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Editorial Note

The May 2021 issue of the *Journal of International Business Disciplines (JIBD)* has been the result of a rigorous process of blind reviews, and in the end, three articles were recommended for publication in this issue of *JIBD*.

JIBD is committed to maintaining high standards of quality in all of its publications.

Ahmad Tootoonchi, Chief Editor
Journal of International Business Disciplines

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EMPLOYEE PARTICIPATION IN THE PR FUNCTION WITHIN ORGANIZATIONS

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ABSTRACT

Internal communication efforts follow well-established marketing practices by using push strategies to promote the need to share information with the PR team or pull strategies using tactics to draw employees towards sharing information as a course of action. This study investigated how employees communicate regarding personal, professional, and company accomplishments as a function of employee engagement as well as the factors that affect their decision-making through a 2 x 3 factorial design. The PR Function was manipulated through corporate culture (open/not open) and accolades (personal/ professional/ company). Findings reveal the information shared by employees varied little regarding strategic orientation (push/pull), yet respondents with a non-open corporate communication structure were less likely to share professional accolades without being asked. Furthermore, age was a predictor for likeliness to share, with younger employees more willing. From the findings, authors make suggestions to internal public relations practitioners on how to approach employee communication.

INTRODUCTION

Employees are key stakeholders of any organization as their internal engagement and commitment can positively impact external growth and success (Grunig, 1992). However, organizations have struggled with low employee engagement in recent years. A 2017 Gallup poll revealed that only 33% of U.S. employees and 15% of global employees are engaged at work (Boyle, 2017; Ewing et al., 2019). This can partly be attributed to the traditional emphasis of a top-down communication approach that sees employees as passive recipients of information rather than active communicators (Botan & Hazelton, 2010; Andersson, 2019). However, communication flow and cross dialogue have improved in recent years due to the implementation of a more horizontal organizational structure in some organizations (Botan & Hazelton, 2010). To continue improving organizations' adherence to best practices leading to increased engagement, it is important to understand what affects employee decision-making. Specifically, if push or pull strategies are more effective in increasing employee engagement within the public relations function of an organization.

Organizations should strive to maximize employee engagement with the public relations function using best practices within the internal communication discipline. However, an analysis of internal communication and employee engagement is necessary for best practice standards to be set and adhered to for the benefit of both employees and organizations (Downs & Hazen, 1977; Varona, 1996). Previous research revealed that an important factor of communication climate is the communication relating to personal achievement and work, deemed the personal feedback factor by Downs and Hazen (1977). This present study investigates how employees communicate accomplishments as a function of employee engagement as well as the factors that affect their decision-making.

REVIEW OF LITERATURE

Excellence Theory, proposed by Grunig (1992), explains the value of public relations to organizations and emphasizes the importance of creating quality relationships with key stakeholders. Stakeholder Theory, as named by Freeman (2010), further suggests that effective organizations must prioritize the needs and goals of stakeholders as well as internal management to be considered “excellent” (Grunig, 1992). One key stakeholder of an organization is its employees. When an employee is engaged and committed to their organization, they are empowered as a brand advocate and a valued stakeholder that can benefit the company both internally and externally. Nurturing positive relationships with employees can also reduce costs of litigation, regulation, legislation, and negative publicity (Grunig, 1992). To create these relationships, organizations engage in symmetrical communication with its stakeholders to satisfy the needs of both parties (Grunig, 1992). This symmetrical system of internal communication leads to higher levels of excellence among organizations (Grunig, 1992). Therefore, employees must be encouraged to voice their opinion and exchange views with the public relations function. This symmetry in communication enables organizations to maintain higher levels of employee satisfaction, commitment, and trust (Grunig & Grunig, 2008). However, this system requires a participative communication culture rather than an authoritarian culture (Grunig & Grunig, 2008).

Communication Climate

Research has defined organizational communication within a variety of frameworks. Goldhaber (1983) identified two major research perspectives, process and perception. “Information flow is the main concern for the process perspective, whereas attitude or perception is the main concern for the perception perspective” (Mount & Back, 1999). Information flows in three directions within an organizational communication structure: horizontally, upwards and downwards. The structure type of the organization determines the direction of the communication flow (Pincus, 1986). Regardless of the direction of the communication flow, best practices state that organization should have a flexible structure that allows communication across various departments and hierarchical levels. One such communication structure that meets this best practice is open structure and communication.

The openness of an organization's communication climate is strongly correlated to communication satisfaction (Downs & Hazen, 1977; Varona, 1996). Downs and Hazen (1977) suggest three important factors regarding communication climate: 1) narrower communication climate - how an organization handles communication-related problems; 2) personal feedback factor - communication relating to personal achievement and work; and 3) communication timing - how well communication meets immediate needs.

Communication climate is associated with employee communication responsibility. Studies show that employees who perceive the communication climate as open are more likely to take communication responsibility (Andersson, 2019). However, there has been minimal research into the information employees are willing to share regarding their achievements, specifically whether they are willing to take responsibility for the personal feedback factor introduced by Downs & Hazen (1977) or whether the information must be sought out by an internal public relations practitioner.

Internal Communication

Several stakeholders are addressed as a part of Stakeholder Theory, a key element within Excellence Theory. Within an organization, employees are valued stakeholders because performance and satisfaction are vital to overall success. Therefore, internal communication has become increasingly important in modern organizations. Historically, internal communication has followed a top-down approach where information was disseminated from management to employees without much cross-dialogue or feedback (Botan & Hazleton, 2010). This communication approach "emphasized control, authority, and downward information flow and placed importance on task-related concerns" (Botan & Hazelton, 2010). This downward information flow can be attributed to the traditional vertical organizational structure and the view that employees are passive recipients of information rather than active communicators (Andersson, 2019).

In recent years, organizations have modernized to become more horizontal in structure and value "transparency, democracy, openness, flexibility, social concerns, ethics, change, and environmental responsibility" (Botan & Hazelton, 2010). The flow of internal communication is no longer limited to executives. Organizations have begun to recognize that strong internal communication between managers and employees has the power to create more engaged employees, strengthening both internal functionality and outside perception of the company (Quirke, 2016). Knight and Haslam (2010) suggest strong internal communication requires active employee communicators with an informed employee voice. The use of employee voice is closely tied to employee engagement as strong internal communication requires employees to be active communicators. Several factors affect employee engagement 1) having opportunities to feed views upwards, 2) feeling well informed about what is happening in the organization, and 3) believing your manager is committed to your organization (Ruck & Welch, 2012; Constantin & Baias, 2015). Employees are more likely to use their voice if they are satisfied at work and perceive their organization's internal communication climate as open (Andersson, 2019).

As organizations strive towards Grunig's standard of "excellence," internal communication and the use of employee voice on behalf of an organization are being associated with employee responsibility. Andersson (2019) suggests that as an agent of an organization, employees need to be trained as aware and competent communicators. Employees need to voluntarily share information that is pertinent to the organization regardless of the presence of a manager. However, this relies upon the assumption that employees are engaged within their organization and feel compelled to share.

In the age of technology, public relations practitioners are changing their internal communications strategies in an attempt to increase engagement (Ewing et. al., 2019). Social media is being used to engage employees in addition to traditional communication channels such as print media, electronic media, and face-to-face communication (Gillis, 2006; Men & Bowen, 2017). Ewing et. al. (2019) suggest that social media might be necessary for engaging with employees who have grown up in the digital era. Millennials (born between 1981-1996) are the first generation that grew up in the age of the internet in which there was a fast evolution of how people communicated and interacted, especially due to the rise of social media (Dimock, 2019). Generation X (born between 1965-1980) and baby boomers (born between 1950-1965) had to adapt to this new technology as it was released due to a lack of immersion (Dimock, 2019).

While research into the association between social media and employee engagement is limited, Ewing et al.'s (2019) findings show that internal social media has the power to strengthen employee voice and engagement as employees feel empowered and involved with the internal culture. Haddud et al. (2016) found that those employees who self-reported high usage of internal social media channels also self-reported higher levels of engagement. This indicates that because younger, technology-savvy generations, such as millennials, are more likely to use social media, they will be more engaged in internal communication and culture. However, certain demographics may not engage with internal social media as millennials do. For example, baby boomers and Gen X are less likely to use digital mediums to engage in internal communication (Ewing et al., 2019; Men & Bowen, 2017). Ewing et al. (2019) also found that blue-collar workers are less likely to engage with digital mediums due to a lack of internet access. Despite this difference in usage, several researchers argue social media will allow employees to become active communicators rather than simply informed recipients (Madsen, 2016; Men & Bowen, 2017).

Communication Satisfaction

Another perspective found within organizational communication research regards employee perception of communication. Employee's perceptions of the media quality play an important role in the overall satisfaction with organizational communication. Media quality refers to the extent that meetings are well-organized, and written directives are clear. This is one component of organizational communication satisfaction which is defined as satisfaction with communication that is linked with the employee's position in the organization. Communication satisfaction within an organization is affected by various factors such as the amount of information received, the organization's communication climate, the receptivity of upward communication, and the frequency of employee interaction (Hargie et al., 2002; Hecht, 1978; Mohr & Sohi, 1995). The

factors affecting communication satisfaction are like those affecting employee engagement, specifically upward communication, and communication climate. This suggests there is an association between an employee's satisfaction with their organization's communication activities and if/how an employee engages with their organization's public relations function.

Communication satisfaction is closely linked to job satisfaction, commitment, and work motivation among employees meanwhile reducing stress, staff turnover, and absenteeism (Zwijze-Koning & de Jong, 2007). To measure communication satisfaction Downs and Hazen (1977) designed the Communication Satisfaction Questionnaire. This scale tests seven factors within an organization.

RESEARCH QUESTIONS & HYPOTHESES

RQ1: How do employees share information with the public relations function within their organization?

Hypothesis 1: Employees with an open communication climate will more likely send information directly to their organization's public relations function.

Andersson (2019) argues that employees are more likely to engage if they are satisfied at work and perceive their organization's internal communication climate as open. Therefore, we hypothesize that employees who report having an open communication climate will be more likely to send information without being asked than employees who report a closed communication climate. Open communication climates encourage two-way communication and free-flowing information while a closed climate prioritizes downward communication.

RQ2: What type of information will employees share with the public relations function within their organization?

RQ2: What factors effect employee decision-making regarding engagement in public relation activities.

Hypothesis 2: If an employee reports high communication satisfaction, then they will be more likely to send information directly to their organization's public relations function.

Studies show that the factors affecting communication satisfaction are similar to those affecting employee engagement (Hargie et al., 2002; Hecht, 1978; Mohr & Sohi, 1995). We hypothesize that the Communication Satisfaction Questionnaire can be used to predict the likelihood of unprompted employee engagement. The higher an employee's communications satisfaction, the more likely they will be to send information directly to their organization's public relations function.

METHODOLOGY

The first part of this research utilized Downs and Hazen's Communication Satisfaction Questionnaire (1977) as a baseline to gauge opinions about recurring communication activities within each respondent's organization. The Questionnaire (CSQ) was modified to measure six factors: organizational integration, organizational perspective, communication climate, media quality, horizontal and informal communication, and personal feedback. Each of the six factors contains five seven-point Likert scale questions ranging from (1) completely dissatisfied to (7) completely satisfied. To supplement the Questionnaire, each respondent was asked to rate the level of influence nine factors had on their job performance using a seven-point Likert scale (1 = no effect to 7 = major effect). These factors include 1) feeling of personal achievement, 2) job satisfaction, 3) job security, 4) pay, 5) family, 6) immediate supervisor, 7) opportunities for advancement, 8) co-workers, and 9) economic conditions.

The second part of this research utilized a 2 x 3 factorial design to analyze how/if employees share accomplishments with their organization's public relations function. Each participant was randomly given a scenario describing communication climate (open or not open) and one of three accolades (personal, professional, or company). Communication climate can be operationalized as how employees communicate within an organization as a result of the environment. An open climate encourages two-way communication, expression, and information to flow freely. A not open climate relies on one-way communication, prioritizing downward communication of information rather than free expression. For the purposes of this study, accomplishments are categorized as personal, professional, or company. A personal accomplishment is one that an employee completes out of work but is still appropriate to share with coworkers. A professional accomplishment is one that either occurs at an employee's organization or an outside recognition of an employee's professional achievement. A company accomplishment is one that an employee achieves on behalf of their current organization.

The participants were then asked what action they would take based on the scenarios (communication climate and accolade type): send the information regarding the accolade directly to their public relations department, provide the information only if asked, or not share the information. Respondents were also asked the role of several factors included in the scenario descriptions on their decision-making process. The importance of these factors was determined through a five-point Likert scale ranging from (1) not important at all to (5) very important.

Participants

The data were collected in a voluntary digital survey in February 2020. Individuals participated through Amazon Turk (Mturk), a crowdsourcing site used by researcher's to collect data from a diverse sample. Participation was anonymous as the only identifying information was the participant's Worker Identification number. Of the 200 respondents, 198 finished the survey to completion resulting in a 99% response rate. The study oversampled by 60% to overcome sampling error that is commonly cited as an issue with Mechanical Turk (Hauser et al., 2019). The following

table displays the demographic characteristics of the respondents including gender, age, education, and length of time worked for the current organization.

