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DO FAMILY FIRMS OUTPERFORM NON-FAMILY FIRMS IN JAPAN? FURTHER EVIDENCE USING FOREIGN OWNERSHIP AS A MODERATOR

Bishnu Kumar Adhikary, University of Hyogo
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ABSTRACT

Using a sample of 1384 manufacturing firms, comprising 546 family and 838 non-family firms listed on the Tokyo, Osaka, and Nagoya Stock Exchanges, we examine the performance difference between family and non-family firms in Japan. In addition, we check whether foreign ownership moderates the performance of family firms. We retrieve the necessary data from Bloomberg and Osiris databases covering the period 2014-2018. We apply the pooled OLS regression model with two-way clustering and obtain consistent results that family firms outperform non-family firms in Japan in terms of both accounting and market-based measures of financial performance, such as ROA and Tobin's Q. We also find that foreign shareholders do not play any significant role in improving the profitability of Japanese manufacturing firms. However, they appear to be critical for enhancing the performance of family firms, suggesting that foreign shareholders can mitigate much of the principal-principal conflicts of family firms by improving the monitoring functions.

INTRODUCTION

Extant literature unfolds that family firms hold nearly 40% of the listed firms in Japan (Kojima et al., 2020; Saito, 2008), 60% of the listed firms in France, Italy, and Germany (Faccio and Lang, 2002), 24% in the top 500 private firms in Australia (Glassop, 2009), and 35% in the US (Anderson and Reeb, 2003), implying that the performance of family firms largely influence the stability of stock markets. However, empirical evidence on the performance of family firms is inconclusive. For example, a plethora of empirical research indicates that family firms outperform non-family firms (Anderson and Reeb, 2003; Sharma, 2004; Allouche et al., 2008; Saito, 2008; Chu, 2011; Hansen and Block, 2020; Srivastava and Bhatia, 2020), while some others reveal the dismal performance of family firms (Bennedsen et al., 2006; Bloom and Venren, 2006). Another group of studies finds no significant performance difference between family and non-family firms (Filatotchev et al., 2005; McConaughy and Phillips, 1999; Yoshikawa and Rasheed, 2010). In this respect, scholars note that the performance difference between family and non-family firms lies in factors such as the corporate governance mechanisms, corporate cultures, and management style of the firms across countries (Allouche et

al., 2008; Srivastava and Bhatia, 2020). Thus, more studies are warranted to accumulate knowledge across countries.

Given the above, we study the performance of family and non-family firms in Japan. In addition, we incorporate foreign ownership in the analysis to test whether foreign ownership moderates the performance of family firms. We study manufacturing firms listed on the Tokyo, Osaka, and Nagoya stock exchanges and collect necessary data from Bloomberg and Osiris databases covering the period 2014-2018. We limit our analysis until 2018 to avoid the impact of the Covid-19 pandemic on our results. We base our study on the premise that Japan left the previously adopted main bank-based monitoring and governance system in favor of the US-style governance system, undertaking a "big bang financial and accounting reform in 1997" to ensure better governance of the firm. Although such a reform program encouraged foreign share ownerships in Japan, Japanese firms are still seen to have a board of directors promoted from within the firms (Arikawa et al., 2019), relatively fewer independent directors (two or more as per the Corporate Governance Code, 2015), insider CEOs, and a higher percentage of family ownership. Thus, Japan expects to provide new insights for policy-making.

Notably**,** different countries may have different corporate governance styles, especially among firms in Japan and the USA. Foreign investors from Western countries can view corporate governance differently than in Japan. For example, firms in countries like the US and the UK apply the shareholder-oriented style of corporate governance in which maximizing shareholder value is the priority, and firm growth is driven mainly by institutional investors and an independent board of directors (Lazonick and O'Sullivan, 2000). In contrast, firms in Japan adopt a stakeholder-oriented style in which long-term relationships with various stakeholders are valued, especially the business ties among corporations or cross-shareholding (Scher, 2001). In addition, factors such as shareholding structure, main bank relationship, keiretsu financing, corporate acquisition, and internally promoted board of directors make the corporate governance of Japanese firms distinct from firms in other countries (Kang and Shivdasani, 1995). This implies that the interests of foreign investors may not be aligned with the objective of Japanese management. Unfortunately, we have scant empirical evidence on the role of foreign ownership in the performance of Japanese family firms, which account for a significant portion of the TSE-listed firms. We fill this void.

The contribution of this paper is twofold. First, it provides an understanding of Japanese family firms' performance in recent years of major legal transitions in corporate governance, which can be comparable to other countries that also share the same trend. Notably, the proportion of family firms listed in the stock market in Japan is comparable to that of the USA (Kubota and Takehara, 2019). Second, it unearths the role of foreign investors in family firms in Japan to improve the corporate governance guidelines for Japanese family firms.

The remainder of this paper is organized as follows. Section 2 discusses extant literature and formulates hypotheses. Section 3 describes data and outlines the econometric model. Section 4 reports regression results. Finally, section 5 concludes the paper with some avenues for future research.

EXTANT LITERATURE AND HYPOTHESES

The fundamental agency theory can be used as a focal point to discuss the performance difference between family and non-family firms (Jensen and Meckling, 1976; Dalton et al., 1998). According to the agency theory, family firms can reduce agency costs because the involvement of family members in both ownership and management minimizes agency conflicts between outside managers and owners (Type 1 agency problem). Also, family firms want to preserve firm value for successive generations, which, in turn, creates sufficient incentives for them to improve firms' operations by investing in longer horizons (Achleitner et al., 2014; Hasso and Duncan, 2013). Further, long-term tenure in management positions allows family members to accumulate the necessary knowledge, expertise, discretion, and resources to make prudent investment decisions supportive of the growth of the business (Miller and Le Breton-Miller, 2006). This implies that the higher the involvement of the family members in the management and governance, the higher the potential for sustainable firm performance in the long run (Poutziouris et al., 2015). Several empirical works also support this premise. For example, Kojima et al. (2020) reveal that family ownership positively influences the performance of Japanese manufacturing firms. Chen et al. (2005) demonstrate that family ownership is positively associated with firm performance in Japan. Saito (2008) concludes that family control motivates Tobin's Q. Chen and Yu (2017), who contend that Japanese and Taiwanese firms run by founders are traded at a higher value in the stock market.

However, firms managed by founders' descendants may have inferior performance. In the USA, the management by descendants negatively affects the firm's value (Villalonga & Amit, 2006). There is some evidence that explains this relationship. The quality of corporate governance is insufficient in family firms, as outside shareholders are the minority. Therefore, it is likely that family members may seek private benefits. Morck and Yeung (2003) explain that, due to insufficient market control, the imbalance of ownership between family members and outside owners can be in the form of managerial entrenchment, tunneling, and the "other people's money" view. This further indicates that family firms may have a Type II agency problem (principal–principal conflict) because the interest of family members may not necessarily be in line with the interest of minority shareholders (Muttakin et al., 2014). Besides, family firms usually hire executives from close relatives, ignoring outside talents, resulting in suboptimal financial performance (Anderson and Reeb, 2003).

Moreover, the level of risk-taking behavior between family firms and non-family firms may differ. Investors or outside owners usually diversify their portfolios to achieve their desired return, encouraging firms to seek investments with higher returns. Also, family members do not always have a risk appetite as outside owners because their wealth depends on firm performance (Yoshikawa and Rasheed, 2010). This indicates that the annual growth rate of family firms is likely to be affected by family members' concern for firm survival. Morikawa (2013) shows that the annual productivity of family firms is approximately 2% lower than non-family firms. Still, the probability of survival of family firms is 5-10% more than that of non-family firms. Kubota and Takehara (2019) find that compared to non-family firms, the innovation output of family

firms is lower as descendant CEOs are not likely to allocate their resources to creating innovations. Poutziouris et al. (2015) note that the performance of family firms decreases after family members' shareholding reaches 31%.

It is worth noting that researchers do not present a monolithic picture of the link between family involvement and firm performance across countries. For instance, in the case of the USA, Chua et al. (1999) and Anderson and Reeb (2003) find that family firms tend to exhibit superior long-term financial performance due to their conservative financial policies and longer investment horizons. However, in another study, Anderson and Reeb (2003a) reveal that a cutoff level of 12% family equity ownership impacts lowering the cost of debt financing for family firms, thereby aiding business returns. This means that above this point, family ownership has no incremental effect on lowering the cost of debt financing and increasing business returns. Similarly, Chrisman et al. (2012) argue that family firms tend to excel in incremental innovations driven by their strong values, traditions, and long-term orientation. Still, they face difficulties in radical innovations due to a conservative risk-taking approach and resistance to change (Astrachan et al., 2014). Moreover, research suggests that well-structured succession plans positively impact the performance and continuity of US family firms (De Massis et al., 2018). However, challenges arise in managing the transition process, including issues related to nepotism, competence, and conflicts among family members (Hess et al., 2007).

By the same token, research on family-owned firms in European economies yields varying findings regarding their financial performance compared to non-family counterparts. For instance, a study by Villalonga and Amit (2006) suggests that European family-controlled firms tend to perform at par or better than non-family firms due to longer investment horizons and lower agency costs. Colli (2018) noted that European family firms tend to face challenges related to succession planning and potential expropriation by controlling families. Zellweger et al. (2012) argue that European family firms often excel in niche markets and are more inclined to sustain existing competitive advantages rather than pursue radical innovations. Conversely, Claessens et al. (2000) argue that family firms may face challenges related to agency problems and weaker external monitoring. However, effective governance structures, including independent boards and professional management, can mitigate agency conflicts and enhance performance (Bennedsen et al., 2005).

Similarly, in a study on Chinese family firms, Chen et al. (2009) find that family ownership positively influences profitability due to long-term orientations and lower agency costs. Chen (2001) unveils that culturally embedded practices and Confucian values play a significant role in contributing to the continuity and performance of Chinese family firms. In contrast, research by Claessens et al. (2000) in Malaysia suggests that family-controlled firms may face challenges due to agency problems and lack of transparency. Chua et al. (2018) argue that Asian family firms may excel in incremental innovations driven by strong intergenerational ties and a sense of duty toward preserving legacies. Some others indicated that Asian family firms face unique challenges, including weak shareholder protection and potential expropriation by controlling families. However, effective governance structures can mitigate agency conflicts and enhance performance (Wang and Kim, 2015; La Porta et al., 1999).

From the above discussion, we would like to note that family firms have stronger incentives to adopt long-run investment strategies to create wealth for future generations. In the case of Japan, family members are likely to show more respect to seniors, and they share tacit knowledge accumulated from long years of business operation. The formation of such intangible capital is crucial to long-term stable firm performance. Therefore, Japanese family firms tend to reduce agency costs by reducing managerial myopia, moral hazards, and agency conflicts and increasing human capital, producing stable returns for the shareholders. Given the above, we formulate hypothesis 1 as follows:

H_1: Family firms outperform non-family firms in terms of financial performance.

As previously mentioned, family firms may expropriate profits at the expense of minority shareholders. In such a case, foreign ownership is viewed as a vital instrument to align the interests of diverse shareholders and reduce the Type II agency problem. Foreign shareholders have the necessary skills and knowledge to improve the decision-making quality of a firm. Also, foreign investors tend to be more active in trading than local investors. Such frequent trading activities enhance stock price valuation (David et al., 2006).

Regarding cross-country evidence, scholars tend to reach somewhat equivocal conclusions on the role of foreign ownership in promoting firm performance. Many scholars reveal that foreign institutional ownership positively influences the financial performance of a firm (Fan and Wong, 2005; Choi and Park, 2019 for Korea; Rebérioux and Roudaut., 2018 for Franch; Colli et al., 2018 for Italy; Moez et al., 2015 for Tunisia; Villalonga and Amit, 2006 for the USA; Ramachandran and Rai, 2019; Ramasamy and Li, 2014 for India; Tan and Cheah, 2019; Lim, 2017 for Malaysia; Andres, 2008 for Germany; Tasfack and Guo, 2021 for China). Among the many underlying reasons, the above studies outline that foreign investors do not collude with the management. Instead, they bring in new technologies, managerial practices, and access to global networks, advocating for strategies aligning with global market trends and best practices. Also, the presence of foreign shareholders increases corporate transparency and financial reporting, thereby enhancing the firm's higher market reputation and value (Subramanian, 2011). However, some studies highlight potential conflicts of interest and differences in strategic priorities between family members and foreign shareholders in making long-term investment decisions and preserving the firm value for future generations, which may hinder the implementation of innovative initiatives and generate sub-optimal returns for the shareholders (Sahoo and Sarkar, 2018; Subramanian, 2011; Claessens et al., 2000).

As for Japanese firms, Fukuda et al. (2018) find a positive relationship between foreign shareholding and Tobin's Q. Although Sueyoshi et al. (2010) find a similar result, they note that foreign shareholding above a threshold level of 19.49% promotes firm performance. Yoshikawa and Rasheed (2010) study the interaction effect of foreign ownership and ROE for the OTC market-listed manufacturing firms and reveal that foreign investors influence family owners to improve firm performance. Hideaki et al. (2015) unearth a significant positive association between foreign shareholding and Tobin's Q for Japanese firms even after controlling various factors that may affect firm performance. Kojima et al. (2017) find a negative relationship

between foreign shareholdings and earnings quality. In fact, foreign shareholders may ruin a firm's value if they leave during an economic slowdown.Another negative point is that foreigners may be biased in making investment decisions by choosing the firms based on their preferences, not by looking and carefully examining the firm's performance. In that case, the higher stock returns or more top market-based indicators do not reflect the firm's actual performance. Instead, it only shows the investors' biased preferences (Hideaki et al., 2015). Yet, in previous literature, foreign investors are generally reported to affect firm performance positively.

It is worth noting that after the bubble burst, Japanese policymakers encouraged foreign institutional shareholding to monitor firm activities by externals and to increase the price-earnings ratio. This policy was taken on the presumption that foreign institutional shareholders can play a disciplinary role in Japanese firms, as independent outside directors had no significant influence on enhancing turnover sensitivity to ROE (Miyajima et al., 2018; Hideaki et al., 2015). In addition, Yoshikawa and Rasheed (2010) note that the interaction effect of foreign shareholding with family control increases firms' profitability but lowers the dividend payout ratio.

In summary, we note that foreign investors can improve the performance of family firms in the following ways. First, foreign ownership does not simply mean financial contribution but the transfer of knowledge, technology, innovations, and management expertise from foreign firms, which are essential to the growth of family firms. Second, foreign shareholders are often perceived as a catalyst for growth and change. If the domestic firm's performance goes downhill, foreign firms can lay out necessary efforts to adopt various strategies to improve the firm's value. Third, foreign investors can play an essential role in disciplining managers of family firms, mainly recruited from family members, without considering market talents. This particularly applies to family firms because they lack outside talents on the board. Based on the above discussion, we take the following hypothesis.

H_2: Foreign ownership improves the performance of family firms.

RESEARCH METHODS

Definition of Family Firms

We consider a firm to be a family firm if it satisfies any of the five criteria: (a) run by a founder; (b) run by family members who hold important positions inside the company (such as Chairman, Vice Chairman, Chief Executive Officer); (c) controlled by family members who own at least 10% of total shares; (d) controlled by family members who account for 50% of the number of board members; and (e) owned by a privately held company. We implement these criteria following previous studies on Japanese family firms (Yoshikawa and Rasheed, 2010; Saito, 2008; Morikawa, 2013; Arikawa et al., 2019; Miyajima et al., 2018).

Sample

We retrieve necessary data from Bloomberg and OSIRIS databases (software version 213, a database managed by Bureau Van Dijk, BvD). We first check all the listed manufacturing firms in Japan on Osiris following the North American Industry Classification System (NAICS). After the initial search, we obtained 1601 publicly listed Japanese companies in the manufacturing sector. We group them into 21 different sub-industry codes, depending on the nature of their business. These companies are then screened to see if they have sufficient data for analysis. We left 251 companies that lacked necessary data in the study period 2014-2108. Accordingly, our sample firm reduces to 1384, giving a sample size of $1384 \times 5 = 6920$ observations ($N \times T$). We collect foreign ownership data from Bloomberg. The sample comprises listed firms in the Stock Exchange of Tokyo, Osaka, and Nagoya.

Description of Variables

We use accounting and market-based firm performance measures for the dependent variable. We consider Return on Assets (ROA) as an accounting measure for firm performance and Tobin's Q as an indicator of market-based performance. ROA represents the historical accounting performance of the firm in terms of profitability, while Tobin's Q represents the forward-looking performance of firms as it takes the market valuation of the firm into account. Tobin's Q reflects the risk of a firm as estimated from the market data. Tobin's Q measures whether a firm or an aggregate market is relatively over- or undervalued. Also, Tobin's Q serves as a performance benchmark to perk up firms' internal management or corporate strategy against their competitors. Conversely, ROA measures managerial efficiency to allocate capital and establishes parameters to control costs and expenses. However, the numerator of ROA is "net income," calculated under the accrual basis of accounting that considers both cash and credit transactions. Thus, ROA varies by a firm's credit, inventory, receivables, depreciation and amortization policies. Similarly, Tobin's Q varies by stock market efficiency and company corporate strategy. So, there is no consensus that ROA is superior to Tobin's Q because these two ratios explain firm performance from different angles— ROA focuses on managerial efficiency in allocating capital and generating profits. In contrast, Tobin's Q reflects investors' perception of the company's risk. Thus, we plan to apply ROA and Tobin's Q to meter firms' performance from market and historical accounting perspectives.

We apply a binary variable (Family) to identify family firms from non-family ones. Our moderator variable is foreign ownership, representing the firm's foreign shareholding percentage. We conjecture that foreign shareholders can influence the governance practices of a firm by demanding more financial and non-financial disclosures, leading to higher investment and efficiency. We consider firm-specific variables such as firm size, firm age, and leverage ratio to control their effects on our estimates. For firm size (SIZE), large firms tend to have an international reputation as they sell their goods in the global market following international standards. Therefore, large firms can attract foreign investment more quickly than small firms. In

addition, large firms have more trading liquidity as they may issue American Depository Receipts (ADRs) (Kang and Stulz, 1997). For firm age (AGE), a well-established firm run by generations of family owners conveys a positive signal to international investors to commit investment. For leverage (LEV), foreign ownership can mitigate agency conflicts by alleviating unnecessary interventions of the creditors on the management (Jensen and Meckling, 1976). Table 1 presents the description of the variables included in the study.

Table 1
DESCRIPTION OF VARIABLES

Variables	Abbreviation	Definition	Formula
Performance Characteristics – Dependent variables			
Return on assets	ROA	The percentage of net income after paying preferred dividends divided by average total assets for the year	(Net income / Total assets) × 100
Tobin's Q	Tobin's Q	The market value of a firm divided by its value of total assets	(Market capitalization / Total assets) × 100
Moderator variable			
Foreign Ownership	FOREIGN	The percentage of foreign shareholding	(No. of shares held by foreigners/ Total outstanding shares) ×100
Firm-specific Characteristics – Control variables			
Firm size	SIZE	Natural logarithm of market capitalization	Ln (No. of Outstanding shares × share price)
Firm age	AGE	Natural logarithm of the firm's age	Ln (financial year – year of incorporation)
Leverage	LEV	The percentage of total liability to shareholder equity	Total liability / Shareholders' equity

Empirical Model

We use the following pooled OLS (ordinary least square regression) model with two-way clustering to understand the performance difference between family and non-family firms**.**

$$PERFORM_{i,t} = \alpha_0 + \alpha_1 SIZE_{i,t} + \alpha_2 AGE_{i,t} + \alpha_3 LEV_{i,t} + \alpha_4 FAMILY_{i,t} + \zeta_i, \text{----------Eq (1)}$$

Where PERFORM is an indicator of firm performance measured by ROA, and Tobin's Q. FAMILY is a binary variable representing the family firm. The rest of the variables are defined in Table 2.

Next, we invoke the following model to study the moderating role of foreign shareholders.

$PERFORM_{i,t} = \alpha_0 + \alpha_1 FOREIGN_{i,t} + \alpha_2 SIZE_{i,t} + \alpha_3 AGE_{i,t} + \alpha_4 LEV_{i,t} + \alpha_5 FAMILY_{i,t} + \alpha_6 FAMILY_{i,t}*FOREIGN_{i,t} + \zeta_{i,}$-------- Eq (2)

Where PERFORM is similar to Eq(1), FAMILY*FOREIGN represents the interaction term. The remaining variables are the same as defined in Table 2.

EMPIRICAL RESULTS AND DISCUSSION

Descriptive Statistics

Table 2 presents descriptive statistics of the variables used in the study. Statistics for year dummies and industry dummies are not shown. As is observed in Table 2, ROA has a mean value of 5.22% and a median value of 5.23%, indicating that the distribution of ROA is symmetrical. For Tobin's Q, the mean value is 0.83%, with a median value of 0.57%, representing that the distribution is left-skewed. Also, the minimum and maximum values for Tobin's Q are more varied than the ROA. On average, foreign shareholding is around 13.52%, with a minimum of 0.00% to 90.80%, indicating that foreign ownership in Japan drastically varies by firm. For controls, the statistical result shows that 42.88% of the total assets of sample firms are financed from debt (LEV). The mean values of firm size (SIZE) and age (AGE) are 2.568 and 1.765, respectively, with a median value of 2.439 and 1.833, indicating that these variables are symmetrical for running the ordinary least square regression.

