both affordances and constraints for business decision making (Liu et al., 2020). Furthermore, big data and social media analytics are comprised of a veritable plethora of categorical information which includes enterprise data, client voice, online community feedback, negative narratives, and client behavior indicators (West, 2017). Within this grounded theory and quantitative mixed methods study, ascertaining the current state of usage of big data and social media analytics within the application of artificial intelligence measure can help further understand how the latter can support decision making (Charmaz, 2006).

QUALITATIVE EVIDENCE

From the fifteen research participants and their interview questions, the data was analyzed using an open grounded theory approach whereby line by line and inductive coding was utilized to assess the theoretical categorization and higher level meaning from the interviewee's responses (Charmaz, 2006).

RESEARCH QUESTION

Which modern characteristics of the big data and social media analytics use the natural language processing algorithm in the United States to explain the framing process of the innovative automated business decisions model?

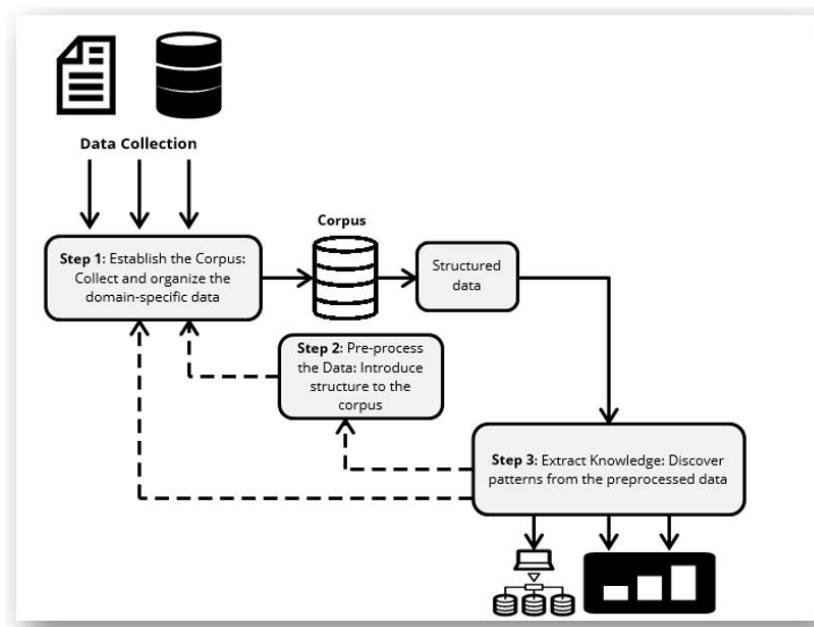
DATA COLLECTION

Through semi-structured interviews, the research participants were asked questions that would help unpack their perspectives and professional experiences with big data and social media analytics and how these informed their business decision making. Seven semi-structured questions were utilized and included in this research study.

QUANTITATIVE EVIDENCE

The general problem is that leadership within industrial organizations does not understand the importance of designing the automated business decision model with big data and social media analytics for the essential business decisions. The first and second sections of the study were conducted with the grounded theory research design and the natural language processing algorithm respectively. The research has a few goals that can be achieved through text mining. All these goals are components of a central theme: understanding big data analytics and social media to help design the automated business decision model. Other goals include: a) finding the structured variables that best explain the type of the data analytics elements required to construct better business models; b) indexing the unstructured data text and finding key terms that are most related to the type of the data analytics elements and social media, c) using key terms from unstructured data text to determine whether automated business decision model gains are possible in a predictive model (J. Thompson, T. Hill, 2012).

Figure 1: Model Schema Design for the Quantitative Portion



Source: Compiled by Authors

RESEARCH DESIGN

We used the commonly used sentiment analysis for the following evaluation metrics:

Accuracy (precision) relates to how often the sentiment rating predicted by the model is correct.

$$Acc = \frac{TP + TN}{TP + TN + FP + FN}$$

Where, TP, TN, FP, and FN denote true positive, true negative, false positive, and false negative respectively (Basant et al., 2019).

Average recall (AVGREC), which find the overall sentiment of a text, is used. Average recall is calculated by averaging the recall across the sentiment classes such as positive, negative, and neutral. (Basant et al., 2019).

$$AvgRec = \frac{1}{2} (R^P + R^N + R^U)$$

Where R^P , R^N , R^U refer to recall associated with positive, negative, and neutral classes, respectively. The value of AvgRec varies in the range [0,1]. Compared to standard accuracy, average recall is more robust to class imbalance. (Basant et al., 2019).

Macro-average F_1 score is calculated with respect to positive and negative classes as

$$F_1^{PN} = \frac{1}{2} (F_1^P + F_1^N)$$

Where, F_1^{PN} and F_1^N denote F_1 score with respect to positive and negative classes, respectively (Basant et al., 2019).

We calculated the ranking loss, which averages the distance between actual and predicted rank, as follows:

$$Ranking\ loss = \sum_{i=1}^n \frac{|t_i - \hat{t}_i|}{k \times n}$$

Where: t_i value is associated with actual and predicted sentiments, respectively, k represents the number of sentiment classes, and n represents the instances used for testing (Basant et al., 2019).

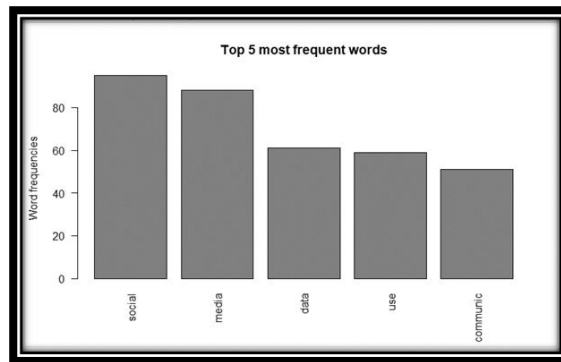
We calculated the spearman correlation coefficient as

$$r = \frac{1}{n-1} \sum_{i=1}^n \left(\frac{t_i - \bar{t}}{\sigma_t} \right) \left(\frac{\hat{t}_i - \bar{\hat{t}}}{\sigma_{\hat{t}}} \right)$$

Where, n denotes the number of test instances t_i value of predicted and actual sentiments. A higher value of r indicated a better prediction accuracy of our model (Basant et al., 2019).

DATA COLLECTION AND EXTRACTION

Figure 2: Bar Chart of the top 5 most frequent words



Source: Compiled by Authors

The most frequently occurring word is “social”. We further noticed that negative comments like “not” do not feature in the bar chart. This indicates that there are no negative prefixes to change the context or meaning of the term “social.” The term frequency chart shows most of our responses do not mention negative phrases like “not use.” “Social,” “Media,” and “Data” are the next three most frequently occurring words. This indicates that most people feel that social media analytics and business intelligence significantly influence the human business interpretation of any information (Mhatre S., 2020).

Figure: 3 Word cloud. Compiled by Author



Source: Compiled by Authors

The term cloud shows additional words that occur frequently and could be of interest in our current study. Terms like “media”, “social”, and “data use” help us to better understand the main research study themes.

Syuzhet Vector Function Calculation: `Syuzhet_vector <- get_sentiment (text, method=" syuzhet")` # see the first row of the vector `Head (syuzhet_vector) [1]` 0.60 7.75 4.35 2.35 2.10 0.50 #see summary statistics of the vector `Summary (syuzhet_vector)` Min= -1.000 1st Qu. = 0.00 Median =1.00 Mean 1.533 3rd Qu.=2.350 Max=8.500 (Mhatre S., 2020).

We should note that the summary statistics of the *suzyhet* vector show a median value of 1, which is above zero and this can be easily interpreted because the overall average sentiment across all the responses is positive. we can interpreted as the overall average sentiment across all the responses is positive (Mhatre S., 2020).

Bing/Afinn Vector Function Calculation: # `bing_bing_vector <- get_sentiment(text, methods="bing")` `head(bing_vector) [1] 0 5 3 1 1 0` `summary(bing_vector)` Min= -

```
3 1st Qu= 0.0000 Median=0.0000 Mean=0.7701 3rd Qu.=1.0000 Max= 8.0000
#affin >afinn_vector <- get_sentiment(text, method="afinn") head(afinn_vector)
[1] 0 6 4 2 1 0 summary(afinn_vector) Min=0.0000 1st Qu=0.0000 Median=0.0000
Mean=1.443 3rd Qu.=2.000 Max=13.000
```

We should note that the summary statistics of the `bing` and `afinn` vector show a median value of 0, which is equal to zero and this can be easily interpreted because the overall average sentiment across all the responses is positive but weak. we can interpreted as the overall average sentiment across all the responses is positive but weak (Mhatre S., 2020).

The `Syuzhet` Vector Analysis is part of the Natural Language Programming Tool. Further, the function accepts two arguments: a character vector of sentences or words and a method. We selected the four available sentiment extraction methods. The first has been used as the default `syuzhet`, `biing`, `afinn`, and `nrc`. Each of our methods use a different scale and hence exhibit slightly different results (Mhatre S., 2020).

Inspecting the `Syuzhet` vector shows that the first element has a value of 0.60. This means that the sum of the sentiment scores of all the meaningful words in the first response line in the text file is 0.60. The scale of the sentiment scores using the `syuzhet` method is a decimal and ranges from -1 which means most negative to +1 which means most positive. We should note that the summary statistics of the `syuzhet` vector show a median value of 1, which is above zero and this can be easily interpreted because the overall average sentiment across all the responses is positive (Mhatre, S, 2020).

The function returns a data frame in which each row represents a sentence from the original file. The columns include one for each emotion type as well as the positive or negative sentiment valence. The example below calls the function using the simple twelve sentence example passage stored in the object from above (Mhatre S., 2020).

We run the correlation as a major method in order to respond to our research questions. We found the associations for words that occur at least 50 times for the correlation limit 0.50 (strong association), 0.30 (moderate association), and 0.10 (weak association).

Figure 4: Spearman's Correlation Results. Significant at 0.05 level (2-tailed). Correlation limit 0.50. Compiled by Author

communic										
bigger	skill	background	pictur	one	piec	cross	abl	amount	benefici	beyond
0.66	0.63	0.59	0.57	0.59	0.56	0.55	0.53	0.53	0.53	0.53
break	calcul	collat	commuict	complet	extrapol	formul	greatest	inform	informatt	often
0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53
Palitt	people	premis	rang	refer	savvi	seminar	step	understand	wide	
0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	0.53	
data										
Software	abil	point	blast	crunch	drill	granular	absolut			
0.68	0.65	0.63	0.54	0.54	0.54		0.53			
media										
Numeric(0)										
Social(0)										
use										
Group	back	piec	train	abl	amount	benefici	beyond	break	calcul	collat
0.53	0.53	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
communic	complet	extrapol	formul	greatest	inform	informatt	often	palit	people	premis
0.51		0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51	0.51
rang	refer	savvi	seminar	step	understand	wide				
0.51	0.51	0.51	0.51	0.51	0.51	0.51				

Source: Result from Software Console. Compiled by Authors

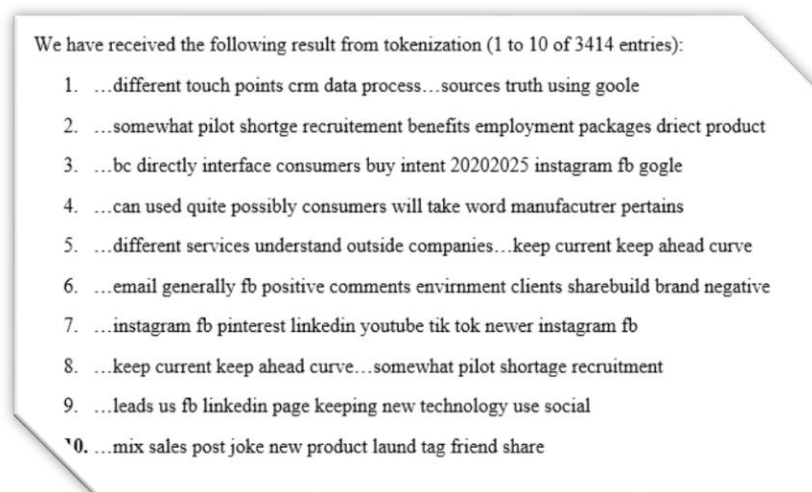
We computed Spearman's rank correlations (r_s) to test whether there is a correspondence between human-rated sentences and the automated ratings of emotions based on the National Research Council (NRC) lexicon. The results from the above figures that include the tables show that the "skills" ratings correlated strongly with the term "communication" on the comment level ($r_x=0.63$, $p=.05$), while the "background" ratings correlated strongly with the term "communication" on the comment level ($r_x=0.59$, $p=.05$). We observed strong correlations among all the emotions (Mhatre S., 2020).

Based on the correlation, we found that the strongest words are "skills" and "background". We therefore built the new part of the dashboard in order to fully percieve what our participant said about the "skills" and "background".

MACHINE LEARNING RESULTS AND DATA ANALYSIS

We used the interview questionnaire from our previous study to collect data for this study. We followed the pre-processing steps before our tokenization. The process included eradicating noisy data, for example eradicating special characters, stop words is called pre-processing. This step was crucial for our text data as eliminating noisy data helps improve the accuracy and classification rate. We used the R Natural Language Algorithm to perform tokenization, case-folding and to eliminate stop words. We used the NRC Lexicon [30], [31] to label emotion. NRC Emotion lexicon is a list of English terms and their association with eight basic emotions namely anger, fear, anticipation, disgust, surprise, trust, joy, and sadness and two sentiments namely positive and negative (Tzacheva, A. et al., 2019). We also investigate the text through tokenization where large quantity of text is divided into smaller parts called tokens. The tokenization helped us find the additional patterns and was considered a base step for stemming and lemmatization. The training documents are from different knowledge domains and were used to create vectors. The created vector helps an algorithm to process the input documents. We tokenized documents with respect to the vectors. Further, using vectors to pre-tokenize helped of vectors show in result section also.