TABLE 1. DEMOGRAPHIC CHARACTERISTICS

| Participants Demographics | Open Culture | | | | | | Not Open Culture | | | | | | Full Sample | |
|------------------------------|--------------|----|--------------|----|-----------|----|------------------|----|--------------|----|-----------|----|-------------|----|
| | Personal | | Professional | | Corporate | | Personal | | Professional | | Corporate | | | |
| | N | % | N | % | N | % | N | % | N | % | N | % | N | % |
| Gender | | | | | | | | | | | | | | |
| Female | 15 | 53 | 11 | 33 | 12 | 38 | 10 | 71 | 14 | 42 | 9 | 27 | 71 | 36 |
| Male | 17 | 47 | 21 | 66 | 20 | 62 | 25 | 29 | 19 | 58 | 24 | 73 | 126 | 64 |
| Age | | | | | | | | | | | | | | |
| 20-29 | 21 | 64 | 21 | 66 | 19 | 60 | 19 | 54 | 17 | 52 | 22 | 67 | 119 | 60 |
| 30-39 | 11 | 33 | 8 | 25 | 12 | 38 | 13 | 37 | 11 | 33 | 9 | 27 | 64 | 32 |
| 40+ | 1 | 3 | 3 | 9 | 1 | 2 | 3 | 9 | 5 | 15 | 2 | 6 | 15 | 8 |
| Education | | | | | | | | | | | | | | |
| No College | 1 | 3 | 2 | 6 | 4 | 13 | -- | -- | 4 | 12 | 1 | 3 | 12 | 6 |
| Some College | 6 | 18 | -- | -- | 5 | 16 | 5 | 14 | 10 | 30 | 5 | 15 | 31 | 16 |
| Bachelors | 8 | 24 | 12 | 38 | 9 | 29 | 7 | 20 | 6 | 18 | 7 | 21 | 49 | 25 |
| Graduate | 18 | 55 | 18 | 56 | 13 | 41 | 23 | 66 | 13 | 39 | 20 | 60 | 105 | 53 |
| Employment | | | | | | | | | | | | | | |
| 0-1 Years | 1 | 3 | 1 | 3 | 2 | 6 | -- | -- | 3 | 9 | 1 | 3 | 8 | 4 |
| 1-4 Years | 24 | 75 | 23 | 72 | 26 | 81 | 17 | 48 | 20 | 60 | 17 | 52 | 127 | 64 |
| 5-8 Years | 5 | 16 | 22 | 22 | 3 | 9 | 17 | 48 | 7 | 21 | 11 | 33 | 50 | 25 |
| Nine + Years | 2 | 6 | 1 | 3 | 1 | 3 | 1 | 2 | 3 | 9 | 4 | 12 | 12 | 6 |

FINDINGS

Using the Downs and Hazen's Communication Satisfaction Questionnaire (1977), respondents provided a baseline of their communication satisfaction. A cumulative overall "satisfaction" score was created to measure the sum of the six factor categories. This score ranged from low communication satisfaction to high satisfaction and reported a Cronbach's Alpha score of 0.97, indicating a high level of reliability. Fifty-seven percent of respondents indicated they were "somewhat" to "mostly" satisfied with their organization; with 18% reporting they were "completely" satisfied. A one-way between groups analysis of variance was conducted to explore the impact of corporate communication satisfaction on how they would share information. Respondents respond in one of three ways regarding what they would do with the information: send the information directly, if asked provide information or not share. There was a statistically significant difference at the $p < .05$ level in the CSQ scores in the three responses: $F(2, 176) = 3.5$, $p = .03$. Post-hoc comparisons using the Tukey HSD test indicated that the mean score for overall satisfaction for those sending information directly ($M = 126$, $SD = 30.70$) was statistically significantly different from those who choose not to send the information ($M = 104$, $SD = 44.40$). The means regarding overall satisfaction also differed for those respondents that would provide the information when asked to those who choose not to share the information ($M = 123$, $SD = 22.93$).

A one-way between groups analysis of variance was run to determine which concept of the CSQ had the largest effect on what participants choose to do with the information. A statistically

significant difference at the $p < .05$ level on the “Organizational Integration” scale and “Media Quality” scale for the three behavior choices $F = (2, 184) = 4.3, p = .014$; $F = (2, 183) = 4.25, p = .016$. Regarding organizational integration, those that responded they would send the information directly to the communications department reported higher levels of satisfaction ($M = 26.6, SD = 6.1$) than those who reported they would not send information ($M = 21, SD = 8.7$). Those respondents that responded they would send information directly to the communications department and those that if asked would provide the information had a higher level of satisfaction with an organization’s media quality ($M = 25, SD = 6.4$; $M = 25, SD = 4.8$) than those who would not share information ($M = 19, SD = 9.01$).

TABLE 2. MEANS, STANDARD DEVIATIONS, AND ONE-WAY ANOVAS

| Variable | Overall Satisfaction | | Organizational Integration | | Media Quality | | ANOVA | | |
|------------------------|----------------------|------|----------------------------|------|---------------|-----|----------|-----------|----------|
| | M | SD | M | SD | M | SD | <i>F</i> | <i>df</i> | <i>P</i> |
| Share Information | 126.7 | 30.7 | 26.6 | 6.14 | 24.8 | 6. | 3.51 | 176 | .032 |
| Provide If Asked | 123.8 | 22.9 | 26.06 | 4.7 | 24.5 | 4.8 | 4.34 | 184 | .016 |
| Do not Send or Provide | 104 | 44.4 | 21.7 | 8.7 | 19.8 | 9.0 | 4.23 | 183 | .014 |

There were no statistically significant findings regarding communication climate and employee engagement in sending or providing information to the public relations department. Data analysis revealed that respondents would generally either send an accomplishment directly to their organization’s public relations function or provide it if asked, regardless of the orientation of their communication climate.

TABLE 3. EMPLOYEE ENGAGEMENT BASED ON CORPORATE CLIMATE

| Corporate Communication Climate | Send Directly | | Provide if Asked | | Would Not Provide | |
|---------------------------------|---------------|----|------------------|----|-------------------|---|
| | % | N | % | N | % | N |
| Open Culture | 49 | 46 | 43 | 41 | 8 | 8 |
| Not Open Culture | 52 | 49 | 41 | 39 | 7 | 7 |

A cross tabulation reveals that a difference regarding how participants would share information in regard to corporate communication orientations. As shown in Figure 1, participants who were exposed to an open communication culture, reported they would directly share professional accomplishments the most (56%), while personal accomplishments were directly shared the least (41%).



FIGURE 1. ENGAGEMENT WITHIN OPEN COMMUNICATION STRUCTURE

Within a closed culture, company accomplishments were directly shared more than personal accomplishments by approximately 20% (Figure 2). Similarly, employees in the closed culture were 50% more likely to provide a company accomplishment directly with their public relations function than only providing if asked. However, employees in the closed culture were almost 25% more likely to share professional accomplishments if asked by public relations personnel rather than directly.

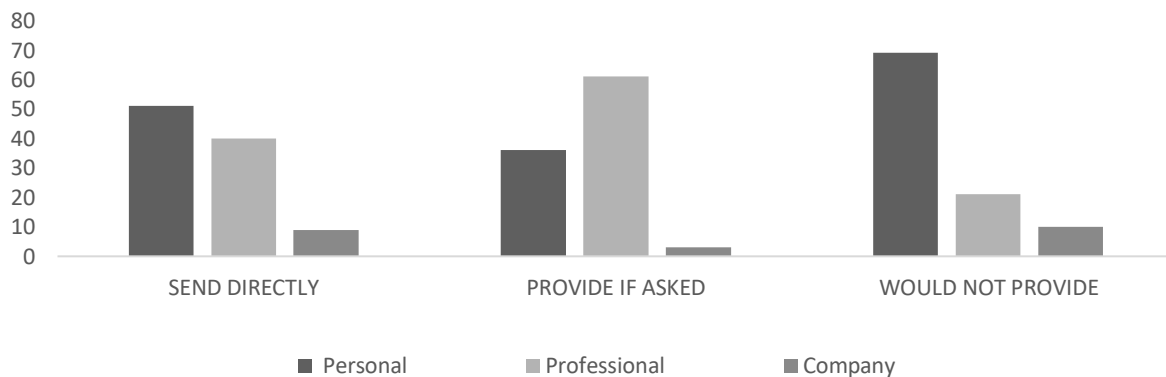


FIGURE 2. ENGAGEMENT WITHIN CLOSED COMMUNICATION STRUCTURE

Age is a significant factor in decision-making (Table 4). Respondents between the ages of 20-29 were the most likely to send all three accomplishments directly to their public relations function. Respondents between the ages of 30-39 were more likely to send both personal and professional if asked. Similarly, respondents ages 40 and above were significantly more likely to send both personal and professional accomplishments if asked. Respondents ages 40 and above did have the highest percentage of respondents reporting that they would send accomplishments directly to their public relations team. The orientation of communication culture (open or closed) and its impact on decision-making among different age groups was not significant. Respondents generally would send information directly or share if asked regardless of corporate culture.

TABLE 4. ENGAGEMENT BY ACCOMPLISHMENT WITHIN AGE GROUPS

| Age | Accomplishment Type | Send Directly | | Provide if Asked | | Would Not Provide | |
|-------|---------------------|---------------|----|------------------|----|-------------------|---|
| | | % | N | % | N | % | N |
| 20-29 | Personal | 58 | 23 | 35 | 14 | 8 | 3 |
| | Professional | 53 | 19 | 44 | 16 | 3 | 1 |
| | Corporate | 65 | 24 | 30 | 11 | 5 | 2 |
| 30-39 | Personal | 30 | 7 | 57 | 13 | 13 | 3 |
| | Professional | 37 | 7 | 53 | 10 | 11 | 2 |
| | Corporate | 45 | 9 | 35 | 7 | 20 | 4 |
| 40+ | Personal | 25 | 1 | 75 | 3 | 0 | 0 |
| | Professional | 38 | 3 | 63 | 5 | 0 | 0 |
| | Corporate | 67 | 2 | 33 | 1 | 0 | 0 |

An analysis of gender revealed that males were split between sending personal accolades directly (45%) and providing if asked (45%) by their organization's public relations function. Fifty-three percent of males would share professional accolades if asked as opposed to the 45% who would send professional accolades directly. However, 67% of males were willing to send company accolades directly with only 23% choosing to provide if asked. Men were 20% more likely to send company accolades directly than females with only 43% willing to send this type of accolade directly. Females were 5% more likely to provide company accolades if asked rather than send directly. Females were slightly more likely (~3%) to directly send both personal and professional accolades than men.

TABLE 5. ENGAGEMENT BY ACCOMPLISHMENT AS A FUNCTION OF GENDER

| Information Type | Males | | Females | |
|-------------------|-------|----|---------|----|
| | % | N | % | N |
| Send | | | | |
| Personal | 45 | 19 | 48 | 12 |
| Professional | 45 | 17 | 48 | 12 |
| Company | 67 | 26 | 43 | 9 |
| Provide | | | | |
| Personal | 45 | 19 | 44 | 11 |
| Professional | 52 | 20 | 44 | 11 |
| Company | 23 | 9 | 47 | 10 |
| Not Share/Provide | | | | |
| Personal | 9 | 4 | 8 | 2 |
| Professional | 2 | 1 | 8 | 2 |
| Company | 10 | 4 | 9 | 2 |

DISCUSSION

The purpose of this study was to explore how employees engage with their organization's public relations function through the sharing of accolades. By using the 2 x 3 factorial design, it was possible to gain a deeper understanding of the factors that affect employee decision-making regarding engagement.

Knight and Haslam's (2010) idea of "employee voice" plays an interesting role in this study. Despite previous research (Andersson, 2019), our findings show that communication climate did not have a significant impact on general employee engagement as most respondents were willing to share information regarding accomplishments. Respondents generally would send information regarding accolades directly or provide if asked by their public relations practitioner with a low percentage of respondents choosing not to provide information at all. This indicates that the majority of employees are adhering to best practice internal communication standards that suggest employees need to take responsibility and be active communicators (Andersson, 2019). The orientation of the communication climate (open/not open) did not significantly affect decision-making, disproving our RQ1 hypothesis in the context of this study. Employees were willing to participate regardless of the culture's orientation, demonstrating that current organizations are promoting a symmetrical system of internal communication as is suggested best practice by Grunig (1992). Employees are being encouraged to use their voice and exchange information but through different strategies depending on the organization.

Respondents responded in one of three ways regarding what they would do with the information: send the information directly, if asked provide information, or not share. The statistically significant differences found at the $p < .05$ level in the CSQ scores in the three responses support our hypothesis that overall satisfaction with the organizations internal communication directly relates to what employees share and how they share it. Those with mid to high levels of satisfaction were more likely to share and provide information than not, and statistically were shown to provide and send information over those with low satisfaction scores.

Participants responded that they would send information directly to the communications department and if asked would provide the information had a higher level of satisfaction specifically with an organizations' media quality than those who would not send or provide the information. In this study, media quality refers to the extent to which meetings are well organized and written directives are short and clear, as well as the how often communication occurs within an organization. Employees spend tremendous amounts of time collecting and disseminating information concerning such critical matters as company policy, placement, promotion, performance feedback, and so forth. Therefore, for a public relations practitioner, saliency of the messages are paramount to good internal communication. Following Grunig's Excellence theory, effective organizations should base internal communication and relationship building on a two-way symmetrical model, creating mutual understanding between management and non-management personnel.

Participants who also responded that they would send information directly to the communications department and if asked would provide the information had a higher level of satisfaction

specifically with an organizations' integration, then those who would not send or provide the information. In this present study, organizational Integration was defined as the degree to which employees receive information about the immediate work environment. Items include the degree of satisfaction with information about departmental plans, the requirements of their jobs, and some personnel news.

Our second hypothesis, that employees with an open communication climate will more likely send information directly to their organization's public relations function, was supported by the data. However, participants exposed to both the open and closed communication structure were both more likely to send information directly to the communications department. Only the type of information they would send directly changed. Those with an open communication structure were more likely to provide professional information directly, whereas those exposed to a closed structure would send personal information directly. This in part supports Andersson (2019)'s argument that employees are more likely to engage if they perceive their organization's internal communication climate as open. It is known that open communication climates encourage two-way communication and free-flowing information while a closed climate prioritizes downward communication. Thus, more research is suggested to flesh out why respondents were willing to share personal accolades in a closed communication system.

Our findings suggest that regardless of the use of push or pull strategies from an organization's public relations function, people will generally participate in information sharing. However, the difference is in whether employees are simply participating or being proactive within their organization's internal communication climate. As decision-making regarding sharing accolades is split (sending directly or sharing if asked), organizations must decide which action is most useful to their public relations function and its goals. If organizations want employees to be proactive communicators and use their voice, then public relations personnel must prioritize push strategies to increase the likelihood employees will send information directly. Push strategies can include encouraging accolade sharing through social media or other recognition-based platforms or new-employee training that sets workplace standards for engaging with their public relations function. These are employee-centric strategies that place the responsibility on the individual rather than the public relations function.

A previous study by Andersson (2019) found that employees are more likely to use their voice if they are satisfied at work and perceive their organization's internal communication climate as open; however, the findings of this study were not conclusive in supporting this. Andersson (2019) suggests that to achieve optimal internal engagement, employees need to be trained as aware and competent communicators regardless of the presence of a manager or public relations practitioner. This suggests that employees should be trained using push strategies to ensure proactiveness is an expectation and accolades should be sent directly without having to be asked or motivated to do so. For example, new hires should receive training from their organization's public relations function on best-practice internal communication to ensure independent engagement. This includes what platforms or mediums the organization uses for internal communication and the expectations for usage, specifically content and frequency of submission.