Table 2
DESCRIPTIVE STATISTICS (N = 6,920)

Variables	Mean	Std. Dev.	Minimum	Q1/P25	Median	Q3/P75	Maximum
ROA	5.222	5.658	-20.32	2.815	5.23	7.835	20.11
Tobin's Q	0.831	0.823	0.133	0.362	0.574	0.949	4.969
FOREIGN	13.524	13.903	0.000	2.065	9.210	21.090	90.800
SIZE	2.568	0.785	0.905	1.984	2.439	3.047	5.348
AGE	1.765	0.243	0.699	1.690	1.833	1.909	2.532
LEV	42.883	18.148	0.000	28.740	42.070	55.390	94.37

Correlation Matrix

Table 3 presents the correlation between variables. The objective of the correlation matrix is to identify variables with a multicollinearity problem. Table 3 portrays that the variables with a larger correlation are FOREIGN and SIZE (0.635). However, this does not reflect a perfect multicollinearity problem. Imperfect multicollinearity may not be an error but a feature or data characteristic. Therefore, we do not encounter serious multicollinearity problems for running the regression.

Table 3
CORRELATIONS AMONG VARIABLES (N = 6,920)

Variables	ROA	Tobin's Q	FAMILY	FOREIGN	SIZE	AGE	LEV
ROA	1.000						
Tobin's Q	0.267***	1.000					
FAMILY	0.086***	0.152***	1.000				
FOREIGN	0.207***	0.215***	-0.140***	1.000			
SIZE	0.341***	0.324***	-0.153***	0.635***	1.000		
AGE	0.089***	-0.255***	-0.182***	0.079***	0.157***	1.000	
LEV	-0.287***	-0.361***	-0.100***	-0.117***	-0.147***	0.060**	1.000

Superscripts ***,**, and * represent significance at 1%. 5% and 10% levels, respectively.

Univariate Analysis

Table 4 shows the results of the univariate analysis for family and non-family firms. The t-test statistics yield that family and non-family firms differ significantly in terms of ROA, Tobin's Q, SIZE, LEV, AGE, and foreign shareholding. Similarly, the z-statistics confirm significant median differences between family and non-family firms for all the variables included in the study. As is observed in Table 4, family firms show superior performance to non-family firms in terms of both Tobin's Q and ROA. The mean values for family firms' ROA and Tobin's Q are 5.821 and 0.985, respectively, which is higher than those of the non-family firms (4.831 and 0.730, respectively). This finding is consistent with the empirical results of Anderson and Reeb (2003), Allouche et al. (2008), Saito (2008), Morikawa (2013), Hansen and Block (2020), Srivastava and Bhatia (2020), and Kojima et al. (2020), where they find that family firms outperform the non-family firms. This result also supports our underlying hypothesis (H_1).

Table 4
UNIVARIATE ANALYSIS

	Family firms (N = 546)		Non-family firms (N = 838)			
Variables	**Mean**	**Median**	**Mean**	**Median**	**Mean diff. (t-Statistics)**	**Median diff. (z-Statistics)**
ROA	5.821	5.565	4.831	5.080	0.990*** (3.19)	0.485*** (3.34)
Tobin's Q	0.985	0.623	0.730	0.545	0.256*** (5.71)	0.078*** (4.32)
FOREIGN	11.108	5.780	15.099	11.825	-3.991*** (-5.27)	-6.045*** (-5.63)
SIZE	2.419	2.344	2.665	2.559	-0.246*** (-5.76)	-0.215*** (-5.82)
AGE	1.710	1.778	1.800	1.845	-0.090*** (-6.90)	-0.067*** (-9.26)
LEV	40.632	39.360	44.349	43.650	-3.717*** (-3.74)	-4.290*** (-3.69)

Superscripts ***,**, and * represent significance at 1%. 5% and 10% levels, respectively. T-statistics are in the parenthesis.

As for foreign shareholding, we find that family firms have lower foreign shareholding (11.10%) than non-family firms (15.099%). This is plausible because non-family firms tend to have more professional managers than family firms, giving positive signals to foreign investors to undertake more investment. As for controls, family firms show lower average value in SIZE, LEV, and AGE than non-family firms, implying that family firms prefer avoiding financial risk and investing less money in asset acquisition than non-family firms.

Multivariate Analysis

Table 5 presents the regression outputs of the two dependent variables, ROA and Tobin's Q, under the pooled OLS regression method with two-way clustering. In the case of panel data, pooled OLS regression equation with two-way clustering adjusts both the time and firm effects and produces robust estimate than the simple OLS. Sun et al. (2018) state that pooled regression with the two-way cluster-robust standard errors approach corrects both cross-sectional and serial correlation and neutralizes the white heteroscedasticity standard error in panel data. Therefore, pooled regression can be a better approach to dealing with panel data.

Table 5
MODERATING ROLE OF FOREIGN OWNERSHIP

Dependent Variables	**ROA**			**Tobin's Q**		
Control	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 5**	**Model 6**
SIZE	2.135*** (12.82)	2.265*** (13.51)	2.304*** (9.19)	0.343*** (11.84)	0.362*** (12.28)	0.355*** (9.99)
AGE	1.335 (1.44)	1.776* (1.94)	1.835** (2.00)	-0.977*** (-7.76)	-0.911*** (-7.47)	-0.898*** (-7.42)
LEV	-0.077*** (-8.49)	-0.073*** (-8.19)	-0.071*** (-7.80)	-0.013*** (-12.25)	-0.013*** (-11.77)	-0.013*** (-11.38)
Main						
FAMILY		1.438*** (5.01)	0.819** (1.99)		0.214*** (5.17)	0.109** (2.02)
Moderator						
FOREIGN			-0.022 (-1.48)			-0.003 (-1.22)
Interaction						
FAMILY*FOREIGN			0.050* (1.83)			0.009** (2.13)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1771	0.1916	0.1950	0.2866	0.3019	0.3066
Number of observations	6920	6920	6920	6920	6920	6920
Family firms	546	546	546	546	546	546
Non-family firms	838	838	838	838	838	838

Superscripts ***,**, and * represent significance at 1%. 5% and 10% levels, respectively. T-statistics are in the parenthesis.

In Table 5, models 1-3 show the regression output for the ROA, while models 4-6 represent the same for Tobin's Q. Models 1 and 4 separately display the effects of control variables on our dependent variables. Models 2 and 5 study the performance of family firms by including the family dummy, while models 3 and 6 report the moderating role of foreign ownership in the family firm in a collaborative setting by inserting the interaction term (FAMILY*FOREIGN). Model 1 shows that firm size and leverage are significant factors for firm performance. Model 2 and model 5 report that family firms have superior performance to non-family firms in either case of firm performance. The positive and significant coefficient of the family dummy evidences this. This result proves that firms tend to show higher performance when ownership and control are not separated (reduction in agency cost), as seen in family firms in Japan. Also, this finding aligns with the agency theory's prediction that traditional agency cost is minimal in family firms because of less or no scopes for managerial opportunism. Our result supports the previous findings of Saito (2008) and Kojima et al. (2020) for Japan, Choi and Park

(2019) for Korea, Ramachandran and Rai (2019) for India, Lim (2017) for Malaysia, Andres (2008) for Germany, Tasfack and Guo (2021) for China, and Muttakin et al. (2015) for Bangladesh.

As for the impact of foreign shareholding on firm performance, Table 5 (models 3 and 6) reveals that foreign ownership has an insignificant negative effect on the performance of Japanese firms. However, when foreign ownership is injected into the family firms, it positively and significantly influences firm performance. This finding is intriguing because foreign shareholders do not aggravate agency costs for the family firms colluding with the management. Instead, they offer valuable advice and services to family firms to enhance profits. This evidence supports our hypothesis, H_2.

This result draws policy calls because foreign shareholders usually get enough room to exercise their roles and expertise in family firms with fewer non-professional managers than non-family firms. Simultaneously, family firms can benefit from foreign shareholders' new knowledge and management expertise to foster profits (Kojima et al., 2020). As a whole, we conclude that family firms in Japan outperform non-family firms, and foreign shareholders can play an active role in improving the financial performance of Japanese family firms.

Robustness Test

Table 6 presents the robustness of our previous estimates. We apply a similar approach as in Table 5, but we change the family ownership criteria to 20% and 30 % levels (instead of the initial 10%) to define family firms. The objective of changing the criteria is to ensure that our primary results are not sensitive to the definition of family firms.

We find consistent estimates for the 20% and 30% level of family ownership and confirm that family firms outperform non-family firms concerning ROA and Tobin's Q. Concerning the role of foreign ownership, we book similar evidence found in our previous analysis. The coefficients of the interaction term (FAMILY*FOREIGN) in both the 20% and 30% levels of foreign ownership are significant, implying that foreign ownership positively promotes the performance of family firms. Thus, we conclude that our estimates are robust and free from the ownership bias of family firms.

It is worth noting that foreign investment is not merely a financial transaction but a catalyst for transformation and growth in family firms. Collaborating with foreign investors necessitates understanding different cultural norms, business etiquettes, legal frameworks, and global reach. This exposure fosters adaptability, resilience, and cross-cultural competence, which are crucial for booking success in a globalized business environment. However, we left this issue as an avenue for future research.

Table 6
EFFECTS OF FAMILY AND FOREIGN OWNERSHIP ON FIRM PERFORMANCE

Dependent Variables	**ROA**				**Tobin's Q**			
Control	**Model 7**	**Model 8**	**Model 9**	**Model 10**	**Model 11**	**Model 12**	**Model 13**	**Model 14**
SIZE	2.197*** (13.26)	2.262*** (9.04)	2.185*** (13.20)	2.243*** (8.91)	0.352*** (12.09)	0.349*** (9.81)	0.348*** (11.98)	0.347*** (9.76)
AGE	1.578* (1.72)	1.658* (1.80)	1.519* (1.65)	1.602* (1.73)	-0.941*** (-7.62)	-0.925*** (-7.53)	-0.956*** (-7.61)	-0.947*** (-7.48)
LEV	-0.074*** (-8.29)	-0.073*** (-7.96)	-0.074*** (-8.24)	-0.072*** (-7.90)	-0.013*** (-11.97)	-0.013*** (-11.63)	-0.013*** (-12.13)	-0.013*** (-11.93)
Main								
FAMILY20	1.213*** (3.80)	0.572 (1.29)			0.178*** (4.01)	0.064 (1.12)		
FAMILY30			1.264*** (3.90)	0.365 (0.81)			0.138*** (3.05)	0.047 (0.80)
Moderator								
FOREIGN		-0.023 (-1.48)		-0.028* (-1.74)		-0.003 (-1.29)		-0.002 (-1.00)
Interaction								
FAMILY20* FOREIGN		0.051* (1.81)				0.009** (2.15)		
FAMILY30* FOREIGN				0.071*** (2.63)				0.007* (1.72)
Year effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Industry effect	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R-squared	0.1868	0.1903	0.1873	0.1938	0.2965	0.3016	0.2924	0.2956
Number of observations	6920	6920	6920	6920	6920	6920	6920	6920

Superscripts ***,**, and * represent significance at 1%. 5% and 10% levels, respectively. T-statistics are in parenthesis.

CONCLUSION

This paper examines whether family firms perform better than non-family firms in Japan using the data from Bloomberg and Osiris databases. We also check the moderating role of foreign ownership in the performance of family firms. In doing so, we study 1384 manufacturing firms in Japan (546 family and 838 non-family firms) covering the period 2014–2018.

Our univariate analysis reveals that family firms outperform non-family firms concerning the mean and median values of ROA and Tobin's Q. Besides, the mean and median comparison tests (t-test and z-test) yield that family firms have higher performance than non-family firms in both measures of firm performance. Furthermore, the multivariate regression results support that family firms have superior performance over non-family firms in Japan. Such performance is robust and stable with different levels of family ownership, such as 20% and 30%. Therefore, we confirm that family firms in Japan exhibit better performance than non-family firms. Our results support the findings of previous empirical studies (Anderson and Reeb, 2003; Allouche et al., 2008; Saito, 2008; Chu, 2011; Srivastava and Bhatia, 2020; and Kojima et al., 2022). We argue that this happens because the agency problem in family firms in Japan is minimal compared to that of non-family firms, leading to a prudent investment decision. Also, family firms want to protect their value for future generations by avoiding financial risk and investing in longer horizons, which signals future profits.

As for the role of foreign share ownership, we find that foreign ownership is lower in family firms compared to non-family firms. As a whole, foreign shareholders do not play any significant role in improving the profitability of Japanese manufacturing firms. However, they appear to be critical for enhancing the performance of family firms, implying that they can exercise monitoring functions on the family firms to ensure better governance, leading to an increase in profits. In other words, foreign shareholders in Japan are not likely to collude with the management in expropriating profits. Instead, they help enhance the stewardship function of family board members. These findings have important policy implications for Japanese family firms.

However, our study is not free from certain drawbacks. For example, we did not check the impact of board structure and other ownership variables in the multivariate analysis, which may hurt our results. Also, we did not investigate the performance difference between different generations and types of family firms. Another caveat is that the superior performance of family firms may motivate foreign shareholders to inject more equity into the family firms in Japan and become free riders. We leave all these issues as avenues for future research.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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EARLY STAGE AGRICULTURAL ENTREPRENEURS AND INNOVATION

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ABSTRACT

We are in the midst of an age of agricultural innovation, but these innovations will produce benefits only if they are embraced by the world's agricultural entrepreneurs. In this research we sought to determine how well suited the agricultural entrepreneurs of the world are to take advantage of the rapid innovation occurring in agriculture. We investigated differences between agricultural and non-agricultural entrepreneurs' attitudes and aspirations using data from the 2018 Adult Population Survey of the Global Entrepreneurship Monitor (GEM) project. We restricted our sample to early stage entrepreneurs, or those with businesses less than three and a half years old. We expected the agricultural entrepreneurs to be more conservative than the non-agricultural entrepreneurs, or more predisposed to maintain existing conditions.

Our results indicate that agricultural entrepreneurs are poorly prepared to deal with an era of rapid agricultural innovation. They tend to be older, less educated and poorer than non-agricultural entrepreneurs. More importantly, they tend to be less interested in product and process innovation, and this is especially true in low income countries. Product innovation could simply mean the farmer experiments with crops other than those he or she had grown in the past. For example, a farmer might shift away from staple food production to vegetables and fruits for export, spices, or nonfood products such as cut flowers. Process innovation might require the application of new technology, or it might simply be new patterns in the application of existing technology.

An innovation systems approach is therefore needed to bring modern technology to the agricultural entrepreneurs of the world. Systems approaches emphasize the interactions of all the actors involved. Technical expertise must be complemented with expertise in markets, finance and especially education. In the traditional approach, farmers could be either adopters of technology or laggards, but in a systems approach they become sources of information, experimenters and even innovative entrepreneurs. The goal of the traditional approach is simply that farmers adopt some particular technology, while the goal of a systems approach is that farmers develop capacities to innovate, to learn, and to change their practices and even their environment.

INTRODUCTION

We are in the midst of an age of agricultural innovation. Over 90% of the corn, soybeans and cotton grown in the US are now genetically modified (USDA, 2018), salmon can be engineered to grow to market size in eighteen months rather than three years (Scientific American, 2017a), and agricultural drones can improve efficiency in applications of herbicides or pesticides (Scientific American, 2017b). These innovations could potentially produce widespread benefits because agriculture is by far the most important employer in the world – it provides jobs for about 1.3 billion people, or 19% of the world's population, and in underdeveloped regions such as south Asia and sub-Saharan Africa it provides jobs for over half the population (CropLife International, 2019). Furthermore, in a statistical analysis of forty-eight countries using primarily World Bank data, Thirtle, Lin and Piesse (2003) concluded that agricultural productivity growth had a substantial impact on poverty reduction, while productivity growth in industry and services did not.

But these innovations can produce such benefits only if they are embraced by a generation of agricultural entrepreneurs, and the agricultural entrepreneurs of the world may be poorly suited to deal with this new world of innovation. The vast majority of agricultural entrepreneurs are family farmers (Graeub et al., 2016), and several authors have suggested that farmers do not have a strong sense of the market environment and enter the agricultural sector without a strong entrepreneurial inclination (Lourenço et al., 2014; McElwee, 2006; Stenholm and Hytti, 2014; Vesala and Pyysiäinen, 2008). Vaillant and Lafuente (2007) explain how cultural barriers such as limited entrepreneurial role models in the rural landscape diminish the entrepreneurial inclinations of individuals venturing into the agricultural sector. Also, agricultural entrepreneurs have limited access to the formal institutions that support entrepreneurship in the urban environment (Dickes and Robinson, 2014). Finally, a lack of incentives, qualified labor and resources affects entrepreneurial decisions and venture creation in agriculture (Liang and Dunn, 2014).

In this research we defined agricultural entrepreneurs as those belonging to the division "Agriculture and Farming" within the International Standard Industrial Classification (ISIC) scheme. Our goal was to determine how well suited the early-stage agricultural entrepreneurs of the world are to take advantage of the rapid innovation occurring in agriculture. This topic has been neglected by researchers. Naudé (2011), for example, called for a greater emphasis on entrepreneurship in development economics, and Pato and Teixeira (2016) lamented the paucity of research on rural entrepreneurship in developing economies. The objective of the current work is to study the propensity of individuals to create an agricultural business. This work combine demographic and economic factors with perceptual variables, such as attitudes, perceptions and personal attributes to the analysis of the early-stage agricultural entrepreneur. This approach is coherent with the one adopted by Arenius and Minniti (2005). We therefore compared agricultural and non-agricultural entrepreneurs' attitudes and aspirations, with particular emphasis on innovation.

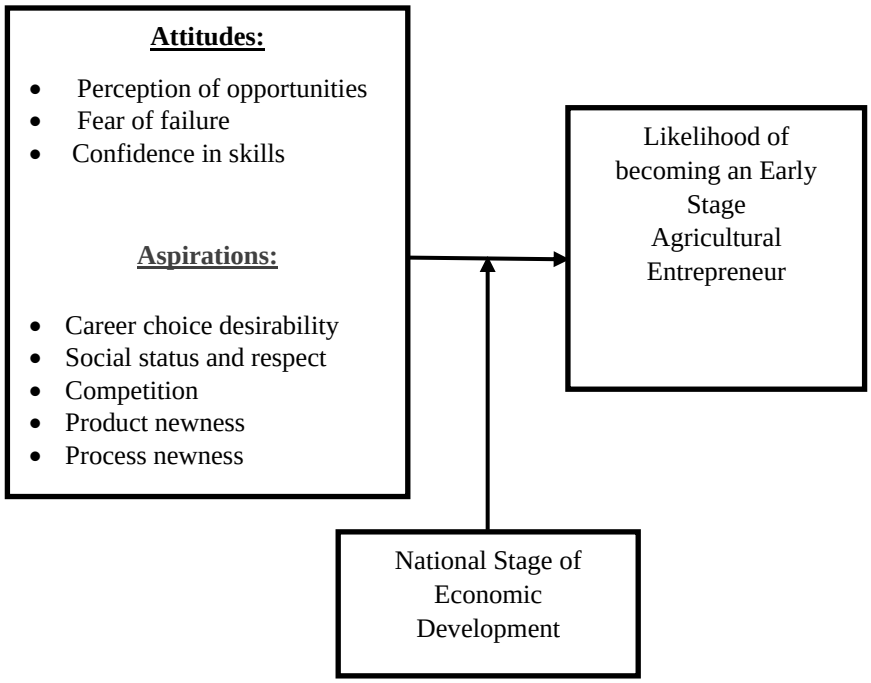
Our expectations in regard to the differences are based primarily on two assumptions. First, that agricultural entrepreneurs will generally be more conservative than non-agricultural entrepreneurs. To be conservative means to be disposed to maintaining existing or traditional conditions. Agricultural entrepreneurs are predominately rural entrepreneurs, and we believe people living in rural areas tend to be more conservative than people living in urban areas in part because of a selection effect. Over the past two hundred years the world has experienced a great migration from the country to the cities. Census data shows in 1790 only 5.1% of the U.S. population lived in urban areas, but this figure increased quite steadily to 75.2% in 1990 (US Census, 2018). The same migration has also occurred most of the rest of the world, although it has been concentrated in the past one hundred years in many developing nations. Therefore, people living in rural areas are those who have *not* moved to the cities, and nor did their parents or grandparents. This indicates a disposition to maintain existing conditions. Of course, some people living in rural areas may wish to move to cities but be constrained from doing so by lack of resources or skills. Still, given the size of the migration it is reasonable to assume that the disposition to maintain existing conditions plays a role in differentiating between rural and urban populations.

Also, to be progressive (the opposite of conservative) requires sensemaking. Sensemaking means to develop images that explain the world and our role in it, and it becomes especially important when the perceived or desired state of the world is different from the expected state of the world (Weick et al., 2005). Most importantly, sensemaking is a social process, requiring peer feedback (Hoyte et al., 2019; Wood and McKinley, 2010). Agricultural entrepreneurship occurs mainly in rural environments with low population densities which reduces opportunities for social sensemaking (Leon, 2005), resulting in a greater disposition to maintain existing conditions.