Figure 5: Tokenization. Compiled by Author



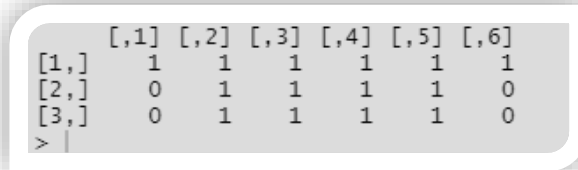
We have received the following result from tokenization (1 to 10 of 3414 entries):

1. ...different touch points crm data process...sources truth using goole
2. ...somewhat pilot shortage recruitment benefits employment packages direct product
3. ...bc directly interface consumers buy intent 20202025 instagram fb gogle
4. ...can used quite possibly consumers will take word manufacturer pertains
5. ...different services understand outside companies...keep current keep ahead curve
6. ...email generally fb positive comments environment clients sharebuild brand negative
7. ...instagram fb pinterest linkedin youtube tik tok newer instagram fb
8. ...keep current keep ahead curve...somewhat pilot shortage recruitment
9. ...leads us fb linkedin page keeping new technology use social
10. ...mix sales post joke new product launch tag friend share

Source: Result from Software Console. Compiled by Authors

It is necessary to normalize scale. We therefore compared three vectors.

Figure 6: A Normalized Scale for Three Vectors. Compiled by Author.



	[,1]	[,2]	[,3]	[,4]	[,5]	[,6]
[1,]	1	1	1	1	1	1
[2,]	0	1	1	1	1	0
[3,]	0	1	1	1	1	0

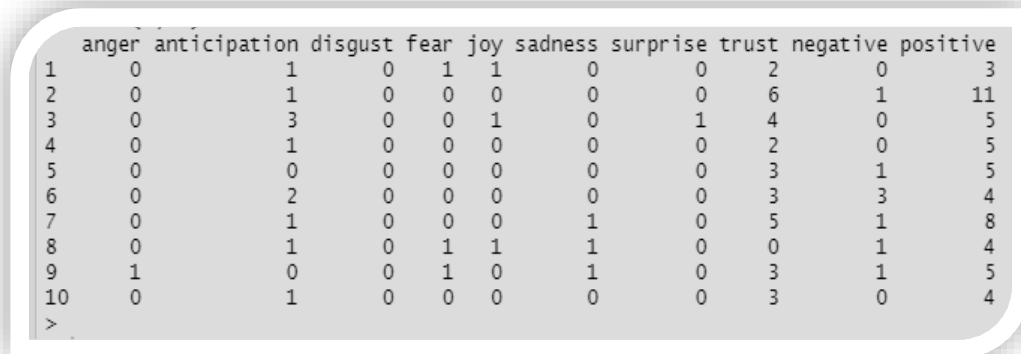
Source: Result from Software Console. Compiled by Authors

In the Suyzhet vector, we received “1” as the result, indicating that only Suyzhet method has calculated a positive sentiment score.

Emotion Classification

Emotion classification is built on the NRC Word-Emotion Association Lexicon (aka EmoLex).

Figure 7: Data frame returned by NRC Emotion Lexicon. Compiled by Author



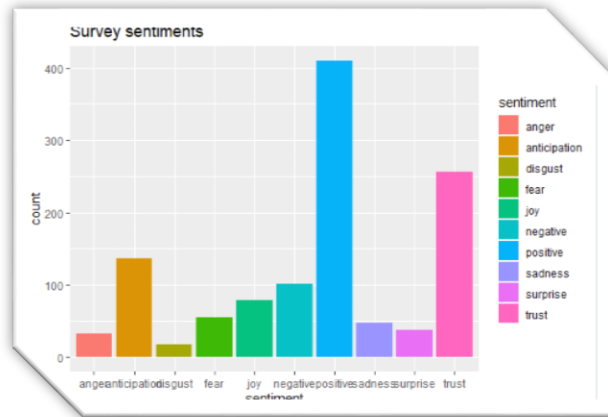
	anger	anticipation	disgust	fear	joy	sadness	surprise	trust	negative	positive
1	0		1	0	1	1	0	0	2	3
2	0		1	0	0	0	0	0	6	11
3	0		3	0	0	1	0	1	4	5
4	0		1	0	0	0	0	0	2	5
5	0		0	0	0	0	0	0	3	5
6	0		2	0	0	0	0	0	3	4
7	0		1	0	0	0	1	0	5	8
8	0		1	0	1	1	1	0	0	4
9	1		0	0	1	0	1	0	3	5
10	0		1	0	0	0	0	0	3	4

Source: Result from Software Console. Compiled by Authors

The output shows that the first line of text has 0 occurrences of terms associated with anger, disgust, fear, sadness, and surprise, 1 occurrence of each term associated with anticipation, fear, joy and trust, 2 occurrences of terms associated with trust, a total of 0 occurrence of terms associated with negative emotions and a total of three occurrences of words associated with positive emotions. The next step is to create two plot charts to help in visually analyzing

the emotions in this questionnaire text. First, it is necessary to perform some data transformation and clean-up steps before plotting charts. The first plot shows the total number of instances of the terms in the text, associated with each of the eight emotions (Mhatre, S, 2020).

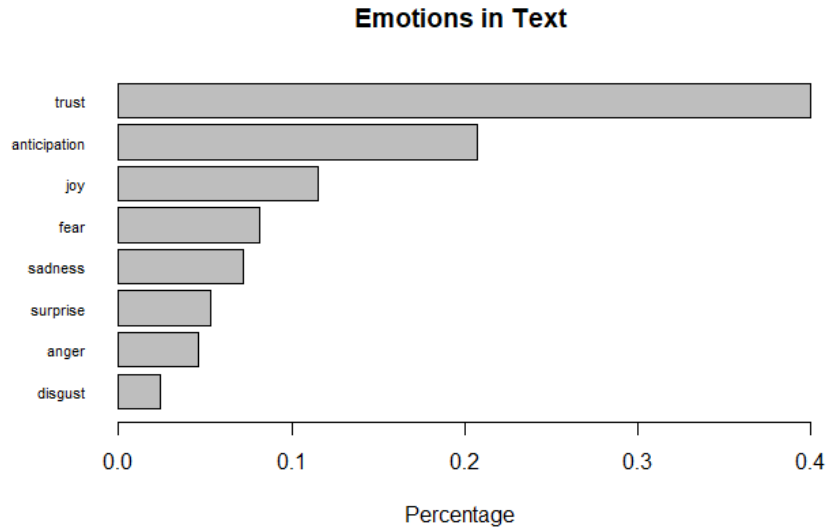
Figure 8: Sentiment Analysis. Compiled by Author



Source: Compiled by Authors

The above bar chart shows that words associated with positive emotions of “positive” occurred approximately 400 times in the text, whereas words associated with the negative emotion of “disgust” occurred less than 10 times. A deeper understanding of the overall emotions occurring in the questionnaire response can be gained by comparing these numbers in the percentage form of the total number of meaningful terms (Mhatre, S, 2020).

Figure 9: Bar Plot showing the count of words associated with each sentiment expressed as a percentage



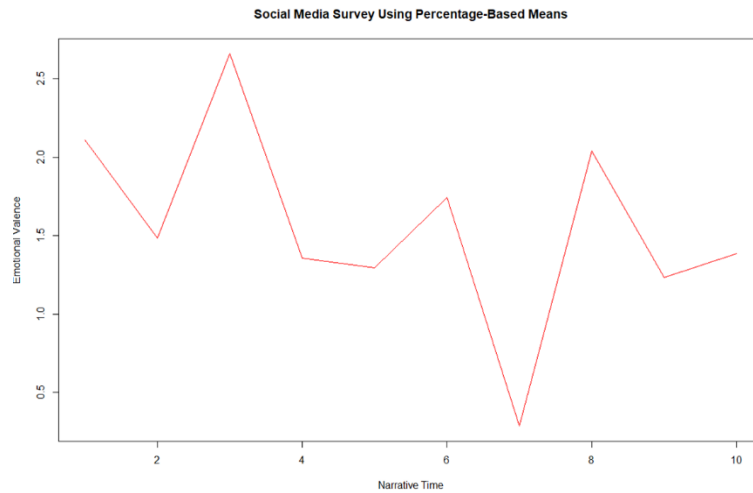
Source: Compiled by Authors

This bar plot allows for a quick and comparison of the proportion of words associated with each emotion. The emotion “trust” has the longest bar and shows that words associated with this positive emotion account for only over 4% of all the meaningful words in this text. On the other hand, the emotion of “disgust” has the shortest bar and shows that words associated with this negative emotion account for less than 1% of all the meaningful words in this text. Overall, words associated with the positive emotions of “trust” and “anticipation” account for almost 6% of the meaningful words in the text. This can be interpreted as a good sign of correlation between social media analytics and business intelligence (Mhatre, S, 2020).

We compare the shape of one trajectory to another in percentage form. We divided the respective text into an equal number of “chunks” and then calculated the mean sentiment for each chunk. We are binned into 10 chunks and then plotted.

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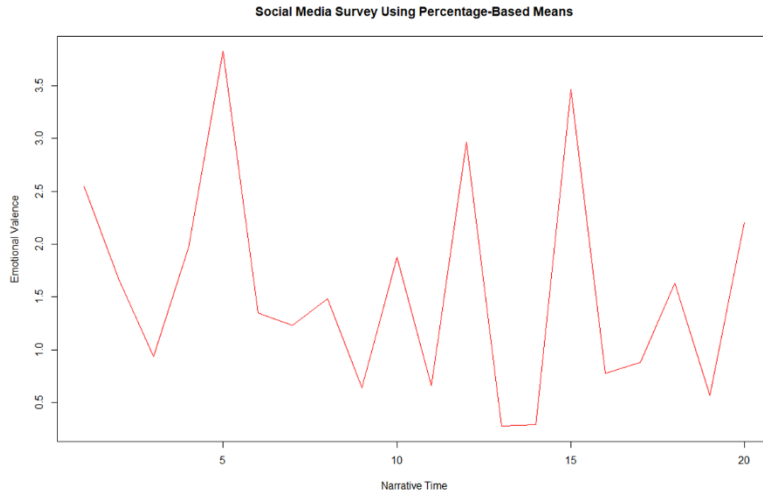
Figure 10: Social Media Questionnaire Using Percentage-Based Means (10 chunks). Compiled by Author



Source: Compiled by Authors

We compare the shape of one trajectory to another in percentage form. We divided the respective text into an equal number of “chunks” and then calculated the mean sentiment for each chunk. We are binned into 20 chunks and then plotted.

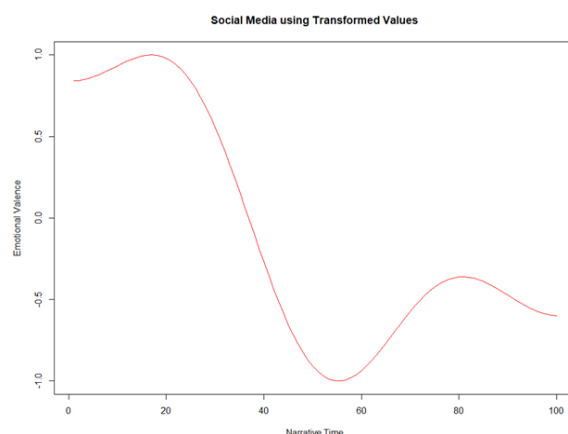
Figure 11: Social Media Questionnaire Using Percentage-Based Means (20 chunks). Compiled by Author



Source: Compiled by Authors

A discrete cosine transform expresses a finite sequence of data points in terms of a sum of cosine functions oscillating at different frequencies. The DCT, first proposed by Nasir Ahmed in 1972, is a widely used transformation technique in signal processing and data compression. However, the function applies the simpler discrete cosine transformation (DCT) in place of the fast Fourier transform. Its main advantage is that it represents the edge values in the smoothed version of the sentiment vector better. We used this transformation to investigate our data elements (Mhatre, S, 2020).

Figure 12: Discrete cosine transformation (DCT). Compiled by Author



Source: Compiled by Authors

MIX-METHOD RESEARCH DESIGN RESULTS AND DISCUSSION

There were key theoretical and categorical constructs and patterns that emerged from the responses of the participants and the notes that were taken. These patterns, drawn out from the frequency of the interview data of the respondents impelled the categorization by the tree method in order to organize and interpret our qualitative results. These categories and eventual themes included: a)

a) a greater understanding of client needs: according to the participants' opinion, big data and social media analytics supported them in that they had more information around the needs, wants and actions of a client, b) unpacking understanding-the ways of knowing were multiple: for many, the information seemed overwhelming, and their skill was not always to the degree for such applications, c) understanding the impact of a common language business wise: inputting data and using similar internal practices to reflect the client base can be beneficial; similar to seeing client behaviors and decision making through a system lens. The frequency of understanding articulated by the research participants reflected 100% of the time across all fifteen participants, for example, citing the opportunity to understand more about the needs of a client through new practices. The citing of feeling overwhelmed was also cited at 93% of the time across all fifteen participants which reflected the needs for professional development supports. This was also reflected in the idea of a common business language to support decision making. At the rate of 67% occurrences across all fifteen participants which is relevant as it infers a need for trust and supports to navigate the working realities of the participants again. Results showed that text

Mining improves model performance in predicting the automated business decision model outcome. The study identified the essential keywords from our unstructured text data as strong predictors in the data mining process that can support the meaningful analysis researchers. Our unstructured corpus text is often more descriptive than the results from a one-size-fits-all questionnaire with the human interpretations. Without sentiment analysis data, it will be quite difficult and time-consuming to find patterns in the unstructured text most often provided without any data cleaning process. Evidence presented shows that we need new digital researchers with a strong background in many technologies and processes to create many different automated business decision models in order to support our executives and leaders in the different industries. We do not have any other options since our human brain and skills cannot work effectively with the new big data predictions, which are around 200 zettabytes, by the year 2025. Artificial intelligence focused on developing intelligent-acting agents often guided by the theory of how humans can solve their problems.

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A BRIEF HISTORY OF TAXATION OF THE AMERICAN COLONIES PRIOR TO THE REVOLUTIONARY WAR

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ABSTRACT

This paper provides a brief history of the taxation of the American colonies prior to the Revolutionary War. Taxes imposed by the various colonies as well as taxes assessed by Great Britain will be reviewed. This analysis of both internally imposed taxes (by the colony) and externally assessed taxes (by Great Britain) will demonstrate the substantial tax burden on citizens of this period. This level of tax burden on colonial citizens provided sufficient motivation for revolution and fueled the colonist's desire to be free from Great Britain's multitude of taxes. The first portion of this paper briefly traces the numerous taxes imposed by the individual colonies upon its residents. Both the type of tax as well as the rates of each tax will be discussed. Colony assessed taxes varied considerably between the 13 colonies in the early to mid-1700's. The second section of this paper traces the many taxes that Great Britain imposed on the colonies beginning with the Molasses Act of 1733. Other taxes imposed on the colonies by Great Britain such as the Currency Act of 1751, the Sugar Act of 1764, the Stamp Act of 1765, the Tea Act of 1773, and numerous others will be reviewed.