Regarding culture, employees in an open communication culture were more likely to directly share professional accolades than personal accolades. Within a closed culture, company accolades were

shared directly by employees 20% more than personal accolades were. This indicates that regardless of the orientation of the communication climate, personal accolades are perceived as less important to share directly. Both types of culture prioritize professional or company accolades indicating organizations are valuing the company benefits of sharing these accolades over the personal benefits of recognition. Personal accolades, such as buying a house or running a marathon, are often seen as less important to share in a company setting due to their lack of perceived association with work. However, organizations' promotion of personal accolades can promote a healthy work-life balance and improve employees' job satisfaction. The benefits suggest that recognition beyond accomplishments that occur during work hours should play a role in the professional environment and public relations function.

The differences in employee engagement by age show that respondents under the age of 30 were the most likely to send accolades directly to their public relations function. Respondents over 30 were more likely to send both personal and professional accomplishments if asked, indicating they are less proactive than the younger age group. Respondents under 30 are significantly more likely to send accolades directly, regardless of its type. The actions of respondents under 30 in this study show they are proactive communicators and are willing to engage without being prompted. However, respondents 40 and older had the highest percentage of sending company accolades directly to a public relations practitioner. An overall trend showed that as the age group increased, the likelihood of directly sending personal accomplishments decreased. In a study by Haddud et al. (2016), it is found that employees who self-reported higher usage of internal social media channels also self-reported higher levels of engagement.

Further analysis of decision-making within gender revealed that males were more than 20% likely to directly share company accolades than females. Females were slightly more likely to directly share both personal and professional accolades. This indicates a difference in perceived importance within gender. Females are more split between sending company accolades directly and providing if asked while men are overwhelmingly willing to send directly.

Of the factors that were presented to the respondents, few were statistically significant in their decision-making regarding communicating accomplishments. Salary, ability to be promoted, corporate culture, communication climate, supervisor, frequency of recognition, receptiveness, and type of accomplishment were not significant and did not play a direct role in the respondent's communication decision-making. While the Wilks' Lambda did not meet the significant criterion of < 0.05 , we argue that there may be an association, but the study was underpowered to detect it. We find this nearly significant, and it warrants future consideration.

While Downs and Hazen's (1977) Communication Satisfaction Questionnaire was utilized in this research, communication satisfaction was not statistically significant in decision-making, disproving our RQ2 hypothesis. This might have been a result of a discrepancy between a respondent's satisfaction with their current organization versus the decision-making required for this study with set communication culture conditions. Future studies are encouraged to examine if a link is present between decision-making and communication satisfaction. However, this study did provide insight into the personal feedback factor within the communication climate proposed by Downs and Hazen (1977). How employee achievements are communicated is affected by a series of factors including the type of accomplishment, age, and gender.

CONCLUSION

The Excellence Theory argues that to encourage employees to participate in the communication function, organizations engage in symmetrical communication. According to Grunig and Grunig (2008), this requires a participative communication culture rather than an authoritarian. However, this study found that communication climate did not have a significant impact on general employee participation. Respondents were willing to share information regarding accomplishments regardless of personal, professional, or organizational content. This may indicate that organizations are adhering to best-practice internal communication standards by engaging in the symmetrical model regarding internal communication. This conclusion is further supported by the data showing respondents reporting they are “mostly” to “completely” satisfied with internal communication efforts from their organization.

The overall satisfaction with the organizations internal communication efforts relates to what accolades employees share and whether they are affected by a push or pull communication strategy. Higher levels of internal communication satisfaction led to a higher likelihood that a respondent would share information on their own (push), as well as provide information when asked (pull) over those with lower satisfaction scores. Overall, the scores from the CSQ measures suggest that organizations are aware of the necessity of internal communication and are following accepted best-practices. Furthermore, taking a macro look at the CSQ scores, we were able to conclude media quality and organizational integration were two key areas of focus regarding employee participation in the public relation function.

It is recommended that organizations define and promote the importance of personal accolades to employees. If employee recognition is promoted as best-practice, employee satisfaction will increase and in turn, the public relations function will have more content to promote, establishing their organization as one that prioritizes a work-life balance. This first requires employees to recognize these achievements as newsworthy and engage with their public relations function.

Salient messages pushed out to employees regarding desired behaviors, provide a level of control regarding timing, content, and frequency of messages. These messages are most often disseminated through internal media. As this study found that higher levels of satisfaction regarding internal media quality led to stronger accolade sharing, using these media channels is prudent. However, using pull strategies such as social media channels is also advised. Disseminating salient messages through owned social media channels can influence employees towards the desired behavior in a more organic process.

Lastly, we conclude that an effort to empower older employees and women to recognize the importance of their achievements. Salient messages targeted to females may be prudent, as women can be more reserved about promoting their accomplishments within their organization. Furthermore, respondents under 30 are used to sharing personal information and accomplishments on their social media as they grew up in a digital era and supports our conclusion to engage employees through social media using push strategies. Older generations might be conditioned to prioritize company accomplishments as they are not as frequently sharing personal information online with others, thus supporting our conclusion of using pull strategies. Thus, our

recommendations to public relations departments would be to adopt a mix of both push and pull strategies.

LIMITATIONS

Certain limitations should be acknowledged and addressed in future research. This study is limited in scope due to the demographic skew of respondents. Online participation in the study was voluntary, causing all four demographic categories to over-represent a specific population. Hauser et al. (2019) find that self-selection in Mechanical Turk studies can impact the validity of findings. This is common in studies that use an experimental design that assign different conditions (Hauser et al., 2019). The majority of respondents in our study were male, between the ages of 20-29, have a professional degree, and have worked at their current organization for 1-4 years. The high volume of respondents fitting this description should be noted for researchers citing this study as it limits the ability to make generalizations about other populations represented. Self-selection makes replicating a study or specific sampling conditions difficult. To this end, when using Mechanical Turk, more demographic questions should be included to further understand the impact of race, ethnicity, employment type (part-time, full-time, etc.), geographic location, and income on employee engagement and decision-making.

FUTURE RESEARCH

This study offers preliminary insights that should be explored in future research. Ewing et al. (2019) and Men and Bowen (2017) suggest there could be a difference between how office-based industry employees share information to the public relations function versus field employees, primarily due to access and training. The hypothesis made in previous studies is linked to social media sharing and would be interesting to explore regarding decision-making, accomplishments, and communication climate. According to Andersson (2019), employees need to be trained as competent and aware communicators. Future studies should explore if training affects the decision-making of employees and their ability to recognize accolades as valuable information to the public relations function.

As our study found no statistically significant differences between those who were exposed to open or closed organization communication structure to their perceptions of an organization's media quality, further study clarifying how mutual understanding is achieved in closed communication structures as compared to an open structure may be prudent. On face value, our findings may suggest there is no difference in the feedback loop, necessary to achieve mutual understanding among management and non-management, in closed vs open communication structure. Determining if this is indeed the case, and if so, how it is achieved would allow for a more nuanced look into The Excellence Theory regarding employee satisfaction.

Our findings regarding type of information directly sent to the public relations /communication department should be fleshed out through a more nuanced study into why employees in a closed

communication structure are more likely to share personal accolades over professional ones. Understanding the role of personal relationships within an open s closed structure may provide the rationale behind our findings.

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EFFECTS OF MACROECONOMIC VARIABLES ON STOCK PRICE, TRADING VOLUME, AND SPREAD FOR COMPANIES ON THE U.S. STOCK MARKET

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ABSTRACT

The purpose of this study is to determine the relationships between different macroeconomic variables and stock price, trading volume, and bid-ask spread for 45 companies listed on the U.S. stock market. Price, volume, and spread are important measures for investors to consider when making investment decisions. The variables considered were the gross domestic product, central bank interest rate, ten-year bond rate, unemployment rate, industrial production index, trade balance of payments, global price of Brent Crude in US dollars per barrel, money supply (M2), savings in commercial banks, federal debt, and inflation rate. Results showed that each of the independent variables had an effect on stock price, volume, or spread. The effect, however, was sporadic. The number of companies for which an independent variable was significant was within the range 1-16 (2.22%- 35.56%). These results may indicate that investors do not depend substantially on macroeconomic factors in making investment decisions.

INTRODUCTION

Stock price, stock volume, and stock spread are three important measures that characterize a stock on the stock market. Stock price reflects a company's market value. It is the trading value of a stock. Stock price goes up with more buyers and down with more sellers. There are psychological implications that affect the price of a stock, but perhaps of more importance is the value of the company, which can be ascertained from the financial statements. Stock price can have an impact on a company by affecting its solvency. A sharp stock decline can cause a sharp increase in the cost of capital, which can lead to the closure of the business. Investors often look at the price of a company's stock in their investment decision making. This can be misleading because share price may not be a true reflection of a company's fundamentals. Stock price can be significantly changed by a company, through stock splits, reverse splits, stock dividends, and stock buyback, without a change in the company's value.

Stock volume, or trading volume, represents the number of shares traded and, for futures and options, the number of contracts traded. Volume can be used as an indicator of market strength or weakness. Volume can be useful in identifying a bullish market. A rising volume is an indication of a rising and healthy market. A small trade volume is not a healthy indicator of a stock's performance. Volume can be an indicator of price reversal. If the price of a stock does not show much movement, but stock volume is high, this might be an indication that price reversal is forthcoming. Of importance is the fact that volume is an indicator of a stock's liquidity. Stocks with high volume are viewed as the best for trading, since there are many buyers and sellers ready to trade

Stock spread is defined as the difference between the bid and ask prices of a stock, which is known as bid-ask spread. Spread is an indicator of liquidity of the stock. A small stock spread is an indication that the stock is highly liquid with a substantial trading volume. Also, spread can be an indicator of volatility. The smaller the spread, the lower is the volatility. In addition, the bid-ask spread is of importance in stock trading and is relevant in reducing transaction costs (<https://www.investopedia.com/>).

Price, volume and spread are useful as a guide an investor needs in order to make the best financial decisions. Knowing the factors that may predict price, volume, or spread of a stock is important in helping the investor make the right investment decisions. Hence, the interest in this study is to determine, using statistical methodology, the macroeconomic variables that relate to stock price, spread, and trade volume for companies on the U.S. stock market.

LITERATURE REVIEW

In a study on how aging in New Zealand affects the stock market, Hettihewa et al. (2018) showed that aging had no significant effect on the market. However, real GDP and foreign direct investment had a positive effect on the stock market. The authors concluded that skilled migration policies, international factor mobility, and growth in technology-based productivity can boost the markets.

Mubarek and Javid (2017) investigated, using non-linear seemingly unrelated regression, the effect of macroeconomic factors on stock returns in fifty firms on the Pakistani stock market. They reported that money supply had a significant positive effect on stock returns and industrial production, inflation, exchange rate, call rate, and term structure shocks had negative effects on stock prices.

Similar results were reported by Mangala and Rani (2015) in an earlier study on the Indian stock market for the period of April 2005 to March 2014. Results from the Johansen co-integration test and analysis showed that exchange rate, inflation rate, and index of industrial production had significant negative effects on stock returns. On the other hand, money supply and yield on treasury bills had significant positive effects. Results from the Vector Error Correction Model showed that there was a significant short run causality from exchange rate to the Nifty index and from Nifty to

money supply and inflation rate. Also, there was a long-term causality from Nifty to money supply and short-term interest rate.

Ahmed et al. (2017) investigated the long-term association between stock prices and macroeconomic variables on the Karachi Stock Exchange 100 Index (KSE 100) using monthly data from January 1992 to November 2015. Results from the Johansen co-integration analysis showed a long-term association between stock prices and exchange rate, inflation, and interest rate. The Granger test showed a unidirectional causality from interest rate to KSE 100. The authors concluded that predictability of the KSE 100 index relied substantially on interest rate, inflation, and exchange rate.

Ranjani and Dharmadasa (2018) studied the effects of gross domestic product (GDP), interest rate (IR), and exchange rate (ER) on the Colombo stock market index ((S & P SL 20 index share price) using monthly data for the period of July 2012 - June 2017. The Johansen co-integration analysis did not show any long-term association between the macroeconomic variables. The data was analyzed using the Vector Autoregressive (VAR) approach. Results showed that there was a significant negative effect of previous month exchange rate on share price. GDP and interest rate had no significant effects on share price. The Granger test showed a unidirectional causality from exchange rate to share price.

Kraft and Kraft (2015) investigated the effects of percentage change in money supply, and Moody's AAA corporate bond rate on stock prices using time series analysis. Results indicated that there was no significant relationship between any of these variables and stock price.

Paresh et al. (2014) examined the effects of industrial production index, exchange rate (rupee in terms of U.S. dollar), and the nominal ninety-day interest rate in India on the share price index for thirteen major Indian commercial banks using panel regression on monthly data over the period 1998 to 2008. Results revealed that industrial production and exchange rate had significant positive effects on stock returns. On the other hand, interest rate had a significantly negative effect on stock price. Of the three independent variables, industrial production had the most effect on stock price. Panel causality using the Granger test was partially in agreement with the panel regression results in that only industrial production Granger-caused stock prices.

In a similar study to Paresh et al. (2015), Ali et al. (2018) used panel data to investigate the effects of interest rate, exchange rates, and stock market index on monthly stock prices of eight main banks in Pakistan. Data were gathered over the period January 2005 to December 2013. Results showed that currency depreciation and interest rate increase caused a decline in share prices. The Granger causality test showed that interest rate and bank stock prices exhibited a bi-directional causality. On the other hand, stock market index and exchange rates Granger caused bank stock prices and the effects were unidirectional.

Saldanli et al. (2017) studied the panel causality relationships of the industrial production index, exchange rates, and money supply with the stock prices of 19 deposit banks traded on the Istanbul stock exchange. Data used were monthly observations over the period June 2007 to October 2016. The analysis showed that the causality relationship between the industrial production index and stock price was not significant. On the other hand, Granger causalities from exchange rates and

money supply to stock price were significant. This indicated that only money supply and exchange rate had an impact on bank stock prices.

Seetanah and Rojid (2012) investigated factors that may influence the bid-ask spread on the stock exchange of Mauritius (SEM) using data for 38 companies over the period January 4 to April 30, 2009. It was found that the bid-ask spread was determined by its lagged value. Also, there was a positive and significant relationship between spread and the closing stock price. However, there was a negative relationship between spread and each of trading volume and firm size.

Clark et al. (1992) reported on seasonality of bid-ask spreads for 540 stocks on the NYSE over the period 1982-1987. There was a decrease in bid-ask spreads from the end of December to the end of January of the following year. Cross sectional regression analysis did not reveal any relationship between changes in spread at the turn of the year and January stock prices.

Taylor (2002) applied the vector auto-regression (VAR) model to predict intraday h-step ahead forecasts of the bid-ask spreads of 50 stocks on the London Stock Exchange. Predicted spreads were used as guidelines for investors. The period of the day corresponding to the smallest expected spread from the model was regarded as the best time for trading by investors. The spreads from the model were 35% lower than the spreads incurred by investors who did not use the model.