Our second assumption is that agricultural entrepreneurs will tend to be poorer than non-agricultural entrepreneurs. Rural areas worldwide tend to be poorer than urban areas. The *Oxford Poverty and Human Development Initiative* (2014), along with the *United Nations Development Programme,* developed a Multidimensional Poverty Index (MPI), and found that 85% of the people across 105 countries who are MPI poor live in rural areas, and that the intensity of poverty is consistently higher in rural areas for all regions of the world. Similarly, Olinto, Beegle, Sobrado and Uematsu (2013) reported that a rural household is more likely to be poor than an urban one, and that about 63% of the world's poor are working in agriculture, mostly in smallholder farming. But we also recognize that entrepreneurs' attitudes and aspirations may vary by national stage of economic development and will return to this theme later. A graphical representation of our research model is presented in Figure 1 below. We investigated this model using data from the 2018 Global Entrepreneurship Monitor (GEM) dataset (Arafat, Saleem, Dwivedi and Khan, 2020; Bosma, 2013).

Section two below presents the theoretical framework. Section three describes the methodological aspects of the research: the characteristics of the sample, the variables, and the statistical model used. Section four reports and discusses the results. Section five is an additional analysis in which we group countries using the Country Income Group. The last section is a discussion.

FIGURE 1: Research Model



ENTREPRENEURAL ATTITUDES AND ASPIRATIONS

Entrepreneurial Attitudes

Attitude is a predisposition to respond in a positive or negative way to the object of the attitude. Shariff and Saud (2009) explained that any attitude has an object such as a person, place, thing, event, activity, etc. Attitude explains how the person "feels" about the object. We will consider attitudes regarding perception of opportunities, fear of failure and confidence in skills.

Opportunity recognition is a critical step that occurs early in the process of venture creation, when an entrepreneur can recognize a way to generate economic value or profit that is not currently exploited by others (Baron, 2006; Corbett, 2005). Some opportunities are Schumpeterian (Schumpeter, 1934). These are disequilibrating, require new knowledge, and occur rarely. A historical example is Eli Whitney's 1793 invention and marketing of the cotton gin. But many more opportunities are Kirznerian (Kirzner, 1973). These are equilibrating and require only effective application of existing knowledge. An example might be an eighteenth-century farmer who switched from tobacco to cotton after acquiring a cotton gin. Because they are so much more common, Kirznerian entrepreneurs will be the focus of this paper.

Some of the most important factors that have been identified in the creation of new ventures are the capacity to search for and recognize opportunities, and knowledge of the market,

customers, and industry (Baron, 2006). Entrepreneurs pursue opportunities when they spot suboptimal deployments of resources within markets (Ardichvili, Cardozo and Ray, 2003), but opportunities may require different ***personal characteristics and competencies, affecting the reaction of the entrepreneur*** (Bryant, 1989). Additionally, e***xternal stimuli such as macro-economic factors, the political environment, and societal structure affect how the entrepreneur reacts to opportunities*** (Barbieri and Mahoney, 2009).

GEM makes a distinction between need driven and opportunity driven entrepreneurship, as do Hessels, van Gelderen and Thurik (2008). Yessoufou, Blok and Omta (2018) emphasized that entrepreneurship is often a response to challenging situations such as a lack of wage employment, especially in rural areas. Because they tend to be more conservative and poorer, we believe that agricultural entrepreneurs will be more need driven and less opportunity driven than non-agricultural entrepreneurs, and so we expect that opportunities will be less important to them.

Fear of failure occurs when an entrepreneur evaluates starting a business against other options. If he or she sees the opportunity as risky, he or she may be reluctant to start the new venture (Weber and Milliman, 1997). Of course, entrepreneurs do not know ex-ante how good they need to be in order to survive in the market, but Koellinger et al. (2007) maintained that individuals who believe themselves to have the ability to start a new business are more likely to take an optimistic view of their prospects. The self-perception of the entrepreneur will therefore influence the likelihood of opening a new business (Bayon, Vaillant and Lafuente, 2015). Since we expect agricultural entrepreneurs to be more need driven than non-agricultural entrepreneurs, we expect fear of failure to be less important for them.

Confidence in skills matters because it is important that prospective entrepreneurs believe they have the skills required to start a business. It is necessary to separate the actual skills an individual may have from the perception of having skills – the emphasis is not on the accumulated knowledge and experience of the entrepreneur, but rather in the self-confidence of the entrepreneur (Arenius and Minniti, 2005; Tominc and Rebernik, 2007).

There are three factors that influence the learning process of entrepreneurs. First are internal factors such as personality and previous knowledge. Second are external factors such as the general environment and culture, educational opportunities, and available services. Third are relationship and networking opportunities (Vesala and Pyysiäinen, 2008). Since we expect agricultural entrepreneurs to be more conservative, we expect confidence in skills will be less important than simple diligence and hard work.

Entrepreneurial Aspirations

An aspiration is a desire to achieve something positive. Entrepreneurial aspirations are critical factors that determine the results of the new venture creation efforts (Hessels, van Gelderen and Thurik, 2008), and entrepreneurs certainly vary in their aspirations – one may aspire to develop and market a revolutionary new product like the transistor or the personal computer and change peoples' lives world-wide, while another may aspire to open a new restaurant and profit by offering food or service that is slightly different from competing

restaurants. We will consider aspirations regarding career choice desirability, social status and respect, competition, new products, and new processes.

Career choice desirability is important because a positive perception of a behavior will encourage the behavior (Ajzen, 1991). This is explained by the theory of planned behavior that proposes that individuals will be influenced by how society perceives a behavior. We expect that social perceptions will impact the entrepreneur's aspirations to create an agricultural business. In constructing an identity as an agriculture entrepreneur, the individual responds to their understanding of how society sees the agricultural entrepreneur (Stenholm and Hytti, 2014). If the individual perceives that people regard being an entrepreneur as an attractive profession the propensity to start a new venture will be higher. Because we expect agricultural entrepreneurs to be more conservative or more disposed to maintain existing conditions, and because career choice desirability is based on fulfilling societal expectations, we expect career choice desirability will be more important to them.

Social status and respect is important because if the entrepreneurial environment assigns positive social status and respect to the role of entrepreneurs, individuals will have a higher propensity to start a new business. This is based on the idea that entrepreneurs reflect their understanding of the expected behavior of them (Stenholm and Hytti, 2014). Etzioni (1987) emphasized the importance of the degree of 'legitimation' or 'moral approval' of entrepreneurship within a culture. This view claims that a higher overall level of legitimation of entrepreneurship implies wide ranging manifestations, including more attention to entrepreneurship within the educational system and a higher social status of entrepreneurs (Freytag and Thurik, 2007). The prospective entrepreneur may perceive that people regard being an entrepreneur as an attractive profession with high social status and prestige, so to view oneself as an entrepreneur is connected to fulfilling societal expectations. Because we expect agricultural entrepreneurs to be more conservative than non-agricultural entrepreneurs, we expect social status and respect will be more important for them.

Entrepreneurs may have limited competition when they serve or even create new markets. Competition is generally most intense in older and more established markets, and especially in commodity markets (Porter, 1985). Because we expect agricultural entrepreneurs to be more conservative than non-agricultural entrepreneurs, we expect them to offer less innovative products and services, and so to perceive more competition.

Entrepreneurs aspiring to produce new products may have a higher level of aspirations and contribute more to economic growth (Hessels, van Gelderen and Thurik, 2008). Product innovation could simply mean the farmer experiments with crops other than those he or she had grown in the past. Lambrecht, Kuhne and Gellynck (2014) provide the example of a tomato farmer who began growing kiwi berries during a downturn in the market for tomatoes, and Perks and Medway (2012) that of a dairy farmer who found it profitable to grow sunflowers for local florists. The World Bank (2007) noted that farmers in many developing countries are shifting away from staple food production to vegetables and fruits for export, as well as spices, aquaculture products and nonfood products such as cut flowers. Ogutu and Qain (2019) found the commercialization of small farms, which occurs when a farmer shifts from subsistence to more market-oriented farming, was associated with the reduction of poverty levels.

Gars and Ward's (2019) study of the patterns of adoption of hybrid rice in India illustrated the risks involved in product innovation. Even if an experienced rice farmer were certain that the hybrid rice could potentially produce a better crop, he or she might still be concerned that the hybrid rice would require different care than the older variety, so that he or she might be worse off with the new variety until after learning to care for it. The authors also emphasized that there is considerable heterogeneity among individuals regarding adopting any new technology (also see Barham et al., 2015), including new rice varieties, with late adopters taking the opportunity to learn by observing the potentially costly experimentation of their neighbors. Agricultural entrepreneurs work in less densely populated rural environments, and so have less opportunity for such social learning than do their non-agricultural counterparts. Therefore, we expect agricultural entrepreneurs to be less interested in new products than non-agricultural entrepreneurs.

Another type of agricultural innovation is the adoption of a new process. Some new processes involve the application of modern technology. For example, drip irrigation systems, which involve the frequent application of small amounts of water directly to a crop's root zone, were developed in the 1960s but now represent about 5 percent of the total worldwide irrigated area (Venot, Kuper and Zwarteveen, 2017). More recently, in the dairy industry genomic testing of newborn female calves to predict their future productivity has become common in developed nations, as has the use of sexed semen so that the cows produce mostly female calves (Newton, Hayes and Pryce, 2018).

Other new processes simply require new patterns or procedures. Partey et al. (2018) described how climate change and desertification in West Africa encouraged the increasing use of "planting pits," in which grain is grown in small, shallow pits which accumulate water. A more complex example is Community Supported Agriculture (CSA) where consumers purchase "shares" on the farm before planting begins and receive a portion of the crop that the farmer can harvest later. This movement creates a partnership between local farmers and community members to create a sustainable local food system and gives the farmer access to capital before the production starts (Brehm and Eisenhauer, 2008; Brown and Miller, 2008; van En, 1995).

If entrepreneurs perceive they can use new processes they may have a higher propensity to create new businesses. However, because we expect agricultural entrepreneurs to be more conservative than non-agricultural entrepreneurs, we expect them to be less interested in new processes than non-agricultural entrepreneurs.

METHODS

Data and Procedures

We used data from the 2018 Global Entrepreneurship Monitor (GEM). Although a more recent GEM dataset is available, we used 2018 dataset as it includes all variables that we use in our study. The dataset has observations from about 60 countries. We used only those observations in which the respondents identified themselves as early-stage entrepreneurs (Reynolds et al., 2005). There were just over 17,000 of these. These are individuals with

businesses less than three- and one-half years old. GEM refers to total early-stage entrepreneurial activity (TEA) as its "primary measure" of entrepreneurship. The percentage tends to be higher in poorer countries where individuals are driven by necessity to become entrepreneurs, and lower in wealthier countries where established firms play a more important role in the economy. Because they are so common in poorer countries, it's reasonable to assume that most of these entrepreneurs are Kirznerian, or those who apply existing knowledge, rather than Schumpeterian, or those who create new knowledge.

We categorized business types as agricultural or non-agricultural using the International Standard Industrial Classification (ISIC) scheme. We assigned the value 1 when respondents were early-stage entrepreneurs and belonged to division 01, "Agriculture and Farming", and 0 otherwise. These made up about 4.5% of all early-stage entrepreneurs. We then applied the chi-square test to check whether any significant differences existed between the agricultural or non-agricultural early-stage entrepreneurs.

MEASURES

We measured attitudes and aspirations using dichotomous variables with a value 1 for an answer of "yes" and 0 for "no." We used three variables to measure attitudes. The first was *Perception of Opportunities*, taken from the question "In the next six months, will there be good opportunities for starting a business in the area where you live?" Nominally, this question is about the respondents' perceptions of the world around them. However, since we are comparing the perceptions of individuals who have selected themselves into either the agricultural entrepreneur group or the nonagricultural entrepreneur group, we can interpret the results as showing the relative importance of opportunities to the two groups. *Fear of Failure* represents the question "Would fear of failure would prevent you from starting a business?" C*onfidence in Skills* represents the question "Do you have the knowledge, skill and experience required to start a new business?"

We used five variables to measure entrepreneurial aspirations. *Career Choice Desirability* represents the question "In your country, most people believe that starting up a business is an attractive profession." *Social Status and Respect* represents the question "In your country, a person who successfully starts up a new business gains high social status and prestige." *Competition* represents the question "Right now, are there many, few, or no other businesses offering the same products or services to your potential customers?" *Product Newness* represents the question "Will all, some, or none of your potential customers consider this product or service new and unfamiliar?" *Process Newness* represents the question "How long have the technologies or procedures required for this product or service been available?" We assigned this a value of 1 if the technologies were new and 0 otherwise. Table 1 further clarifies variables adopted from the 2018 GEMS dataset in either description or survey questions format.

TABLE 1	
Variables adopted from the GEMS dataset	
Variables	**Notes**
Total early-stage Entrepreneurial Activity (TEA) Rate:	Percentage of 18-64 population who are either an entrepreneur involved in setting up a business (nascent entrepreneur) or the owner-manager of a new firm less than 3.5 years old (owner-manager) *
Agricultural versus Non-Agricultural	Recoded from the variable TEAISIC4_1 of the GEM dataset. Responses are classified agricultural or non-agricultural using the International Standard Industrial Classification (ISIC) scheme.
Age range	Age range for all respondents recoded from AGE and AGE7c from the GEM dataset
Education	Harmonized based on education variable provided by country (UN Categories, GEM variable: GEMEDUC)
Work status	Harmonized work status (GEM variable: GEMWORK)
Income	GEM income recoded into thirds (GEM Variable: GEMHHINC)
Perception of Opportunities	Question: In the next six months, will there be good opportunities for starting a business in the area where you live?
Fear of Failure	Question: Would fear of failure would prevent you from starting a business?
Confidence in Skills	Question: Do you have the knowledge, skill and experience required to start a new business?
Career Choice Desirability	Question: In your country, most people believe that starting up a business is an attractive profession?
Social Status and Respect	Question: In your country, a person who successfully starts up a new business gains high social status and prestige?
Product Newness	Question: Right now, are there many, few, or no other businesses offering the same products or services to your potential customers?
Competition	Question: Will all, some, or none of your potential customers consider this product or service new and unfamiliar?
Process Newness	Question: How long have the technologies or procedures required for this product or service been available?

RESULTS

Demographics and Characteristics of Participants

Table 2 shows the early-stage agricultural entrepreneurs tend to be older, less educated and poorer than the non-agricultural entrepreneurs. Among the agricultural entrepreneurs, 43.96% were age 45 or older, while only 28.97% of the non-agricultural entrepreneurs were in

this age group. The agricultural entrepreneurs are also less educated. Within this group, 35.21% had either no education or only some secondary, while only 19.53% of the non-agricultural entrepreneurs had so little education. Being older and less educated might tend to make the agricultural entrepreneurs more conservative. In terms of work status, the agricultural and non-agricultural entrepreneurs are similar with over 80% of both groups working full time. But in terms of income, the agricultural entrepreneurs are poorer. Within this group 36.63% were in the lower third of income, while only 27.26% of the non-agricultural entrepreneurs were in this category. Being poorer might tend to make the agricultural entrepreneurs more need-driven and less opportunity-driven. Please note these four demographic variables are included here to provide an overview of our sample but are not used in the main analysis to follow.

TABLE 2

Demographics of Early Stage Entrepreneurs

Variable	% of Early Stage Non-Agricultural Entrepreneur	% of Early Stage Agricultural Entrepreneur
Age range		
0-17	0.00%	0.00%
18-24	15.93%	12.35%
25-44	29.83%	24.84%
35-44	25.28%	18.86%
45-54	17.80%	22.50%
55-64	9.72%	18.34%
65-120	1.45%	3.12%
Number of Entrepreneurs	*17,153*	*769*
Education attaiment		
None	6.79%	18.00%
Some Secondary	12.74%	17.21%
Secondary degree	32.87%	27.99%
Post secondary	38.87%	32.06%
Graduate experience	8.73%	4.73%
Number of Entrepreneurs	*17,003*	*761*
Work status		
Full time	85.90%	89.42%
Part time	5.98%	3.57%
Retired, disabled	0.81%	0.79%
Homemaker	1.65%	1.06%
Student	1.19%	1.46%
Not working	4.47%	3.70%
Number of Entrepreneurs	*16,881*	*756*
Income		
Lowest 33% percentile	27.26%	36.63%
Middle 33% percentile	30.93%	33.69%
Upper 33% percentile	41.81%	29.68%
Number of Entrepreneurs	*14,761*	*647*

CORRELATIONS

Table 3 presents the descriptive statistics and the correlation matrix of the variables of the model. The highest correlation is that between *Product Newness* and P*rocess Newness* with a correlation of .1844. This indicates that at least some early-stage entrepreneurs relate the idea of creating a new product with the need for generating a new process. The correlation between

Career Choice Desirability and *Social Status and Respect* is roughly the same at .1843. The third highest is between *Fear of Failure* and *Confidence in Skills* with a negative correlation of -.1786.

TABLE 3

Descriptive Statistics and Correlation Matrix

	Variable	Obs.	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9
1	Likelihood of becoming an Early-Stage Agricultural Entrepreneur	17,922	0.043	0.203	1.000								
2	Perception of opportunities	16,153	0.652	0.476	-0.044*	1.000							
3	Fear of failure	17,442	0.295	0.456	0.024*	-0.080*	1.000						
4	Confidence in skills	17,483	0.822	0.382	-0.016*	0.166*	-0.178*	1.000					
5	Career choice desirability	16,312	0.688	0.463	0.018*	0.112*	0.029*	0.018*	1.000				
6	Social status and respect	16,308	0.709	0.454	0.005	0.129*	0.048*	0.013	0.184*	1.000			
7	Product newness	11,969	0.588	0.492	-0.034*	0.045*	0.005	0.006	0.023*	-0.035*	1.000		
8	Competition	12,158	0.899	0.301	0.014	-0.014	0.047*	-0.030*	0.014	0.016	-0.097*	1.000	
9	Process newness	11,423	0.470	0.499	-0.017	0.025*	0.020*	0.028*	0.038*	0.000*	0.184*	-0.077*	1.000

*Correlation significant at the .05 level (2-tailed)

Comparison of Non-Agricultural versus Agricultural Entrepreneurs

A comparison of the agricultural and non-agricultural entrepreneurs is shown in Table 4. Differences among the three attitudinal variables, *Perception of Opportunities, Fear of Failure,* or *Confidence in Skills*, were all significant. The agricultural entrepreneurs were more pessimistic, more concerned about failure, and less confident than the non-agricultural entrepreneurs. Among the aspirational variables neither *Social Status and Respect* nor C*ompetition* showed significant differences. *Career Choice Desirability* showed a small but significant higher proportion among the agricultural entrepreneurs, as we had expected.

TABLE 4

Comparison of Non-agricultural versus Agricultural Attitudes and Aspirations of Early Stage Entrepreneurs

Variable		% of Early Stage Non-Agricultural Entrepreneur	% of Early Stage Agricultural Entrepreneur	Statistical test (Chi-square)
Entrepreneurial Attitudes				
Perception of opportunities	No	34.35%	44.84%	
	Yes	65.65%	55.16%	
Number of Entrepreneurs		15,475	678	p<.000
Fear of failure	No	70.77%	65.29%	
	Yes	29.23%	34.71%	
Number of Entrepreneurs		16,693	749	p<.001
Confidence in skills	No	17.62%	20.74%	
	Yes	82.38%	79.26%	
Number of Entrepreneurs		16,726	757	p<.028
Entrepreneurial Aspirations				
Career choice desirability	No	31.36%	27.24%	
	Yes	68.64%	72.76%	
Number of Entrepreneurs		15,585	727	p<.019
Social status and respect	No	29.17%	28.13%	
	Yes	70.83%	71.87%	
Number of Entrepreneurs		15,590	718	NS
Product newness	No	40.82%	49.20%	
	Yes	59.18%	50.80%	
Number of Entrepreneurs		11,471	498	p<.000
Competition	No	10.14%	8.10%	
	Yes	89.86%	91.90%	
Number of Entrepreneurs		11,652	506	NS
Process newness	No	52.87%	57.08%	
	Yes	47.13%	42.92%	
Number of Entrepreneurs		10,964	459	p<.077

But the greatest difference between agricultural and non-agricultural entrepreneurs was regarding *Product Newness*. As we had expected, *Product Newness* showed a significant difference, with much fewer agricultural entrepreneurs aspiring to start a business by introducing a new product to the customer. None of the other aspirational variables showed such a large difference between the agricultural and non-agricultural entrepreneurs. *Process Newness* also showed a significant difference, with agricultural entrepreneurs being less likely to use new processes.

Additional Analysis – Country Income Group

We were also interested in how agricultural entrepreneurs vary by Country Income Group and expected them to be more suited to innovation in higher income countries. Acs, Desai and Hessels (2008) described how economies go through various stages of development. Low-income countries have mostly low-skill labor and use natural resources as their main factor of production. Businesses offer basic products and compete on price. We might refer to low-income economies as factor-driven. In middle-income countries productivity and wages increase while the country develops other competitive advantages. Competitiveness increases because of better education and training, and more efficient financial and labor markets. We might refer to middle-income economies as efficiency-driven. High-income economies are driven by innovation. Wages are high and businesses compete by producing new and different products. We might refer to high-income economies as innovation-driven.