Key words: Taxation, American colonies, Revolutionary War

INTRODUCTION

The original 13 American Colonies have a history that dates from 1607 to 1775 and the outbreak of the War for Independence. The first colony was Virginia which was founded in 1607. Virginia was followed by New York in 1626, Massachusetts in 1630, and Maryland in 1633. The fifth and sixth colonies were Rhode Island and Connecticut in 1636. The seventh and eighth were New Hampshire and Delaware in 1638. Ninth was North Carolina in 1653, 10th was South Carolina in 1663, and 11th was New Jersey in 1664. The final two original colonies were Pennsylvania in 1682 and Georgia in 1732 (History.com Editors, 2019).

At the time of the American Revolution in 1775, there were three types of colonial government. These were the Royal Colony, Proprietary Colony, and Charter Colony forms of government (Alchin, 2017). A Royal Colony was ruled by officials who were appointed by and responsible to the reigning sovereign of Great Britain. The Royal Colonies were administered by a royal governor and council that was appointed by the British crown. The people of these colonies elected a representative assembly for governing purposes. At the beginning of the American Revolution, there were seven Royal Colonies: New Hampshire, New York, New Jersey, Virginia, North Carolina, South Carolina, and Georgia.

Proprietary Colonies were established in areas where the English Crown had granted to one or more proprietors full governing rights. Proprietors were individuals who were given full governmental powers by the British Crown over a tract of land. At the time of the Revolutionary War, there were three Proprietary Colonies: Maryland, Pennsylvania, and Delaware. The men who received these land grants were called "Proprietary Governors or Lords Proprietors." The land was in the name of the proprietor and not the king. The Lords Proprietors recovered their investments in the colonies by collecting yearly land fees from the colonists who purchased land within the colony (Alchin, 2017).

Finally, the Charter Colonies existed because of charters which were written contracts between the British King and the American colonists. The charters described the rights, franchises, or privileges granted by the king to the colonists. The charter described the rights and obligations of the British King and the colonists in the governance of the colony. At the beginning of the Revolutionary War, the three Charter Colonies were Connecticut, Massachusetts, and Rhode Island. These three forms of government of the colonies had a significant effect on the type and number of taxes developed in each colony.

This paper provides a brief history of the level of taxation on the residents of those original 13 colonies. Our analysis will show that a significant tax burden was inflicted on these inhabitants by both the colony itself (internal tax) and Great Britain (external tax). These numerous internal and external taxes were a primary motivation for the American Revolutionary War of 1775 to 1783. Though celebrated as a removal of British oppression, the American Revolution sadly did nothing to end the oppression of others in the form of slavery. This evil would remain in effect for a further eight decades until the American Civil War.

TYPES OF COLONIAL TAXES, FEES, AND DUTIES

The American colonial period's tax system included a wide variety of taxes, fees, lotteries, and duties. Specifically, these revenue sources encompassed quit-rents, poll taxes, property taxes, fees, miscellaneous taxes, lotteries, and duties (Kozuh, 1983). Each of the colonies utilized a tax system that best fit its revenue production needs. For example, colonial Virginia used poll taxes and taxes on land as its major revenue sources. In addition, Virginia also assessed personal property taxes on horses, carriages, and slaves (Ely, 1888).

A brief description of each of these forms of taxation is appropriate at this point. First, quit-rents, during the colonial period, were land taxes that were assessed to land owners of 50 or more acres (Virginia Quit Rent Rolls, 1704). These annual quit-rents of one shilling for every 50 acres owned were paid to the King. The list of landowners and the amounts each owed was prepared by the local sheriffs. The sheriff then delivered the list to the "Receiver General" who actually collected the rent money and sent the lists, with his account records, to the English government (Virginia Quit Rent Rolls, 1704). According to the Virginia Magazine of History and Biography, quit-rents collections increased gradually from 574 pounds in 1684 to 16,433 pounds in 1751 (Ibid. p.208). These increases in tax were due to a combination of inflation and annual rate increases. Property tax revenue was typically donated by the English government to the colony for necessary expenditures.

Second, poll taxes were also common in the colonies. One of the first tax laws in the colonies was a poll tax enacted in Virginia in 1619 (Crum, 1982). According to Ripley, the 1619 Virginia poll tax rate was one pound of tobacco for each poll (Ripley, 1893). During this period, a poll was defined as a male age sixteen or older. According to Ripley, Virginia's poll tax was converted in 1645 to a combined poll/quit-rent type of tax (Ripley, p.25). This tax combined the poll or individual male component with a additional taxes on both land (real property) and personal property including horses, cows, goats, and sheep.

A third type of revenue generator for the colonies was a host of various fees, licenses, and fines. For example, most colonies assessed a tax on bachelors over the age of 25 while Virginia imposed a tax on widows. A logical reasoning would have been that these unmarried individuals had a greater ability to pay additional taxes. Ely adds that Virginia, shortly after its founding, utilized a lottery to generate additional revenues (Ely, 1888). Even Massachusetts, the center of Puritanism, used lotteries on a regular basis to raise revenues (Ripley, 1893). A final revenue generator for the colonies were excise duties on the "manufacture of liquor, export and import duties, and tonnage duties (Ely, 1888).

The development of the property and poll taxes gradually evolved in the faculty tax which has been called the “ancestor of the modern income tax” (Paul, 1955). These faculty taxes took on various forms. For example, some colonies assessed a faculty tax on professionals such as attorneys, merchants, surgeons, and physicians (Kozuh, 1983). The intent of these laws was to reduce the tax burden of landowners by increasing revenues from other sources than property taxes. These faculty (or income) taxes were gradually broadened to include not just the income of professionals but to “places of profits of whatever kind or nature” (Seligman, 1893). The following portion of this paper details the types of taxes that were employed in each colony.

FORMS OF COLONIAL TAXATION – BY COLONY

Ely, in his 1888 text titled “Taxation in American States and Cities,” summarized the types of taxes that were used in each of the 13 colonies prior to the Revolutionary War. His classification of the types of colonial taxes is quite detailed. These taxes included poll taxes, land (real property) taxes, collective mass of property taxes, taxes on horses, cattle, and other farm animals, taxes on the stock in trade of merchants, taxes on cash or in investments (termed cash on hand or at interest), taxes on houses and other buildings, and finally taxes on carriages and slaves. The following paragraphs briefly summarize the various types of taxes existing in each colony prior to the Revolutionary War.

Beginning with the southern colonies of Virginia, North Carolina, South Carolina, and Georgia, the tax policies of these states emphasized the use of indirect taxes especially customs duties (Kozuh, 1983). This shifted the tax burden away from the wealthy landowners to the lower economic classes. The land or real property tax was not significant in these states because the land owning aristocrats were “typically in control of the government institutions and objected to bearing a large tax burden” (Kozuh, 1983). In addition, the poll tax (males age 16 and older) was also not popular to the wealthy landowners after the introduction of slavery since the poll tax applied to slaves as well. In this dark period of our history, slaves were not considered to be, or treated as, human beings except when counting them for purposes of taxation.

Specifically by colony, Virginia used poll taxes, land taxes, and taxes on horses, carriages, and slaves. Virginia enacted the first poll tax in colonial America on August 8, 1619 (Ripley, 1893). The poll tax rate was initially one pound of tobacco per person (males 16 and older). The rate increased quickly and by 1644 the poll tax had risen to 18 pounds of tobacco per head. Requiring additional revenue, Virginia added a property tax in 1645.

After achieving independence, Virginia, in 1786 passed a faculty tax on the income of attorneys, merchants, apothecaries, surgeons, and physicians (Seligman, 1893). The tax was not well received and was abolished only four years later in 1790. With the unpopularity of these direct taxes, Virginia shifted its emphasis to indirect taxes such as customs duties and excise taxes (Ripley, 1893).

North Carolina taxes included poll taxes, land taxes, and taxes on slaves. North Carolina, like other southern colonies, developed three social classes that included the gentry or large landowners, the yeomanry who owned and worked the land personally, and white servants who were indentured for a period of service (Parker, 1928). The poll tax was very popular with the landowning gentry because, unlike the property tax, it was not based on the concept of "ability to pay." Land taxes, on the other hand, fell hard on the wealthy landowners who owned large farms and plantations.

South Carolina's tax system included poll taxes, land taxes, taxes on the stock in trade of merchants, and taxes on slaves. In addition to these taxes, South Carolina passed a faculty tax in 1701 on the "estate, stock, and abilities, or of the profits that any of them make off or from any public office or employment" (Seligman, 1893). In 1703, the scope of the faculty tax was broadened to include "profits of whatever kind or nature whatsoever." Seligman also states that the faculty taxes of both South Carolina and Georgia was based on the estimates of area tax collectors. This certainly opened the door to possible bribes and kickbacks negotiated between the tax collector and the taxpayer.

Georgia had five forms of taxation that included poll taxes, land taxes, taxes on the stock in trade of merchants, and taxes on houses and slaves. Georgia was the last of the 13 colonies to be chartered by King George II in 1732. The royal charter included a quit-rent system that required payments of four shillings for every hundred acres (Candler, 1904). These payments were not payable until ten years after the granting of the land. In addition to quit-rents, Georgia used other revenue producers including a system of fines, licenses, commissions, and miscellaneous other fees.

Georgia passed its first law in 1755. This was a general property tax that was very comprehensive. This legislation defined taxable property to include "land holdings, wharves, lots in established cities and towns, and buildings and improvements on the land rated for tax purposes upon their value" (Candler, 1904). In addition, slaves and the import value of inventories of merchants and storekeepers were also taxed. Cash on hand or held in the form of investments (lying at interest) was also taxed by this legislation. Also, individual taxpayers were "required to file a sworn written declaration of their assets" (Candler, 1904).

Finally, similar to our tax system today, there were penalties for late filing and willful attempts to evade the tax (fraud).

The middle colonies included New York, New Jersey, Pennsylvania, Delaware, and Maryland. Faculty taxes were very uncommon in these middle colonies. The moneyed trading class were dominant and embraced the Dutch system of accounting, business, and taxation. These colonies used a system of indirect taxation of trade which emphasized an elaborate excise tax system which was similar to the one used in Holland.

First, New York used a combination of poll taxes, land taxes, collective mass of property tax, and taxes on all farm stock. During the period that the Dutch dominated New York (New Netherlands), taxes were basically either excise taxes or customs duties. Later in 1692, now under English control, a property tax was enacted. This legislation was intended to support King William and Queen Mary. The tax rate was one penny per pound of assessed value of all "estates, real and personal" (Act for Granting the Rate, 1693).

The colony of New Jersey's tax system used a combination of land taxes, taxes on horse and cattle, and taxes on houses and carriages. Like many other colonies the property tax encompassed both tangible real property (land and building) and tangible personal property (horses, cattle, and carriages).

Pennsylvania taxes included a combination of poll taxes, land taxes, taxes on horses and cattle, and taxes on houses, carriages, and slaves. Pennsylvania's maximum tax rates were very low compared to other colonies (Kozuh, 1983). The primary tax for Pennsylvania was the classified poll tax. In other words, it was a poll or head tax based upon the occupation of the taxpayer. This classified poll tax was originally enacted in 1782 and amended in 1785 (Seligman, 1893). Examples of the classes of taxpayers included in the Pennsylvania classified poll tax were published in the American State Papers, Finance (U.S. Congressional Documents, 1782).

The first occupational class listed was freemen of no profession or calling. The poll tax for these men ranged from fifty cents to ten dollars. Second, tradesmen were assessed a poll tax ranging from thirty cents to two dollars. For tavern-keepers, shop-keepers and other retailers, the tax ranged from fifty cents to five dollars. For bankers, brokers, merchants, lawyers, or physicians, the poll tax was between one dollar and ten dollars. Finally, for professions not listed above, the poll tax varied from twenty-five cents to a maximum of eight dollars. The law specifically exempted individuals who were schoolmasters, ministers of the gospels, mechanics, and manufacturers.

Delaware's tax system included poll taxes, land taxes, taxes on the annual income from sales of personal property, and a tax on the annual income from the sale of all types of farm animals. One of the first pieces of tax legislation passed in Delaware required the Delaware Assembly to calculate the expenses of the government and determine an assessment rate (Daughterty, 1938). This tax was a combination of both a land tax and a poll tax. Specifically, one half of the total revenue required was assessed to the three counties of land that comprised Delaware at that time, and the other half of the revenue required was levied as a poll tax on adult males (16 and older). If the land owner did not live in Delaware, the second half of the tax became an additional land assessment (Daughterty, 1938). This was logical since the owners did not incur the poll tax as nonresidents.

Also according to Daughterty, the Delaware Assembly enacted property taxes in 1693, 1694, and 1695 on both real and personal property. The tax was one penny per pound of assessed value of all property. If the value of total property owned was less than one hundred pounds, an additional poll tax of six shillings was assessed (Daughterty, 1938). A faculty tax was enacted in 1752 as part of the general property tax (Laws of the Government New Castle, et. al, 1752). This tax required a payment of not less than 12 pounds or more than 24 pounds for all individuals with no visible estate. Finally, a Delaware tax law passed after the Revolution in 1796 taxed the stock in trade of all "merchants, tradesmen, mechanics, and manufacturers in proportion to their gains and profits" (Lowrie and Clark, 1796).

The colony of Maryland's tax system included numerous taxes such as a poll tax, a land tax, a tax on the collective mass of personal property, a tax on all farm animals, and, finally, a tax on slaves. The Maryland House of Burgesses passed in 1641 and 1642 a significant poll tax (Ely, 1888). This tax was fifteen pounds of tobacco for every "Free man, Free woman, and every servant" over the age of twelve years. This was much broader than a typical poll tax in other colonies where the tax was assessed only on males over the age of sixteen. A property tax was not added in Maryland until 1777.

A faculty tax was enacted in Maryland and existed from 1777 to 1780 (Seligman, 1893). The tax was assessed on the amount received yearly by any person in public office. The tax was also assessed on yearly profit of every person practicing law, every hired clerk, every factor, agent or manager trading or using commerce in this state. Seligman states that the tax rate was one-quarter of one percent for the years 1777 and 1778 and increased significantly to two and one-half percent in 1779. This unpopular tax was abolished in 1780. The intent of the combined general property and faculty tax was ensure that all individuals paid taxes "whether they farmed the land or operated a trade or business" (ibid., p.379).