Aitken and Frino (1996) investigated the determinants of bid-ask spread on the Australian Stock Exchange over the period June 1, 1992 to November 30, 1992. A log linear regression model was used on 98 smaller priced stocks and on 429 larger priced stocks. The dependent variable was the natural log of the percentage bid-ask spread and the independent variables were the natural logs of stock price, level of trading activity, and stock price volatility. Results of the regression analysis showed that all three independent variables were significantly related to the log of percentage spread. Stock price and level of trading or volume had negative effects and price volatility had a positive effect. The adjusted R-squared for regression was 0.83 for the smaller priced socks and 0.94 for the larger priced stocks.

Howe and Lin (1992) investigated the relationship between dividend yield and spread for stocks traded over the counter (OTC) and NASDAQ over the period 1984 to 1987. Using regression analysis, the authors reported that dividend yield was negatively related to spread, after controlling for price, trade volume, number of market makers (the number of registered market makers for the stock at the end of the year), and to variance of returns.

Paresh et al. (2015) investigated the effects of trading volume, stock price, and stock price volatility on bid-ask spread using panel daily data. The analysis was based on 734 firms on the MYSE for the period January 1, 1998 to December 31, 2008. Results showed that trading volume had a significant positive relationship with spread. Volatility was negatively related to spread. Also, lagged spread was negatively related to spread. However, price had a mixed effect with some firms showing a positive effect on spread and others a negative effect. Firm size influenced the relationships between spread and volume, volatility, and price. The effect of price on spread was smaller for small sized firms than for large sized firm. On the other hand, price volatility had a larger effect on spread for small sized firms than for large sized firms. Also, the effect of lagged spread on spread was larger for small firms than for large firms.

Li et al. (2003), using regression analysis, investigated the effects of yield spread and stock returns on out of sample forecasts of GDP in the US, Italy, UK, and Germany. Four regression models were tested on quarterly data over the period 1961 to 1996. Results indicated that the ability of the yield spread and stock index return to predict the GDP differed across countries and over time, to the point where neither variable was consistent in predicting the GDP in these countries.

Lee and Rui (2001) investigated the effects of informational and non-informational trades on stock price and trade volume using daily data from the US, UK, and Japanese stock markets. In addition, daily data on five companies (Coca-Cola, Kodak, IBM, Amoco and Alcoa) were gathered. Informational trade was defined as being due to new information about market shocks that can influence investors' evaluation of the stock market. On the other hand, non-informational trade was due to information about the market obtained through interactions among different groups of investors. For their analysis, authors applied a bivariate moving average model of stock returns and trading volume with informational and non-informational shocks. Results indicated that trading volume was affected mainly by non-informational trade and stock price by informational trade. Further results indicated that increases in volatility, for both price and volume during and after the 1987 market crash, were mainly due to non-informational trading. In addition, there was evidence that non-informational trades determined the negative relationship found between trade volume and the first-order autocorrelation of stock returns.

Song et al. (2005) investigated the effects of trade number, trade size, and trade volume on volatility for the Shanghai stock market. Results showed that volatility was affected mainly by the number of trades. Also, the second largest trade size affected volatility more than other trade sizes. This was taken as evidence that informed traders camouflaged their information and behavior through the second largest trade size.

It is seen from the literature that more work is needed on determining the impact of macroeconomic variables on stock price, stock trade volume and bid-ask spread at the company level. Also, macroeconomic impacts may vary from market to market and from period to period. Hence, in this study we investigate the impacts of eleven macroeconomic variables on price, volume, and spread for different companies on the U.S. stock market.

DATA

Forty-five companies over the years 1998 to 2017 were selected, based on having complete quarterly financial data, utilizing the Wharton Research Data Services (WRDS). Also, from WRDS, we obtained for each company its quarterly stock price, stock trading volume, and stock spread over the years 1998 to 2017. Quarterly macroeconomic variables for the same years were obtained from the Saint Louis Federal Reserve economic data base.

METHODS

Statistical analysis

For each of the 45 companies, the auto-regression procedure in SAS was used to determine which macroeconomic variables were related to stock price, trading volume or bid-ask spread. The independent variables used in the analysis are listed in Table 1.

For each company, we tested all the independent and dependent variables for stationarity, using the Augmented Dickey-Fuller test and the Phillips-Perron test. Each variable that was not stationary became stationary upon first differencing. All the independent variables were non-stationary, but their first difference was stationary. The auto regression model on the stationary variables with the backward elimination scheme (Montgomery et al., 2001) was used in order to retain in the final model only those independent variables that were significant at the 5% or 10% level.

The auto regression model in Equation (1) considered the first-order autocorrelation that usually exist in time series data. The regression coefficients and the parameter of the first- order autocorrelation were estimated using maximum likelihood (ML). In the presence of autocorrelations among the errors, the estimates of the regression coefficients are more accurate than those of least squares in multiple regression and the model gives a better fit to the data with a higher R^2 . In the case where autocorrelation is lacking, the ML estimates will be similar to the least square estimates from multiple linear regression and the model will be the same as that of multiple linear regression.

The auto-regression model used is expressed as

$$Y_t = a + b_1X_{1t} + b_2X_{2t} + \dots + b_kX_{kt} + \eta_t, \quad (1)$$

where Y and the X 's are stationary

and the residual η_t is

$$\eta_t(1 - \phi B) = e_t \text{ or}$$

$$\eta_t = e_t / (1 - \phi B)$$

Here, η_t is expressed as a first-order autoregressive model, AR (1), representing the first-order autocorrelation of the residuals that usually exists in time series data., B is the backward shift operator ($BX_t = X_{t-1}$), and e_t is the random error term. The b_i 's are the regression coefficients associated with each independent variables X_i .

Equation (1) can be re-written as

$$Y_t = a + b_1X_{1t} + b_2X_{2t} + \dots + b_kX_{kt} + e_t/(1 - \phi B) \quad (2)$$

If ϕ is significantly different from zero, the model in Equation (2), when both sides of the equation are multiplied by $(1 - \phi B)$, gives the final multiple linear regression equation.

In the case of this analysis, each independent variable was differenced for stationarity. This means that X_{it} in Equation (2) must be replaced by $(X_{it} - X_{it-1})$. Also, where Y_t was differenced (see Tables 2-4), Y_t should be replaced by $(Y_t - Y_{t-1})$.

RESULTS AND DISCUSSION

Tables 2, 3, and 4 present the results of the auto-regression analysis for stock price, stock trading volume and bid-ask spread, respectively. Each row in the Tables represents the regression model for each company. The values in the Tables are the regression coefficients (b_i 's) of the macroeconomic variables that entered the model and were significant at the 10% level (most of the variables were significant at the 5% level or less and few, indicated by an asterisk, were significant at the 10% level). Presented also are the R^2 values for each model and the autoregressive parameter ϕ of Equation (2). Table 5 gives the number of companies where each independent variable was significantly related to stock price, volume, or spread.

Of interest from Tables 2-5 is the finding that the models are company specific. Not one economic factor was related to the dependent variable over all companies or the majority of companies. Table 5 shows the frequency and percent representation, over companies, for each macroeconomic variable, in as far as it relates to the dependent variable. For stock price, it is seen that the most significant variable was bond rate. It was significant in 11 (24.44%) of the companies. Of least significance were GDP, balance of trade, interest rate, money supply, and industrial production index. Each variable was significant in only 2 (4.44%) of the companies. Of interest is the finding that GDP and interest rate had little influence on an individual company's stock price.

Table 5 shows that, for trading volume as the dependent variable, unemployment rate had the most effect. It was significantly related to trading volume in 16 (35.56%) companies. The range of representation for the other variables was between 4.44% and 20%. The least significant variable was interest rate, with 2 (4.44%) representation over the 45 companies.

For the bid-ask spread, Table 5 shows that debt was most significant and oil price and money supply (M2) least significant. Debt was significantly related to spread in 12 (26.67%) of the 45 companies. Oil price and money supply were significantly related to spread in only one company each.

It is clear from the above results that no macroeconomic variable was a predictor for stock price, volume or spread in all the companies. In fact, the relationships between the macroeconomic variables and stock price, stock volume, and bid-ask spread were sporadic, which may indicate

that investors, in making investment decisions, do not depend substantially on macroeconomic factors. Similar results were reported in the literature concerning the relationship between stock price and a company's financial factors (Earl, 1972; Berglund & Bergman, 2013; Hassan et al., 2020; Ligocká, 2018a, 2018b).

TABLE 1. LIST OF INDEPENDENT VARIABLES USED IN THE AUTO-REGRESSION ANALYSIS WHERE A COMPANY'S STOCK PRICE, TRADING VOLUME, OR BID-ASK SPREAD WAS THE DEPENDENT VARIABLE

| | |
|---------|--|
| GDP | Gross domestic product in billions |
| Int | Central bank interest rate |
| Bond | Ten-year bond rate |
| Unemp | Unemployment rate |
| Indp | Industrial production index |
| Trade | Trade balance (balance of payment bases, negative) in millions |
| Oil | Global price of Brent Crude in US dollars per barrel |
| Money | Money Supply (M2) in billions |
| Savings | Savings in commercial banks in billions |
| Debt | Federal Debt in Millions |
| CPI | Inflation rate |

TABLE 2. PARAMETER ESTIMATES FROM THE AUTO-REGRESSION OF STOCK PRICE AS THE DEPENDENT VARIABLE ON ECONOMIC FACTORS AS THE INDEPENDENT VARIABLES FOR THE DIFFERENT COMPANIES ON THE STOCK MARKET

| <i>Company</i> | Dependent Variable | Independent Variables | | | | | | |
|------------------------------|--------------------|-----------------------|-----------------|------------------|----------------|----------------|----------------|-----------------|
| | | Intercept | Δ Bond-t | Δ Unemp-t | Δ CPI-t | Δ Oil-t | Δ GDP-t | Δ Debt-t |
| <i>Bank of America</i> | Δ Price-t | -0.376 | 5.476 | | | | | |
| <i>Bristol-Myers</i> | Price-t | 43.144 | -4.172 | -2.604 | | | | |
| <i>Caterpillar</i> | Δ Price-t | 5.7009 | | | -11.716 | 0.7200 | | |
| <i>Chase</i> | Δ Price-t | 1.5392 | | | | | | |
| <i>Community health</i> | Δ Price-t | -0.0539 | | | | 0.253 | | |
| <i>Diamond drilling</i> | Δ Price-t | 2.9987 | | | -7.967 | 0.934 | | |
| <i>DTE Energy</i> | Δ Price-t | 0.0263 | | -1.9728 | | | | |
| <i>Edwards life sciences</i> | Δ Price-t | | | | | | | |

| | | | | | | | | |
|----------------------------------|------------------|---------|---------|---------|--------|--------|--------|-----------|
| <i>Eli Lilli</i> | Δ Price-t | -2.7031 | -4.1768 | | | | 0.0201 | |
| <i>First Energy</i> | Δ Price-t | -0.3006 | -3.3425 | -2.4060 | | 0.2465 | | |
| <i>Fiserv Inc.</i> | Δ Price-t | | | | | | | |
| <i>G&K Services</i> | Δ Price-t | | | | | | | |
| <i>GAP Inc</i> | Δ Price-t | | | | | | | |
| <i>Hain Celestial</i> | Δ Price-t | | | | | | | |
| <i>Halliburton</i> | Price-t | 38.3133 | | | | 0.3275 | | |
| <i>Harris Corp</i> | Δ Price-t | 1.404 | 6.7817 | | | | | |
| <i>Hershey</i> | Δ Price-t | | | | | | | |
| <i>I.D.Systems</i> | Δ Price-t | -0.0665 | | | | | | |
| <i>ICU Medical</i> | Δ Price-t | 3.9125 | | -4.0928 | | | | |
| <i>J.B.Hunt</i> | Δ Price-t | -1.600 | | | | | 0.0219 | |
| <i>J.C. Penny</i> | Δ Price-t | -0.782 | 3.839* | | | | | |
| <i>Jewett-Cameron</i> | Price-t | 3.8618 | | -2.707 | | | | |
| <i>Kellog</i> | Δ Price-t | -0.6925 | | | 2.044 | | | |
| <i>Kewaunee Scientific</i> | Price-t | 8.0443 | | | | | | |
| <i>L.B. Foster</i> | Δ Price-t | 5.123 | | -3.063 | -6.051 | 0.292 | | 0.0000135 |
| <i>Laboratory Corp</i> | Δ Price-t | 1.8781 | | | | | | |
| <i>M.D.C. Holding</i> | Δ Price-t | | | | | | | |
| <i>Manpower Group</i> | Δ Price-t | 0.8827 | 9.266 | | | | | |
| <i>Nanometrics</i> | Price-t | 15.648 | | | | | | |
| <i>Nanophase</i> | Price-t | 5.8354 | | | | | | -5.958E-6 |
| <i>Ocean Biochemical</i> | Price-t | 2.0345 | | | | | | |
| <i>Oceaneering International</i> | Δ Price-t | | | | | | | |
| <i>Panhandle Oil and Gas</i> | Price-t | 19.746 | | | | | | |
| <i>Par Technology</i> | Δ Price-t | | | | | | | |
| <i>Quacker Chemicals</i> | Δ Price-t | 1.755 | 3.7886* | -3.0744 | | | | |
| <i>Quanta Service</i> | Price-t | 23.1255 | 4.3108 | | | | | |
| <i>Radisys Corp</i> | Δ Price-t | -0.1896 | 3.4140 | | | | | |
| <i>Rambus Inc</i> | Price-t | 36.406 | | | | | | |

| | | | | | | | | |
|--------------------------------------|------------------|---------|--------|---------|--|--------|--|-----------|
| <i>Salem Media Group Inc.</i> | Δ Price-t | -0.4536 | | -2.0368 | | | | |
| <i>Take-Two Interactive Software</i> | Δ Price-t | | | | | | | |
| <i>Tampa Electric</i> | Δ Price-t | -0.0112 | | -0.999* | | | | |
| <i>UGI Corp</i> | Δ Price-t | 0.248 | | | | | | |
| <i>W.R.Grace & CO</i> | Δ Price-t | -1.699 | | | | 0.1593 | | |
| <i>Walt Disney</i> | Δ Price-t | 0.2477 | 8.2677 | | | | | |
| <i>WW Grainger Inc.</i> | Δ Price-t | -1.9599 | | | | 0.3333 | | 0.0000194 |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