Recent changes in transport infrastructure, communication, and information technologies in high income countries have changed the rural environment, reducing the gap between the urban and rural realities (Vaillant and Lafuente, 2007). Furthermore, farmers in high-income countries tend to benefit from rich communication networks with other farmers, food manufacturers and third parties such as government agencies and research institutions (Gailhard, Bavorová and Pirscher, 2015; Kuhne, Gellynck and Weaver, 2015). We therefore anticipated that county income level will affect the relationship between entrepreneur type and interest in innovation such that, while agricultural entrepreneurs in low-income countries will be less interested in product and process newness, agricultural entrepreneurs in high income countries will be more like non-agricultural entrepreneurs.

Tables 5a, 5b, and 5c present the results of comparing agricultural versus non-agricultural early-stage entrepreneurs by the country income group. We expected that the relative disinterest in product newness among agricultural entrepreneurs would be concentrated in the low-income countries, with those in high-income countries being roughly as interested in innovation as non-agricultural entrepreneurs. And in fact, *Product Newness* showed a significant difference for low-income countries, with fewer agricultural entrepreneurs indicating that their products would be perceived as new. However, *Product Newness* did not show a significant difference for middle- and high-income countries. Likewise, *Process Newness* showed a significant difference for low-income countries, but not for middle- or high-income countries. In fact, in high-income countries the percentage of entrepreneurs expecting to start businesses with new processes was slightly higher for agricultural entrepreneurs than for non-agricultural entrepreneurs. These results indicate that it is specifically the low-income country early-stage agricultural entrepreneurs who are relatively disinterested in new products and processes, and so are poorly prepared to deal with a world of innovation.

TABLE 5a

Comparison of Non-agricultural versus Agricultural Attitudes and Aspirations of Early Stage Entrepreneurs, by Country Income Group: Low

Variable		Low Country Income Group** % of Early Stage Non-Agricultural Entrepreneur	% of Early Stage Agricultural Entrepreneur	Statistical test (Chi-square)
Entrepreneurial Attitudes				
Perception of opportunities	No	27.23%	33.15%	
	Yes	72.77%	66.85%	
Number of Entrepreneurs		*2,751*	*184*	NS
Fear of failure	No	64.77%	58.38%	
	Yes	35.23%	41.62%	
Number of Entrepreneurs		*2,946*	*197*	NS
Confidence in skills	No	17.74%	22.93%	
	Yes	82.26%	77.07%	
Number of Entrepreneurs		*2,959*	*205*	NS
Entrepreneurial Aspirations				
Career choice desirability	No	22.03%	13.00%	
	Yes	77.91%	87.00%	
Number of Entrepreneurs		*2,879*	*200*	p<0.002
Social status and respect	No	19.64%	16.16%	
	Yes	80.36%	83.84%	
Number of Entrepreneurs		*2,861*	*198*	NS
Product newness	No	45.71%	63.87%	
	Yes	54.29%	36.13%	
Number of Entrepreneurs		2,076	155	p<0.000
Competition	No	9.33%	3.85%	
	Yes	90.67%	96.15%	
Number of Entrepreneurs		*2,112*	*156*	p<0.021
Process newness	No	36.46%	58.20%	
	Yes	63.54%	41.80%	
Number of Entrepreneurs		*1,769*	*122*	p<0.000

** Based on the Country Income Group by the World Bank

TABLE 5b

Comparison of Non-agricultural versus Agricultural Attitudes and Aspirations of Early Stage Entrepreneurs, by Country Income Group: Middle

Variable		Middle Country Income Group** % of Early Stage Non-Agricultural Entrepreneur	% of Early Stage Agricultural Entrepreneur	Statistical test (Chi-square)
Entrepreneurial Attitudes				
Perception of opportunities	No	38.84%	39.68%	
	Yes	61.16%	60.32%	
Number of Entrepreneurs		*3,754*	*189*	NS
Fear of failure	No	71.52%	64.43%	
	Yes	28.48%	35.57%	
Number of Entrepreneurs		*3,933*	*194*	p<0.033
Confidence in skills	No	17.87%	19.19%	
	Yes	82.13%	80.81%	
Number of Entrepreneurs		*3,990*	*198*	NS
Entrepreneurial Aspirations				
Career choice desirability	No	23.72%	20.43%	
	Yes	76.28%	79.57%	
Number of Entrepreneurs		*3,103*	*186*	NS
Social status and respect	No	24.75%	17.13%	
	Yes	75.25%	82.87%	
Number of Entrepreneurs		*3,099*	*181*	p<0.020
Product newness	No	37.66%	42.22%	
	Yes	62.34%	57.78%	
Number of Entrepreneurs		2,568	135	NS
Competition	No	9.33%	8.89%	
	Yes	90.67%	91.11%	
Number of Entrepreneurs		*2,638*	*135*	NS
Process newness	No	53.99%	59.38%	
	Yes	46.01%	40.63%	
Number of Entrepreneurs		*2,482*	*128*	NS

** Based on the Country Income Group by the World Bank

TABLE 5c

Comparison of Non-agricultural versus Agricultural Attitudes and Aspirations of Early Stage Entrepreneurs, by Country Income Group: High

Variable		High Country Income Group** % of Early Stage Non-Agricultural Entrepreneur	High Country Income Group** % of Early Stage Agricultural Entrepreneur	Statistical test (Chi-square)
Entrepreneurial Attitudes				
Perception of opportunities	No	34.66%	55.08%	
	Yes	65.34%	44.92%	
Number of Entrepreneurs		*8,970*	*305*	p<0.000
Fear of failure	No	72.26%	69.55%	
	Yes	27.74%	30.45%	
Number of Entrepreneurs		*9,814*	*358*	NS
Confidence in skills	No	17.48%	20.34%	
	Yes	82.52%	79.66%	
Number of Entrepreneurs		*9,777*	*354*	NS
Entrepreneurial Aspirations				
Career choice desirability	No	36.60%	39.30%	
	Yes	63.40%	60.70%	
Number of Entrepreneurs		*9,603*	*341*	NS
Social status and respect	No	33.42%	41.00%	
	Yes	66.58%	59.00%	
Number of Entrepreneurs		*9,630*	*339*	p<0.004
Product newness	No	40.53%	42.79%	
	Yes	59.47%	57.21%	
Number of Entrepreneurs		6,827	208	NS
Competition	No	10.71%	10.70%	
	Yes	89.29%	89.30%	
Number of Entrepreneurs		*6,902*	*215*	NS
Process newness	No	56.79%	55.02%	
	Yes	43.21%	44.98%	
Number of Entrepreneurs		*6,713*	*209*	NS

** Based on the Country Income Group by the World Bank

Table 6 illustrates three Country Income Groups (Low, Middle, and High) and corresponding countries adopted from the 2027-2018 Global Competitiveness Report (World Economic Forum). It also contrasts non-agricultural entrepreneurs to agricultural entrepreneurs of GEMS dataset by 'Country Income Group' classification.

TABLE 6
Composition of Entrepreneurs by Country Income Group

Country Income Group *	Country	Non-Agricultural Entrepreneurs		Agricultural Entrepreneurs		Total	Global Competitiveness Index **	
		No.	Pct.	No.	Pct.		Rank	Score
Low	Indonesia	442	96.93%	14	3.07%	456	36	4.68
	India	541	99.08%	5	0.92%	546	40	4.59
	Morocco	222	96.10%	9	3.90%	231	71	4.24
	Egypt	234	91.05%	23	8.95%	257	100	3.90
	Madagascar	375	78.95%	100	21.05%	475	121	3.40
	Sudan	400	89.29%	48	10.71%	448	N/A	N/A
	Angola	794	99.13%	7	0.87%	801	N/A	N/A
	Total	**3,008**	**93.59%**	**206**	**6.41%**	**3,214**		
Middle	China	348	98.31%	6	1.69%	354	27	5.00
	Thailand	352	85.44%	60	14.56%	412	32	4.72
	Russia	100	90.91%	10	9.09%	110	38	4.64
	Bulgaria	106	88.33%	14	11.67%	120	49	4.46
	Turkey	325	92.86%	25	7.14%	350	53	4.42
	Colombia	426	95.52%	20	4.48%	446	66	4.29
	Iran	288	92.90%	22	7.10%	310	69	4.27
	Peru	446	98.02%	9	1.98%	455	72	4.22
	Brazil	376	99.47%	2	0.53%	378	80	4.14
	Guatemala	793	97.18%	23	2.82%	816	84	4.09
	Lebanon	473	98.13%	9	1.87%	482	105	3.84
	Total	**4,033**	**95.28%**	**200**	**4.72%**	**4,233**		
High	Switzerland	138	99.28%	1	0.72%	139	1	5.86
	United States	424	97.47%	11	2.53%	435	2	5.85
	Netherlands	233	97.08%	7	2.92%	240	4	5.66
	Germany	226	95.76%	10	4.24%	236	5	5.65
	Sweden	263	92.28%	22	7.72%	285	7	5.52
	United Kingdom	526	97.77%	12	2.23%	538	8	5.51
	Japan	103	94.50%	6	5.50%	109	9	5.49
	Canada	344	97.18%	10	2.82%	354	14	5.35
	Taiwan	200	96.15%	8	3.85%	208	14	5.33
	United Arab Emirates	207	100.00%	0	0.00%	207	17	5.30
	Austria	476	97.74%	11	2.26%	487	18	5.25
	Qatar	215	99.08%	2	0.92%	217	18	5.11
	Luxembourg	197	99.49%	1	0.51%	198	19	5.23
	France	87	95.60%	4	4.40%	91	22	5.18
	Ireland	189	98.44%	3	1.56%	192	23	5.16
	Israel	217	99.09%	2	0.91%	219	24	5.31
	South Korea	291	99.66%	1	0.34%	292	26	5.07
	Saudi Arabia	482	100.00%	0	0.00%	482	29	4.83
	Chile	1,976	95.27%	98	4.73%	2,074	33	4.71
	Spain	1,168	93.89%	76	6.11%	1,244	34	4.70
	Poland	415	99.05%	4	0.95%	419	36	4.59
	Panama	272	98.19%	5	1.81%	277	42	4.44
	Italy	71	88.75%	9	11.25%	80	43	4.54
	Slovenia	114	91.94%	10	8.06%	124	56	4.48
	Slovakia	244	97.60%	6	2.40%	250	65	4.33
	Croatia	180	92.31%	15	7.69%	195	74	4.19
	Uruguay	252	97.67%	6	2.33%	258	76	4.15
	Cyprus	77	100.00%	0	0.00%	77	83	4.30
	Greece	117	92.13%	10	7.87%	127	87	4.02
	Argentina	177	97.25%	5	2.75%	182	92	3.95
	Puerto Rico	231	96.65%	8	3.35%	239	N/A	N/A
	Total	**10,112**	**96.53%**	**363**	**3.47%**	**10,475**		

* Classification: World Bank
** Classification: World Economic Forum; Rank (out of 137); Score (1-7)
N/A: Data not available

DISCUSSION

Entrepreneurship research continues to grow as a discipline. This study contributes in an area that has been for the most part neglected within the discipline: agricultural entrepreneurship. We linked entrepreneurial attitudes and aspirations to the propensity to start a business in the agricultural sector, using data from the 2018 Adult Population Survey for the GEM project, and compared agricultural versus non-agricultural Early Stage Entrepreneurial Activity.

Our most striking findings indicate that agricultural entrepreneurs are poorly prepared to deal with the rapid innovation of the agricultural sector. They tend to be older, less educated and poorer than non-agricultural entrepreneurs. More importantly, they tend to be relatively disinterested in new products and processes, and this is especially true in low-income countries.

What, then, can be done to encourage the agricultural entrepreneurs of the world to adopt new products? Thirtle, Lin and Piesse (2003) noted that in many poor countries a lack of technology is not the problem, but rather diffusion of the technology. Rogers (1962, 1995) identified several factors influencing the diffusion of innovations. Innovation itself is only the first of these, and other important factors heighten the concern for the agricultural entrepreneur. One of these is communication. Mass media channels are effective means of communicating many innovations such as the newest cell phone or the latest video game, but are less effective in communicating innovations that require a greater commitment by the user, such as when an agricultural entrepreneurs adopts a new product or process. Interpersonal channels, or face-to-face exchanges are more likely to be effective in these situations. A difficulty, though, is that interpersonal channels are most likely to be effective when the individuals involved are similar to each other, while government or university agricultural extension agents and the farmers they are seeking to communicate with are likely to be quite different from each other.

Another factor in the diffusion of innovations is time, and individuals are quite heterogeneous in terms of how much time they need to adopt an innovation. Since our focus is on entrepreneurship, we are primarily interested in the earlier adopters. Rogers (1962, 1995) described several general characteristics of these, and here the demographic variables shown in Table 1 give us further cause for concern. Rogers found earlier adopters generally had more education and were more literate than later adopters, while we found agricultural entrepreneurs tended to be less educated than non-agricultural entrepreneurs. Likewise, Rogers stated that earlier adopters were generally wealthier than later adopters, while we found that agricultural entrepreneurs tended to be poorer than non-agricultural entrepreneurs.

The World Bank (2007) suggested an innovation systems approach to bring technology to the farmers of the world. Systems approaches emphasize the interactions of all the actors involved. Technical expertise must be complemented with expertise in markets, finance and especially education. Klerkx, van Mierlo and Leeuwis (2012) described how the systems approach differs from traditional approaches to agricultural innovation. In the traditional approach, farmers could be either adopters of technology or laggards, but in a systems approach they become experimentors and sources of information. The goal of the traditional approach is simply that farmers adopt technology, while the goal of a systems approach is that farmers develop capacities to innovate, to learn, and to change their practices. Several authors have described successful applications of systems approaches. In an innovation-driven country setting, Nettle, Brightling and Hope (2013) described how a programme team approach is proving effective in the Australian dairy industry. On these teams a leader and representatives from relevant organizations set goals and establish approaches to deliver benefits within the industry. Similarly, McElwee, Smith and Somerville (2018) described how community development workers have inspired rural entrereneurs in the British isles. In a factor-driven country setting,

Shikuku (2019) discussed the use of "disseminating farmers," who are selected and trained to encourage their neighbors to adopt new technologies.

An example of an effective systems approach can be found in urban agriculture. The U. S. Department of Agriculture offers support to urban farmers and will even offer a National Urban Agricultural Conference in the summer of 2024. Urban agriculture has advantages such as increasing food security, taking advantage of otherwise used land, reducing encroachment on wildlife, and reducing transportation costs and carbon emissions as food grown in cities travels shorter distances than food grown in the countryside (Oliva, Rontanini and Rosenblatt, 2019). However, another major advantage is that urban farmers are more likely than rural farmers to seek help from government agencies such as the USDA, and more likely to communicate with each other, and often better prepared and educated (USDA, 2024). Furthermore, it is important to note that urban agriculture is not restricted to the U.S. but is rather a world-wide phenomenon. Examples of effective systems approaches to urban agriculture can be found in Italy (Amato and Simonetti, 2021), Iran (Ghahremani, Noori, Deihimfard and Veisi, 2024) and Dubai (Simon, Rickards and Rutherford, 2024).

CONCLUSION

How, then, can policymakers best contribute to agricultural entrepreneurship and innovation? An answer can be found at the intersection of two scholarly fields: entrepreneurship and developmental economics (Hessels and Naudé, 2018). Entrepreneurship scholars often emphasize the "knowledge spillover" theory of entrepreneurship, in which entrepreneurs use knowledge generated by universities, existing private firms or other entrepreneurs to start businesses (Ács, Braunjerhjelm, Audretsch, and Carlsson, 2009). Likewise, development economists have long emphasized "externalities," or unintended benefits accruing to parties other than the entrepreneur (Hausemann and Rodrick, 2003). The conclusion to be drawn from both fields is that policymakers should concentrate rather than spread their efforts. They should focus on developing local clusters of connected entrepreneurs who can learn from and provide examples to each other, and these clusters may even be in urban areas. This may be difficult for policymakers who often feel the need to provide equal attention to all parts of their jurisdictions. None-the-less, if policymakers can help to create such clusters, they may find them to be self-sustaining (Isenberg, 2010), which of course is the most important goal.

In any case, while we are in the midst of an age of agricultural innovation, these innovations can produce widespread benefits only if they are embraced by a generation of agricultural entrepreneurs. The apparent disinterest in innovation among the agricultural entrepreneurs of the world discovered in this research is therefore of great concern, and a challenge for researchers and policymakers around the world.

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AN EXAMINATION OF THE VARIABLES THAT DRIVE SUPPLEMENTAL RETIREMENT SAVINGS

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ABSTRACT

The money saved by an employee in an employer sponsored retirement plan will most likely be the largest single retirement saving of an individual. However, retirement planning can be challenging. While it has been shown that an increase in financial awareness enables employees to make better investment choices, there has been limited or no research so far, to our knowledge, that has examined the impact of several variables, such as gender, salary, age, ethnicity, education level, salary, and the choice of the retirement plan (defined benefit versus defined contribution) on the amount of supplemental contributions made by employees.

Our results show that being on the defined contribution plan and age increase both likelihood and the amount of supplemental contribution. Having a higher salary and having a doctorate degree increases the amount but not the likelihood of supplemental contribution, while being black only increases the likelihood but not the amount of supplemental contribution. Our findings also suggest that males are less likely to make any contribution and also contribute less, if they do, than comparable females.

BACKGROUND AND LITERATURE REVIEW

Retirement planning is likely the most critical financial decision an individual will make during their working career (Park & Martin, 2022). Yet research consistently shows that many workers are inadequately prepared for retirement. According to the National Institute on Retirement Security (NIRS), 62 percent of working households with a head of household in the 55-64 age group have retirement savings less than one times their annual income (Rhee & Boivie, 2015). This is far below the estimated amount most financial planners recommend. More recent results from the 2023 Survey of Household Economics and Decision Making reveal that even though 72% of those in the 45-59 age category have a tax-deferred retirement account and 32% have a defined benefit plan, only 38% of them say that their savings are on track for retirement. For younger cohorts, these numbers are even lower. While there are no stark differences between males and females in whether they think they are on track for retirement (36% of males vs 32% of females), differences by race/ethnicity are more pronounced – 46% of Asians, 40% of Whites, 25% of Blacks, 21% of Hispanics say that they are on track for retirement. (Board of Governors of the Federal Reserve System, 2024).

Our study investigates how various factors—such as gender, salary, age, ethnicity, education level, and the choice between defined benefit and defined contribution retirement plans—affect the amount of supplemental contributions made by employees at a regional university within the University System of Georgia (USG). It is important to point out that the employees of USG are in a unique position since some of them (mostly faculty, but some

administrators as well) can choose from two plans, a defined benefit and a defined contribution plan. Additionally, as employees of public schools and the state government, all benefit-eligible employees have the option to contribute to two supplemental retirement plans (a 403(b) and a 457(b) plan).

Prior research has demonstrated that there are significant differences in faculty perception regarding retirement planning, with more than a third of late-career faculty not sure about the age at which they plan to retire (Berberet, J. et al., 2005). More recently, however, there has been a steady decline in the use of defined benefit plans and a corresponding increase in the use of defined contribution plans which places the burden of making appropriate investment choices on the employee (Munnell et al., 2001/2002).

There have been several studies that have examined the impact of gender, salary, age, ethnicity and education level not only on the faculty choice between a defined benefit (DB) and a defined contribution (DC) plan but also on the propensity to save for retirement.

The impact of gender on retirement plan choice presents mixed results in existing research. Some studies indicate that women are more likely to select defined benefit (DB) plans (Brown & Weisbenner, 2014; Clark, Ghent, & McDermed, 2006), while others suggest that men have a preference for DB plans (Chingos & West, 2015). In contrast, a more consistent finding is that higher-salaried faculty are more inclined to choose defined contribution (DC) plans (Clark, Hanson, & Mitchell, 2016; Yang, 2005). Additionally, research shows that DB plans are generally more appealing to younger workers. This preference may be linked to their higher mobility early in their careers, whereas older faculty, who have fewer years remaining until retirement, may find DB plans less attractive (Sawchuk, 2009).

At the same time, prior literature tends to focus on retirement savings in general rather than supplemental retirement contributions specifically. Generally, these papers find that individuals with higher salaries are able to accumulate greater retirement savings due to increased disposable income (Lusardi & Mitchell, 2014), while those with lower salaries often experience the opposite (Kopczuk et al., 2010). This aligns with the observation that women tend to have lower retirement savings compared to men, which can be attributed to lower earnings and more frequent career interruptions (Lundberg, 2017; Alesina et al., 2013). Education levels have also consistently have been shown to have an impact on the level of retirement savings. Individuals with higher levels of education are generally more likely to save higher amounts for retirement than those with lower levels of education (Behrman, et al., 2012). This is most likely due to those with higher education levels having higher financial literacy levels, higher earnings and more stable employment.