The northern or New England colonies included Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut. These colonies, similar to many others, used both poll taxes and customs duties in order to raise necessary tax revenues. The New England colonies were unique in that they developed a tax on the gross produce of the land calculated based upon the quantity or quality of the land (Kozuh, 1983). Kozuh adds that this gross produce tax evolved into a real property tax and then to a general property tax that also included taxes on tangible personal property. In later years, the general property tax was supplemented by a classified poll tax. This tax was assessed on various classes of people (lawyers, blacksmiths, silversmiths, etc.) who earned income from their craft or trade and not from the fruit of the land.

Massachusetts Bay Colony, in 1634, utilized a tax on each man "according to his estate and with consideration of all other abilities whatsoever" (Shurtleff, 1853). Since evaluating the abilities of a person was a vague concept, in 1646, Massachusetts Bay Colony passed a law that defined abilities with the practice of an art or trade (Seligman, 1893). The various tax rates of these artists or tradesmen were based upon the returns and profits expected to be earned in the practice of those occupations. The tax assessors were required to consider a "person's faculties and personal abilities" in the process of assessing the amount of tax due under a law passed in 1697 (Acts of Massachusetts Bay, 1697).

Connecticut's tax laws were patterned after those of Massachusetts Bay. In 1650, Connecticut passed a law that taxed both lands and estates where "they lie and persons where they dwell" (Acts and Laws of Connecticut, 1750). The final clauses of this Connecticut law are actually identical to an act passed in the Massachusetts Bay Colony in 1646. Later, in 1725, Connecticut passed a law that taxed attorneys at least fifty pounds annually with possible additional sums due based upon the size of their practice (ibid. p.312). In 1771, the colony passed a law taxing all traders and shopkeepers who sell at retail a tax of ten percent of the cost of all merchandise sold. The law further stated that wholesale traders, artificers, and tavern keepers were to be taxed on their annual gains or profits as calculated by the local assessors (ibid, p.258).

Rhode Island did not institute a faculty, or occupational, tax until 1673. This law provided for the taxing of property and faculty for nonproperty holders (Acts and Laws of Rhode Island, 1768). Rhode Island's laws continued the medieval practice of having every man evaluate the size of the estate of ten neighbors in addition to an estimation of the individual's estate (ibid, p.109). The law required that the specific names of the ten neighbors be given and a best guess made at the wealth of each of these individuals. Ostensibly this would prevent fraud, but it was just as likely to be used to take revenge on an unpopular neighbor.

New Hampshire utilized a faculty tax from 1719 to 1794. This tax was amended twice over its lifetime. Once to shorten the assessment process and a second time to limit the tax assessment to no more than twenty pounds (Acts and Laws of New Hampshire, 1771).

Vermont was a part of New York until 1777. Upon its independence from New York, its tax laws closely resembled those of Connecticut. For example, Vermont's first tax law in 1778 was a combination of two Connecticut laws. First, a 1725 law required that attorneys were assessed at least fifty pounds annually with additional assessments possible depending on the practice. Second, a 1771 Connecticut law contained a faculty tax on tradesmen, traders, and artificers. Vermont incorporated both of these Connecticut laws into its tax system of this period (Laws of Vermont, 1791). In 1791, a law expanded Vermont's faculty tax to include merchants, traders, owners of mills, mechanics, licensed attorneys, physicians and surgeons, all persons engaged in buying and selling goods (Wood, 1894). This tax was assessed based on an estimation of the gains and returns of the individual.

The previous section of this paper reviewed the numerous internal or domestic taxes assessed on the inhabitants of each of the original 13 colonies. The following portion of this paper details the numerous external taxes that were imposed on the colonies by Great Britain. In particular, nine pieces of legislation passed in Great Britain from 1733 to 1774 are reviewed. These include the infamous, Molasses Act, Sugar Act, Stamp Act, and Tea Act. These oppressive taxation laws provided a major motivation for the revolution that was soon to occur.

TAXES IMPOSED ON THE COLONIES BY GREAT BRITAIN

The level of British taxation on the colonies increased tremendously between 1733 and 1774. During this period, at least nine major pieces of taxation legislation were passed. These included the Molasses Act of 1733, the Currency Act of 1751, the Sugar Act of 1764, the 1765 Stamp Act, the 1765 Quartering Act, the 1766 Declaratory Act, the Townshend Act of 1767, the notorious Tea Act of 1773, and the set of Coercive or Intolerable Acts of 1774. These Coercive or Intolerable Acts were a package of five laws that included the Boston Port Act, the Massachusetts Government Act, the Administration of Justice Act, the Quartering Act, and the Quebec Act. Each of these pieces of British legislation will be briefly discussed in the following portion of this paper.

A review of these nine British acts will reveal the tremendous tax burden that the colonial residents were forced to endure. The combination of internally assessed

taxes by the colonial governments and externally imposed British taxes created unbearable levels of taxation for a majority of the residents of the colonies. The first British revenue act discussed here, the Molasses Act, was especially hated by all adult men who enjoyed rum as a preferred adult beverage.

The Molasses Act of 1733 was intended to be more of a trade barrier than a tax producer. Specifically, the duty of sixpence per gallon of rum was on foreign molasses (non-British) imported into the British colonies in North America (Shumate, 2019). The economies of the northern or New England colonies, in particular, were founded on inexpensive molasses which was distilled into rum. The molasses was imported by the northern colonies in exchange for fish, lumber, horses, and other necessary provisions needed by the plantation owners on the sugar islands (both British and French).

During this period, the British sugar colonies, mainly in the West Indies, were not competing well with the sugar colonies owned by the French. This resulted in more and more trade with the French and less with the British. This caused British officials to be increasingly upset with the colonies who were sending the vital provisions, such as fish and lumber, to France rather than Great Britain. In both 1731 and 1732, Britain attempted to pass a molasses act that was intended to encourage the American Colonies to trade molasses only with British owned sugar plantations. Each of these bills passed the House of Commons but were killed in the House of Lords (Shumate, 2019).

The title of this law clearly illustrates the intent of this bill was not primarily to be a revenue producer but instead to protect the British sugar plantations in the West Indies. The actual title of this piece of legislation was "An Act for the better Securing and Encouraging the Trade of his Majesty's Sugar Colonies in America" (6 George II c. 13, 1733). This law contained a tax of sixpence only on foreign molasses or syrups thereby encouraging trade with British sugar plantations. The proposed law of 1731 contained a prohibition against the trading of horses and lumber with foreign islands. This ban was removed in the legislation that was passed in 1733. The Molasses Act of 1733 was only partially effective due to a combination of bribing customs officials to allow the import of cheaper French rum and an increase in outright smuggling by many ship owners.

The second piece of legislation discussed here is the Currency Act of 1751 which was later amended and updated in 1764. Parliament passed this act in order to reduce the confusion and inflation being caused by numerous printing of currency by colonial legislatures. This legislation specifically blames the colonies of Rhode Island, Connecticut, Massachusetts, and New Hampshire for creating and issuing great quantities of paper bills of credit and making them legal tender (Currency

Act, 1751). The legislation adds that these bills have been “depreciating in value causing great discouragement and prejudice to the trade and commerce of his Majesty’s subjects.”

This law, in summary, stated that none of the previously mentioned colonies were allowed to make or pass any paper bills or bills of credit after September 29, 1751. Any new issues of paper bills or bills of credit, according to this law, would be “declared null and void and of no force or effect whatsoever.” Part II. of the Currency Act further stated that any paper bills or bills of credit of the colonies of Rhode Island, Connecticut, Massachusetts Bay, and New Hampshire still in circulation were to be “duly and punctually called in, sunk, and discharged.” Part III. of this act further stated that provisions were to be made to secure the “calling in, discharging, and sinking of the same, within a short reasonable time not exceeding the space of two years” (Currency Act, 1751).

On April 5, 1764, the British Parliament passed a modified version of the Molasses Act of 1733 known as The Sugar Act of 1764 (4 George III c.15, 1764). The Sugar Act was basically an act of “renewal, amending, and making perpetual the Molasses Act” (Shumate, 2018). This piece of legislation was designed to do two things. First, it was trade regulation law. Second, it was clearly an act designed to raise revenue. The legislation states that the duties raised were to be used “towards defraying the expenses of defending, protecting, and securing the said colonies and plantations” (4 George III, c.15, 1764).

The Sugar Act reduced the duty on a gallon of molasses from six pence to three pence. The law expanded the list of foreign goods to be taxed to include sugar, certain wines, coffee, pimento, and cambric and printed calico. The reduction in tax on molasses was accompanied by an increase in British military presence and additional controls at the ports to ensure that all duties would be collected. The law also established British admiralty courts for tax violators where a judge made the decision rather than colonial courts which had been the practice in the past.

The intent of the reduction in duties on molasses was to encourage legal duty-paid importing of the product. Parliament’s assumption was that a much lower duty would encourage honesty and reduce the amount of illegal smuggling of the molasses. The British Board of Trade sent instructions to official in the colonies to “make the suppression of the clandestine and prohibited trade with foreign nations, and the improvement of the revenue, the constant and immediate objectives of your care” (Records of Rhode Island, 1757-1769). Clearly, Britain was serious about reducing the amount of smuggling and tax evasion.

The adverse effects of the Sugar Act were widespread across the colonies with significant protests. American merchants felt that the duties were excessive and significantly affected their ability to conduct operations. Nine colonies registered grievances (five with formal petitions) with Britain. The colonists felt that Parliament had the right to regulate trade but it did not have the right to tax them (Morgan, 1948). This marked the beginning of unrest in the colonies pertaining to British taxation policies.

The 1765 Stamp Act was the first tax levied on American colonists by the British Parliament. The previous Molasses and Sugar Acts were, to a large extent, trade related and not entirely direct taxes. The Stamp Act was different. It imposed a tax on all paper documents used in the colonies. The British Government was heavily in debt at this time following the Seven Years War of 1756 to 1763. The Seven Years War, known in America as the French and Indian War ended in February 1763 with the signing of the Treaty of Paris. Britain was heavily in debt at the end of this war and was desperate to raise additional tax revenues from the colonists.

The 1765 Stamp Act was Britain's solution to its financial problems. The Seven Years War eliminated the competition between France and Britain for control of North America. With Britain in control of North America, Parliament felt that since the American colonists benefited from the war effort, the colonists should be assessed a portion of the war costs (History.com Editors, 2019). This act placed a duty on virtually all paper documents used in the colonies. The legislation begins with the words "several duties were granted, continued, and appropriated, towards defraying the expenses of defending, protecting, and securing, the British colonies and plantations in America" (The Stamp Act, 1765).

From the original text of the Stamp Act, the following are just a few examples. A stamp duty of three pence was required on all "declarations, pleas, replication, rejoinder, demurrer, or other pleading in any court of law within the British colonies and plantations in America." A stamp duty of two pounds was required on any "register, entry, testimonial, or certificate of any degree taken in any university, academy, college, or seminary of learning, within the said colonies and plantations." In addition, "any license, appointment, or admission of any counsellor, solicitor, attorney, advocate, or proctor, to practice in any court, or of any notary within the colonies and plantations, a stamp duty of ten pounds" was required. This was one of the largest duties contained in this legislation.

Adult beverage licenses were also written into this law. For example, "any license for retailing of spirituous liquors required a duty of twenty shillings." The same license for retaining wine required a duty payment of four pounds if a license for

spirituous was not also obtained by the colonist. If the bar owner applied for both a spirituous liquor and wine license, the duty was reduced to three pounds for the wine license. All wills, letters of probate, administration, or guardianship were required to pay a stamp duty of five shillings. A duty of two shillings applied to "every advertisement to be contained in any gazette, news paper, or other paper, or any pamphlet."

Two final examples include playing cards and dice. The legislation required the payment on one shilling for every deck of cards and ten shillings for each pair of dice. As one would expect, there was tremendous opposition to this direct taxation on the colonists who felt that it represented an infringement on their rights. Following the passage of this act, opposition groups such as the "Sons of Liberty" formed.

The Quartering Act of 1765 was viewed by the colonists as yet another way that Britain was taxing them. The act begins with these words as a description of its purpose. "An act for punishing mutiny and desertion, and for the better payment of the army and their quarters; several regulations are made and enacted for the better government of the army, and their observing strict discipline, and for providing quarters for the army, and carriages on marches and other necessary occasions, and inflicting penalties on offenders against the same act" (The Quartering Act, 1765).

Contrary to popular belief, the Quartering Act did not require the colonists to house British soldiers in their private residences. Instead, the law required the colonists to provide separate barracks for the soldiers. If there were too few of these barracks, the first paragraph of the Quartering Act states that the colonists were required to provide accommodations for the soldiers in "local inns, livery stables, ale houses, victualling houses, and houses of the sellers of wine." The law continues in paragraph VI that food and drink were to be provided to the soldiers free of charge. Specifically, the law stated that noncommissioned officers and soldiers were to be provided with "candles, vinegar, and salt, and with beer or cyder, not exceeding five pints, or half a pint of rum mixed with a quart of water for each man per diem."

It comes as no surprise that the colonists took umbrage at what they viewed as just another way to add an additional tax burden on the residents. The New York colonial assembly resented being commanded to provide the room and board for the soldiers and simply refused to comply with the legislation. This resulted in Parliament passing the New York Restraining Law which prohibited the royal governor of New York from signing any future legislation until the time that the assembly agreed to comply with the Quartering Act. Although the majority of

residents of New York hated this law, the governor somehow managed to convince Parliament that the assembly was in agreement with it. American colonists despised this law because they were being taxed for food, drink, and barracks for the British army. They felt that maintaining a standing army in peace time was unnecessary. In addition, many colonists feared that the army might be used against them in the future. This soon proved to be true.

The Declaratory Act of 1766 was issued as a result of several houses of representatives in the colonies claiming that they had the “sole and exclusive right of imposing duties and taxes upon his majesty’s subjects in the said colonies and plantations” (The Declaratory Act, 1766). The first paragraph of the act further stated that “the parliament of Great Britain; and the King’s majesty...has full power and authority to make laws and statutes of sufficient force and validity to bind the colonies and people of America, subjects of the crown of Great Britain, in all cases whatsoever.” This clearly stated that it was Britain, and not the colonial houses of representative, that had the authority to pass and enact any form of legislation in the colonies.