TABLE 2. STOCK PRICE (Continued)

| <i>Company</i> | Δ Trade-t | Δ Int-t | Δ Money-t | Δ Saving-t | Δ Indp-t | ϕ | R^2 |
|------------------------------|------------------|----------------|------------------|-------------------|-----------------|---------------|-------|
| <i>Bank of America</i> | | | | | | - 0.198 | 0.105 |
| <i>Bristol-Myers</i> | | | | | | 0.939 | 0.814 |
| <i>Caterpillar</i> | - 0.000758 | | | | | -0.059 ns | 0.204 |
| <i>Chase</i> | | 3.773 | | | | - 0.484 | 0.262 |
| <i>Community health</i> | | | | | | 0.334 | 0.214 |
| <i>Diamond drilling</i> | | | | | | 0.034 ns | 0.349 |
| <i>DTE Energy</i> | | | -0.018 | 0.0310 | | -0.063 ns | 0.238 |
| <i>Edwards life sciences</i> | | | | | | | |
| <i>Eli Lilly</i> | | | | | | -0.3280 | 0.179 |
| <i>First Energy</i> | | | | | | -0.1280 ns | 0.332 |
| <i>Fiserv Inc.</i> | | | | | | | |
| <i>G&K Services</i> | | | | | | | |
| <i>GAP Inc</i> | | | | | | | |
| <i>Hain Celestial</i> | | | | | | | |
| <i>Halliburton</i> | | | | | | 0.792 | 0.661 |

| | | | | | | | |
|--------------------------------------|---------------|---------|---------|----------|---------|---------------|--------|
| <i>Harris Corp</i> | | | | | | -0.1333 ns | 0.080 |
| <i>Hershey</i> | | | | | | | |
| <i>I.D.Systems</i> | - 0.000148 | | | | | -0.257 | 0.108 |
| <i>ICU Medical</i> | | | | | | 0.612 | 0.345 |
| <i>J.B.Hunt</i> | | | | | -1.389 | -0.124 ns | 0.0879 |
| <i>J.C. Penny</i> | | | | | | 0.071 ns | 0.042 |
| <i>Jewett-Cameron</i> | | | | | | 0.267 | 0.097 |
| <i>Kellog</i> | | | | | | -0.1204 ns | 0.091 |
| <i>Kewaunee Scientific</i> | | | | | | 0.370 | 0.177 |
| <i>L.B. Foster</i> | | | | -0.0524 | | -0.0944 ns | 0.206 |
| <i>Laboratory Corp</i> | | 10.327* | | | | 0.135 ns | 0.073 |
| <i>M.D.C. Holding</i> | | | | | | | |
| <i>Manpower Group</i> | | | | | | 0.0257 ns | 0.101 |
| <i>Nanometrics</i> | | | | | | 0.747 | 0.545 |
| <i>Nanophase</i> | | | | | | 0.618 | 0.542 |
| <i>Ocean Biochemical</i> | | | | -0.0041* | | 0.828 | 0.615 |
| <i>Oceaneering International</i> | | | | | | | |
| <i>Panhandle Oil and Gas</i> | | | | | | 0.728 | 0.507 |
| <i>Par Technology</i> | | | | | | | |
| <i>Quacker Chemicals</i> | | | | | | 0.0341 ns | 0.122 |
| <i>Quanta Service</i> | | | | | | 0.819 | 0.689 |
| <i>Radisys Corp</i> | | | | | | 0.00887 ns | 0.0550 |
| <i>Rambus Inc</i> | | | | -0.1527 | | 0.469 | 0.299 |
| <i>Salem Media Group Inc.</i> | | | -0.0159 | 0.0263 | -0.8585 | 0.0327 ns | 0.274 |
| <i>Take-Two Interactive Software</i> | | | | | | | |

| | | | | | | | |
|---------------------------|--|--|--|--------|--|--------------|--------|
| <i>Tampa Electric</i> | | | | | | 0.0233 ns | 0.0396 |
| <i>UGI Corp</i> | | | | | | 0.199* | 0.040 |
| <i>W.R.Grace & CO</i> | | | | 0.0271 | | 0.082 ns | 0.117 |
| <i>Walt Disney</i> | | | | | | 0.0643 ns | 0.073 |
| <i>WW Grainger Inc.</i> | | | | | | 0.144 ns | 0.108 |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

'ns' indicates not significant

TABLE 3. PARAMETER ESTIMATES FROM THE AUTO-REGRESSION OF STOCK VOLUME AS THE DEPENDENT VARIABLE ON ECONOMIC FACTORS AS THE INDEPENDENT VARIABLES FOR THE DIFFERENT COMPANIES ON THE STOCK MARKET

| | Dependent Variable | Independent Variables | | | | | | |
|------------------------------|--------------------|-----------------------|------------------|------------------|-------------------|----------------|-----------------|-----------------|
| <i>Company</i> | | Intercept | Δ Unemp-t | Δ Money-t | Δ Saving-t | Δ GDP-t | Δ Debt-t | Δ Indp-t |
| <i>Bank of America</i> | Δ Vol-t | -5293327 | 9135367 | 100917 | -72337 | | | |
| <i>Bristol-Myers</i> | Vol-t | 1630149 | | | 7185 | -2492 | | |
| <i>Caterpillar</i> | Δ Vol-t | 1816 | 340976 | 1700 | -2335 | | | |
| <i>Chase</i> | Vol-t | 2272 | -929.545 | | | | | |
| <i>Community health</i> | Δ Vol-t | 6516 | 52610 | | | | | |
| <i>Diamond drilling</i> | Vol-t | 385888 | | | | | | |
| <i>DTE Energy</i> | Vol-t | 185057 | | | | | 0.0840 | |
| <i>Edwards life sciences</i> | Vol-t | 128002 | | | | | | |
| <i>Eli Lilly</i> | Vol-t | 850811 | | 767.909 | | | | |
| <i>First Energy</i> | Δ Vol-t | -36007 | | 486.2513 | | | | |
| <i>Fiserv Inc.</i> | Vol-t | 302063 | 46992 | 380.646 | -1038 | | | |
| <i>G&K Services</i> | Vol-t | 20877 | | | | -0.0140 | -0.0131 | |
| <i>GAP Inc</i> | Vol-t | 1112269 | 99838 | | | | | |
| <i>Hain Celestial</i> | Vol-t | 124997 | | | | | | |

| | | | | | | | | |
|--------------------------------------|--------|---------|----------|---------|----------|----------|---------|---------|
| <i>Halliburton</i> | Vol-t | 1620984 | | | | | 1.8490 | |
| <i>Harris Corp</i> | Vol-t | 163971 | 30587 | | | | | |
| <i>Hershey</i> | Vol-t | 197562 | | | | | 0.0521 | |
| <i>I.D.Systems</i> | Vol-t | 9219 | | | | | | |
| <i>ICU Medical</i> | Vol-t | 21890 | | | | | | |
| <i>J.B.Hunt</i> | ΔVol-t | -27644 | 55368 | | | 201.334* | | |
| <i>J.C. Penny</i> | Vol-t | 1139920 | 274358* | | 4865* | | | |
| <i>Jewett-Cameron</i> | Vol-t | | | | | | | |
| <i>Kellog</i> | Vol-t | 285990 | 25361 | 370.871 | | | -0.223 | |
| <i>Kewaunee Scientific</i> | Vol-t | 966.779 | -377.603 | | | | | |
| <i>L.B. Foster</i> | Vol-t | 12182 | | | | | | |
| <i>Laboratory Corp</i> | Vol-t | 180918 | | | | | | -16357 |
| <i>M.D.C. Holding</i> | Vol-t | 101058 | 13280 | | | | | |
| <i>Manpower Group</i> | Vol-t | 118819 | | | | | 0.0805 | |
| <i>Nanometrics</i> | Vol-t | 24689 | | | | 91.264 | | |
| <i>Nanophase</i> | Vol-t | 23028 | | | | | | |
| <i>Ocean Biochemical</i> | Vol-t | 2341 | | | | | 0.00759 | |
| <i>Oceaneering International</i> | Vol-t | 159982 | | | | | | |
| <i>Panhandle Oil and Gas</i> | Vol-t | 3986 | | | | | | |
| <i>Par Technology</i> | Vol-t | 8893 | -2765 | | | -26.357 | | 938.088 |
| <i>Quacker Chemicals</i> | Vol-t | 7648 | | 18.4916 | | | | |
| <i>Quanta Service</i> | Vol-t | 360622 | -41698 | | | -449.476 | | |
| <i>Radisys Corp</i> | Vol-t | 30679 | | 83.3150 | -113.995 | | | |
| <i>Rambus Inc</i> | Vol-t | 650144 | | | -2261 | | | |
| <i>Salem Media Group Inc.</i> | Vol-t | 7812 | | | | 27.878 | | |
| <i>Take-Two Interactive Software</i> | Vol-t | 339063 | | | | | | |
| <i>Tampa Electric</i> | Vol-t | 194176 | 30116 | 623.513 | | | | 29735 |
| <i>UGI Corp</i> | Vol-t | 110429 | | | | | | -12653 |

| | | | | | | | | |
|---------------------------|-------|---------|--------|--|--|-----------|--------|--------|
| <i>W.R.Grace & CO</i> | Vol-t | 129470 | -19065 | | | | | |
| <i>Walt Disney</i> | Vol-t | 1815497 | | | | -1701 | 0.9611 | 143075 |
| <i>WW Grainger Inc.</i> | Vol-t | 140129 | | | | -145.8754 | | |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

TABLE 3. STOCK VOLUME (Continued)

| <i>Company</i> | Δ Bond-t | Δ CPI-t | Δ Oil-t | Δ Int-t | Δ Trade-t | ϕ | R ² |
|------------------------------|-----------------|----------------|----------------|----------------|------------------|--------------|----------------|
| <i>Bank of America</i> | | | | | | - 0.374 | 0.4738 |
| <i>Bristol-Myers</i> | | | | | | 0.261 | 0.256 |
| <i>Caterpillar</i> | | | | | | -0.102 ns | 0.347 |
| <i>Chase</i> | | | | | | 0.654 | 0.441 |
| <i>Community health</i> | | | | | | -0.360 | 0.199 |
| <i>Diamond drilling</i> | | | | | | 0.542 | 0.302 |
| <i>DTE Energy</i> | | | | | | 0.455 | 0.324 |
| <i>Edwards life sciences</i> | | | | | | 0.666 | 0.445 |
| <i>Eli Lilly</i> | | | | | | 0.812 | 0.698 |
| <i>First Energy</i> | 113293 | | | | | -0.369 | 0.275 |
| <i>Fiserv Inc.</i> | | | | | | 0.756 | 0.597 |
| <i>G&K Services</i> | | | | | | 0.413 | 0.330 |
| <i>GAP Inc</i> | | 141289 | | | | 0.803 | 0.664 |
| <i>Hain Celestial</i> | | | | | | 0.611 | 0.376 |
| <i>Halliburton</i> | | | | | | 0.536 | 0.425 |
| <i>Harris Corp</i> | | | 1302 | | | 0.657 | 0.473 |
| <i>Hershey</i> | | | | | | 0.508 | 0.305 |
| <i>I.D.Systems</i> | 7855 | | | | | -0.534 | 0.352 |
| <i>ICU Medical</i> | 8775 | | | | | 0.5261 | 0.308 |
| <i>J.B.Hunt</i> | -49434 | | | | | -0.380 | 0.284 |
| <i>J.C. Penny</i> | | | | | | 0.744 | 0.577 |
| <i>Jewett-Cameron</i> | | | | | | | |
| <i>Kellogg</i> | | | | | | 0.875 | 0.715 |

| | | | | | | | |
|--------------------------------------|------|--------|----------|----------|--------|--------------|--------|
| <i>Kewaunee Scientific</i> | | | | -779.392 | | 0.358 | 0.203 |
| <i>L.B. Foster</i> | | | | | | 0.750 | 0.569 |
| <i>Laboratory Corp</i> | | | | | 4.2113 | 0.355 | 0.308 |
| <i>M.D.C. Holding</i> | | 13473* | | | | 0.829 | 0.695 |
| <i>Manpower Group</i> | | | | | | 0.384 | 0.295 |
| <i>Nanometrics</i> | | | | | | 0.579 | 0.376 |
| <i>Nanophase</i> | | | | | | 0.388 | 0.148 |
| <i>Ocean Biochemical</i> | 4762 | | | | | 0.0655 ns | 0.1304 |
| <i>Oceaneering International</i> | | | | | | 0.785 | 0.599 |
| <i>Panhandle Oil and Gas</i> | | | | | | 0.837 | 0.709 |
| <i>Par Technology</i> | | | 187.793 | | 0.347 | 0.681 | 0.483 |
| <i>Quacker Chemicals</i> | | -2671* | 146.112* | | | 0.789 | .669 |
| <i>Quanta Service</i> | | | | | | 0.853 | 0.744 |
| <i>Radisys Corp</i> | | | | | | 0.416 | 0.289 |
| <i>Rambus Inc</i> | | | | | | 0.269 | 0.172 |
| <i>Salem Media Group Inc.</i> | | | | | | 0.219* | 0.121 |
| <i>Take-Two Interactive Software</i> | | | | | | 0.302 | 0.105 |
| <i>Tampa Electric</i> | | | | | | 0.801 | 0.664 |
| <i>UGI Corp</i> | | | | | | 0.821 | 0.681 |
| <i>W.R.Grace & CO</i> | | | -1606 | | | 0.555 | 0.342 |
| <i>Walt Disney</i> | | | | -378593 | 28.586 | 0.460 | 0.503 |
| <i>WW Grainger Inc.</i> | | | | | 1.9987 | 0.571 | 0.491 |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