Aside from investigating the choice between DB & DC plans, our paper adds to the existing literature by analyzing supplemental retirement contributions and we find that being on the DC plan, age, having a doctorate degree and higher salary are associated with a higher amount of supplemental contribution while males tend to contribute less than females (holding other factors constant). We also find that being black increases the likelihood oof an employee making supplemental contributions. Overall, our results show that most employees are not using this tax deferred opportunity to their fullest advantage.

DATA

We collected data on 1200 employees for a regional university in the Southeast USA for a period of 3-years (2018-2020). All data was unidentifiable and could not be linked to an

individual employee to protect employee privacy. Monthly information was collected[1] on salary, retirement plan chosen, amount of contribution, supplemental contribution for each plan, gender, academic status, highest degree, marital status, age, and the time of hire. Due to the university's operations some of the employees in the data are present in all three years, while others only appear for a fraction of the year. Below, we only include full time, benefit-eligible employees who were present for any of the three full calendar years (2018, 2019, and/or 2020). Thus, we have a sample of 953 employees in 2018, 916 in 2019, and 768 in 2020. The reason for excluding individuals who joined or left the institution mid-year is that they could have contributed to their supplemental plans before joining or after leaving, and therefore, no information is available on their total annual contribution to their supplemental plans.

The university offers two retirement plans, a defined benefit plan and a defined contribution plan. A full-time faculty employed on either a 10-month or a 12-month contract is eligible to select either the defined benefit or the defined contribution plan at the time of employment as long as they are receiving monthly paychecks. A staff member can only pick the defined benefit plan (unless they are paid on a monthly basis, in which case they, too, can pick either of the 2 plans). For both faculty and staff, the selection of the retirement plan is an irrevocable decision.

RESULTS

Table 1 shows the sample statistics for the three years for full-time benefit-eligible employees who are present for the entire year. Each year about 60% of these employees were able to choose between a defined benefit or a defined contribution plan at the beginning of their employment. About 33-40% of the sample are on the defined contribution plan and between 14-18% made supplemental contributions. The average annual salary is around $61,000 and the average annual supplemental contribution is between $1,315 and $1,665. Slightly less than half of the sample is male and about 70% is white. The average age is around 48 years. About 32-39% of the sample have a doctorate degree and about 5% have a business background.

[1] We first obtained IRB (Institutional Review Board) approval since human subjects were involved

Table 1. Summary statistics			
	2018	2019	2020
Eligible for defined contribution	0.605	0.631	0.591
	(0.489)	(0.483)	(0.492)
On defined contribution	0.343	0.332	0.404
	(0.475)	(0.471)	(0.491)
Total supplemental contribution	1315.815	1373.941	1665.502
	(5806.271)	(5798.315)	(6659.146)
Any supplemental contribution	0.143	0.178	0.177
	(0.350)	(0.383)	(0.382)
Age	47.950	47.965	48.353
	(11.825)	(11.763)	(12.013)
Male	0.484	0.457	0.453
	(0.500)	(0.498)	(0.498)
	2018	2019	2020
White	0.712	0.698	0.691
	(0.453)	(0.460)	(0.462)
Black	0.186	0.198	0.189
	(0.389)	(0.398)	(0.392)
Married	0.530	0.532	0.529
	(0.499)	(0.499)	(0.500)
Doctorate	0.320	0.332	0.392
	(0.467)	(0.471)	(0.488)
Master	0.129	0.135	0.141
	(0.335)	(0.342)	(0.348)
Academic	0.438	0.453	0.539
	(0.496)	(0.498)	(0.499)
Business	0.056	0.047	0.052
	(0.229)	(0.212)	(0.222)
N	953	916	768

As shown in Figure 1, most employees do not make any supplemental contributions even though all are eligible to contribute to both a 403(b) and a 457(b) plan. The horizontal axis shows total contribution amounts to all supplemental plans.

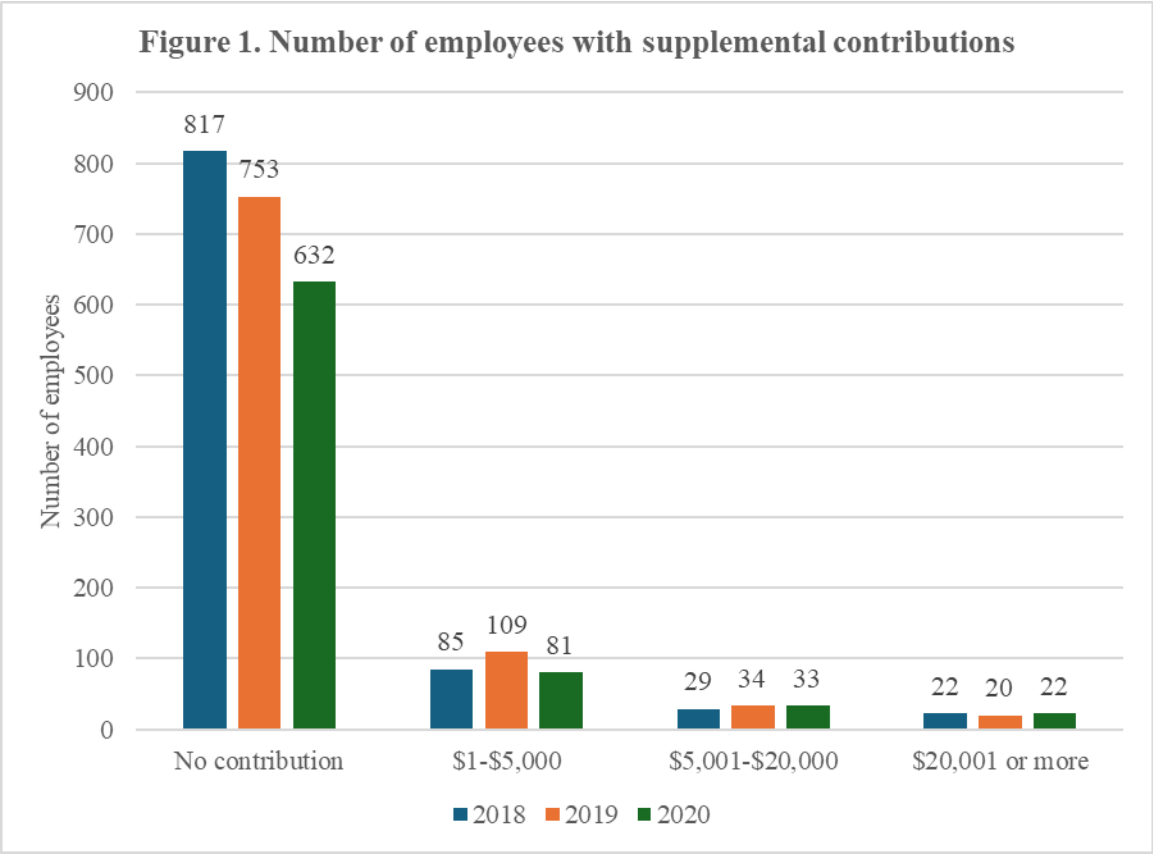


Figure 2 shows that on average people closer to retirement increase their supplemental contributions. But even among those closest to retirement (greater than age 60), the mean contribution for the 3-year period is only $3,675 (less than 10% of the maximum supplemental contributions allowed in the 403(b) and 457(b) plans combined, including the catch up). The contribution limits for each of the 403(b) and 457(b) for 2018 was $18,000, for 2019 was $19,000 and for 2020 was $19,500. The catch-up contribution limits for employees over 50 years of age was $6,000 for 2018 and 2019 and $19,500 for 2020.

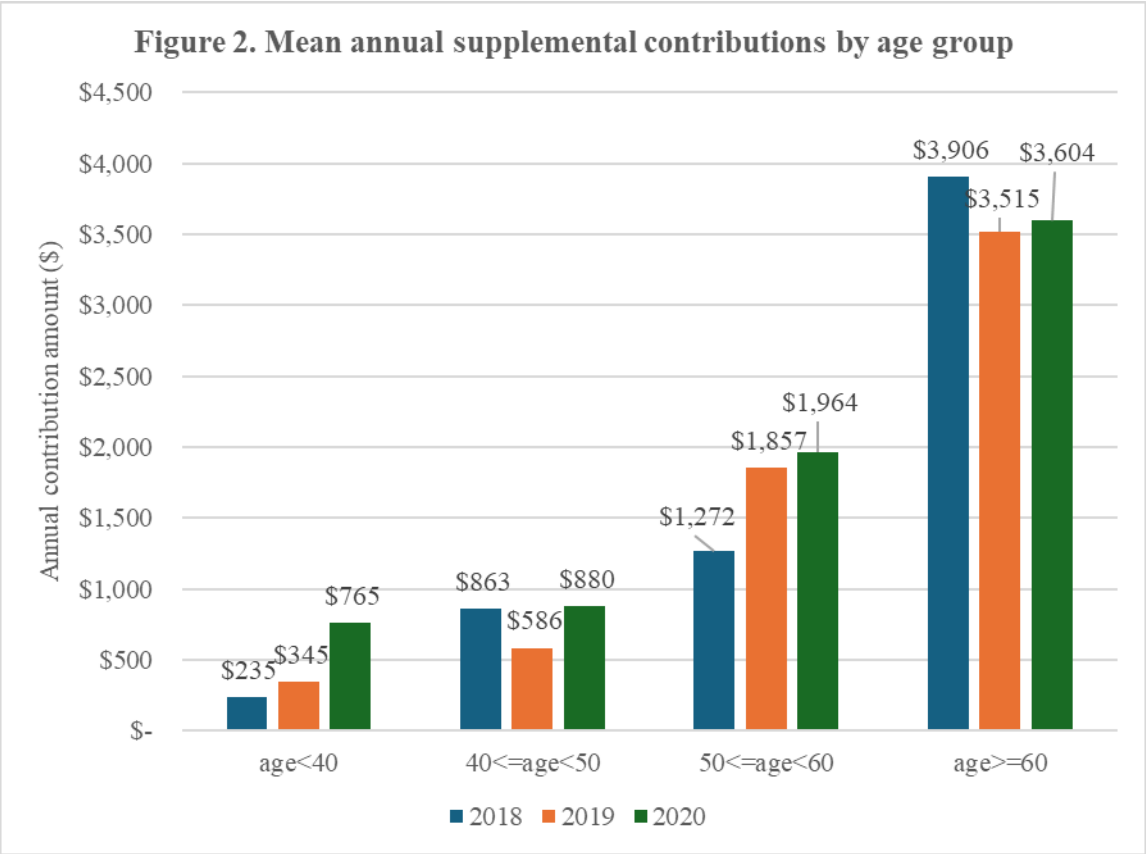


Figure 3 shows that the average supplemental contribution increases with salary. This is not surprising as people with lower earnings may not have enough disposable income to be able to contribute to a supplemental retirement plan.

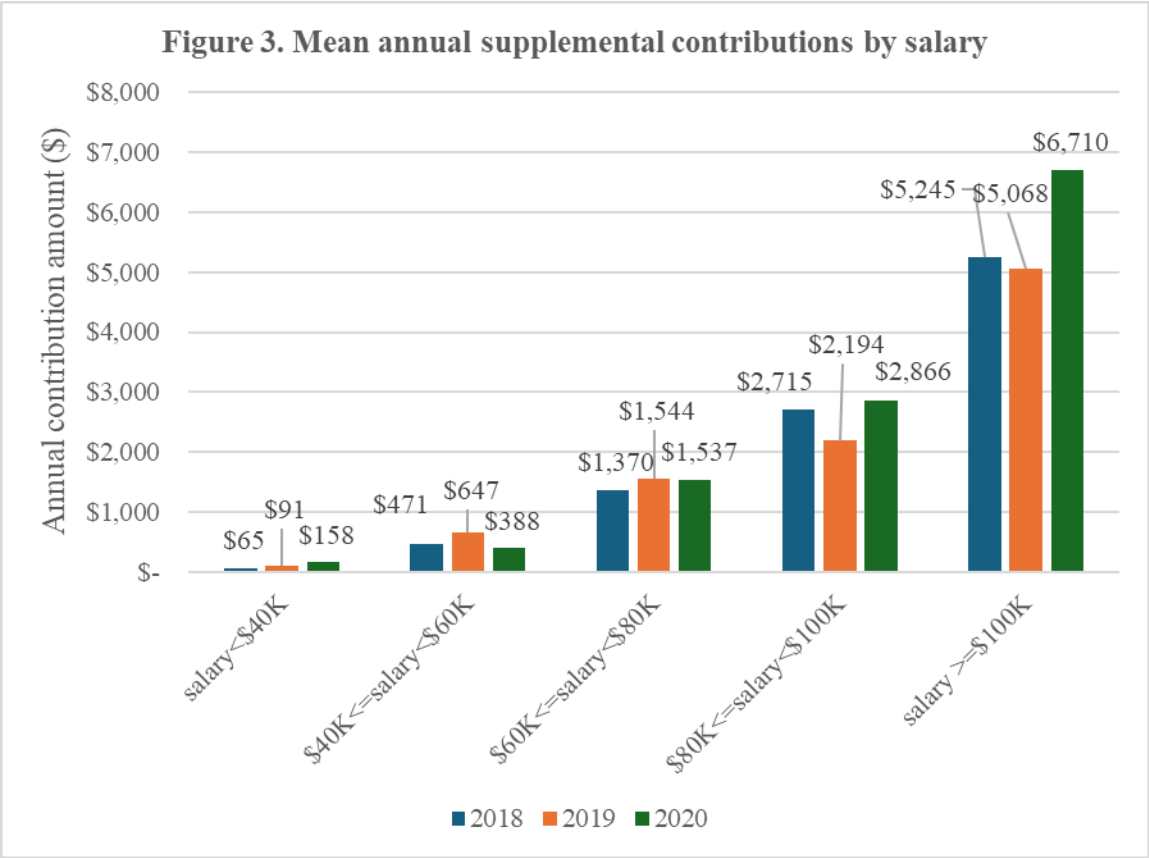


Figure 3. Mean annual supplemental contributions by salary
Annual contribution amount ($)
$8,000
$7,000
$6,000
$5,000
$4,000
$3,000
$2,000
$1,000
$-
$65
$91
$158
$471
$647
$388
$1,370
$1,544
$1,537
$2,715
$2,194
$2,866
$5,245
$5,068
$6,710
salary<$40K
$40K<=salary<$60K
$60K<=salary<$80K
$80K<=salary<$100K
salary >=$100K
2018
2019
2020

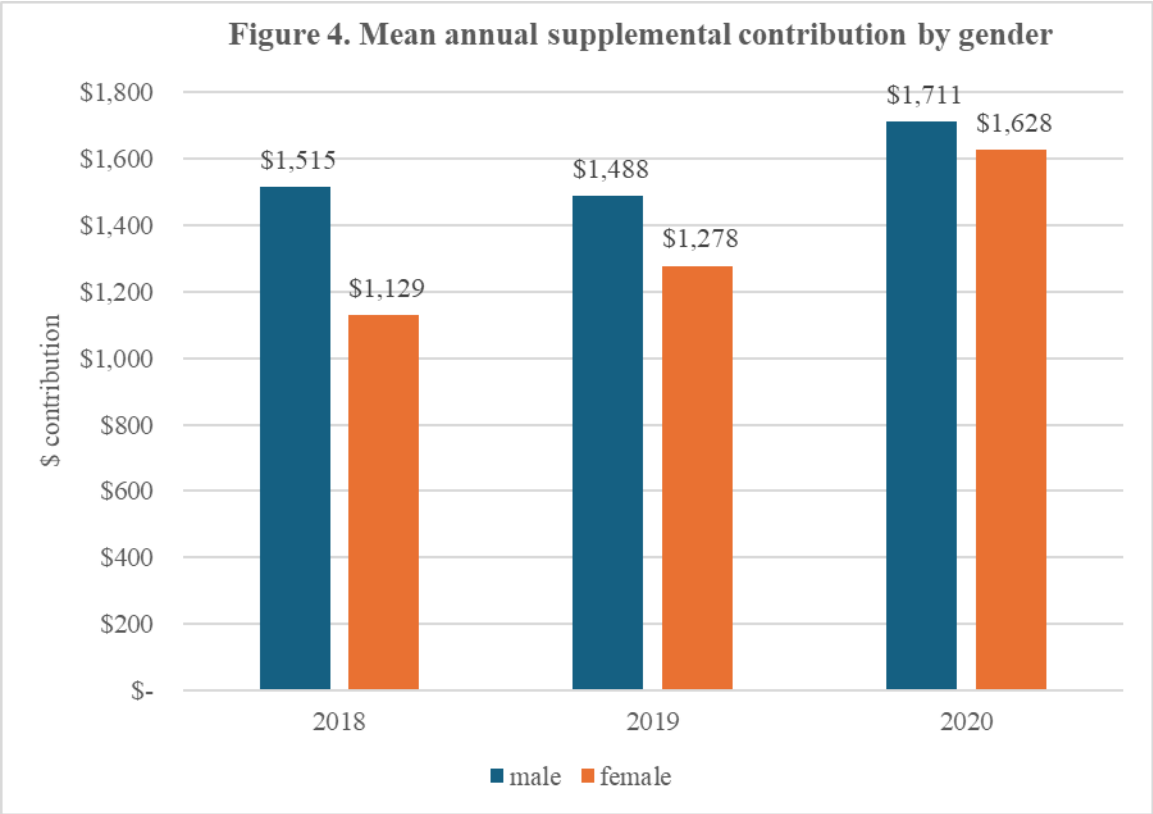


Figure 4 shows that the average amount contributed by males is slightly higher in all three years, however, the difference is not significantly different from zero (p=0.308 in 2018, p=0.591 in 2019, and p=0.865 in 2020). This finding is consistent with prior research (Lulle, 2021)

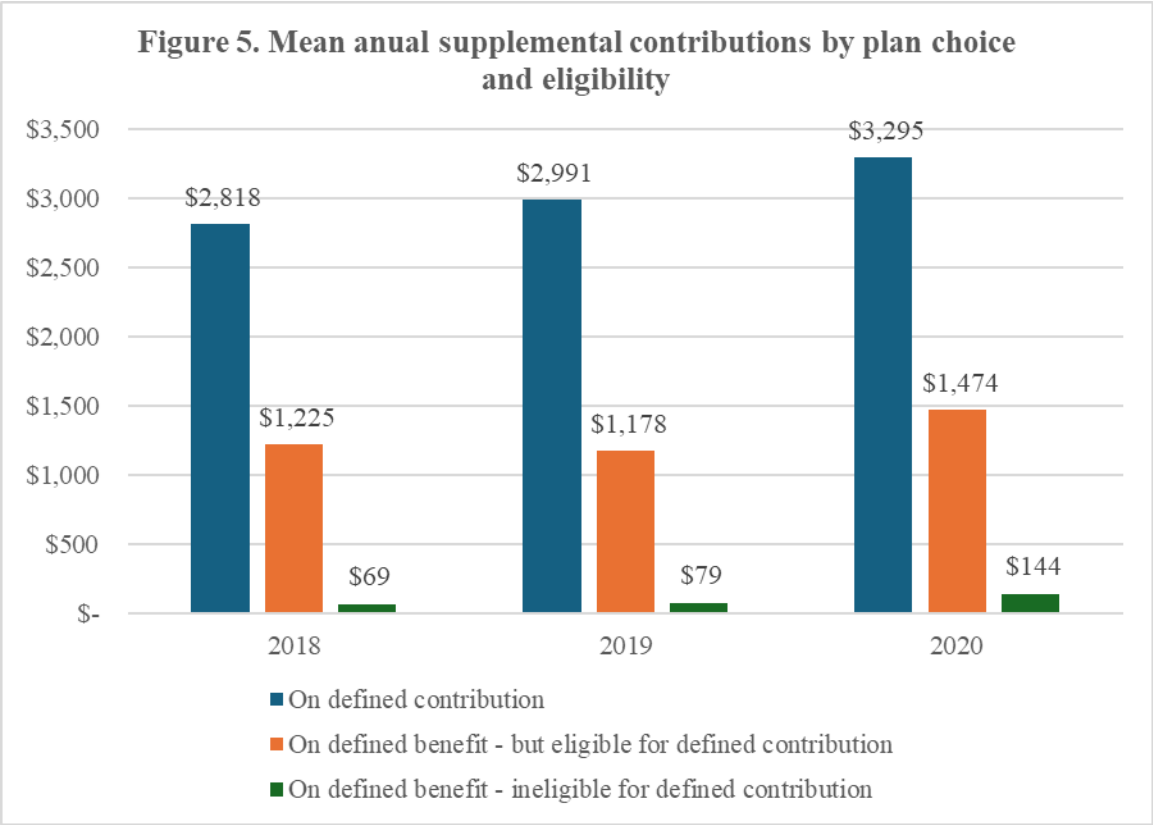


Figure 5 suggests that those who selected the defined contribution plan have significantly higher average supplemental contributions than those who were eligible to select the defined contribution plan but selected the defined benefit plan.

However, these graphs only control one category at a time. It is more likely that multiple factors impact the amount an individual contributes to their supplemental plan (if any). For instance, it is not possible to determine from Figure 5 whether those on the defined contribution plan have higher average supplemental amounts because they have higher salaries and can afford to make those contributions or if it is due to self-selection (maybe people with a higher propensity to save tend to select the defined contribution plan or are more concerned about having sufficient retirement savings). To try to answer these questions better, we use regression models that allow us to control multiple factors simultaneously.