The Declaratory Act was only two paragraphs in length. The second paragraph directly stated that any colonial resolutions, votes, or orders that would limit the “power and authority of the parliament of Great Britain, to make laws and statutes as aforesaid, is denied, or drawn into question, are, and are hereby declared to be, utterly null and void to all in purposes whatsoever.” This act left little doubt of who was in control in the colonies from Great Britain’s perspective. Although this was only a two paragraph act, it certainly clarified the question of who could enact legislation governing the residents of the colonies. A final point pertaining to the Declaratory Act. It was passed at the same time that the Stamp Act was repealed due to the extent of colonial American resistance to it. The Declaratory Act was to reaffirm that Great Britain still had control over the colonies, as the repeal of the Stamp Act shows an attempt to stay in the colonists’ good graces.

The Townshend Revenue Act was passed on June 29, 1767. This legislation, in essence, was a tax on a wide variety of goods that were imported into the colonies. It was referred to, however, as a duty because of the colonist’s dislike for the word tax which was used in the Stamp Act. The act placed duties on items such as tea, glass, all types of paper, and paint. For example, for every hundred weight of white glass, a four shillings and eight pence duty applied (Townshend Act, 1767). Green glass duty, per hundred weight, was a shilling and two pence. Painter’s colors, per hundred weight, were assessed a duty of two shillings. The duty per pound on tea was set at three pence.

All forms of paper were assessed duties with higher quality paper receiving a more costly duty. For example, Atlas Fine paper, per ream, carried a duty of twelve shillings, Atlas Ordinary paper duty was six shillings, and Bastard or Double Copy paper (lower quality) had a duty of one shilling and six pence. In addition, there were numerous other types of paper to which a duty applied. Some examples include Blue Royal, Brown Cap, Brown Cap Large, Small Ordinary Brown, Genoa Crown Fine, Genoa Crown Second, German Crown, Demy Fine, and Demy Second. These are but a few of the paper types to which the duty applied.

Since the act placed duties on so many types of paper, paragraph III of the act defined the basic unit of measure for all forms of paper products. The act stated “And be it declared and enacted by the authority aforesaid. That a ream of paper, chargeable by this act, shall be understood to consist of twenty quires, and each quire of twenty four sheets.” A final type of paper product that was included in the act was all forms of “paste-boards, mill-boards, and scale-boards.”

Paragraph IV of the act describes the purposes of this revenue act. The monies collected were to be first used to make “adequate provision for the charge of the administration of justice and the support of civil government” (Townshend Act, 1767). Any additional revenues collected were to be held in reserve “to be from time to time disposed of by parliament towards defraying the necessary expenses of defending, protecting, and securing, the British colonies and plantations in America.” Finally, the Townshend Act gave jurisdiction over smugglers and customs duty violators to the British naval courts rather than Colonial district courts. This also irritated the colonialists because most felt that defendants did not receive a fair trial.

The Tea Act passed by Parliament on May 10, 1773, in fact, did not impose any new taxes but instead continued that duty on tea that was introduced by the Townshend Act of November 20, 1767. The purpose of this act is found in the introductory paragraph. It states that this is “An act to allow a drawback of the duties of customs on the exportation of tea to any of his Majesty’s colonies or plantations in America; to increase the deposit of bohea tea to be sold at the India Company’s sales, and to empower the commissioners of the treasury to grant licenses to the East India Company to export tea duty-free” (The Tea Act, 1773).

This was not a revenue act but instead it was aimed at supporting the East India Company who was heavily in debt and had a surplus inventory of tea. This bailout of the East India Company was needed because the company had massive amounts of debt partly due to the annual payments of 400,000 pounds due to the British government. In addition the East India Company faced unstable political and economic issues in India. Since the duty on tea had been in place since the

1767 Townshend Act, it was not the duty that angered the colonists but instead it was the granting of a sanctioned monopoly of tea sales to the East India Company. This precluded the colonists from purchasing tea from local merchants whose business was significantly affected by this act (History.com Ed., 2019).

Reaction to the Tea Act was so strong that colonists in Philadelphia and New York sent tea laden ships back to Britain. In Charleston, unloaded tea shipments were left to rot on the docks. This led to the famous Boston Tea Party on December 16, 1773. The colonists, led by a group known as the Sons of Liberty, dumped 340 chests (92,000 pounds) of East India Company tea into Boston Harbor (History.com Ed., 2019). Clearly, the colonies were on the road to revolution following these numerous British acts passed since 1733.

As retaliation for the Boston Tea Party, Britain passed the Coercive Acts of 1774. These were a set of five pieces of legislation including the Boston Port Act, the Massachusetts Government Act, the Administration of Justice Act, the Quartering Act, and the Quebec Act. The first four acts were in retaliation for the Boston Tea Party protest. A brief description of each of these laws is presented in the following paragraphs.

The Boston Port Act took effect on March 31, 1774. It basically closed the port of Boston until repayment was made for all of the East India Company tea destroyed on December 16, 1773. The first sentence of this act clearly defines its purpose. It reads as follows, "An act to discontinue, in such manner, and for such time as are therein mentioned, the landing and discharging, lading or shipping, of goods, wares, and merchandise, at the town, and within the harbour, of Boston, in the province of Massachusetts Bay, in North America" (The Boston Port Act, 1774). The majority of colonists found this to be very unfair because it punished all of the citizens of Boston for the violence committed by only a few individuals.

The Massachusetts Government Act was passed on May 20, 1774. The intent of this act was to control the local Massachusetts government and eliminate any obstruction to the execution of British laws. The law states that "the governor of the said province should, from thenceforth, be appointed and commissioned by their Majesties, their heirs and successors" (The Massachusetts Government Act, 1774). Counselors and assistants (governmental officials), who were elected in the past by the general population, were now, by this act, appointed by the governor. The Colonists hated this law since it unilaterally gave Britain full control of the Massachusetts' government. The act also limited town meetings in Massachusetts to only once a year unless the governor requested additional meetings.

The Administration of Justice Act was also passed on May 20, 1774. This law was intended to limit the ability of colonial courts to try British officials. The intent of this law is found in the first sentence that reads as follows, "An act for the impartial administration of justice in the cases of persons questioned for any acts done by them in the execution of the law, or for the suppression of riots and tumults, in the province of the Massachusetts Bay in New England" (The Administration of Justice Act, 1774). The law allowed accused royal officials the transfer to another colony for trial. It was also possible that the so-called transfer would be back to Great Britain where, in most cases, the official was simply released. This especially upset the local colonists who wanted satisfaction for the misdeeds of British officials.

The Quartering Act of June 2, 1774 was very similar to the prior Quartering Act of 1765. A difference was that this act gave the governor rather than the assembly the ability to locate suitable housing for the soldiers. This act stated that if existing barracks were not sufficient, the governor could order and direct the preparation of suitable housing for the soldiers. According to Paragraph II of the act, housing could be in "uninhabited houses, out-houses, barns, or other buildings" (The Quartering Act, 1774). The governor was charged with making the buildings fit for the officers and soldiers for the period of time necessary.

The fifth and final Coercive Act did not pertain to Boston or the colony of Massachusetts. The Quebec Act passed on June 22, 1774 enlarged the boundary of the Province of Quebec and included reforms that were quite favorable to the majority of residents who were catholic French. This was done in hopes of gaining favor with these Quebec residents given the increasing level of resistance from Massachusetts and surrounding colonies. Section I of the law provided a very detailed description of the expanded boundary of the province of Quebec (The Quebec Act, 1774). Again, this act did not pertain to the 13 American colonies.

FINAL THOUGHTS – TAXES AND THE AMERICAN REVOLUTION

The intent of this paper was to trace the number and types of taxes endured by the residents of the original 13 colonies. First, the colonists were faced with significant internally assessed taxes including poll taxes, classified poll taxes, real and personal property taxes, income taxes, and miscellaneous fees and duties. In addition, between 1733 and 1774, a host of additional taxes, fees, and duties were demanded by Great Britain. It is very understandable that the colonists wanted a major change from the situation where there was taxation without representation. They got this change by way of the American Revolution that began in 1775 and lasted for eight long years.

SUMMARY AND CONCLUSIONS

Nations must try to find a proper balance between the burden on the taxpayer and the benefits citizens reap from a well-functioning government. These acts by the British are an example of a government getting that balance wrong. Seeing the burden and not the benefit led to much anger in the colonies. Then, in seeking to punish the perpetrators of the Boston Tea Party, Parliament reacted too harshly, hurting others who were not involved. The anger spread and led to Revolution.

Many of these issues of taxation can still be seen today. Without taxation, no government can function. Despite this necessity, most people still focus on the burden of paying taxes. Who should pay and how much is an eternal question constantly in flux. Should there be a higher burden on the wealthy and corporations? How much is too much? There are no obvious answers except perhaps the opinion: Who should pay the most taxes? Someone else.

The history of Britain's taxation of the American colonies is of interest for several reasons. It shows the importance of balance and fairness in tax policy as well as the value in listening to the views of the taxpayer. It helps to reveal the history of our current system and the roots of our modern day laws. Finally, the authors hope this brief review of colonial taxation will provide insight into the causes of the American Revolution and the founding of our country.

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ACCOUNTING STANDARDS FOR STOCK-BASED COMPENSATION – A CASE STUDY OF APPLE, INC.

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ABSTRACT

The primary objective of financial reporting is to provide information to users to assist them in their decision-making process. In order to be useful, accounting rule makers should develop concepts that require companies to report information that is free from bias. But this neutrality objective has been a debatable topic in the area of stock-based compensation (SBC) – employee stock options and restricted shares. Many argued that pronouncements issued by the Financial Accounting Standards Board and its predecessors for SBC provided an opportunity for companies to report “biased” information. This “opportunity” then influenced employee compensation packages adopted by companies. In this paper, we discuss how accounting pronouncements for SBC have evolved over the years and the forces behind the changes. We then use Apple, Inc. as a case study to demonstrate how these pronouncements impacted the company executive compensation policies. This historical summary can be used as a resource in an accounting theory class to demonstrate how accounting standards change over time, and how external forces influence the changes made in accounting standards.

KEY WORDS: Stock-based compensation, stock option repricing programs

INTRODUCTION

Stock-based compensation (SBC) – primarily employee stock options and restricted shares – has been a staple of executive compensation for many decades. The popularity of SBC is rooted in the corporate governance goal of aligning the interests of management with those of shareholders. Shareholders are primarily interested in increasing value of the company as exhibited through an increasing share price. Companies design SBC to provide increasing compensation to employees as the stock price increases.

The emphasis on stock-based compensation elevated in the late 1990s with the development of the Internet and the numerous company startups focusing their business in this industry. These startups were strapped for cash, but had the potential for a dramatic increase in shareholder value if their business plan was successful. SBC provided an ideal form of executive compensation for these startups. In addition to aligning the interest of employees with that of the

shareholders, SBC generally did not require the use of cash, and would often include a significant income tax benefit to the company and potentially the employee. The tax aspects of SBC are beyond the scope of this paper.

From an accounting perspective, however, the reporting of SBC – primarily stock options – has traditionally been a controversial topic. Early accounting pronouncements did not require companies to report compensation expense related to stock options. There were others, however, who believed the reporting of compensation expense is appropriate for SBC, and the lack of compensation expense provides an opportunity for companies to report “biased” information – i.e. income is overstated because no compensation expense is reported. The expanded use of stock options during the 1990s led to more debate and an increasing effort by many to have accounting pronouncements modified to require compensation expense for stock options. Despite these efforts, it wasn’t until the accounting frauds of the early 2000’s that change became a reality. In 2004, the Financial Accounting Standards Board (FASB) issued a pronouncement requiring companies to report compensation expense equal to the fair value of the stock options as estimated on the date of issuance. This pronouncement is codified today in ASC Topic 718

This change did not come easily. In this paper, we discuss the primary pronouncements developed over the past number of decades to deal with the reporting issues associated with SBC. For each pronouncement, we provide a discussion on the external forces that impacted the pronouncement issued. We then use executive compensation packages adopted by Apple, Inc. over the past two decades to illustrate how each pronouncement affected compensation at that company. Today, Apple is one of the largest companies by market capitalization, but had times in its history when it was cash strapped like many startups and found stock-based compensation to be an effective component of its compensation packages. As accounting guidelines for SBC changed, Apple internally decided to change their form of compensation.

In the next section, we provide some historical background on Apple, Inc. In subsequent sections, we discuss the evolution of accounting guidelines for SBC in the areas of required compensation expense for stock options, repriced stock options, and shares of restricted stock.

BACKGROUND ON APPLE, INC.

Apple Computer, Inc. (Apple) was incorporated on January 3, 1977 by Steve Jobs and Steve Wozniak, and went public on December 12, 1980. Product development in the early years focused on laptop computers – Apple I and Apple II, as well as personal computers such as the Macintosh. Both Jobs and Wozniak left Apple in 1985. During the 1990s, Apple’s performance decreased substantially, primarily as a result of Microsoft’s success in the personal computer market. During this decade, its stock price ranged from a high of \$73.36 in April 1991 to a low of

\$12.88 in December 1997. In 1997, Apple purchased NeXT Inc. which had been founded by Steve Jobs when he left Apple. With this acquisition, Steve Jobs returned to Apple.

Over the next two decades, Apple's emphasis would move toward the consumer product market with the development and introduction of iPhones, iPods, and iTunes. In January 2007, Jobs announced the company thereafter would be known as "Apple Inc." as the company completed its emphasis shift from computers to consumer electronics. Apple has experienced enormous growth in the past couple decades and its market capitalization in December 2019 was \$1.3 trillion.

Throughout its existence, Apple used SBC as a key component to its key executive pay packages as well as an important compensation element for many non-executive employees. When FASB issued new accounting pronouncements, Apple assessed the impact of these changes on its employee compensation packages, and made changes if/when deemed necessary.

EARLY ACCOUNTING GUIDANCE BACKGROUND

The first official accounting guidance related to SBC was ARB 37 (1948), which was subsequently included in Chapter 20 of ARB 43 (1953). This pronouncement states: "there is a presumption that the value of the option should be measured by deducting the price payable by the grantee from the fair value of the shares on the date the option right becomes the property of the grantee." As a result, the norm became the recognition of expense equal to the intrinsic value of the options (fair value of the underlying stock less the exercise price of the options). It was further determined that the date on which the amount of compensation related to the option grant was the "date on which the option becomes property of the grantee" – or the issuance date. In most cases, stock options had an exercise price equal to the company's stock price on the date of issuance. This corporate governance standard provided compensation only in the event the company's stock price increased after issuance. From an accounting perspective, however, no compensation expense was required as the intrinsic value was zero.