‘ns’ indicates not significant

TABLE 4. PARAMETER ESTIMATES FROM THE AUTO-REGRESSION OF BID-ASK SPREAD AS THE DEPENDENT VARIABLE ON ECONOMIC FACTORS AS THE INDEPENDENT VARIABLES FOR THE DIFFERENT COMPANIES ON THE STOCK MARKET

| <i>Company</i> | Dependent Variable | Independent Variables | | | | | | |
|------------------------------|--------------------|-----------------------|-----------------|-------------------|-----------------|----------------|----------------|------------------|
| | | Intercept | Δ Bond-t | Δ Saving-t | Δ Indp-t | Δ GDP-t | Δ Int-t | Δ Unemp-t |
| <i>Bank of America</i> | Spread-t | -0.1750 | 0.0858 | 0.000744 | | | | |
| <i>Bristol-Myers</i> | Spread-t | -0.2533 | | | | | | |
| <i>Caterpillar</i> | Spread-t | -0.121 | | | | | | |
| <i>Chase</i> | Δ Spread-t | 0.00316 | | | -0.020* | | | |
| <i>Community health</i> | Spread-t | -0.0960 | | | | | | |
| <i>Diamond drilling</i> | Spread-t | -0.1118 | | | | -0.00021 | 0.0598 | |
| <i>DTE Energy</i> | Spread-t | -0.0550 | | | | | -0.335 | |
| <i>Edwards life sciences</i> | Spread-t | | | | | | | |
| <i>Eli Lilly</i> | Spread-t | -0.3339 | | | | | | |
| <i>First Energy</i> | Spread-t | -0.0613 | -0.0675 | | | | | |
| <i>Fiserv Inc.</i> | Spread-t | | | | | | | |
| <i>G&K Services</i> | Spread-t | 0.128 | | | | | -0.00029 | |
| <i>GAP Inc</i> | Spread-t | -0.1060 | -0.0899* | | | | | |
| <i>Hain Celestial</i> | Spread-t | -0.0858 | | | 0.0143 | | | |
| <i>Halliburton</i> | Spread-t | -0.1486 | | | | | | |
| <i>Harris Corp</i> | Spread-t | -0.3576 | | | | 0.000813* | | |
| <i>Hershey</i> | Spread-t | | | | | | | |
| <i>I.D.Systems</i> | Spread-t | -0.1024 | | | | | | |
| <i>ICU Medical</i> | Spread-t | -0.1995 | | | | | 0.186 | |
| <i>J.B.Hunt</i> | Spread-t | -0.0785 | | | | | 0.148 | |
| <i>J.C. Penny</i> | Δ Spread-t | 0.00451 | 0.0296 | | | | | |
| <i>Jewett-Cameron</i> | Spread-t | -0.3330 | | | | | | |
| <i>Kellog</i> | Spread-t | -0.148 | | | | | | |

| | | | | | | | | |
|--------------------------------------|----------|---------|--------|----------|---------|--|---------|---------|
| <i>Kewaunee Scientific</i> | Spread-t | -0.226 | | | | | | |
| <i>L.B. Foster</i> | Spread-t | -0.1405 | 0.0619 | | | | | |
| <i>Laboratory Corp</i> | Spread-t | -0.1098 | | | | | | |
| <i>M.D.C. Holding</i> | Spread-t | -0.1201 | | | | | | |
| <i>Manpower Group</i> | Spread-t | -0.1307 | | | | | | |
| <i>Nanometrics</i> | Spread-t | -0.0996 | | | | | 0.0821 | |
| <i>Nanophase</i> | Spread-t | -0.2449 | | | | | 0.3564 | |
| <i>Ocean Biochemical</i> | Spread-t | -0.0694 | | -0.00035 | | | | |
| <i>Oceaneering International</i> | Spread-t | -0.143 | | | 0.00167 | | 0.277 | |
| <i>Panhandle Oil and Gas</i> | Spread-t | -0.2896 | | | 0.0969 | | -0.171* | |
| <i>Par Technology</i> | Spread-t | -0.0970 | | | | | | |
| <i>Quacker Chemicals</i> | Spread-t | -0.1486 | | 0.00049 | | | | |
| <i>Quanta Service</i> | Spread-t | -0.1273 | | | | | | 0.0580 |
| <i>Radisys Corp</i> | Spread-t | -0.0487 | | | | | | |
| <i>Rambus Inc</i> | Spread-t | -0.0646 | | | | | 0.1104 | |
| <i>Salem Media Group Inc.</i> | Spread-t | -0.1244 | | | | | 0.1778 | |
| <i>Take-Two Interactive Software</i> | Spread-t | -0.0507 | | 0.00025 | | | | |
| <i>Tampa Electric</i> | Spread-t | -0.0882 | | | | | | |
| <i>UGI Corp</i> | Spread-t | -0.0966 | | | | | | -0.0177 |
| <i>W.R.Grace & CO</i> | Spread-t | -0.0725 | | | | | | 0.0466 |
| <i>Walt Disney</i> | Spread-t | -0.0958 | | | | | | |
| <i>WW Grainger Inc.</i> | Spread-t | -0.1236 | | 0.00081 | | | | |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

TABLE 4. BID-ASK SPREAD (Continued)

| <i>Company</i> | $\Delta\text{CPI-t}$ | $\Delta\text{Oil-t}$ | $\Delta\text{Trade-t}$ | $\Delta\text{Debt-t}$ | $\Delta\text{Money-t}$ | ϕ | R^2 |
|------------------------------|----------------------|----------------------|------------------------|-----------------------|------------------------|--------------|-------|
| <i>Bank of America</i> | | | | | | 0.5489 | 0.395 |
| <i>Bristol-Myers</i> | | | | | | 0.6133 | 0.423 |
| <i>Caterpillar</i> | | | | | | 0.611 | 0.391 |
| <i>Chase</i> | | | | | | -0.417 | 0.196 |
| <i>Community health</i> | | | | | | 0.801 | 0.612 |
| <i>Diamond drilling</i> | | | | | | 0.903 | 0.739 |
| <i>DTE Energy</i> | | | | | | 0.337 | 0.191 |
| <i>Edwards life sciences</i> | | | | | | | |
| <i>Eli Lilli</i> | | | | | | 0.478 | 0.287 |
| <i>First Energy</i> | -0.060 | 0.00337 | | | | 0.667 | 0.462 |
| <i>Fiserv Inc.</i> | | | | | | | |
| <i>G&K Services</i> | | | 0.0000574 | | | 0.235* | 0.632 |
| <i>GAP Inc</i> | | | | | | 0.636 | 0.427 |
| <i>Hain Celestial</i> | | | | 1.62E-7 | | 0.032 ns | 0.145 |
| <i>Halliburton</i> | | | | | | 0.669 | 0.471 |
| <i>Harris Corp</i> | | | | | | 0.648 | 0.356 |
| <i>Hershey</i> | | | | | | | |
| <i>I.D.Systems</i> | | | | 1.33E-7* | | -0.169 ns | 0.084 |
| <i>ICU Medical</i> | | | | 3.81E-7 | | 0.087 ns | 0.162 |
| <i>J.B.Hunt</i> | | | | 1.94E-7 | | 0.044 ns | 0.169 |
| <i>J.C. Penny</i> | | | | | | 0.503 | 0.269 |
| <i>Jewett-Cameron</i> | | | | | | 0.230* | 0.095 |
| <i>Kellog</i> | | | | | | 0.666 | 0.482 |
| <i>Kewaunee Scientific</i> | | | | -3.48E-7 | | 0.404 | 0.155 |
| <i>L.B. Foster</i> | | | | 1.19E-7 | | 0.243 | 0.184 |
| <i>Laboratory Corp</i> | | | | | | 0.756 | 0.594 |
| <i>M.D.C. Holding</i> | | | | | | 0.740 | 0.539 |

| | | | | | | | |
|--------------------------------------|-------------|--|-----------|-----------|---------------|--------------|-------|
| <i>Manpower Group</i> | | | | | | 0.857 | 0.738 |
| <i>Nanometrics</i> | | | | 2.17E-7 | | 0.0246 ns | 0.162 |
| <i>Nanophase</i> | | | | 8.179E-7 | | 0.0454 ns | 0.153 |
| <i>Ocean Biochemical</i> | | | | 8.821E-8 | | 0.118 | 0.102 |
| <i>Oceaneering International</i> | | | | | | 0.646 | 0.714 |
| <i>Panhandle Oil and Gas</i> | | | 0.0000230 | 3.558E-7 | | 0.133 ns | 0.211 |
| <i>Par Technology</i> | - 0.0309 | | | | | 0.829 | 0.671 |
| <i>Quacker Chemicals</i> | | | | | | 0.501 | 0.340 |
| <i>Quanta Service</i> | | | | | | 0.652 | 0.429 |
| <i>Radisys Corp</i> | | | | | | 0.522 | 0.274 |
| <i>Rambus Inc</i> | | | | 1.734E-7 | | 0.148 ns | 0.151 |
| <i>Salem Media Group Inc.</i> | | | | 2.545E-7* | | 0.0726 ns | 0.138 |
| <i>Take-Two Interactive Software</i> | | | | | | 0.238 | 0.173 |
| <i>Tampa Electric</i> | | | | | | 0.785 | 0.619 |
| <i>UGI Corp</i> | | | | | | 0.893 | 0.762 |
| <i>W.R.Grace & CO</i> | | | | | | 0.504 | 0.265 |
| <i>Walt Disney</i> | | | | | | 0.680 | 0.452 |
| <i>WW Grainger Inc.</i> | | | | | - 0.000461 | 0.559 | 0.368 |

the symbol (*) indicates significance at the 10% level

the symbol Δ represents the first difference

‘ns’ indicates not significant

TABLE 5. FREQUENCY AND PERCENT (OVER THE 45 COMPANIES) OF EACH INDEPENDENT VARIABLE THAT WAS SIGNIFICANTLY RELATED TO STOCK PRICE, STOCK VOLUME, AND BID-ASK SPREAD

| Independent Variables | | Stock Price | Stock Volume | Bid-Ask Spread |
|-----------------------|--|-------------|--------------|----------------|
| GDP | Gross domestic product in billions | 2 (4.44%) | 9 (20.0%) | 2 (4.44%) |
| Int | Central bank interest rate | 2 (4.44%) | 2 (4.44%) | 11 (24.44%) |
| Bond | Ten-year bond rate | 11 (24.44%) | 5 (11.11%) | 5 (11.11%) |
| Unemp | Unemployment rate | 9 (20.0%) | 16 (35.56%) | 3 (6.67%) |
| Indp | Industrial production index | 2 (4.44%) | 5 (11.11%) | 4 (8.89%) |
| Trade | Trade balance (balance of payment bases, negative) in millions | 2 (4.44%) | 4 (8.89%) | 2 (4.44%) |
| Oil | Global price of Brent Crude in US dollars per barrel | 8 (17.78%) | 4 (8.89%) | 1 (2.22%) |
| Money | Money Supply (M2) in billions | 2 (4.44%) | 9 (20.0%) | 1 (2.22%) |
| Savings | Savings in commercial banks in billions | 6 (13.33%) | 7 (15.56%) | 5 (11.11%) |
| Debt | Federal Debt in Millions | 3 (6.67%) | 8 (17.78%) | 12 (26.67%) |
| CPI | Inflation rate | 4 (8.89%) | 3 (6.67%) | 2 (4.44%) |

CONCLUSION

The purpose of this study was to identify the macroeconomic factors that had an effect on stock price, trading volume, and bid-ask spread for each of 45 companies listed on the U.S. stock market. The eleven macroeconomic variables included in this study were the gross domestic product, central bank interest rate, ten-year bond rate, unemployment rate, industrial production index, trade balance of payments, global price of Brent Crude in US dollars per barrel, money supply (M2), savings in commercial banks, federal debt, and inflation rate. The autocorrelation analysis approach, which considered the first-order autocorrelation for time series data, was utilized in regressing each of the dependent variables (stock price, trading volume, and bid-ask spread) on the eleven stationary independent macroeconomic variables. Results indicated that all variables had an effect on price, volume, and spread. However, the effect of each variable was company specific and limited to 36% or less of the companies. The percentage range was 4.44% to 24.44% for stock price, 4.44% to 35.56% for trading volume, and 2.22% to 26.67% for bid-ask spread. These results may imply that investors, in making investment decisions, do not rely substantially on macroeconomic factors. Similar results were reported in the literature concerning the relationship between stock price and a company's financial factors (Earl, 1972; Berglund & Bergman, 2013; Hassan et al., 2020; Ligocká, 2018a, 2018b).

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OPERATIONAL AND PSYCHOLOGICAL ENTRY BARRIERS FOR U.S. SMES IN INTERNATIONAL MARKETS: A QUALITATIVE ANALYSIS

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ABSTRACT

An increasing number of SMEs are involved in international activities. However, despite technological advances and the ubiquitous presence of the Internet and electronic commerce, many SMEs continue to face structural and psychological impediments that limit their ability to engage in international business. These challenges have persisted over time and new private and public initiatives may be needed to bolster SME participation in international business. In this paper we report on a qualitative survey involving telephone interviews with ten individuals that are either involved in international business or promoting international business at SMEs. The interviews provide a greater understanding of structural and psychological barriers to SME internationalization. We explain our results in light of the theory of planned behavior and the competing values model similar to Karimi et al. (2017). Our findings help explain why many trade promotion programs are underutilized by SMEs.

KEYWORDS

International business, small businesses, small and medium sized enterprises, SME, SME barriers, barriers to globalization, psychological barriers, risk aversion, survey, qualitative, structural barriers, theory of planned behavior, competing values model, trade promotion

INTRODUCTION

Small and mid-sized enterprises (SMEs) have a potentially important role to play in the global economy (Office of Advocacy, 2019a, 2019b; Wilmoth, 2019). International business has long been considered the domain of large multinational corporations; however, a growing number of SMEs engage in some form of international business. Despite the advent of the Internet and the growing significance of electronic commerce, many SMEs continue to fall short of their potential to exploit international opportunities (Shooshtari et al., 2017). In early 2020 over several weeks, we conducted hour-long telephone interviews with ten respondents in the Northwest U.S. to help

shed more light on SME internationalization and gain more insight about opportunities and challenges facing these firms. We asked all of our respondents a set of standard questions regarding SME internationalization that was shared with them in advance in writing (see Appendix). The respondents, however, did not strictly follow the questions and we allowed the respondents the flexibility to offer comments based on their experience and their line of business, rather than requiring them to strictly adhere to the formatted questions. We wished to avoid stifling their willingness to provide candid and relevant comments in the interview process. The ten individuals we interviewed included two World Trade Center presidents, two state-level international trade officers from the international trade department, and six individuals that were owners or managers of SMEs involved in international business. These interviews yielded valuable insights about SMEs doing business internationally and their comments are synthesized below. One of our major insights was that there are many psychological impediments to internationalization that SMEs must overcome. We highlight some of the relevant literature on the psychological aspects of risky entrepreneurial activities such as venturing into international markets. A literature review of business-related impediments to SME internationalization can also be found in Love and Roper (2015), Manuel and Shooshtari (2019), and Shooshtari et al. (2017).