First, we run a logistic regression to estimate the choice of the defined contribution plan. The sample includes one observation for each employee eligible for both the defined benefit and defined contributions plans. The logistic regression model is the following:

$$\frac{P(DC=1)}{1-P(DC=1)} = e^{X\beta} \quad (1)$$

where $X\beta = \beta_1 Age\ at\ hire + \beta_2 Male + \beta_3 White + \beta_4 Black + \beta_5 natural\ logarithm\ of\ salary + \beta_6 Married + \beta_7 Doctorate + \beta_8 Master + \beta_9 Academic + \beta_{10} Business + \beta_{11} Year2019 + \beta_{12} Year2020$.

Since employees are locked into their choice, the dependent variable, DC, is whether they are enrolled in a defined contribution plan in the year of observation (2018, 2019, or 2020). We consider each individual only once, in the first year they are fully present in the data. Since some people are not present in the first year, and their observation comes from either 2019 or 2020, we also include year dummies (Year 2019 and Year 2020). Married is a dummy variable with a value of 1 if the person files taxes as a married person (from the W-4 form). Doctorate is a dummy variable taking on the value of 1 if the individual has a Doctorate degree. Academic is a dummy variable indicating whether the person is in an academic position. Business is a dummy variable indicating whether the individual is in the Business College. The rationale for the inclusion of this last variable is to investigate whether being familiar with business concepts increases the likelihood of an individual choosing the defined contribution plan, a plan that requires more involved financial decisions.

Table 2. Marginal coefficient estimates from the logistic regression (dependent variable: Defined benefit choice)

Age at hire	0.004* (0.002)
Male	0.102*** (0.036)
White	-0.029 (0.054)
Black	-0.010 (0.079)
Natural logarithm of salary	-0.067 (0.061)
Married	-0.062* (0.037)
Doctorate	0.083 (0.076)
Masters	-0.060 (0.074)
Academic	0.242*** (0.070)
Business	-0.034 (0.075)
Year19	-0.199*** (0.063)
Year20	-0.086 (0.075)
N	683

Notes: Dependent variable is a dummy indicating choice of the defined benefit plan. The sample includes individuals who are eligible to choose between the two plans. *, **, and *** indicate significance at the 10%, 5%, and 1% level of significance.

Results in Table 2 reveal that being male and being in an academic position are associated with an increased likelihood of choosing the defined contribution plan. Those who appear in the data in 2019 are less likely to choose the defined contribution plan. This may indicate that more recent employees are less likely to choose the defined contribution plan. At the same time, race, salary, education level, and business background do not seem to influence an individual's choice.

Table 3. Coefficient estimates

	Logistic regression	Linear regression
Dependent var	Any supplemental contribution	Inverse hyperbolic sine of supplemental contribution
	(1)	(2)
Define contribution eligible	0.057	-0.034
	(0.046)	(0.357)
On Defined contribution	0.096***	1.089***
	(0.026)	(0.248)
Age	0.006***	0.045***
	(0.001)	(0.008)
Male	-0.096***	-0.742***
	(0.022)	(0.184)
White	-0.030	-0.224
	(0.036)	(0.311)
Black	0.102**	0.517
	(0.042)	(0.368)
Married	0.007	-0.041
	(0.021)	(0.186)
Natural logarithm of annual salary	0.054	0.855**
	(0.038)	(0.334)
Academic	-0.047	-0.638
	(0.046)	(0.448)
Doctorate	0.062	0.912*
	(0.048)	(0.471)
Masters	0.049	0.641
	(0.047)	(0.443)
Business	0.046	0.589
	(0.044)	(0.476)
N	1168	1168

Notes: In column (1), the dependent variable is the average annual supplemental contribution over the years the individual is present in the entire year. In column (2), the dependent variable is the inverse hyperbolic sine transformation of the mean annual supplemental contribution amount. In column (3), the dependent variable is a dummy to indicate any supplemental contribution during the full year presence. *, **, and *** indicate significance at the 10%, 5%, and 1% level of significance.

We also run regressions to estimate the impact of different factors on the likelihood of whether an employee makes any supplemental contribution, and the amount of supplemental contribution itself. The coefficients from column 1 of Table 3 are from the following model:

$$\frac{P(any\ supplemental\ contribution = 1)}{1 - P(any\ supplemental\ contribution = 1)} = e^{X\beta}.$$

The results suggest that people on the defined contribution plan are more likely to make supplemental contributions. Age and being black also positively impact the probability of making any contribution. At the same time, males are less likely to make supplemental contributions.

The dependent variable in column 2 is the inverse hyperbolic sine of the annual mean supplemental contribution amount.[2] It takes the following form:

$$\ln\left(amount + \sqrt{amount^2 + 1}\right)$$

The reason for this transformation is to avoid losing observations due to missing values when we take the natural logarithm of zeros. The results in column 2 are similar and suggest that employees on the defined contribution plan contribute more. The positive coefficient is not surprising given that those selecting the defined contribution plan may have a higher level of comfort coupled with the willingness to manage their own investments. Again, age positively impacts the supplemental contribution amount, but there are no racial differences now. The positive coefficient of age also makes sense since as employees age, having enough resources for retirement becomes a priority. It also seems that the amount of salary significantly increases the supplemental contribution amount, which makes sense since a higher income provides more disposable income. Holding other variables constant, males contribute less to their supplemental plans. This seemingly contradicts what Figure 4 shows. However, Figure 4 only controls one covariate. It is entirely possible that once other factors are included in a regression model, the signs on individual variables change relative to what the graphs suggest due to the graphs' inability to take covariance among the various factors into account. The reason why males' overall contribution amount is greater than that of females but then the male coefficient is negative in a regression model is that males are more likely to be on the DC plan whose members tend to contribute more on average. However, once we compare males to females on the same plan, females contribute more. Therefore, when the impact of being male is estimated in isolation of all the other factors, it is negative. This negative coefficient of male is more of a puzzle, but it could also be an indication of their anticipation that the resources do not have to

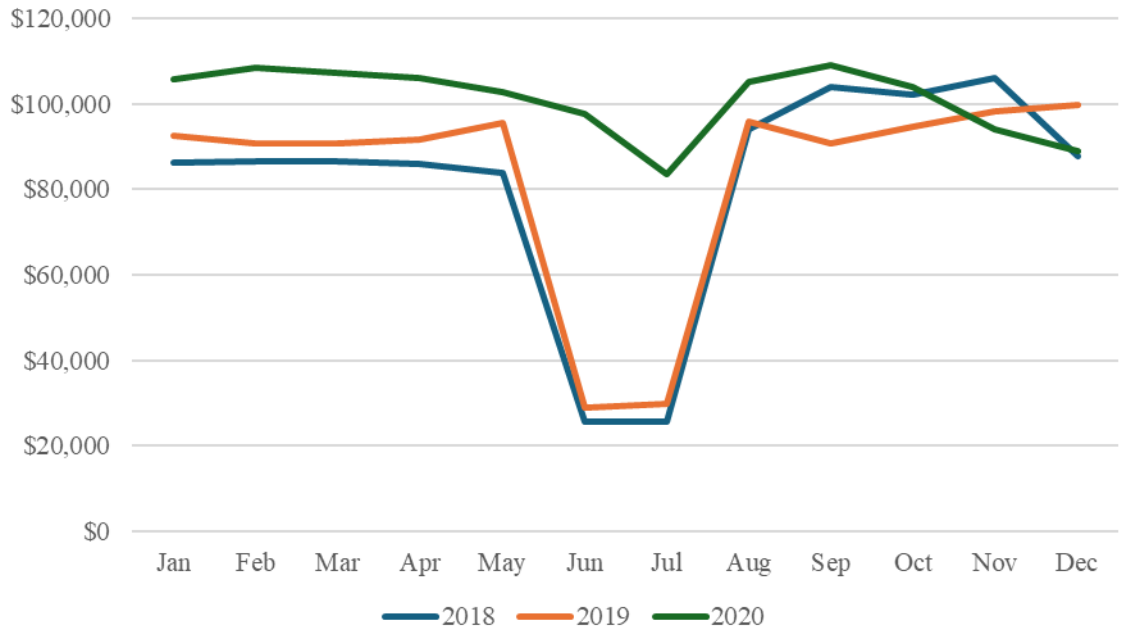
[2] So, if a person is fully present in all three years of 2018-2020, the dependent variable is that individual's 3-year average annual supplemental contribution. If another individual is fully present in 2019 but then leaves in the middle of 2020, then we will only consider this individual's annual contribution in 2019 and consider that individual fully present in 1 year only. We do this because people who are only present part of the year could contribute to their supplemental contributions before or after they are observed in the data.

last as long due to their shorter life expectancy. Alternatively, it could also mean that males feel more comfortable about their earning potential during retirement.

There was a noteworthy change in the logistics of the contribution during the period analyzed. Until 2019, employees made supplemental contributions by filling out a paper form each time they wanted to change the amount. In addition, faculty members on a 10-month contract did not have the option to make supplemental contributions during the summer months of June and July by default. They could keep the contributions going if they wanted to, but this required extra paperwork. The system changed starting in 2020, when all employees could change their supplemental contribution amounts online. Also, the amount that individuals indicated at the beginning of the year was deducted from their salary until a change was made or until the individual's cumulative contribution reached the maximum amount allowed by IRS. This meant that employees who wanted to stop the contributions during the summer months now had to make such arrangements online (so, the default was to keep going with the contributions).

To see whether this changed anything, we present Figure 6 below, which shows the total amount of monthly contributions from all employees. To not conflate the results, we only included contribution amounts for employees who were present during all three years of the analyzed period (2018-2020). We see that during the summer months of 2018 and 2019, the contributions dropped drastically, however, no such stark difference can be seen in 2020.

Figure 6. Total Supplemental Monthly Contributions in each year (2018-2020)



This shows the importance of the default policy. Having to fill out paperwork to continue with the supplemental contributions during summer is costly and as a result, many people contribute a lower cumulative amount into their supplemental accounts. Removing this barrier

and changing the default to make the continuation easier helps people reach their retirement goals faster.

CONCLUSIONS

Employees on the DC plan are more likely to make supplemental contributions. The fraction of employees on the DC plan who contributed to their supplemental plans ranges from 24.8% to 29.6% in the analyzed period. The same fraction for those employees who are on the defined benefit plan is substantially lower (8.8%-11.9%). Employees on the DC plan also contribute more on average than those on the defined benefit plan: The average annual contribution to supplemental plans of those on the DC plan (who contributed any) ranges from $10,103 to $11,478 annually, while the average supplemental contribution of the employees on the defined benefit plans (with any contribution) ranges from $4,784 to $6,044 annually.

Results suggest that being male and having an academic position significantly increase the likelihood of an employee selecting the defined contribution plan. At the same time, being married lowers the probability of an employee selecting the defined contribution plan. Also, our results indicate that being on the DC plan, age, and being black increase the likelihood of an employee making a supplemental contribution whereas being male decreases the likelihood. Being on the DC plan is also associated with a higher amount of supplemental contribution, so is age, a higher salary and having a doctorate degree. At the same time, holding the other factors constant, males tend to contribute less than females.

Results indicate that a majority of employees are not using this tax deferred retirement plan to their fullest advantage. While the high mandatory contribution may be a contributing factor, it is important for employees to understand the tax deferred advantages these supplemental plans present in addition to adequately saving for retirement.

We believe that greater awareness of the benefits of retirement planning and educating employees of the variables involved (starting early, making consistent contributions, picking sound investment choices consistent with retirement goals, understanding the long term benefits of tax deferred investment vehicles and being educated about the various investment choices offered by the financial institution(s) selected by the institution, etc.) should be made available to employees periodically during their employment (Tomar et al., 2021). An increase in financial literacy is likely to encourage faculty and staff to make supplemental contributions to their retirement plan (Godbout, 2020).

From a policy perspective, we recommend institutions consider changing the format of a typical new faculty orientation. At most institutions, new faculty go through several days of orientation where the university disseminates information to new faculty about their office, teaching schedule, setting up their new computer, log in ids and passwords, campus tours, e-learning resources, platform using for online teaching, promotion and tenure guidelines, and presentations from financial institutions (e.g. Fidelity, Vanguard etc.) about retirement plan options. This orientation typically results in information overload for a new faculty. New faculty are required to make their retirement plan selection at the end of the retirement plan presentation.

Our recommendation is that the university mail retirement plan information to new faculty a few weeks prior to this orientation, to give them an opportunity to read and understand their options. Also, our recommendation is that the retirement plan presentation be held at the beginning of the new faculty orientation and faculty be allowed to make their retirement plan selection at the end of the orientation, giving them a few days to make a well-informed decision.

LIMITATIONS

Since the data for this research was limited to employees at a single regional comprehensive institution in the USA, results of this research may not be generalizable across a wider and more diverse population and should be interpreted with caution.

Also, the results may be somewhat skewed for 2020 due to a major worldwide pandemic which may have had a significant impact on employee propensity to save for their retirement.

An additional limitation of this study is that it did not examine whether the spouse was employed, participated in a retirement plan or made any supplemental contributions. This variable has the potential to impact the results of our study.

Finally, it is possible that a reason for the low percentage of employees making supplemental contributions in this study was because of the high (9.24%) contributions made by the employer in addition to the mandatory 6% contribution deducted from the employee's paycheck. In other words, 15.24% of an employee's salary goes into the employee's retirement savings by default. It is possible that an employee may have made higher supplemental contributions if this default contribution had been a lower percentage. This research did not examine this, but it presents an avenue for future research where faculty contributions to supplemental retirement plans could be examined between states that differ in the amount of combined mandatory contributions made by the employer and employee. It also could be that people on the defined benefit plan are more likely to believe that they are well prepared for retirement. However, prior research has shown that this may not always be true. In a study of faculty at Utah's higher education system, the state made some retirement plan changes resulting in a lowering of the employer contribution rates to the defined contribution plan. Contrary to expectation, the less generous retirement contribution made by the employer did not encourage faculty to increase their supplemental contributions. (Clark, Hanson, & Mitchell, 2016).

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A FRIEND IN NEED IS A FRIEND INDEED: EMPLOYEE FRIENDLINESS AND WORKING CAPITAL MANAGEMENT

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ABSTRACT

We investigate how a company's commitment to employee satisfaction influences its short-term financing. Our results reveal that companies that prioritize employee satisfaction exhibit notably reduced Cash Conversion Cycles (CCCs) compared to their counterparts. The diminished CCC in employee-friendly companies primarily stems from more favorable trade terms offered by the suppliers (a longer Days Payable Outstanding, DPO). Interestingly, when we divide our sample into high-tech versus non-high-tech firms, the beneficial impact of employee satisfaction on DPO and CCC was not observed for the high-tech firms due to their unique risk profile. We further examine if the improvement in working capital management (DPO increases/CCC decreases) was driven by the firm's probability of bankruptcy. Our results show that, in general, low-bankruptcy firms received better trade credit terms from their suppliers compared to high-bankruptcy firms; however, among the low-bankruptcy firms, the firms with a higher level of employee satisfaction experienced the most favorable terms from the suppliers. This positive impact was even stronger during the financial crisis 2007-2009, consistent with previous literature that found firms fare better during difficult times if they keep their employees happy during regular times. Our findings imply that managers of non-high-tech firms should focus more on employee satisfaction since it leads to an improvement in working capital management. This is even more critical during difficult times like recessions. From a regulatory standpoint, the positive impact of employee friendly policies on working capital management can be used to promote regulations that enhance employee welfares such as profit sharing, retirement, union policies etc., since both firms and their employees can benefit from those policies.

Keywords*: Employee friendliness, Working Capital Management, Short-term financing, Cash conversion cycle*

JEL Classification: G30, M40

INTRODUCTION

Recently, scholarly literature has firmly established the significance of employee satisfaction for the prosperity of corporate firms, as evidenced by studies conducted by Jiao (2010), Faleye and Trahan (2011), Edmans (2011), Ertugrul (2013), and Guiso, Sapienza, and Zingales (2015), Fauver et al. (2018), Shan and Tang (2023) and others. Rooted in human relation theories, Maslow (1943), Hertzberg (1959), and McGregor (1960) posit that employees constitute a paramount asset for companies, contributing substantial value through avenues like innovation, customer relationships, and banking associations. Consequently, modern firms are advised to cultivate an employee-friendly environment to effectively attract, retain, and motivate high-caliber personnel, as suggested by Likert (1967), Rust et al. (1996), Ostroff and Bowen (2000), Whitener (2001), Eisenberger et al. (2002), and Fulmer et al. (2003). Furthermore, Edmans et al. (2023) provide evidence that in countries with high labor market flexibility, firms with satisfied employees outperform other firms.

Prior research has explored how companies with contented employees can enhance value through their long-term financing strategies, as evidenced by studies conducted by Verwijmeren and Derwall (2010), Bae et al. (2011), and Ghaly et al. (2015). However, there is a notable gap in our understanding of whether and how the happiness of employees contributes to the effective management of a corporate firm's operating working capital. Given the critical importance of adept short-term financing management, particularly considering the substantial allocation of total assets to working capital, this aspect remains unexplored. For instance, Kieschnick et al. (2013) highlight that, on average, over 27% of a firm's total assets are dedicated to working capital management in their study of the U.S. firms. Similarly, the recent PWC Working Capital Report 2019/20 finds that improving working capital positively impacts firms' return on equity capital.[3] Additionally, financial theory posits that accelerating cash inflow and decelerating cash outflow are conducive to value creation for firms (Gentry et al., 1990). Consequently, a gap in the literature exists regarding the potential role of happier employees in expediting cash inflow or moderating cash outflow, thereby fostering favorable working capital management.

To address this existing gap in knowledge, we investigate the connection between employee friendliness and short-term financing. Specifically, our study delves into the impact of a company's employee friendliness on the Cash Conversion Cycle (CCC), a key metric in working capital management, with a particular emphasis on Days Payables Outstanding (DPO).

The Cash Conversion Cycle, a widely used measure in working capital management, is expressed as CCC = DIO + DSO – DPO, where DIO represents Days Inventories Outstanding, DSO denotes Days Sales Outstanding, and DPO stands for Days Payables Outstanding.

This metric tracks the time interval between cash collection from finished product or service sales and expenditures on raw material purchases. A prolonged cash conversion cycle implies a higher cash investment for a firm, negatively affecting short-term financing or working

[3].https://www.pwc.com/gx/en/services/deals/business-recovery-restructuring/working-capital-opportunity.html

capital management. Specifically, all else equal, an increase (decrease) in inventories or accounts receivable and a decrease (increase) in accounts payable will lead to a larger (smaller) investment in working capital.

Recognizing the critical role of working capital management, Dewing (1941) identifies it as a "key element" for firms, and Ding et al. (2013) establish its link to a firm's liquidity position. Existing research often highlights a negative association between investments in working capital management and firm profitability or value (Kim and Chung, 1990; Shin and Soenen, 1998; Wang, 2002; Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007; Hayajneh and Yassine, 2011; Kieschnick et al., 2013; Wang, 2019). For instance, Garcia-Teruel and Martinez-Solano (2007) find that a shortened cash conversion cycle enhances firm value, emphasizing the importance of efficiently managing cash inflow and outflow. Focusing on the elements of the cash conversion cycle, Gentry et al. (1990) acknowledge expediting cash collection while deferring payments until a later stage as the fundamental notion in finance.

Hence, it is important for a firm to aim for its optimal level of working capital. The firm can reach that goal by implementing methods such as keeping its inventory at an efficient level, increasing the product competitiveness (a decrease in DIO) or by shortening the collection period of its accounts receivable (a decrease in DSO). However, a stricter collection period might result in a less friendly relationship with customers and eventually hurt the firm’s sales. Alternatively, the firm can seek an improvement in its working capital by working on its purchasing side. Specifically, a firm can focus on treating its employees well, and the happy employees will in turn go extra miles to gain the trust of the suppliers and be able to score better trade terms, for example: increasing credit limit, extending payment deadline, having lower late fee, and so on. These favorable benefits might eventually lead to an increase in accounts payable (an increase in DPO), improving working capital management, and ultimately increasing the firm’s value.

To comprehend the workings of accounts payables, we briefly explore the literature on trade credit. Trade credit involves permitting customer firms to postpone payments for goods and services received from their suppliers, and these deferred amounts are reflected as accounts payable on a company's balance sheet. This mechanism serves as an alternative to bank credits provided by financial institutions for short-term funding. As noted by Wilson and Summers (2002), trade credit encompasses a diverse range of credit terms, including discounts for early payments, specified payment timelines, payment methods, late fees, and interest charges for delayed payments, among other factors. Ng et al. (1999) observe that the most prevalent form of trade credit is "2/10 net 30," indicating a 2 percent discount for customer firms making payments within ten days of goods supply. Buyers have the option to settle payments within 30 days without incurring penalties, after which late fees and interest may be applied. Ng et al. (1999) and others calculate an implicit annual interest rate of approximately 44% for trade credit, particularly when involving deferred payments without benefiting from a discount. Other frequently used credit terms include 2/10 net 40, 2/10 net 45, 2/10 net 60, 2/10 n 30 EOM (end of the month), and so forth.