Over the next twenty years, the use of employee stock options became a popular means of compensation for company employees, especially key executives. SBC evolved during this period to include more forms of compensation than traditional stock options and included: shares offered to employees at a discounted price, the issuance of shares of stock (i.e. restricted stock) instead of stock options, and stock options where compensation was dependent on some future variable.

The Accounting Principles Board (APB) reviewed the accounting issues related to SBC and eventually issued APB 25 (1972). The issues from this pronouncement most relevant to this study include:

- A verification that the amount of compensation for SBC should be measured on the issuance date when the exercise price and number of shares of fixed.
- Provides guidance on accounting for SBC plans where the number of shares or the purchase/exercise price depends on future events.

The APB had twenty-one voting members at the time and this Opinion was passed by a vote consisting of nine assenting votes without qualification, six votes assenting with qualification, and three dissenting votes. The rationale for dissention generally focused on the method of determining the “expense” associated with issued stock options. The dissenters shared a belief that compensation expense should be recorded for some measure of “fair value” of the options.

One of the dissenters, Mr. Halvorson, also raised a different issue with executive stock options – i.e. excessive compensation of corporate executives. Specifically, Mr. Halvorson states,

“... the Board is acting prematurely on a subject that presumably is being explored more comprehensively in an accounting research study now in progress and that the alleged abuses in accounting for stock compensation which the Opinion seeks to correct have been emphasized out of proportion to their real significance because of the abiding human concern and curiosity about executive compensation, which is a very different thing from the usually relatively immaterial accounting effect of the alleged abuses on the results of operations and financial position.

As far back as the 1970s, there appeared to be public concern about executive compensation. It is debatable whether accounting regulators should establish pronouncements that control or monitor executive compensation, but this issue has certainly triggered public backlash and demand for changes in the subsequent accounting policies for SBC discussed in the following sections.

FASB’S INITIAL PRONOUNCEMENT ON SBC

In 1973, FASB replaced the APB as the primary party responsible for accounting guidance in the United States. Part of FASB’s due process is to add projects to its agenda when it receives credible evidence from those in practice that specific problems or questions exist. In 1982, the AICPA Accounting Standards Executive Committee (AcSEC) submitted an issues paper to FASB detailing practice problems related to stock based compensation. In 1984, FASB officially added stock-based compensation to its agenda and issued an Invitation to Comment based on the issues raised by AcSEC. Board members knew this agenda item would be extremely controversial as businesses were quite content with guidance that required zero expense on the income statement for employee stock options.

Between 1985 and 1988, FASB conducted research on aspects of stock option plans and how option-pricing models might be used to measure fair value. While the issues were complex and controversial, the Board concluded unanimously that compensation expense should be reported for firms that issue stock options to employees. A task force including accountants, academics, and compensation consultants provided guidance in the project. In June 1993, FASB issued an exposure draft that would have required expensing the fair value of stock options as measured on the issuance date. The exposure draft received 1,786 comment letters overwhelmingly opposed to the expense requirement. In 1994, the U.S. Congress addressed the battle with resolutions both for and against guidance in the Exposure Draft. One resolution suggested that FASB should not change the accounting guidance for SBC while a second resolution suggested that Congress should not impair the objectivity and/or integrity of FASB. In addition, members of Congress wrote comment letters to FASB on both sides of the debate. Senator Carl Levin wrote a letter in support of expensing and included the following:

As Chairman of the Senate Subcommittee on Oversight of Government Management which has held hearings on executive pay and stock option issues, I am writing in strong support of FASB's proposal to reform the accounting for stock option compensation... It is time to put an end to the 20-year accounting fiction that stock options have no value or cost unless they are tied to a performance goal. Stock options clearly have value. That's why executives want them and why major U.S. corporations provide them to their chief executive officers (CEOs).

Conversely, Senators Barbara Boxer and Joseph Lieberman, and Representative Anna Eshoo wrote a comment letter opposing the required expensing of stock options. Their letter included the following:

As you know, we have serious concerns about the substance of FASB's proposed rule on the accounting treatment of stock options. Many start-up and high-technology companies rely on stock options as an incentive to attract and retain scientists, engineers and experienced executives. The proposed FASB rule would stifle this practice, killing needed entrepreneurship and punishing companies that are trying to provide new jobs and new opportunities for American workers.

By 1994, the SBC project had created a controversy among accounting practitioners and become an issue of national prominence with the actions of Congress. FASB would need to address the issue while also maintaining its independence from government. In reviewing the many comment letters on the project, a “compromise” became apparent. Many of the comment letters opposing the Exposure Draft suggested pro forma reporting the estimated expense from stock options in financial statement notes instead of formally recognizing the expense on the income statement. In December 1994, FASB came forward with a proposal that “encouraged” expense recognition, but required “disclosure” of the estimated expense for companies that chose not to formally recognize the expense. In the end, FASB issued SFAS 123 (1995) containing this mandate in October

1995. As expected, virtually all companies chose to disclose the impact of stock employee stock options in subsequent years in place of formal recognition. Companies remained free to issue employee stock options without the repercussions related to decreased profits.

It took thirteen years (1982-1995) for FASB to finalize its pronouncement on SBC. This period may be the most contentious and controversial period during FASB's existence. The SBC project brought many issues to light including the purpose of FASB and potential governmental intervention into the accounting rule-making process. FASB's Chairman in 1995 was Mr. Dennis R. Beresford. Beresford (1996) summarizes the many issues that evolved in the SBC project. Members of FASB met with Congressional staff people who were spearheading the political intervention. He summarizes the Congressional staffers' view of corporate financial reporting as follows:

- *"The stock compensation question is not about whether recognizing an expense is the right accounting answer. The question is about job formation."*
- *"It is completely appropriate for the SEC and Congress to overturn the FASB in the interest of economic goals."*
- *"There, evaluating economic consequences is just an expansion of the Board's mission statement."*
- *There is no particular reason why the Board should reach consistent decisions about the use of pricing models in employee options and in projects like derivatives and hedging."*

These statements provide support for the views outlined in the comment letter of Boxer, Lieberman, and Eshoo, but contradict one of the main objectives of FASB's conceptual framework – neutrality. If compensation expense for SBC is useful information to users, accounting pronouncements should make this expense recognition a priority regardless of its economic impact.

Apple, Inc.

In the 1980s and 1990s, Apple compensated its executives and many other employees with the issuance of stock options. As examples, Michael Spindler served as CEO in 1994 and 1995 receiving stock options in those years for 200,000 shares and 100,000 shares respectively; Gilbert Amelio replaced Mr. Spindler in 1996 and received an option grant of 1 million shares.

As discussed in an earlier section, Steve Jobs returned to Apple in 1997. His compensation package included a bonus of \$90 million and an option grant for 20 million shares received in 2000. In aggregate, Apple granted 45.6 million options to its employees during the year ended September 30, 2000. Apple's accounting policy for stock options related to SFAS 123 was to disclose the financial impact of SBC in the notes, and forgo formal recognition of compensation expense. The pro-forma disclosure included the following:

- Reported net income was \$786 million. If Apple recorded an expense for stock options, net income would have been \$483 million.
- Reported basic earnings per share was \$2.42. If Apple recorded an expense for stock options, basic earnings per share would have been \$1.49.

This difference demonstrates why companies were reluctant to recognize an expense for stock options. Financial statement users who believe in expense recognition for SBC considered this difference to be material and continued to believe that recognition should be required.

ACCOUNTING IMPLICATIONS FOR REPRICED STOCK OPTIONS

Stock prices were generally increasing throughout the 1990s. During this period, the world was experiencing an information transformation and the Internet era was in full bloom. Startup companies found it especially advantageous to use stock options as the primary form of compensation for its key employees. Not only did stock options provide compensation without requiring an expense to be recorded, but these cash-strapped companies lacked the resources available to pay large cash salaries and bonuses.

Occasionally, however, some firms experienced severe decreases in stock prices to a point where employee stock options became “out of the money” – i.e. the stock price fell below the stock option exercise price. This created a corporate governance issue where the stock options lost their motivational value. Employees might feel that it would be very difficult for the stock price to rebound enough in order for the stock options to provide an adequate level of compensation in subsequent years. These employees were often approached by competing companies who offered “in the money” stock options if these individuals came to work for the new company. As a result, companies experiencing significant stock price declines often felt pressure to “reprice” stock options – i.e. reduce the exercise price of issued stock options. A repricing would allow companies to reinvigorate employee motivation, but were considered by many to be poor corporate governance as they appeared to be “rewarding” employees for poor company performance. As an alternative to repricing, some companies offered employees an “exchange program” option where employees exchanged existing stock options for a new issue of stock options with a lower exercise price.

From an accounting perspective, repricing and exchange programs raise a new issue – are exercise prices “fixed” at a new lower level, or in fact has the company demonstrated that stock options have a “variable” exercise price. Companies that repriced stock options would argue the former and claim no compensation expense needs to be recorded as long as the new “fixed” price is less than the stock price on the date of repricing. If deemed to be variable, however, companies would need to follow guidance in APB 25 for variable stock option grants. This

pronouncement requires companies with variable stock option compensation to report compensation expense each year reflecting the change in the intrinsic value of the stock options during the year.

In 1996, FASB added a project to address certain accounting issues related to stock options, including stock option repricing, to its agenda. In March 2000, FASB issued FIN 44 (2000). This interpretation requires all stock option repricings to be treated as variable awards. FASB also addressed stock option exchange programs in this pronouncement. For exchange programs, FASB needed to determine whether the intent of the program is to essentially “reprice” existing stock options, or if in fact the “old” options and the “new” options constituted two separate programs. To address this issue, FASB examined the time period between the date that existing stock options were cancelled and the date when new options were issued. FIN 44 concluded that stock option exchange programs need to be treated as repricings (and variable accounting treatment required), if the new stock options with a lower exercise price are issued less than six months after the original stock options were cancelled.

FIN 44 effectively eliminated all stock option repricings as variable accounting would not only require an expense for stock options to be recorded, but the volatility of the expense would be extreme – i.e. expense would be higher in years the company stock price increases and would be “negative” in years when the company stock price decreases. (See Lobo and Vogel (2005) for an analysis of how repricings would impact company income.) The interpretation, however, did leave an “out” for companies adopting exchange programs without recording an expense. FIN44 established a “bright line” at the six-month period. Option exchanges with a time period greater than six months between cancellation and reissue were not subject to variable accounting. With this bright line, companies created “6 plus 1” exchange programs where the reissue of new options occurred exactly six months and one day after the cancellation of the previous stock options. Of course, this time period created a risk for employees that the reissue of the new stock options had a larger exercise price as a result of potential stock price increases, but no compensation expense was required for the “replacement” stock options in this scenario.

Apple, Inc.

Apple experienced two significant stock price declines in its history that effectively eliminated the motivational impact of outstanding employee stock options. In both cases, the company chose to offer employees “option exchange programs” (i.e. repricing) to re-incentivize the employees involved.

The first occasion was 1997. As noted earlier, the stock price hit a low of \$12.88 during that year. Apple adopted an exchange program and disclosed the following in its proxy statement dated March 16, 1998:

In July 1997, the Compensation Committee also reviewed the employees' outstanding options and determined that many employees of the Company held options at exercise prices that limited their effectiveness as a tool for employee retention and as a long-term incentive. To address this problem, the Compensation Committee consulted with an independent benefits consultant and, after considering various methods of dealing with this problem, approved the Exchange Program. Under the Exchange Program, current employees of the Company were permitted to exchange all (but not less than all) of their options for new options on a one-for-one basis with an exercise price of \$13.25, the fair market value of the Common Stock as determined under the terms of the 1990 Plan.

The program allowed executive officers to participate. The proxy statement summarizes six executive officers that exchanged a total of 1,474,750 stock options with exercise prices ranging from \$16.00 to \$29.75 for an equal number of options with an exercise price of \$13.25. The two individuals who served as Chief Executive Officer during the year – Gilbert F. Amelio who resigned during the year and Steven Jobs who served as interim after Amelio's departure – were not allowed to participate. Other non-executive employees of Apple were eligible to participate, but the proxy statement does not disclose the total number of options exchanged by these other employees. Because Apple finalized this exchange program before the effective date of FIN44, no compensation expense was required.

Apple's second option exchange program occurred in 2003 – *after* the effective date of FIN44. The proxy statement dated March 11, 2004 contained this disclosure about the program:

Due to the downturn in the economy, particularly in the technology industry, the share price of the Company's Common Stock declined significantly from its levels prior to 2001, leaving many employees with stock options that were "underwater," that is, with exercise prices that were significantly higher than the market price of the Company's stock. The Committee believed that many of those options had little value, were unlikely to be exercised in the foreseeable future and no longer provided an effective incentive to motivate and retain employees. In addition, because of the drop in the stock price, the number of unexercised options had grown to an undesirable level. Sensitive to shareholder concerns regarding the dilutive effect of stock options, rather than granting additional options to compensate for the underwater options, the Committee determined that a reduction in such potential dilution was more in line with building shareholder value. Accordingly, in March 2003, the Board authorized a stock option exchange program whereby eligible employees, other than executive officers and members of the Board of Directors, had an opportunity to exchange outstanding options with exercise prices at or above \$25 per share for a predetermined smaller

number of new stock options to be granted at least 6 months plus 1 day after the exchanged options were cancelled. In accordance with the terms of the stock option exchange program, a total of 16,569,193 options were cancelled and on October 22, 2003, new options totaling 6,697,368 shares were issued to employees at an exercise price of \$22.76 per share, which was equivalent to the closing price of the Company's stock on that date.

This second exchange program is arguably more “acceptable” to corporate governance critics as executive officers were excluded, and those employees who did participate received options for few shares in the exchange. Those who participated, however, had to wait six months plus one day to receive the new options. This “6 plus 1” exchange program was designed specifically to avoid the expense recognition implications required in FIN44. It appears the accounting guidelines directly impacted the corporate governance decisions for Apple as related to this second exchange program.