LITERATURE REVIEW

In every state, small businesses comprise the vast majority of businesses and in 18 states the majority of employees work at small businesses. Florida and Nevada have the lowest percentage of employees in the workforce working at small businesses with just under 42%. Montana has the highest percentage of workers employed at SMEs at 64.8%. In aggregate, about 47.3% of the workforce is employed by SMEs. SMEs also created 1.6 million net new jobs in 2019, and there were over 285,000 small business exporters (Office of Advocacy, 2020a, 2020b). Although 285,000 appears to be a large number this represents less than 1% of total small businesses. Thus, many SMEs may not be fully exploiting their potential to grow in international markets despite reductions in transportation and information costs that have occurred due to technology improvements and globalization that have greatly reduced the cost of international market entry (Delehanty, 2015; Wood et al., 2015). These costs are particularly important for SMEs who lack scale economies that allow large firms to negotiate cost reductions on large shipments. SMEs also typically have a small staff (if any) that can be dedicated to developing international markets and exploring different methods of shipping (Drzeniek-Hanouz & Doherty, 2013). While many SMEs have exploited the reduced search-costs associated with locating customers over the Internet, and the general growing prevalence of e-commerce activities to generate international sales, many SMEs appear to be falling short of their potential (Shooshtari et al., 2017; Wright et al., 2007). In a recent survey of SMEs in the four U.S. states of Washington, Oregon, Idaho and Montana, Manuel and Shooshtari (2019) found that many issues continue to hinder SME internationalization and that these issues have consistently persisted over time.

Small to midsize enterprises face many business and psychological obstacles when considering entering into international markets. Some barriers are environmental, or external to the firm, and some are internal having to do with management structure, knowledge and experience, and managerial psychology. Typical external barriers include the inability to obtain private or

government assistance to overcome knowledge or financial barriers, including having to deal with complex rules about export destinations, tariffs, customs classifications, and shipping requirements (Roy et al., 2016). Other barriers include payment collection difficulties, inability to locate a foreign distributor, inability to compete in foreign markets, and unfamiliarity with cultural differences. Lack of information about foreign markets and distributors is one of the most commonly mentioned constraints for SMEs (Zarei et al., 2011). Other external barriers would include higher bank financing costs to fund exports, difficulties in marketing, or changed product or service requirements. Marketing and logistics issues can raise barriers as well. These include the inability to price the product competitively, finding reliable shipping that is cost effective, and obtaining the expertise needed to deal with foreign distributors (Hilmersson & Johanson, 2016; Love & Roper, 2015).

Other internal barriers include resource constraints on managers' time and a lack of managerial expertise that is needed to develop foreign markets. Many SMEs cannot afford to conduct their own market research and instead they must rely on personal contacts or experience, often operating opportunistically rather than pursuing a comprehensive international strategy (Rundh, 2015; Francioni et al., 2015). Flexibility in both production and marketing may be needed when proceeding into international markets and many SME managers lack the experience needed (Love & Roper, 2015).

Industry matters as well; knowledge intensive SMEs are more likely to follow a strategic process in internationalization than many other types of SMEs (Olejnik & Swoboda, 2012; Carlsson & Dale, 2011). These types of firms tend to be further along in internationalization than manufacturers. According to Wach (2015), Kontinen and Ojala (2012), and Fernandez and Nieto (2005), the degree of international operations is often impacted by ownership structure in family-owned SMEs. Fragmented ownership may be associated with slower movement into international markets with growth in fits and starts. In contrast, concentrated ownership power is often associated with more rapid growth of international operations. Managerial attitudes, education, and experience also impact the firm's degree of international operations. Exporting is often one of the first methods of entering international markets because exporting is cheaper, faster, and requires fewer management skills compared to activities such as licensing or greenfield investment (Roy et al., 2016).

Korsakienė and Tvaronaviciene (2012) report a stage of development effect at the country level that they use to help explain differences in SME internationalization between Norwegian and Lithuanian firms. SMEs in both countries have faced increased competition from globalization that resulted in a need to expand internationally. Many Norwegian SMEs engaged in more advanced forms of internationalization such as licensing and joint ventures whereas Lithuanian firms were predominantly exporters. The authors conclude that part of the explanation lies in the lack of international experience among Lithuanian SME managers and the sparsity of examples of success in the more involved methods of conducting international business. These are examples of internal barriers, which may in part be deemed to be psychological barriers, to pursuing more complicated means of internationalization.

It is well documented that more entrepreneurial managers are more likely to engage in riskier activities (Macko & Tadeusz, 2009). Pursuing international operations may be considered a riskier

activity than purely domestic operations for a SME without international experience. Risk aversion in general impedes engaging in new riskier activities (St. Amour, 2004; Stewart & Roth, 2001). Seeking overseas markets is often considered a riskier activity for many SMEs so risk aversion is likely to limit SME participation in global markets. Even if SME managers do consider international operations, the psychology of risk aversion may impact the information seeking process and how it is interpreted by managers. This may lead managers to overestimate the risks involved. We draw on the entrepreneurial literature to help understand the psychological factors that affect the extent that individuals may engage in risky entrepreneurial activities such as seeking out new international markets.

Surveys of students by Sandhu et al. (2011) and Porcelli and Delgado (2009) have found that risk aversion, fear of failure, lack of social networking, and dislike of stress and hard work lead students to avoid pursuing entrepreneurial activities. The existence of social networks of peers that succeed in entrepreneurial activities encourage others to attempt riskier ventures. This implies a possible positive network effect that agencies that promote internationalization can exploit. Namely, hosting events or networks that share success stories can encourage others to overcome their fears and their aversion to undertaking new challenging activities. Karimi et al. (2017) examine the relationship between various personality characteristics and contextual factors on the entrepreneurial intentions of Iranian students. Their analysis is applied using the Theory of Planned Behavior (TPB) model. TPB is a measure of entrepreneurial intent that has been shown to predict entrepreneurial behavior as summarized in Karimi et al. (2017). TPB suggests that the likelihood of individuals engaging in entrepreneurial behavior is a function of perceived return on investment of the proposed activity, social norms and expectations about the activity, and how difficult the individual perceives it to be to succeed in the activity (Ajzen, 1991, 2002). The latter characteristic is related to the individual's self-confidence and their belief in their ability to succeed despite challenges (Karimi et al., 2017). While some of their results are specific to their sample of Iranian students and starting new business ventures, there are many generalizable ideas that we can apply to understand SME managers' choices to engage in internationalization.

Contextual factors such as managers' evaluation of firm and industry-specific profitability of developing overseas markets will be an important determinant of the decision to pursue international markets. However, these evaluations are subject to the manager's psychological predilections. Do the SME managers face social pressures to avoid or to engage in global markets? Violating social norms can result in social costs and so have an impact on managers' choices. Are they exposed to success stories from other firms in their industry? Learning that their peers have succeeded in a similar venture may reduce their fear of failure and make them more willing to move into new markets. Managers with an 'internal locus of control,' meaning they are confident that their actions can lead to positive outcomes regardless of external events, are more likely to engage in risky entrepreneurial activities than managers with an 'external' locus of control (Mueller & Thomas, 2001; McClelland, 1961). The latter type believe that external events determine the outcomes of their actions rather than their own choices. These individuals tend to be more risk-averse, and less likely to engage in entrepreneurial activities. Introducing individuals of this type to other businesspeople that have had success overseas may help overcome their risk aversion. Providing these types of success stories may be needed in conjunction with other commonly supplied support measures such as financial support to limit the risk of a new venture.

Hansemark (1998) and Fishbein and Ajzen (2009) indicate that these personality traits can be modified by experience and that managers can learn to be more entrepreneurial over time. Croskerry et al. (2013) present educational training methods and workplace strategies designed for 'cognitive debiasing' to improve medical diagnoses. We suggest that state and federal trade assistance agencies could help SME managers make more informed investment decisions by helping managers identify cognitive biases and in devising training methods to help them overcome their reluctance to internationalize.

Many entrepreneurs have a high need for personal achievement. They are hardworking and enjoy challenges and problem solving (McClelland, 1961). State trade development agencies can present these types of SME managers with international opportunities and perhaps some startup assistance with reasonable confidence that these managers will actively pursue these opportunities. Managers who are more complacent about the size and profitability of their firm are less likely to seek out new domestic or international growth opportunities even when such opportunities are presented to them. For the latter individuals, a more supportive environment may be needed to encourage them to engage in overseas operations (Karimi et al., 2017; Wright et al., 2007). The support needed by these personality types may go beyond financial and informational requirements and may need to include training in goal setting and planning for the future through a process of ongoing consulting. If state or federal funding or expertise for this type of assistance is minimal, then agency activities may be better targeted at managers who have been identified as more entrepreneurial (Fairlie & Holleran, 2012; Wright et al., 2007).

Brettel et al. (2015) describe a Competing Values Model (CVM) that can be used to identify SME business culture and the likelihood that the firm will engage in entrepreneurial activities such as pursuing international operations. The model was proposed by Kwan and Walker (1993). With the CVM model firms are characterized along two different continuums, the extent they are focused on stability versus flexibility and the extent decisions are made based on internal versus external concerns. Firms focused on stability prefer order and control. Flexible firms are dynamic firms that are opportunistic in responding to business environment changes. In the internally focused firm, decisions are usually based on business process improvements to increase efficiency or to increase market scale and tend to be dominated by one or a few managers. The externally focused firm responds more to the external business environment and has more of a group focus. This latter type of firm usually has well-developed performance targets and is goal centered with strong communication among managers (Brettel et al., 2015). Firms that have an internal focus and are stability oriented are less likely to engage in entrepreneurial activities. If agencies can identify these types of firms it can help them understand that additional types of assistance as indicated above will likely be needed to encourage them to engage in new international activities. SMEs that are externally focused are more likely to be amenable to international opportunities and trade development agencies with limited resources may wish to focus on these types of firms. Firms with these characteristics tend to be less risk-averse, more innovative, and proactively seek new business opportunities (Brettel et al., 2015). An assessment tool that can be used to quickly identify the type of firm is available in Cameron and Quinn (2011). State development agencies can help meet their goals of assisting firms in growing their international presence by understanding the psychology of different types of managers and how the firm's structure impacts the likelihood of pursuing growth in international markets.

INTERVIEW RESULTS

We interviewed two directors of World Trade Centers to gain insight into their work with SMEs in their respective states. World Trade Centers (WTCs) are involved in a variety of activities to help develop international business opportunities for local businesses (WTC Montana, 2020). Many of the firms that seek assistance from WTCs are smaller firms that do not have the resources and in-house expertise to do so on their own so they are a good source to learn the challenges that small firms face in developing international business.

There was significant overlap and agreement between the responses to our questions by the two WTC directors. They both considered international business to be riskier than domestic because of geographical distance, and both indicated it is more complicated because of trade rules and tariffs. Many SMEs that have not conducted business overseas do not understand trade documentation and how to ship abroad. According to these directors, SMEs need help in conducting their due diligence and in networking to successfully find international customers and suppliers. They both noted that SMEs often do not get involved in international business because of a lack of capital and other resources, lack of a tradeable product, and lack of strategic thinking. The directors believed that many SMEs are often content with their domestic operations and markets and found it difficult to get out of their comfort zone to pursue overseas markets. Some SME managers seem to think you have to be a big business to get involved in international business.

One of the roles of the directors is to encourage SMEs by pointing out potential market opportunities that are a good fit for an individual SME. Many SMEs do not have someone with international experience, nor have the ability to have a dedicated international staff person. A lack of international experience continues to be a major obstacle. WTCs can provide training assistance and small grants to help SMEs engage in international sales and production, but many SMEs do not seem to be aware of this or are not aware of the minimal costs involved. The WTC directors stated that SMEs don't realize that international customers are often more alike than they are different and want similar products. If your products sell in the U.S., they will probably sell abroad. The advent of Internet e-commerce has been a boon for SMEs that reduces direct search costs in locating buyers. In many cases when SMEs engage in web sales, they are surprised to receive inquiries from abroad and are not prepared to deal with international customers. There are additional issues that must be considered when shipping abroad. These include tariff classifications, taxes, shipping costs, and country regulations. WTCs, state trade development agencies, and private-sector freight forwarders all have expertise in helping a SME sort through these complexities. These often require firms to be flexible and to learn from their experiences. For instance, one interviewee indicated they learned the hard way that you cannot ship liquids to certain Middle Eastern countries. The firm reformulated the product and continued to develop its international sales. This indicates the need for SME managers to have a flexible mindset and to be willing to adapt and address problems that emerge in serving international markets.

According to the WTC directors, it is very important for firms to hear and learn about the successes of other SMEs, especially those in similar lines of business. WTCs bring SMEs together for networking events. Many of these are broad-based rather than industry-specific. Trade shows are,

however, often regionally and geographically focused and industry-specific. They encourage SMEs to establish peer-to-peer connections with those who have similar concerns and experiences listening to other firms discuss what works and what does not. Venues to share stories of other SMEs that have succeeded internationally are encouraging to all.

In the WTC Director's experience, SMEs that sell services are generally ahead of those selling hard goods when it comes to engaging in international business. Firms, such as high-tech software providers; tend to be more proactive and respond to new opportunities faster than many goods manufacturers. They also indicated that SMEs that are successful domestically have a higher chance of succeeding internationally, and firms that are not doing well in the home market should not expect to succeed in international markets. In other words, going global is not a recommended way to shore up a troubled firm. One final remark by the WTC directors was that the policy inconsistencies of the current U.S. administration in the last three years have made it more difficult for SMEs to pursue international opportunities.

We had an opportunity to interview two state officers engaged in international trade development. There was a significant overlap in their responses as compared with the two World Trade Center Directors. The trade development officers indicated that many small companies lack the knowledge and technical details needed to engage in international business. They also noted that many SMEs do not have a dedicated person in charge of doing business abroad. Major obstacles include not understanding what is needed in international sales, shipping complications, and a lack of resources to develop international markets. State assistance can help reduce the technical barriers and help with the additional documentation required. They indicated that bigger companies that are regionally active beyond one state are more likely to have international sales or operations. We asked whether international business remains riskier than domestic operations and according to these two officers, international business is not much riskier. It requires more effort and some additional due diligence on the part of the SME. Business opportunities in Canada and Europe, in particular, are easier to exploit because of similarities with U.S. culture, etc. The WTC directors and the state officials noted that business complacency was a major barrier to pursuing international opportunities. In other words, quite a few businesses are happy with their current situation and do not want to put more time and effort into their business to make it grow.

States can help SMEs build international business contacts. Both international trade officials commented that the state provided substantial financial assistance to help pay for attendance at international trade shows through a state trade expansion program that many states employ. These types of programs are designed to put SME managers in touch with potential clients and supply chain firms in foreign markets. It is not clear how many SMEs are aware of these resources and how they value them. Earlier survey work indicates that many SMEs don't value these potential opportunities, perhaps because of some psychological barriers discussed above. The officials stated that the Internet has made it far easier to sell directly to overseas consumers. Picking partners and distributors and doing market research is also easier for SMEs. The officials indicated that many SMEs do not need to have a dedicated international businessperson, rather all that is required is someone who will make the effort to figure it out. State-level agencies can help answer questions, provide financial assistance, and locate contacts.