However, recent findings by Giannetti et al. (2011) present compelling evidence that most firms obtain trade credit at a low cost. This evidence diverges from the prevailing assertions in the literature (Petersen and Rajan, 1994; Ng et al., 1999; Cunat, 2007) and challenges the

implications of the previously discussed implied interest rate. Giannetti et al. (2011) additionally highlight that only a small fraction of firms in their sample negotiates discount terms in their credit agreements, dispelling the notion that trade credit is more costly than bank credits. Contrary to the widely held belief that trade credit is primarily for small companies lacking access to or ability to secure bank credits, they establish a positive correlation between lower input costs and substantial accounts payable for larger firms. Consequently, a company that secures favorable credit terms from its suppliers, particularly extended days for accounts payable, can effectively manage working capital by shortening the cash conversion cycle without adversely impacting the firm's liquidity position. We contend that maintaining a happy workforce is instrumental in assisting companies in achieving this objective.

Happy employees can contribute to the reduction of the cash conversion cycle. Existing literature on trade credit strongly asserts its prevalence due to suppliers obtaining buyer information more cost-effectively than banks. Petersen and Rajan (1997), for instance, contend that suppliers have a comparative advantage in accessing information from buyers. When the supplier and buyer engage in information exchange, covering aspects like product design, production processes, and future demand forecasts, this sharing enhances "speed-to-market and greater efficiency" (Baiman and Rajan, 2000). Our argument posits that happier employees, especially ones with more closed contacts with suppliers such as purchasing, accounting, or product designing departments, are in a better position to show their job satisfaction and try their best to secure the most favorable trade terms from the suppliers[4]. On the other hand, it is also beneficial for the supplier firms to provide better trade terms to such buyer companies and gain access to information in a more cost-effective way.

Additionally, Petersen and Rajan (1997) find that suppliers evaluate not only the net profit margin from a single transaction but also incorporate the present value of all future profit margins. Consequently, they offer more favorable payment terms to companies whose cash flows are deemed to be more stable in the future. Previous research finds that companies with contented employees have more stable cash flows due to their lower turnover rates and absenteeism among the workforce (Somers, 1995; Gellatly, 1995; Bridges and Harrison, 2003). As a result, we expect to see a direct relationship between employee satisfaction and better trade terms offered by suppliers. Satisfied employees are normally more motivated and loyal to their firms, especially during difficult situations. Recent study by Shan and Tang (2023) provide evidence that companies can fare better during crises by keeping their employees happy during regular periods.

In summary, this evidence collectively indicates that employee satisfaction aids companies in securing an advantage, leading to improved payment terms with suppliers. To examine the relationship between employee happiness and working capital management, we employ the MSCI ESG database, formerly known as KLD SOCRATES Research and Analytics. We created an Employee Friendliness Index (EFI) derived from this database, utilizing EFI as a

[4] We would like to thank a reviewer for pointing this out. Since we only have firm-level data to create our employee friendliness measure (EFI), we can't exactly measure the impact of each individual department on the suppliers. It is interesting to see this when department-level data is available in the future.

metric for assessing employee satisfaction. The MSCI ESG database aggregates information from various sources, including company filings, public media, and government data. It evaluates companies based on specific criteria referred to as "strengths" and "concerns." Our focus centers on criteria associated with employee treatment, as outlined by MSCI ESG, encompassing Union relations, Cash profit sharing, Employee involvement, Retirement benefits, strength, and Work/life benefits.

We have identified several key findings. Firstly, employee-friendly firms, on average, manage their working capital more efficiently than the other firms do. This efficiency stems mostly from a longer DPO which leads to a shorter CCC. Interestingly, firms' employee friendliness doesn't seem to have a similar impact on these other two components of the working capital (DIO and DSO). Secondly, our results show that the role of EFI on CCC is dependent on the type of firm. Specifically, high-tech firms don't experience any improvement in working capital regardless of their EFI levels while we see a substantial impact of EFI on CCC for non-high-tech firms. One possible explanation is that high-tech companies are unique in comparison to the rest. They are usually riskier and focus more on long-term goals. They are characterized by investing heavily in research and development in the search for cutting-edge technologies. Even if their research turns out to be successful, it still takes a long time before their products are commercialized and become profitable. For this reason, it is normally difficult to get funds from banks or lenient trade terms from suppliers. In addition, since their business model evolves around risky but promising long-term R&D, managing working capital in the short-term is understandably not a priority of high-tech firms. In addition, Pandey et al., (2021) also find that among all the industries, high-tech industries have the highest turnover which might hinder the long-term relationship between the firms and their employees which in turn negatively impact the role of EFI on CCC. Thirdly, we want to explore whether the impact of EFI on trade terms is entirely driven by the financial condition of the firms. We divided the sample into firms with low versus high probability of bankruptcy. We find that the benefit of EFI on CCC is more pronounced for firms with low bankruptcy risk in comparison to those with high bankruptcy risk. It is possible that the better trade terms received by the former are due to their financial soundness rather than the impact of employee friendliness. To address this endogeneity, we control the bankruptcy risk by including the Altman Z-score in our regressions and rerun them on the subsample of only firms with low bankruptcy risk. Our results indicate that even after controlling for Altman Z-score, employee friendliness still plays a significant role in obtaining better trade terms from the suppliers, i.e., an increase in DPO and a decrease in CCC.

As robustness tests, we further investigate if the role of employee friendliness on working capital management is sensitive to a different measure of working capital or major disruptions such as the 2007-2009 financial crisis. The results of the robustness tests show that our previous findings are not sensitive to our choices of measuring working capital. More importantly, we find that employee friendliness becomes even more beneficial to the firms during the crisis. Specifically, one unit increase in EFI results in 43 days longer in DPO during the crisis period as compared to 18 days during the pre-crisis period. In terms of CCC, one unit increase in EFI results in 29 days shorter in CCC as compared to 5 days shorter during the pre-crisis. This

evidence shows support for the prior literature which suggests that treating employees well will benefit the firms in many aspects, especially during difficult times.

Our research contributes to the existing body of literature on employee satisfaction and working capital management. More importantly, our paper diverges significantly from other articles that link employee happiness with corporate policies or outcomes. Specifically, the current research in working capital management primarily addresses three key areas. As discussed earlier, the first line of research (Deloof and Jegers, 1996; Deloof, 2003; Garcia-Teruel and Martinez-Solano, 2007, among others) provides evidence of a negative relationship between investment in working capital and firm profitability or value. The second line of research investigates the role of effective working capital management in mitigating the impact of financial constraints (Fazzari and Petersen, 1993; Ding et al., 2013; Lee and Wang, 2021), generally examining the sensitivity of working capital investment under financing constraints. The third line of research links specific firm characteristics (Baños-Caballero et al., 2010; Hill et al., 2010) or top management characteristics (Adhikari et al., 2015; Aktas et al., 2019) to determinants of working capital management. In this paper, we explore a novel factor, namely employee satisfaction, that influences a company's short-term financing. Furthermore, our article provides evidence highlighting the significance of employee happiness for non-high-tech companies, a departure from existing research that predominantly emphasizes the importance of employee satisfaction for "New" high-tech firms (Zingales, 2000).

The remainder of this paper is organized as follows. In Section 2, we describe our data collection, variable definitions, and sample distribution. Section 3 shows our main regression results. Section 4 presents the robustness tests, and the conclusion is in section 5.

2. SAMPLE AND SUMMARY STATISTICS

For our sample selection, we started with the Compustat Industrial Annual Files covering the period from 1991 to 2014. We extract accounting variables from the Compustat Industrial Annual Files and formulate the dependent variable along with several control variables. Additionally, CEO-specific information is gathered from the ExecuComp database within Compustat. Subsequently, we utilize the MSCI ESG (formerly KLD SOCRATES Research and Analytics) database to create the Employee Friendliness Index (EFI), which serves as a proxy for employee satisfaction and constitutes our primary variable of interest. The MSCI ESG database draws information from diverse sources such as company filings, public media, and government data, assigning ratings to companies based on screens labeled "strengths" and "concerns." In this study, we focus on the "strengths" screens related to employee treatment. These screens encompass Union relations, Cash profit sharing, Employee involvement, Retirement benefits strength, and Work/life benefits. Each category receives a rating of 0 or 1 from MSCI ESG. To generate the Employee Friendliness Index (EFI), we sum up the rating scores for each category annually, creating an index ranging from zero to five, where a higher value indicates a more employee-friendly firm. The criteria for rating the screens are described as follows:

1) Union relations: If the company has taken exceptional steps to treat its unionized workforce fairly, then the rating will be 1; otherwise, 0.

2) Cash profit sharing: If the company has a cash profit-sharing program through which it has recently made distributions to most of its workforce, then the rating will be 1; otherwise, 0.

3) Employee involvement: If the company strongly encourages worker involvement or ownership through stock options available to most of its employees, gain sharing, stock ownership, sharing of financial information, or participation in management decision making, then the rating will be 1; otherwise, 0.

4) Retirement benefits strength: If the company has a notably strong retirement benefits program, the rating will be 1; otherwise, 0.

5) Work/life benefits: If the company has outstanding employee benefits or other programs addressing work/family concerns, (for example, childcare, elder care, or flextime), then the rating will be 1; otherwise, 0.

Other Variables:

CCC: The time lag between the collection of revenue from the sales of finished products or services and the expenditure on raw materials. A longer Cash Conversion Cycle increases the investment in working capital.

Net Working Capital Ratio (NWCR): Net Working Capital Ratio is the difference between current assets and current liabilities scaled by total assets.

EFI: Employee Friendliness Index

Size: Size is defined as the natural logarithm of the market value of equity in inflation-adjusted 2002 dollars. We include firm size as it captures the accessibility of a firm to the capital market.

Leverage: Leverage is defined as the ratio of debt to total assets. Leverage is a commonly used control variable in finance and accounting literature, and hence we use lagged leverage ratio as a control variable in our regressions.

M/B: Market-to-book ratio is the market value of equity divided by the book value of equity. The market value of a firm is measured at the beginning of the fiscal year. It captures the degree of asymmetric information. We use lagged M/B as a control variable in our regressions.

Cash Flow Ratio: Firm’s profitability (cash flow/book assets)

ROA: Return on asset measured as net income divided by total assets

Tangibility Ratio: Tangibility is defined as the tangible fixed assets scaled by total assets. This variable will help control the illiquid assets of a firm. Hence, we use lagged tangibility as a control variable in our regressions.

Firm Age: It is defined as the natural logarithm of the age of the firm. We include *Firm Age* as a control as it captures the strength of the firm’s internal control (Huang et al.; 2012) and can influence short term financial management.

CEO Age: Age of the CEO of the firm

CEO Tenure: CEO Tenure is the number of years the executive has spent at the firm in that post.

CEO Gender: CEO Gender is a dummy variable that is equal to one if the executive is a female and zero otherwise.

Table 1 presents the summary statistics of the variables for the entire sample of 7,889 firm-year observations. The average Cash Conversion Cycle (CCC) is -9.29 days, with a median of 25.45 days. Similarly, the means and medians for Days Inventories Outstanding (DIO), Days Sales Outstanding (DSO), and Days Payables Outstanding (DPO) are 68.89 (54.5), 56.94 (52.26), and 131.99 (76.98) days, respectively. These figures align with previously reported statistics. Our alternative measure, the Net Working Capital Ratio (NWCR), exhibits both a mean and median of 0.07 for the entire sample. As for our primary variable of interest, the mean and median are 0.3 and 0, respectively, indicating that most firms are not perceived as employee friendly.

Table 1: Summary Statistics

Table 1 presents the univariate statistics for the variables used. The accounting variables are from COMPUSTAT, and executive specific variables are obtained from the ExecuComp files on COMPUSTAT. The full sample consists of annual observations between 1991 and 2014. Cash Conversion Cycle (CCC); Days Inventories Outstanding (DIO); Days Sales Outstanding (DSO); and Days Payables Outstanding (DPO).

Table 1
Summary Statistics
Full Sample

Variable	N	Mean	Median
CCC	7878	-9.29	25.45
DIO	7879	69.89	54.50
DSO	7878	56.94	52.26
DPO	7879	131.99	76.98
NWCR	7879	0.07	0.07
EFI	7886	0.30	0.00
Altman Z score	7886	1.23	1.31
Size	7879	7.22	7.07
Leverage	7879	0.13	0.10
M/B	7879	3.86	2.38
Cash Flow Ratio	7879	0.09	0.09
ROA	7877	4.67	5.70
Tangibility Ratio	7879	0.26	0.19
Firm Age	7879	25.37	19
CEO Age	7655	55.16	55
CEO Tenure	7789	7.95	6
CEO Gender	7879	0.03	0

In Table 2, we segment the sample into two subsets based on Employee Friendliness Index (EFI) values, distinguishing between high EFI and low EFI firms (based on above and below median EFI values). We then compare the summary statistics of the considered variables for these two groups. Significant differences emerge between low EFI and high EFI firms in terms of CCC, DPO, and Working Capital Ratio. For instance, CCC is -8.6 days for low EFI firms and -20.58 days for high EFI firms. Similarly, DPO is 76.33 days for low EFI firms and 137.66 days for high EFI firms. These variations are statistically significant at the one percent level. Overall, our univariate analysis outcomes indicate that firms with more satisfied employees tend to have shorter cash conversion cycles, primarily influenced by the extension of payable outstanding. All variables have been winsorized at the 1 and 99 percentiles.

Table 2: Low vs. High Employee Friendliness Index Firms

We divide the sample into two subsamples: high EFI and low EFI based on the value of EFI median and compare the summary statistics of the two groups. Cash Conversion Cycle (CCC); Days Inventories Outstanding (DIO); Days Sales Outstanding (DSO); and Days Payables Outstanding (DPO). ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 2
Low vs. High Employee Friendliness Index Firms

	Low EFI			High EFI			Wilcoxon Rank-Sum Difference between Medians
Variable	**N**	**Mean**	**Median**	**N**	**Mean**	**Median**	
CCC	7425	-8.60	26.32	453	-20.58	11.28	***
DIO	7426	70.22	54.68	453	64.61	52.83	
DSO	7425	57.21	52.58	453	52.47	47.80	
DPO	7426	131.64	76.33	453	137.66	94.22	***
NWCR	7426	0.07	0.07	453	0.02	0.01	***
EFI	7433	0.19	0.00	453	2.20	2.00	***
Altman Z score	7433	1.12	1.15	453	3.03	3.11	***
Size	7426	7.13	6.97	453	8.83	8.75	***
Leverage	7426	0.13	0.10	453	0.12	0.10	
M/B	7426	3.92	2.36	453	2.96	2.75	***
Cash Flow Ratio	7426	0.09	0.09	453	0.10	0.09	
ROA	7424	4.56	5.62	453	6.47	6.99	***
Tangibility Ratio	7426	0.25	0.19	453	0.30	0.25	***
Firm Age	7426	24.75	19	453	35.52	36	***
CEO Age	7213	55.14	55	442	55.55	56	
CEO Tenure	7336	8.02	6	453	6.69	5	***
CEO Gender	7426	0.03	0	453	0.04	0	

3. MAIN RESULTS

The univariate results displayed in Table 2 indicate that there are significant differences in working capital management (CCC and NWCR) and Days Payables Outstanding (DPO) between firms with low and high EFI. In this section, we present our multivariate tests examining the impact of EFI on the Cash Conversion Cycle while controlling for other relevant factors. Specifically, we consider four specifications in our analyses. Following Petersen (2009), we adopt heteroscedasticity-consistent standard errors clustered at the firm level for all our regressions. Petersen (2009) argues that clustering the standard errors at the firm level eliminates the bias arising from correlated residuals due to unobserved firm characteristics in panel analysis. Additionally, we follow the approach of Billett et al. (2007) by winsorizing all variables at the 1 and 99 percentiles to mitigate the influence of outliers on the results. The p-values are presented in parentheses.

In Table 3A, the dependent variable is CCC, and the variable of interest is EFI. We incorporate essential firm-specific and CEO-specific variables that might impact CCC as our control variables. The Ordinary Least Squares (OLS) analysis results indicate that firms with higher EFIs are linked to shorter cash conversion cycles. Specifically, the primary OLS regression results suggest that a 1-unit increase in EFI results in a reduction of CCC by approximately 14 days, which is statistically and economically significant. We conduct additional analyses, including pooled regression analysis with year and industry dummies, Median regression, and Fama-MacBeth Regression in subsequent specifications. The Fama-MacBeth Regression is applied to correct for potential cross-sectional dependence in residuals, which, if unaddressed, could introduce bias favoring the acceptance of the hypothesis. Across these various models, our results are qualitatively similar, affirming the strong relationship between EFI and CCC.

Table 3A

This table provides the main baseline regression results. Model 1 is OLS regression, Model 2 is Pooled regression, Model 3 is median regression, and Model 4 is Fama-MacBeth regression. Cash Conversion Cycle (CCC) is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in all four models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 3A
Dependent Variable: Cash Conversion Cycle

	Model 1	**Model 2**	**Model 3**	**Model 4**
	OLS Regression	**Pooled Regression**	**Median Regression**	**Fama-MacBeth Regression**
EFI	-13.9123**	-13.7110**	-4.7418***	-14.4335**
	(0.0111)	(0.0127)	(0.0002)	(0.0317)
Size	-7.5971*	-7.4118*	-9.7511***	-8.4001*
	(0.0851)	(0.0671)	(0.0000)	(0.0791)
Leverage	144.1117***	146.9980***	22.1512***	142.7402**
	(0.0010)	(0.0034)	(0.0005)	(0.0100)
M/B	-0.0069	-0.0062	-0.0061	-0.4678
	(0.4992)	(0.5611)	(0.5540)	(0.2726)
Cash Flow Ratio	164.3141	166.7623	-5.8812	2.8457
	(0.2912)	(0.2815)	(0.5255)	(0.9877)
ROA	-0.3240	-0.3207	0.0457	0.8206
	(0.6771)	(0.6752)	(0.5161)	(0.2471)
Tangibility Ratio	-71.20337	-72.6100	-52.0415***	-63.9078
	(0.1000)	(0.1012)	(0.0000)	(0.1622)
Firm Age	2.0811***	2.0551***	0.7591***	1.9472***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CEO Age	3.1755***	3.1227***	1.2911***	2.9322**
	(0.0062)	(0.0091)	(0.0000)	(0.0357)
CEO Tenure	-0.0018	-0.0139	-0.1626	0.0427
	(0.9980)	(0.9826)	(0.1569)	(0.9125)
CEO Gender	-3.7761	-3.9782	-12.6840***	-6.7282
	(0.7555)	(0.7526)	(0.0067)	(0.6549)
R-Squared	0.0112	0.0099	0.0395	0.0344
N	7567	7567	7567	7567
Year Dummies	No	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes

We further expand our analysis by looking into the impact of employee friendliness on each individual component of the CCC. Specifically, we investigate the effects of EFI on DIO, DSO, and DPO separately, using all four specifications (OLS, Pooled, Median, and Fama-MacBeth regressions) in each case.

In Table 3B, where the dependent variable is DIO, the coefficients for EFI in each model are generally positive but not statistically significant. This suggests that employee satisfaction in the firm does not have a significant influence on DIO.

Table 3B

This table provides the regression results with Days Inventories Outstanding (DIO) as the dependent variable and Employee Friendliness Index (EFI) as the main variable of interest in all four models. Model 1 is OLS regression, Model 2 is Pooled regression, Model 3 is median regression, and Model 4 is Fama-MacBeth regression. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 3B
Dependent Variable: DIO

	Model 1	**Model 2**	**Model 3**	**Model 4**
	OLS Regression	**Pooled Regression**	**Median Regression**	**Fama-MacBeth Regression**
EFI	2.6865	2.4131	2.2689*	3.1850
	(0.2253)	(0.2844)	(0.0857)	(0.1152)
Size	-2.6474***	-2.5732***	-3.7812***	-2.6044**
	(0.0031)	(0.0050)	(0.0000)	(0.0171)
Leverage	-33.7446***	-35.3511***	-24.8917***	-34.8014***
	(0.0013)	(0.0005)	(0.0000)	(0.0096)
M/B	0.0148	0.0150	-0.0039	0.5556**
	(0.5609)	(0.5542)	(0.7255)	(0.0281)
Cash Flow Ratio	-19.0573	-18.7671	10.9164	2.8058
	(0.5582)	(0.5514)	(0.2320)	(0.9290)
ROA	-0.0662	-0.0642	-0.0702	-0.4449
	(0.5489)	(0.5921)	(0.3146)	(0.1492)
Tangibility Ratio	-62.4547***	-62.0680***	-59.3077***	-60.6917***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Firm Age	0.2910***	0.2918***	0.4559***	0.3089***
	(0.0000)	(0.0000)	(0.0000)	(0.0001)
CEO Age	0.4089*	0.4311**	0.7847***	0.5069**
	(0.0612)	(0.0415)	(0.0000)	(0.0404)
CEO Tenure	0.0218	0.0160	-0.2924***	-0.0009
	(0.9163)	(0.9367)	(0.0085)	(0.9964)
CEO Gender	0.5866	0.3564	-4.6652	1.7412
	(0.9160)	(0.9492)	(0.3159)	(0.5614)
R-Squared	0.0231	0.0237	0.0557	0.0576
N	7568	7568	7568	7568
Year Dummies	No	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes

Similarly, Table 3B, which has DIO as the dependent variable shows no significant relationship between EFI and DSO. The analysis indicates that employee happiness does not significantly influence the selling side of firms or DSO.