ACCOUNTING FOR SBC IN THE 2000s

The accounting frauds discovered in the early 2000s created a need for FASB to once again examine the accounting for SBC. There was a belief that the potentially large compensation provided by SBC influenced executives in their decisions leading to these fraudulent activities. In an attempt to gain confidence with the market, some companies modified their reporting of SBC and recorded compensation expense for stock options rather than merely disclose the potential impact. With these companies choosing to report an expense while other companies continuing to disclose, FASB faced a new problem with stock options – comparability. Separately, in November 2002, the International Accounting Standards Board (IASB) issued an invitation to comment on a proposed International Financial Reporting Statement that would require the expensing of stock option fair value.

These two issues – comparability and the attempt at international convergence of accounting standards – led FASB to add a project to reconsider SFAS 123 in March 2003. A year later, in March 2004, FASB issued an Exposure Draft that required all companies to recognize an expense for the fair value of employee stock options. FASB received 14,239 comment letters on the Exposure Draft, most of which were unrelated to the accounting concepts involved. Companies such as Intel, Inc. and Cisco, Inc. enticed employees to write a letter to FASB to emphasize why stock options were an important form of compensation that would disappear if the new rule was enacted. One Cisco employee wrote the following:

If you eliminate broad base employee stock options from hard working individual contributors like me, you are taking away more than you think. You are taking away the dream of someday owning a home here in the Silicon Valley... Cisco Systems has been generous with stock options to individuals like me. I have received them for achieving important goals

and I have even received them in place of salary increase when many of the companies in the valley were eliminating jobs or cutting salaries.

These personal letters draw on the heartstrings but do not address the primary issue at hand – should an expense be recorded related to employee stock options.

Other comment letters received focused primarily on the methods used to compute the expense (such as the Black-Scholes stock option pricing model) instead of arguing for or against the concept of whether an expense should be recorded. Feedback provided support for FASB to require expense recognition for stock options.

U.S. Congress also got involved as it did in 1994. On July 20, 2004, the United States House of Representatives passed H.R. 3574, the “Stock Option Accounting Reform Act.” This Act prescribed the accounting guidance to be followed for stock options issued to company CEOs and the four other most highly compensated employees. This legislation provided the needed background for FASB to continue its process to modify the accounting guidance in SFAS 123. SFAS 123R (2004) was issued in 2004. With the issuance of this statement, companies were finally obligated to recognize an expense for all employee stock options as measured on the issuance date. Merely disclosing the potential impact of SBC in a footnote was no longer an option.

Many companies chose to reexamine their compensation policies with this new accounting pronouncement. Companies became reluctant to issue large grants of stock options to employees if compensation expense is now required. But in order to align the interests of employees with those of shareholders, companies wanted to retain some form of employee compensation linked to stock price performance.

Over the next number of years, the emphasis in SBC switched from employee stock options to shares of restricted stock. Unlike stock options, prior accounting guidance required companies to report compensation expense for SBC in the form of restricted shares. The expense was determined to be the fair value of the shares on the date of issue. Because of the expense recognition requirement, restricted shares were not an attractive form of employee compensation prior to SFAS 123R.

Carlson and Vogel (2006) provides background on the issues involved in this change for a publicly traded company. The primary advantage for compensation packages with restricted shares from an employee perspective is that restricted shares effectively eliminate the chance that the SBC will provide zero compensation. Restricted shares provide compensation even if the share price declines after the date of issue. Stock options on the other hand provide zero compensation if the share price declines after the date of issue. Because these shares are a “safer” form of compensation, employees will accept fewer restricted shares than they would require as stock option compensation. From the company

perspective, compensation packages that focus on restricted shares will therefore minimize the dilution effect of SBC.

Finally, the SBC decision of stock options versus restricted shares has an indirect impact on another important corporate governance decision – i.e. dividend policy. Dividends have the effect of limiting stock price increases as they represent a distribution of profits that are no longer retained by the company for future growth. As a result, dividends limit the value of employee stock options. For restricted shares, however, dividends are an attractive feature. Employees holding restricted shares are often entitled to receive dividends when declared. Whereas companies may have used excess cash to repurchase shares of stock when SBC was primarily stock options, the focus with SFAS 123R may switch to paying dividends when SBC switches to restricted shares.

Apple, Inc.

Apple is one of many companies that shifted SBC from stock options to restricted shares. In fact, for Apple, the shift came before the effective date of SFAS 123R. Steven Jobs agreed to “trade” his outstanding stock options for 27,500,000 shares in exchange for 5,000,000 restricted shares in 2003. It should be noted that this is the same year as Apple’s option exchange program – a program in which executive officers were not allowed to participate. As outlined in the March 11, 2004 proxy statement:

In March 2003, Mr. Jobs voluntarily cancelled all of his outstanding options, excluding those granted to him in his capacity as a director. Mr. Jobs felt strongly that this would more effectively build shareholder value by reducing the Company’s overhang and by providing additional shares that could later be granted to employees whose contributions are critical to the long-term success of the Company. In keeping with its philosophy to relate compensation to building shareholder value, in exchange for his cancelled options, the Board approved a new retention and incentive program in the form of long-term equity compensation consisting of five million restricted shares of the Company’s Common Stock which generally vest in full on the third anniversary of the grant date.

Based on the stock price on the issuance date, the restricted shares had a fair value of \$74.75 million. While other executives did not exchange stock options for restricted shares in 2003, Apple changed its executive SBC policies in 2004. The new focus was on restricted shares. On March 24, 2004, Apple compensated its four named executive officers in the proxy statement with a total of 2.1 million restricted shares having a fair value of \$26.775 million on the date of issue. This switch from stock options to restricted shares for Apple occurred before the effective date of SFAS 123R (2005), but was likely impacted by the anticipated new accounting pronouncement.

Today, Apple uses restricted shares exclusively as its SBC. There were no executive stock options outstanding as of Apple's most recent proxy statement for 2019. Executive SBC is now a combination of performance-based restricted shares and time-based restricted shares.

Finally, Apple's innovative products have provided an extraordinary cash flow for the past twenty years. In 2012, Apple initiated a regular dividend. As outlined in its proxy statement dated January 2, 2020:

At Mr. Cook's request, none of his RSUs participate in dividend equivalents. All other RSUs granted to employees have dividend equivalent rights, which entitle RSU holders to the same dividend value per share as our shareholders. Dividend equivalents are subject to the same vesting and other terms and conditions as the corresponding RSUs. Dividend equivalents are accumulated and paid when the underlying RSUs vest.

CONCLUSIONS

The purpose of accounting pronouncements is to determine financial reporting requirements that are most useful to external users in their evaluation of company performance. It is *not* the goal of FASB and its predecessors to influence internal operating and strategic decisions. Indeed, most accounting pronouncements have little or no impact on the decisions made at companies. Over the past several decades, however, accounting pronouncements for SBC has been the most glaring exception to this rule. As we have discussed, new accounting pronouncements in SBC have had a material impact on important corporate governance decisions related to executive compensation packages even though that is not the primary purpose of accounting pronouncements.

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PREVENTING CHURCH EMBEZZLEMENT IN U.S. PROTESTANT AND CATHOLIC CHURCHES

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ABSTRACT

Greed and desperate situations have driven employees to embezzle from unsuspecting employers. All too often, these employers are U. S. Catholic and Protestant churches. This study included a judgmental sample of fifty cases to understand which employees stole from U. S. churches, the embezzlement methods, the concealment methods those employees used to misappropriate the funds, and how church leaders discovered the embezzlement. The results of the study indicated that the preacher or priest was responsible for most of the embezzlements. The most common embezzlement methods included writing unauthorized checks and skimming from the collection plates. The embezzlers chose to conceal the embezzlements by creating false entries in the accounting records. Auditors discovered the majority of the embezzlements in this study. As a result of these findings, various procedures were recommended for churches to prevent future embezzlements.

Keywords: Churches, embezzlement, employee-fraud, misappropriation of assets

INTRODUCTION

Every day, in every organization, nearly all employees have opportunities to embezzle; thankfully, most choose not to steal assets (Mintchik & Riley, 2019). Of the employees that choose to misappropriate assets, they targeted cash. Regrettably, churches are often a target for desperate or greedy employees. So, when church embezzlements occur, they are often the result of too much employee trust, too much employee freedom, too much individual authority, too little skepticism, and too few controls to protect church assets (Gottschalk, 2017).

This review presents a detailed look at recent Protestant and Catholic church embezzlements in the United States. These churches are popular U.S. religious groups (Newport, 2016) known for helping needy individuals, families, or groups. Unfortunately for these churches and their members, potential perpetrators also view church collections as an opportunity, a gift, or a solution to personal problems.

If church embezzlements occur, they may go undetected or detected. Undetected embezzlements exist when the perpetrator's devious activities escape the scrutiny of church leaders, membership, or auditors. However, once detected, the church members may feel violated. Some members may be

unable to grasp how a preacher, priest, church employee, or church volunteer could take advantage of the church's devotion and generosity (Heslop, 2008).

Then as the embezzlement knowledge permeates throughout the church, some members may unite to support the perpetrator. They may view the theft as a temporary flaw in the embezzler's character or as an act of desperation; especially, if the perpetrator's goal was to reduce another's suffering. These supportive members may also be sickened by the thought of punishing a church member and demand forgiveness then forget the embezzlement. Unfortunately, forgiveness and the subsequent dismissal of an alleged perpetrator may enable the perpetrator to move on and steal from other unsuspecting churches or businesses. This dismissal can also communicate with other potential embezzlers that if they steal from the church, the embezzler only has to return the stolen assets to be exonerated. Thus, there is no penalty or punishment!

In contrast, there may also be church members that believe the perpetrator should be held accountable and want to report the suspected embezzlement to the authorities and vigorously prosecute them. This group of church members may support this belief by rationalizing that the church has a fiduciary duty to make sure all gifts are safeguarded and used as intended by the donor(s). They may also believe that future donations may deteriorate as public knowledge of alleged embezzlement grows (Fleckenstein & Bowes, 2000). If so, member confidence could diminish, and the church may be unable to help those in need.

Sometimes the debate between prosecuting and forgiving the perpetrator may become so fiery that the church splits apart. In effect, one group wants to send the perpetrator to prison, and the other wanting to extend forgiveness (Busby, 2004). As a result, church embezzlements can become a problem that reduces the usefulness of the church. Therefore, the purpose of this study was to determine how U.S. Protestant and Catholic churches can prevent church employees from embezzling.

THEORETICAL BACKGROUND

Embezzlement is the fraudulent conversion of another person's property by one or more trusted employees (Embezzlement, n.d.). The employees that embezzle cash commonly have job duties that require them to handle money or accounting records (Treadwell, 2018). These jobs often include administration, executive, finance, accounting, human resources, information technology, management, or sales department positions (Marquet International, Ltd., 2013). The perpetrators are middle-aged, well-educated, trusted, in a position of responsibility, and devoid of criminal history (Dorminey, Fleming, Krancher, & Riley, 2012). They may also have healthy egos that can help them avoid detection. However, if detected, they are confident they can quickly get themselves out of trouble (Abdullahi & Mansor, 2015). Furthermore, these perpetrators can lie effectively and consistently (Wolfe & Hermanson, 2004).

Fraud perpetrators can be predatory or accidental fraudsters (Dorminey, Fleming, Kranacher, & Riley, 2010). Predators are sinister employees that enter targeted churches looking for assets to misappropriate. Predators often have better concealment schemes and are better organized to deal with auditors (Dorminey et

al., 2010). In contrast, accidental fraudsters start employment relationships as loyal employees; however, an event or opportunity can compel these honest employees to misappropriate an employer's assets.

Two of the most cited embezzlement theories are the Fraud Triangle Theory and the Fraud Diamond Theory (Abdullahi & Mansor, 2015). While both theories embrace how accidental fraudsters must have overwhelming pressure, an opportunity to misappropriate targeted assets, and the ability to rationalize the act before they embezzle (Abdullahi & Mansor, 2015). The elements of pressure, opportunity, and rationalization answer why the accidental fraudster employee steals; however, the predator only needs an opportunity to embezzle. In effect, predators do not need to rationalize the embezzlement, nor do they harbor some form of motivation.

Wolfe and Hermanson (2004) expanded the Fraud Triangle Theory by theorizing that a perpetrator must also have the right skills and abilities before they embezzle. They labeled this fourth element as capability. Often, the embezzler's capability is associated with the job function or position held by the motivated employee (Abdullahi & Mansor, 2015). Capability also includes the ability to deal with the stress created when an honest employee commits immoral acts (Dorminey et al., 2010).

The fraud triangle and fraud diamond theories both focus on an employee's opportunity to embezzle. Therefore, when an organization fails to implement appropriate safeguards to prevent and detect embezzlement activities, that organization unintentionally creates opportunity (Azam, 2018). Sources of opportunities can include poor controls, inadequate training and supervision, and the failure to prosecute former embezzlers (Dorminey et al., 2010). As a result, an opportunity is a key that opens doors for embezzlers. Simultaneously, motivation and rationalization draw the motivated employee towards the open door, and capability enables the motivated employee to step through the open door and misappropriate assets (Wolfe & Hermanson, 2004).

The reason employees embezzle is motivation since it enables good employees to carry out unethical behaviors (Mackevicius & Giriunas, 2013). Examples would include employees who choose to embezzle because they cannot delay buying basic needs or pleasures, resolve desperate situations, or obtain some form of retribution. These basic needs often include food, clothing, shelter, and transportation. Pleasures often involve a need to gamble, purchase luxury items, or fund extra-marital affairs. Then solving desperate situations can emerge when the employee needs to pay an overdue bill or buy medicine for a sick child. Furthermore, disgruntled workers may be motivated to embezzle to obtain retribution for a perception of being overworked, underpaid, or underappreciated.

Employees may also believe their personal needs are more important than the needs of unknown individuals, families, or groups the church has targeted for assistance. When this rationalization occurs, an employee makes a rational choice to solve their needs—first. The rational choice theory

assumes the worker has preferences among available alternatives, which enable the worker to pick the option they prefer.

Rationalization refers to the excuses an employee uses to differentiate immoral conduct from criminal conduct (Mackevicius & Giriunas, 2013). For example, when an employee's embezzlement activities produce guilt and discomfort, they attempt to reduce this guilt and pain by rationalizing the embezzlement (Mintchik & Riley, 2019). In this situation, a potential perpetrator may rationalize embezzling as a borrowing activity, which they will repay with future earnings or winnings from gambling activities. An employee's desperation level may also increase the ability to rationalize embezzling if it is for survival. However, if an employee cannot rationalize the embezzlement, it is unlikely they will steal (Mackevicius & Giriunas, 2013).