Similar to the WTC Directors, the state officials noted that sharing success stories, especially among firms in similar lines of business is very important. They have found that industry-specific trade missions are also very helpful. Importantly, both officers stated that SMEs that are successful domestically are more likely to succeed internationally. This observation is consistent with similar comments made by the World Trade Center Directors. The trade officials noted that success in international business wasn't all that different from succeeding domestically. Their advice to SMEs was to offer a high-quality product to international customers, offer good customer service, getting to know their customers and distributors, and focus on solving customer problems to create trust with the customers. Even in the age of the Internet, they emphasized the importance of face-to-face relations and establishing rapport with their customers and foreign distributors.

Our interviews with six SMEs managers included five that were doing business internationally and one that had since ceased its international business sales. We have divided the comments from the respondents into structural and psychological impediments. Structural impediments refer to factors such as lack of resources, lack of knowledge about doing business internationally, not having identified a customer base or contacts, and lack of distributors and intermediaries in international markets. Psychological impediments include factors such as fear of the unknown that prior survey results and our discussions with the WTC Directors and state trade officials indicate keep many SMEs from becoming involved in doing business internationally, and reluctance to lose control over their business as it grows. Many SME owners/entrepreneurs see their firm as an extension of themselves and their personal success. Some owners/managers just don't want their business to grow very much. Their business is designed to provide an adequate income to support themselves and their hobbies. They are not willing to put in the time and effort required to engage in the more complex world of international business.

We asked both specific questions about their firm's international experience and general questions about why they believe other firms do not participate in international sales or production. Our telephone surveys showed a general consensus that many smaller firms did not get involved in international business because they lacked the knowledge and resources to do so. Several respondents indicated that competing domestically was challenging enough and firms may not have the additional resources, capacity, and wherewithal to take on international markets. They considered international trade more complicated because of higher documentation requirements such as shipper's letter of intent, commercial invoices, etc., and other complexities such as compliance with NAFTA/USMC rules and language barriers in dealing with foreign entities. Receiving payment was also a concern for some of the SMEs we interviewed, and they mentioned instances where receiving payment from their customers was problematic in countries such as India and Russia.

On the psychological side, they noted that many smaller firms are afraid of the risks involved in becoming involved in international markets. Our interviewees felt that these risks are overblown. This is a major psychological factor. In their perspective, SMEs generally viewed export compliance to be complicated and initially daunting when initiating international operations, so many do not want to put in the effort needed to get started. Many considered navigating shipping and negotiating freight deals to be a major headache. The interviewees stated that other issues may arise with overseas sales or production. These may include dealing with late payments or nonpayment from customers or distributors abroad, demands for advanced payments for purchases

before shipping the merchandise. We realize we have selection bias in our interviewees because most are successfully engaging in international business. Nevertheless, they indicated that these issues should not keep firms from international growth. These businesses found help in solving these problems. Many of the SMEs relied on companies such as DHL, Fed Ex, or UPS to handle shipping details to foreign markets, including several that did business through the United States Postal Service. Some of the respondents indicated that they relied on their foreign distributors to handle the shipping for them. The SMEs we interviewed universally avoided foreign exchange risk by insisting on dollar-based transactions, so the exchange risk was born primarily by foreign customers. In some of the cases where SMEs were selling health and beauty products, individual country health and safety rules and specific product ingredient requirements were mentioned as a challenge. This was particularly mentioned as challenging with regard to health and safety rules for exporting to customers and distributors in the European Union.

The SMEs surveyed acknowledged that there are large opportunities to do business internationally and that there are resources available to help SMEs. They stated that new technologies and the Internet opens the door to easily locating new foreign customers and distributors. They mentioned that both customers and distributors had found and reached out to them through their website. For the European markets, SMEs did not alter or localize their websites, but they did in Asian markets, Singapore, and Australia.

Many of the SMEs we surveyed had reached out to international trade specialists at the state level and were very positive about the assistance they had received. Indeed, a few of the firms reported that they initiated their international entry after receiving such assistance and encouragement from the trade specialists at the state level. Many had taken advantage of trade missions, making contacts, and received low-cost market reports to assess market potential in specific countries for as little as \$300. The trade specialists helped them to identify and elect appropriate trade missions to develop new markets. State-level financial assistance to attend these trade missions and trade shows was also available. This allowed them to find potential customers and distributors in foreign markets. The SME comments supported the proposition that trade assistance helped both materially and psychologically. The trade specialists provided technical expertise, offered tools such as identifying tariff classifications and connected the firms to potential customers and distributors. Importantly, they offered support and encouragement that gave the SMEs enough confidence to take the next step and become involved internationally. The firms we surveyed agreed that international business opportunities are attractive and not that difficult to take advantage of. They believe that many SMEs avoid doing business internationally for psychological reasons. Their initial reluctance results from the fear and uncertainty of operating in a different environment. The hesitancy appears to result from a lack of knowledge and experience about international market operations and the assistance that is available from state and private agencies to help solve these problems, as well as an unwillingness to try new things.

Shipping costs were a concern for most our interviewees. Some of the firms were able to charge higher prices to their international customers to help defray higher shipping costs, while others stated that prices charged to their customers abroad had to be lower because of affordability issues and the presence of other competitors. The respondents who identified the countries in which they did business stated that they were able to charge either similar or somewhat higher prices to customers in Europe, including Germany and Denmark, as well as in Australia and Singapore,

while their prices to customers in Russia and Asian countries such as India and the Middle East were less than U.S. price levels. Importantly, the SMEs surveyed generally agreed that U.S. products were considered by their international customers to be of higher quality compared to other competitors and this often led to additional pricing power

Among the SMEs surveyed there was a strong consensus that to succeed internationally, firms first had to build a solid foundation and successful business operation in the domestic market. None of the firms we surveyed felt a strategy of entering international markets as a way of saving firms that are failing domestically would succeed. Furthermore, they all emphasized the importance of networking with other firms that were involved in doing business internationally from their region, especially if the firms were in the same industry or similar line of business. They considered such networking as a way of learning from each other, sharing their experiences, and joining together to address common problems and challenges. In fact, the SMEs stated that helping establish connections with other firms and bringing them together periodically to share their experiences should be a primary role of state trade representatives in their geographical area.

We interviewed one SME who had successfully engaged in international operations but quit because of the challenges involved. This firm is one of the largest microbrewers in the area with a solid reputation in the industry. The company began to export its products several years ago and was excited about a potentially large market for its premium quality beer, particularly in major Asian markets, such as China and South Korea. We were somewhat surprised when we learned that the company had recently withdrawn from its export markets and was no longer selling internationally. The company exported its microbrew products directly from the U.S. The reputation, quality, and market appeal of their beer was based on being brewed in a certain geographical location in the United States and the purity and quality of its water and brewing process. The manager stated that shipping the products to Asian markets was not difficult and that it was actually quite easy to ship products to China and South Korea.

Several issues eventually turned the company against continuing their exports, however. First, the brewing process and its quality and freshness gave their beer a shelf life of 150 days, which was fine in the domestic market, but the importers and distributors wanted a shelf life of one year which proved impractical. The company also stated it was difficult to find reliable importers that would remain in business over time. As stated by the owner, "importer businesses were always seemingly going out of business; we would develop our relationship, get business rolling and then they would go out of business or just flat out vanish." All company sales were upfront cash payments in advance of orders being shipped to avoid payment defaults. This policy also limited their ability to find importers of their products. The last major concern stated by the company was the problem of graft; "the pay to play was something we were not comfortable with. It was almost never any cash that folks wanted; they wanted 'Samples,' normally between 5 and 10 cases per pallet." The combination of these issues prompted the company to pull out of its markets in Asia and focus on its domestic business operations. It is unclear whether their concerns could have been resolved in a cost-effective manner with the help of an intermediary such as a large freight forwarder that could have found reliable distributors and refused to pay any graft. This is a case of a firm that is enjoying sufficient domestic success, so that it does not believe that the additional difficulties of going international are worth it.

IMPACTS OF THE COVID-19 PANDEMIC

Our interviews took place at the beginning of the impact of the COVID-19 pandemic in the U.S. and we did not specifically address the impact of the pandemic as at the time as we did not know about the business disruptions that would soon occur. Nevertheless, several interviewees indicated that some of their international travel plans were on hold even then. In the time period after our interviews, the COVID-19 pandemic disrupted global operations with significant health and business consequences. Many firms continue to face supply chain disruptions, but SMEs are more vulnerable than many larger firms. In a recent report by McKinsey & Company, Dua et al. (2020) find that many small businesses entered the COVID-19 crisis with low financial resilience. Among respondents to their survey, close to a third were operating at a loss or just breaking even before the crisis. Humphries et al. (2020), OECD (2020), and ITA (2020) indicate that many small businesses were operating on very small cash reserves that would quickly be depleted.

SMEs faced both demand and supply shocks due to the pandemic. Furthermore, what were once thought of as global supply chains turned out to effectively be Chinese supply chains for many SMEs. Thus, some SMEs were overly exposed to China and were hurt by the shutdown there. Adapting to new business conditions is likely to require a significant investment in technology and the creation of digital platforms for all firms. Baumgartner et al. (2020) maintain that in recent months, structural supply-chain fragility has become a chief business concern as the ongoing repercussions of the COVID-19 pandemic continue around the world. Because of COVID, companies are looking to add flexibility and resilience to their supply chains and not have them centered on China. Making these changes is not an easy process. They offer three major recommendations to firms to deal with this crisis, including rethinking the traditional business models, securing value-chain competitiveness, and digitization of their supply-chain network. According to the Dua et al. (2020) study, even if SMEs can use technology and new business models as a means of survival in the post-COVID-19 world, many lack the capital, people, and access to technology that their larger counterparts have. SMEs also disproportionately operate in industries hardest hit by the pandemic and the shutdowns (Prasad, 2020; OECD, 2020). Eggers (2020) argues that if SMEs can react appropriately, the pandemic may allow innovative small businesses to take advantage of changing opportunities. Many will still need assistance. In short, the pandemic is likely to be an existential crisis for numerous SMEs and many are likely to require financial and technical assistance from both government and private-sector sources to survive (ITA, 2020; Prasad, 2020; OECD, 2020).

CONCLUSIONS AND SUGGESTIONS FOR FUTURE RESEARCH

We conducted a number of in-depth telephone interviews with international trade advocates and experts, including two directors of World Trade Centers, two trade specialists working for a state department of commerce responsible for international trade promotion and assistance, and six owners or managers of SMEs that were or had engaged in international business. Our aim was to gain additional insight into SME psychological and physical concerns and factors that continue to hamper greater involvement of SMEs in international business. We wanted to go beyond earlier

survey work and learn more about what managers and trade officials think are the impediments to SMEs growing their international operations.

Our findings provide support for earlier studies of operational and psychological barriers to SME internationalization. A lack of interest and knowledge about international opportunities remain primary barriers to increased participation by Northwest U.S. SMEs in international activities. Poor return on investment (ROI) is also often cited as a reason for not participating in trade missions, or in seeking out trade-related government assistance. Our discussions with trade officials and managers indicate otherwise. It appears that fears about international operations, lack of knowledge of state and other programs, and a lack of understanding of how private firms can help transact international business lead to excessive concerns about international activities. This isn't particularly surprising as Sharma et al. (2020) indicate that most small businesses don't engage in international risk assessment. One conclusion we find is that state and federal programs should broaden their marketing to SMEs to better show them the assistance they can provide. They should also facilitate more venues to share success stories and challenges in their region among firms in similar lines of business. The growth of the Internet and social media may provide new means to virtually deliver low-cost programs aimed at providing market and legal knowledge, assisting in trade leads, etc. via these media rather than by holding trade promotion events aimed at SMEs that may require travel time and costs. Integrating the literature on the psychology of entrepreneurship and our results also indicate that trade development agencies should consider targeting resources to firms based on their psychological profile as well as their operations. Some SMEs that can succeed in global markets won't try unless they are encouraged and trained to break through psychological barriers to that cause them to exaggerate the risks and undervalue the opportunities.

The role of small and medium enterprises in international business has been growing and becoming more important (Torres-Ortega et al., 2015). We find support for this growing role in a national survey by Wells Fargo (2017) that found that a majority of the SMEs surveyed that are engaged in international activities see their involvement increasing over time (Wells Fargo, 2015, 2017). Programs that encourage mentoring of SMEs interested in international business by those already successfully engaged in international activities may provide benefits that generic programs offered by federal, state or local agencies do not. States in particular may wish to make available local mentors to SMEs to help overcome perceived barriers due to lack of knowledge, exaggerated belief in the risk of doing business internationally, or perceived poor ROI from such activities.

Many SMEs are underperforming their potential when it comes to engaging in international business. Some of the obstacles facing SMEs are structural and may be difficult to overcome. Others are psychological and can be addressed with appropriate and targeted assistance measures, both public and private, which combined with SME agility and entrepreneurial ability could pave the way for greater international success. An interesting follow up to this study would be to apply the CVM assessment tool to successful exporters and classify the results. The model predicts that successful exporters will be more externally oriented and flexible. If the model is validated then state trade development agencies may be able to i) identify types of SMEs that may be amenable to international market opportunities and ii) understand what additional resources may be needed to encourage SMEs that may not otherwise consider increasing their internationalization. It would also be interesting to determine whether states that have developed methods of spreading success

stories of SME internationalization have seen an increase in international activities by firms that might not have otherwise done so.

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APPENDIX

Interview Questions

1. Do you believe going international is significantly riskier than domestic business? If so what do you do to limit the riskiness?
2. Is it more complicated? If so what should be done to overcome the additional complexity?
3. Why do you think many SMEs don't get involved in IB? What would you say to them to encourage them? Is there a way to disseminate that information?
4. What do you see as new opportunities for doing business abroad?
5. When it comes to doing business internationally, have things changed due to the advent of Internet/electronic commerce? (e.g., finding potential customers, distributors, foreign reps, etc.)?
6. What are some of the major obstacles that make It difficult to do business internationally?
7. What type of assistance or services (private or public) would help in doing business internationally?
 - a. Social network of other business people who are engaging in IB
 - b. Would need to hire more people first with knowledge of IB
 - c. Assistance in finding contacts such as foreign distributors/transportation
 - d. Hearing and learning about other firms' success stories in IB
 - e. Financial assistance
 - f. Trade shows/missions to countries/markets related to my line of business
 - g. Drop in domestic sales would make me look harder at IB opportunities
 - h. Simplified trade rules/reduce tariffs would help to consider IB opportunities
8. What are we not asking that we should be?

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