Regardless of the opportunity, motivation, and rationalization, perpetrators commonly want cash. Cash is preferred since it is easy to conceal and readily accepted by businesses where the perpetrator can purchase various forms of satisfaction, pay obligations, or buy necessities. However, if the perpetrator does not have access to an employer's cash, they will misappropriate other available non-cash assets, including inventory or fixed assets. For the perpetrators to benefit from the stolen non-cash assets, they must either consume the misappropriated assets or convert them to cash. Methods of converting these non-cash misappropriations to cash can include selling through pawnshops or via online auction sites.

Churches may also unknowingly compel employees and volunteers to embezzle by providing too much trust, insufficient oversight, and the ability to conceal misappropriations. An example could include a church business manager who [independently] controls the offering plates, counts the cash, makes the deposits, maintains the books, writes the checks, reconciles the bank accounts, and prepares the financial statements (Ulmer & Noe, 2013). Furthermore, some churches intentionally do not establish controls for the minister, bookkeepers, check-writers, or collection plate counters. They rely on faith! This reliance may also emerge if the church leadership recommends a separation of duties; however, the affected employee may take offense by asserting the recommended controls are a personal attack on their integrity. As a result, the worker may resign and possibly leave to attend another church. Thus, church leaders often choose to avoid implementing a separation of duty controls.

LITERATURE REVIEW

Businesses can be the victim of many different types of fraud (Azam, 2018). If that business is a church, it may operate with a limited budget, staffing, and controls (Gallagher, 2014). Because of these limitations, churches often operate with high levels of trust and a belief that all church members will work for the welfare of the church (Throop, 2001). Visibly, these beliefs are incorrect.

Employees that choose to embezzle have often worked for years in a strategic position. Their authority often makes it easier for them to override or bypass existing controls (Peltier-Rivest & Lanoue, 2012). Their experience and knowledge may also enable them to conceal the embezzlement activities (Ulmer

& Noe, 2013). As time passes, new employees become seasoned employees who know where weak or non-existent controls exist; thus, embezzlement can occur (Busby, 2004). Because of these weaknesses, the average church embezzlement can continue for nearly seven years, considerably longer than non-church embezzlement (Marquet, 2011).

As a result, church employees with an unshareable financial problem may choose to embezzle (Dorminey et al., 2010). Some of these motivated employees may feel pushed into a corner by creditors or medical emergencies, making it easier to rationalize how the benefits of embezzling outweigh the costs (Murphy & Dacin, 2011). The motivating financial problems can result from living beyond one's means, peer pressures, gambling losses, drug habits, extra-marital affairs, or for many other reasons. Thus, any church employee with problems may choose to embezzle from the church to solve the problem.

To make matters worse, church congregations often take a benevolent attitude towards embezzlements and choose to focus on God's forgiveness (Fleckenstein & Bowes, 2000). Church boards commonly want to avoid publicity of improprieties by not prosecuting alleged embezzlers (Ulmer & Noe, 2013). So, they send a clear message to potential embezzlers that if they steal from us and get caught, they only need to confess, ask for mercy, and we will forgive and forget. As a result, church leaders' trusting nature, the lack of professional management skills, and in some cases, the incompetence of leaders, place churches in a potentially disastrous situation exists (Boudreau, 2008; Throop, 2001).

METHODOLOGY

This study used a qualitative research design to explore recent data from multiple church embezzlement cases. The Google browser enabled the identification of U.S. Church embezzlements, where the perpetrator was adjudicated guilty and sentenced. The search involved phrases that included church embezzlement, church embezzlement cases, and church embezzlement sentencing. This study excluded multiple perpetrators working in collusion and cases where a single perpetrator embezzled from multiple churches. From each identified case, a triangulation of the articles and reports took place to confirm the information's accuracy. The chosen articles and reports included radio station reports, newspaper reports, FBI reports, and Department of Justice Reports. Of the chosen embezzlement cases, 14 involved Catholic churches, nine involved Baptist churches, six involved Lutheran churches, five involved Methodist churches, and four involved Christian churches. Presbyterian and Orthodox each involved two cases. Finally, the Church of Christ, Resurrection, Episcopal, Apostolic, Christian Science, First Assembly, Inter-Faith Mission, and Non-Denominational each involved one case.

RESEARCH QUESTIONS

Without a doubt, church embezzlements are a problem that can reduce the usefulness of churches. Therefore, the purpose of this study was to identify positions held by the embezzler, the chosen embezzlement methods, the chosen concealment methods, and how management detected the embezzlement. The following research questions' theoretical basis is based on Cressey's Fraud

Triangle theory and supported by Wolfe and Hermanson's Fraud Diamond theory. Both theories support understanding who committed the fraud, how they committed and concealed the fraud, and how church leaders discovered the frauds. Therefore, this study's central question asks how can U.S. Protestant and Catholic churches prevent employee embezzlements. In answering the central question, three sub-questions explored who misappropriated church assets, what methods the perpetrators used, and how they concealed the embezzlements. Then an additional sub-question asked how church leaders discovered the embezzlements. Those questions included:

RQ #1: Which employee positions choose to misappropriated church assets?

RQ #2: What methods did these church employees use to misappropriate church assets?

RQ #3: How did the embezzlers conceal the misappropriation?

RQ #4: How did the church leaders discover the embezzlements?

FINDINGS

Within the chosen embezzlement cases, 98% of the perpetrators worked in church business offices with access to cash or records. Undoubtedly, this access enabled the office workers to embezzle. As a result, male employees perpetrated 52% of the embezzlements, and females committed 48% of the embezzlements. The male perpetrators misappropriated an average of \$344,000 per case and had an average age of 54.9. In contrast, the female perpetrators misappropriated an average of \$463,000 per case and had an average age of 51.1 years.

The perpetrator's positions' relative frequency indicated what jobs in this study were commonly associated with church embezzlements. Pastors or priests committed most of the embezzlements. Other employees that embezzled included the Treasurer, bookkeeper, business manager, directors, secretaries, clerks, finance managers titles. Also, there was a pastor's wife and another office employee with an unreported position. However, none of the articles or reports indicated if the office workers had degrees or certifications associated with the job duties.

Alternatively, it is also plausible that the Treasurer through the Unknown positions were all the same job positions with different titles. If so, the preacher/priest was responsible for 24% of the embezzlements, while the cash/records employee was responsible for 76% of the misappropriations. (See Table #1) Also, this information answers RQ #1.

Table #1: Perpetrator Positions		
Position	# of Perpetrators	Relative Frequency (Percent)
Pastor/Priest	12	24%
Treasure	11	22%
Bookkeepers	7	14%
Business Managers	6	12%
Department Directors	3	6%
Secretary	3	6%
Clerks	2	4%
Accountant/CFO	2	4%
Finance Manager	2	4%
Pastor's Spouse	1	2%
Unknown	1	2%

In the sample cases, 29 of the 50 churches provided information on the methods of embezzlement. The most common embezzlement methods included issuing unauthorized checks, skimming cash, personal purchases with church assets, and forged signatures on checks. The lesser-used methods included the failure to withhold for personal services, unauthorized pay, false claims for reimbursements, unauthorized wire transfers, and church funds deposited into private accounts.

Table #2: Embezzlement Methods		
Embezzlement Methods	# of Identifications	Relative Frequency (Percent)
Wrote Unauthorized checks/debits	10	26%
Skimmed from offering plates/collections	9	23%
Made unauthorized personal purchases	8	21%
Forged signatures on checks	4	10%
Did not withholding for healthcare/childcare	2	5%
Gave unauthorized pay raises/paychecks	2	5%
False/unapproved claims for reimbursements	2	5%
Made unauthorized wire transfers	1	3%
Deposited church deposits in personal acct	1	3%

As a result of this information, it is evident that church management and auditors should closely monitor the disbursement of and the collection of

funds. Then perform a comparative analysis on income statements to determine if any line item unexpectedly increases or decreases. (See Table #2) Also, this information answers RQ #2. Initially, management provided embezzlement opportunities by granting employees excessive trust in combination with limited oversight and casual recordkeeping practices. These weaknesses most likely created employee confidence that enabled them to develop false entries, omit some check disbursements, and dispose of collection records. Some of the employees were able to open bank accounts and obtain credit cards without management's knowledge. As a result, donor checks could be deposited directly into the perpetrator control checking account. The perpetrator could then issue legitimate church checks for private purchases charged to the perpetrator-controlled credit cards. (See Table #3) This information answers RQ #3.

Table #3: Concealment Methods	
Concealment Methods	# of Identifications
Created false entries in books	2
Did not record some checks	1
Disposed of collection records:	1
Opened unauthorized bank account	1
Secretly obtained credit card	1

The perpetrators in this study stole church assets for numerous reasons. They included personal expenses, extravagant items, personal business expenses, family expenses, various vices, and retribution. The personal expenses included payments for household bills, mortgage payments, medical bills, and various repairs. The extravagant items included vacations, jewelry, homes, plastic surgery, entertainment, boats, autos, equestrian activities, and dog grooming. Personal business expenses included inventory purchases and operating expenses. The extended family expenses included tuition and gifts. The vices were limited to gambling and the retribution occurred because the employee felt snubbed because of a smaller than expected bonus.

Finally, thirty of the cases contained information regarding how the suspected embezzlements were initially detected. Of those cases, auditors detected eleven of the embezzlements, and new or existing workers detected five of the embezzlements. Members of the congregation detected or reported four of the embezzlements, while the church's bank detected and reported three of the embezzlements. Church pastors reported three of the embezzlements, and four of the cases were associated with other methods. (See Table #4) The information in this chart answers RQ #4.

Table #4: Church Embezzlement Identification Methods		
Discovery Method	# of Identifications	Relative Frequency (Percent)
Audits Uncovered	11	22%
Co-workers Reported	5	10%
Church Members Reported	4	8%
Bank Employee Reported	3	6%
Pastor Reported	3	6%
Trustee Reported	1	2%
Records Disagreed w/Reports	1	2%
Anonymous Complaints	1	2%
Discovered Unauthorized Checks	1	2%

DISCUSSION

One of the fundamental beliefs of Protestant and Catholic church members is to help people in need. While helping desperate people is an admirable belief, new acquaintances can become trusted church employees. The church members may also believe these new employees will work for the welfare of the church (Throop, 2001). While this abundance of trust builds church memberships, it can also increase a church's vulnerability to embezzlement.

To reduce these vulnerabilities, church leaders should always be on alert since any employee, [new or old], and even those in the most trusted positions will embezzle (Heslop, 2008). For the financial records to be safe, they should always be kept in the church office. Tithings should also stay in the church until the cash is counted, recorded, and a deposit slip is ready to accompany the bank's deposit. Finally, two or three church members should be present to count, record, and to prepare the deposit slip.

Church leaders may also require background checks for employees who handle offering plates, count and record the collections, and deliver the bank's tithings. While these background checks would lessen the likelihood of using an employee with a prior embezzlement history, they would do little to prevent an employee with no embezzlement history from getting the job. Thus, background checks do not reveal what is within employees' hearts, personal weaknesses, or the possibility that they may engage in future behavior that is detrimental and costly to the church (Heslop, 2008).

Additional controls for preventing church embezzlement should include fraud training for new employees and annual updates for existing employees. The fraud training may also send a verbal message to all employees that the church

leadership is actively looking for fraudulent acts. For the training to be practical, employees will also need information on how and whom to report suspicious activities.

Preventive procedures could also include replacing the collection plate with a ballot style collection box positioned near the rear of the sanctuary area. After the church services or other church events have concluded, church members could pass by the locked collection box and drop donations. Two or three church members could unlock, count, prepare deposit slips, and drop the deposit into the bank night deposit.

In churches with multiple employees, preventive procedures should require a separation of duties to prevent office employees from solely completing any transaction. This type of structure could prevent a single employee from authorizing, preparing, and signing checks. It could also prevent an employee from ordering, receiving, and paying for merchandise. Also, multiple employees should retrieve and open the mail; and shred any credit offers. This procedure could also prevent rogue employees from misappropriating mailed donations and reducing an employee's ability to conceal invoices associated with personal purchases.

When a separation of duties is not possible, an increase in management oversight should occur. Church leaders providing oversight should have an in-depth understanding of fraud and how fraudsters conceal their fraudulent acts. Knowledgeable managers with oversight responsibilities could also ensure that employees deposit all funds. They could ensure that a single employee who approved purchases, writes checks, reconciled the checkbook, and pays credit cards, did so without misappropriating church assets. Finally, management oversight could reduce the ability of employees to open unauthorized checking and credit accounts.

Church leaders should prevent preachers or priests from having sole control of the finances. Since clergy members take vows of poverty, they can easily rationalize how the church owes them. Also, pressures may arise if the minister has a gambling addiction or excessive credit purchases. In this situation, the motivation to misappropriate church assets is to silence debt collectors or avoid legal issues. Furthermore, preachers also embezzle to have luxury items. According to the U.S. Attorney's Office of the Northern District of Oklahoma (2015), Willard Jones, a Tulsa Oklahoma preacher and former Executive Director of a Community Development Project misappropriated over \$900,000. Jones embellished himself with luxury hotel stays, restaurants, casinos, liquor, automobiles, a Rolex watch, residential improvements, and a mink coat with funds misappropriated from his church and the Community Development Project.

CONCLUSION

The ability of church employees to embezzle is a significant problem for U.S. Catholic and Protestant churches. While the development of internal controls, separation of duties, management oversight, fraud training, and other internal controls can become an effective means for preventing church

embezzlements; unfortunately, all of these controls may be too expensive for small churches. Therefore, many churches rely on faith to protect their assets.

This study concludes by recommending smaller churches use existing church members with professional finance or accounting credentials as office volunteers. They understand fraud, internal controls, how to provide oversight, and how to report suspicious activities. These members should work together in counting, record, and depositing funds. Other committees should work together in paying and records purchases. In addition, nobody should remove church records from the church, and the funds should only leave the church after multiple committee members prepare a deposit. Finally, these church memberships should not be afraid of prosecuting embezzlers because there can be no mercy without justice (Fleckenstein & Bowes, 2000).

LIMITATIONS

While some church embezzlements go undetected, others are detected then forgiven and forgotten. So, the only church embezzlements that are known are cases that were detected and prosecuted. Thus, society does not know the exact population of all church embezzlers. Therefore, this study used a qualitative study combined with a judgmental sample to identify cases. While the resulting sample may not represent the population of all church embezzlement, the results of this study should not be generalized.

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