Table 3C

This table provides the regression results with Days Sales Outstanding (DSO) as the dependent variable and Employee Friendliness Index (EFI) as the main variable of interest in all four models. Model 1 is OLS regression, Model 2 is Pooled regression, Model 3 is median regression, and Model 4 is Fama-MacBeth regression. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 3C
Dependent Variable: DSO

	Model 1	**Model 2**	**Model 3**	**Model 4**
	OLS Regression	**Pooled Regression**	**Median Regression**	**Fama-MacBeth Regression**
EFI	-0.2993	-0.9362	0.7671	-0.2053
	(0.8530)	(0.6800)	(0.2370)	(0.9324)
Size	-1.4469	-1.1743	-0.2809	-0.8316
	(0.3100)	(0.3045)	(0.3660)	(0.1009)
Leverage	-26.0690	-28.8603	0.2873	-16.0933
	(0.3224)	(0.3350)	(0.9257)	(0.4781)
M/B	-0.0042	-0.0025	0.0015	0.0068
	(0.4247)	(0.5299)	(0.7805)	(0.8755)
Cash Flow Ratio	-112.8207	-112.0600	-7.1677	-140.2963
	(0.1495)	(0.1541)	(0.1112)	(0.3127)
ROA	-0.0041	0.0192	-0.0802**	0.1161
	(0.9859)	(0.9358)	(0.0191)	(0.7440)
Tangibility Ratio	-42.1194***	-41.9866***	-44.7861***	-42.5935***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Firm Age	-0.0562	-0.0769	0.0076	-0.0952
	(0.3116)	(0.1617)	(0.7525)	(0.2516)
CEO Age	-0.0092	0.0025	0.0136	-0.0735*
	(0.9762)	(0.9937)	(0.8099)	(0.0814)
CEO Tenure	-0.0732	-0.0981	0.0209	-0.0371
	(0.6260)	(0.5725)	(0.7172)	(0.8217)
CEO Gender	-17.2911***	-18.0250***	-13.0184***	-18.1282***
	(0.0000)	(0.0000)	(0.0000)	(0.0029)
R-Squared	0.0043	0.0047	0.0497	0.0871
N	7567	7567	7567	7567
Year Dummies	No	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes

In Table 3D, we explore the effect of EFI on DPO. The results reveal a significantly positive relationship between employee happiness and DPO across all four specifications. For instance, the OLS regression indicates that a one-unit increase in the EFI index is associated with an approximately 18-day increase in DPO. These findings support the idea that a company with happier employees can effectively extend the time it takes to pay its payables to suppliers.

Overall, while there is no discernible influence of happier employees on DIO and DSO, the results suggest that satisfied employees can exert a meaningful influence on DPO.

Table 3D

This table provides the regression results with Days Payables Outstanding (DPO) as the dependent variable and Employee Friendliness Index (EFI) as the main variable of interest in all four models. Model 1 is OLS regression, Model 2 is Pooled regression, Model 3 is median regression, and Model 4 is Fama-MacBeth regression. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 3D
Dependent Variable: DPO

	Model 1	**Model 2**	**Model 3**	**Model 4**
	OLS Regression	**Pooled Regression**	**Median Regression**	**Fama-MacBeth Regression**
EFI	18.4863***	18.6616***	8.9741***	19.9427**
	(0.0052)	(0.0080)	(0.0000)	(0.0100)
Size	4.8091	4.5719	5.1653***	5.4601
	(0.2970)	(0.2900)	(0.0000)	(0.2217)
Leverage	-166.2216***	-161.7559**	-32.2021***	-165.0777***
	(0.0045)	(0.0197)	(0.0000)	(0.0058)
M/B	0.0216	0.0202	0.0033	1.1472*
	(0.3421)	(0.3541)	(0.7637)	(0.0804)
Cash Flow Ratio	-169.8511	-158.4590	-11.9542	-52.8076
	(0.4085)	(0.4562)	(0.1667)	(0.6975)
ROA	0.0140	-0.0819	-0.1546**	-1.1805
	(0.9867)	(0.9233)	(0.0192)	(0.1727)
Tangibility Ratio	-30.9066	-31.1768	-56.9228***	-35.8469
	(0.4907)	(0.4943)	(0.0001)	(0.4032)
Firm Age	-1.8404***	-1.8218***	-0.2412***	-1.7141***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CEO Age	-2.4455*	-2.3903*	-0.6952***	-2.1789*
	(0.0581)	(0.0588)	(0.0000)	(0.0663)
CEO Tenure	0.1653	0.1714	0.0134	0.0942
	(0.8148)	(0.8107)	(0.9010)	(0.8650)
CEO Gender	-8.4250	-8.7404	-1.0332	-7.2758
	(0.5024)	(0.5040)	(0.8140)	(0.6488)
R-Squared	0.0059	0.0064	0.0255	0.0299
N	7568	7568	7568	7568
Year Dummies	No	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes

Having established the impact of employee friendliness on a firm's trade terms and its cash conversion cycle, we further investigate if the impact is different between high-tech and non-high-tech firms. Prior research underscores the significance of employee happiness in high-tech companies, asserting that happiness fosters innovation (Antoncic and Antoncic, 2010;

Adhikari et al., 2017). It is interesting to see if the role of employee satisfaction in trade terms is different between the two groups. Table 4 presents our empirical investigation on these questions.

For this analysis, we partition our sample of firm-year observations into high-tech firms and non-high-tech firms based on the high-tech firm classification by Loughran and Ritter (2004). In Panel A of Table 4, we conduct OLS regressions in two models. The dependent variables are CCC for high-tech firms in Model 1 and CCC for non-high-tech firms in Model 2. The results from these models reveal that there is no discernible effect of EFI on CCC for high-tech firms. However, EFI is significantly negatively related to CCC for non-high-tech firms. As discussed earlier, not prioritizing short-term cash management and high turnover of employees in high-tech firms might be the reasons for these different results between high-tech and other firms. These findings support our contention that happier employees contribute to the dissemination of a firm's strengths to relevant stakeholders, aiding the firm in shortening its cash conversion cycle.

Table 4A

This table provides the regression results for high-tech and non-high-tech firms in Models 1 and 2 respectively. Cash Conversion Cycle (CCC) is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in both models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 4A		
Dependent Variable: CCC		
	Model 1	**Model 2**
	Hi-Tech Firms	**Non-high-tech Firms**
EFI	-8.2098	-10.6668*
	(0.5389)	(0.0643)
Size	-24.0712***	-0.9861
	(0.0001)	(0.8610)
Leverage	149.3370*	112.5571*
	(0.0504)	(0.0733)
Ratio	-1.4545	-0.0025
	(0.3950)	(0.8238)
Cash Flow Ratio	-134.8897	222.5277
	(0.1544)	(0.2468)
ROA	0.1930	-0.5246
	(0.6699)	(0.6256)
Tangibility Ratio	238.8359***	-132.8143***
	(0.0000)	(0.0072)
Firm Age	3.6898***	1.3415***
	(0.0000)	(0.0000)
CEO Age	0.1646	3.9639***
	(0.9510)	(0.0073)
CEO Tenure	2.2025	-0.5034
	(0.3194)	(0.3222)
CEO Gender	-21.9704	-1.5760
	(0.4821)	(0.9223)
R-Squared	0.0294	0.0106
N	1950	5617
Year Dummies	Yes	Yes

In Panel B of Table 4, we examine the impact of the Employee Friendliness Index (EFI) on Days Payables Outstanding (DPO) for high-tech and non-high-tech firms in Models 1 and 2, respectively. Our findings indicate that EFI is not correlated with DPO for high-tech firms, but it exhibits a significantly positive relationship with DPO for non-high-tech firms. Unlike high-tech firms, where content and motivated employees contribute to innovation, in non-high-tech firms, the primary objective of ensuring employee satisfaction is to foster a sustained and harmonious long-term relationship with suppliers. Our results align with this proposition.

Table 4B

This table provides the regression results for high-tech and non-high-tech firms in Models 1 and 2 respectively. Days Payables Outstanding (DPO) is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in both models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 4B		
Dependent Variable: DPO		
	Model 1	**Model 2**
	Hi-Tech Firms	**Non-high-tech Firms**
EFI	3.0474	20.3800**
	(0.8166)	(0.0114)
Size	16.6959***	-0.2414
	(0.0069)	(0.9680)
Leverage	-178.6854**	-128.2952
	(0.0208)	(0.1766)
M/B	0.8405	0.0171
	(0.6386)	(0.4016)
Cash Flow Ratio	72.8858	-199.1290
	(0.4326)	(0.4431)
ROA	-0.2423	0.0114
	(0.5525)	(0.9923)
Tangibility Ratio	-266.0545***	17.9429
	(0.0000)	(0.7271)
Firm Age	-3.1811***	-1.2474***
	(0.0000)	(0.0000)
CEO Age	1.0591	-3.3663**
	(0.7042)	(0.0356)
CEO Tenure	-2.6421	0.8317
	(0.2530)	(0.1972)
CEO Gender	4.4087	-8.6752
	(0.8791)	(0.6300)
R-Squared	0.0245	0.0049
N	1950	5618
Year Dummies	Yes	Yes

To further validate our findings, we introduce financial constraint as an external shock and examine the impact of Employee Friendliness Index (EFI) on Cash Conversion Cycle (CCC) and Days Payables Outstanding (DPO). To achieve this, we categorize firm-year observations into those with a high probability of bankruptcy and those with a low probability of bankruptcy, based on the median value of the Altman Z-score (Altman, 1968).

In Panel B of Table 5, we explore the impact of EFI on DPO for firms with different probabilities of bankruptcy. Our results indicate that EFI is not associated with DPO for firms with a higher likelihood of default. However, EFI exhibits a significantly positive association

with firms that have a lower probability of bankruptcy. For instance, a one-unit increase in EFI leads to approximately five days longer DPO for financially constrained firms (those with a high likelihood of bankruptcy). In contrast, the same increase in EFI results in about 33 days longer DPO for firms with a low probability of bankruptcy, demonstrating a significant effect at the 1 percent level.

Table 5A

This table provides the regression results for firms with high probability of bankruptcy and low probability of bankruptcy in Models 1 and 2 respectively. Cash Conversion Cycle (CCC) is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in both models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 5A
Dependent Variable: CCC

	Model 1	**Model 2**
	High Probability of Bankruptcy	**Low Probability of Bankruptcy**
EFI	-6.2919*	-20.5122*
	(0.0755)	(0.0524)
Size	-6.2570***	-9.6721
	(0.0061)	(0.1410)
Leverage	114.2043***	395.2562**
	(0.0001)	(0.0123)
M/B	-0.0097	-0.0390
	(0.1416)	(0.9017)
Cash Flow Ratio	-81.9401	483.0834
	(0.2549)	(0.1879)
ROA	-0.1412	-0.8781
	(0.6995)	(0.6515)
Tangibility Ratio	-100.7539***	-66.2216
	(0.0000)	(0.5468)
Firm Age	1.4462***	2.6355***
	(0.0000)	(0.0000)
CEO Age	2.6737***	3.1316
	(0.0001)	(0.1477)
CEO Tenure	-0.9350*	0.8948
	(0.0851)	(0.4440)
CEO Gender	-2.7636	-4.6634
	(0.8061)	(0.8421)
R-Squared	0.0474	0.0112
N	3389	4178
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes

Table 5B

This table provides the regression results for firms with high probability of bankruptcy and low probability of bankruptcy in Models 1 and 2 respectively. Days Payables Outstanding (DPO) is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in both models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 5B		
Dependent Variable: DPO		
	Model 1	**Model 2**
	High Probability of Bankruptcy	**Low Probability of Bankruptcy**
EFI	4.7434	32.7722**
	(0.2455)	(0.0161)
Size	2.6992	4.6176
	(0.3499)	(0.5001)
Leverage	-209.0469***	-239.5088
	(0.0000)	(0.2597)
M/B	0.0002	0.7661*
	(0.9693)	(0.0700)
Cash Flow Ratio	79.6794	-472.2361
	(0.2730)	(0.3376)
ROA	-0.1362	0.3282
	(0.7515)	(0.8801)
Tangibility Ratio	-25.1771	-6.0983
	(0.1865)	(0.9575)
Firm Age	-1.4041***	-2.4050***
	(0.0000)	(0.0000)
CEO Age	-2.0505***	-2.4668
	(0.0019)	(0.2754)
CEO Tenure	0.9796	-0.4373
	(0.1196)	(0.7463)
CEO Gender	-10.1672	-6.7064
	(0.3739)	(0.7850)
R-Squared	0.0283	0.0082
N	3389	4179
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes

For suppliers, high bankruptcy groups will be too risky to extend any extended trade credit terms, so we may not have observed the impact of EFI on Cash conversion cycle or Days Payable Outstanding. Therefore, in Panel C of Table 5, we focus on the low bankruptcy group and try to understand the effect of EFI on CCC and DPO at varying levels of bankruptcy risk. Therefore, we conduct regressions with CCC and DPO as dependent variables in Models 1 and 2 respectively, with similar controls as in previous models, except that we add Altman z-score as an additional control variable. We find that EFI demonstrated similar results as in Panels

A and B although Altman z-score is significantly negative in the first model and significantly positive in the second model. These results indicate that the companies with a history of employee friendly environments fare better during challenging times.

Table 5C

This table provides the regression results for firms with low probability of bankruptcy. Cash Conversion Cycle (CCC) and Days Payables Outstanding (DPO) are the dependent variables in models 1 and 2 respectively and Employee Friendliness Index (EFI)is the main variable of interest in both models. We have included Altman z-score as a control variable to observe the effect of Employee Friendliness Index (EFI) on CCC and DPO at different levels of riskiness within firms with low bankruptcy risk. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 5C
For Firms with Low Bankruptcy Risk

	CCC	**DPO**
EFI	-15.3751*	22.5713**
	(0.0536)	(0.0103)
Altman Z-score	-5.3212***	7.3112***
	(0.0010)	(0.0012)
Size	-9.6715	4.6047
	(0.1415)	(0.5066)
Leverage	395.2001**	-239.5084
	(0.0201)	(0.2594)
M/B	-0.0411	0.7646*
	(0.9011)	(0.0778)
Cash Flow Ratio	483.0822	-472.2361
	(0.1878)	(0.3376)
ROA	-0.8752	0.3226
	(0.6516)	(0.8805)
Tangibility Ratio	-66.2214	-6.0982
	(0.5467)	(0.9571)
Firm Age	2.6365***	-2.4058***
	(0.0000)	(0.0000)
CEO Age	3.0090*	-2.4665
	(0.0901)	(0.2751)
CEO Tenure	0.6124	-0.4375
	(0.2337)	(0.7459)
CEO Gender	-4.6551	-6.7063
	(0.7801)	(0.7850)
R-Squared	0.0118	0.0091
N	4178	4179
Year Dummies	Yes	Yes
Industry Dummies	Yes	Yes

4. ROBUSTNESS TESTS

In Table 6A, we conduct a robustness test to validate the results established in the baseline regression analysis (Table 2). To achieve this, we include Altman Z-score as an additional control variable and use an alternative variable, Net Working Capital Ratio (NWCR), as the dependent variable. We find that EFI is significantly negatively related to NWCR in all four models, indicating that companies with happier employees can enjoy better trade credit terms. Such results persist even during financially unfavorable environments.

Table 6A

This table provides the robustness tests of our baseline regression results in Table 2. Model 1 is OLS regression, Model 2 is Pooled regression, Model 3 is median regression, and Model 4 is Fama-MacBeth regression. Alternative measure NWCR is the dependent variable and Employee Friendliness Index (EFI) is the main variable of interest in all four models. P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 6A
Dependent Variable: Net Working Capital Ratio (Alternate Measure)

	Model 1	**Model 2**	**Model 3**	**Model 4**
	OLS Regression	**Pooled Regression**	**Median Regression**	**Fama-MacBeth Regression**
EFI	-0.0117***	-0.0118***	-0.0046**	-0.0115***
	(0.0012)	(0.0012)	(0.0179)	(0.0000)
Altman Z Score	-0.0041***	-0.0040***	-0.0015**	-0.0041***
	(0.0001)	(0.0001)	(0.0102)	(0.0000)
Size	-0.0244***	-0.0244***	-0.0286***	-0.0248***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Leverage	0.0051	0.0053	0.0275**	0.0177
	(0.7856)	(0.8255)	(0.0417)	(0.4087)
M/B	-0.0000	-0.0000	0.0000	-0.0009
	(0.3381)	(0.3384)	(0.9756)	(0.1221)
Cash Flow Ratio	0.1136***	0.1124***	0.1222***	0.0991**
	(0.0000)	(0.0000)	(0.0000)	(0.0239)
ROA	0.0004**	0.0004**	0.0004***	0.0006*
	(0.0479)	(0.0374)	(0.0030)	(0.0930)
Tangibility Ratio	-0.0854***	-0.0846***	-0.0921***	-0.0880***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Firm Age	0.0018***	0.0018***	0.0016***	0.0018***
	(0.0000)	(0.0000)	(0.0001)	(0.0000)
CEO Age	0.0029***	0.0028***	0.0024***	0.0023***
	(0.0000)	(0.0000)	(0.0000)	(0.0000)
CEO Tenure	0.0001	0.0001	-0.0002	0.0001
	(0.5653)	(0.5557)	(0.4323)	(0.2637)
CEO Gender	-0.0333**	-0.0332**	-0.0354***	-0.0331***
	(0.0126)	(0.0129)	(0.0002)	(0.0063)
R-Squared	0.1193	0.1188	0.0989	0.1338
N	7568	7568	7568	7568
Year Dummies	No	Yes	Yes	Yes
Industry Dummies	No	Yes	Yes	Yes

Similar to Table 6A, in Table 6B, we explore the impact of EFI on CCC and DPO before and during the financial crisis, specifically for non-high-tech firms with a low probability of bankruptcy. In models 1 and 2, we use data from before the crisis period whereas in Models 3 and 4, the data is from during the financial crisis period. Models 1 and 3 have CCC as the

dependent variable whereas Models 2 and 4 have DPO as dependent variable. In all four models, besides our regular control variables, we have added Altman z-score also as a control variable. We observe that CCC is significantly shorter during the crisis, and DPO is significantly longer for firms amidst the crisis, providing additional support to our earlier findings. And, as we have controlled for Altman Z-score, we observe that within non-high-tech firms with low probability of bankruptcy, the employee friendly firms obtain better trade credit terms during economic downturns. These results help us substantiate our findings that, in general, for firms with low probability of bankruptcy, employee friendliness helps significantly shortening cash conversion cycles and extending Days Payable Outstanding.

Table 6B

This table considers the before financial crisis and during financial crisis samples separately. Models 1 and 2 provide regression results with CCC and DPO as dependent variables respectively for the before crisis sample whereas Models 3 and 4 provide regression results with CCC and DPO as dependent variables respectively for the after-crisis sample. Cash Conversion Cycle (CCC); Days Inventories Outstanding (DIO); Days Sales Outstanding (DSO); and Days Payables Outstanding (DPO). P-values are in parentheses. ***, **, * represent significant levels of less than 1%, 5%, and 10% respectively.

Table 6B
Considering Exogenous Shock (Crisis Period is years 2007, 2008 and 2009)

	Before Crisis		**During Crisis**	
	Model 1	**Model 2**	**Model 3**	**Model 4**
	CCC	**DPO**	**CCC**	**DPO**
EFI	-5.0175	18.9170***	-29.0051*	43.1112**
	(0.1553)	(0.0000)	(0.0820)	(0.0317)
Altman Z-score	-2.0325*	6.067***	-10.3911**	16.2215***
	(0.0822)	(0.0000)	(0.040)	(0.0012)
Size	-15.7501***	15.2163***	24.1009	-31.3054
	(0.0000)	(0.0000)	(0.1671)	(0.1153)
Leverage	75.4227	-31.5635	46.6920	345.7341
	(0.3622)	(0.7157)	(0.9162)	(0.5937)
M/B	0.2463**	0.4471***	-1.1277	2.2414
	(0.0175)	(0.0014)	(0.3834)	(0.3474)
Cash Flow Ratio	-193.4400**	220.6048**	1134.0023	-1084.9221
	(0.0266)	(0.0255)	(0.4380)	(0.3351)
ROA	2.2515***	-3.2633***	-2.3855	1.5560
	(0.0031)	(0.0006)	(0.7500)	(0.8446)
Tangibility Ratio	-42.0331*	-82.1877***	-320.1701	280.7788
	(0.0576)	(0.0005)	(0.2400)	(0.3270)
Firm Age	1.1653***	-1.0565***	1.8476**	-1.9315**
	(0.0000)	(0.0000)	(0.0171)	(0.0224)
CEO Age	1.7650***	-1.1598***	7.9797	-7.4829
	(0.0000)	(0.0071)	(0.1748)	(0.2464)
CEO Tenure	0.1867	-0.3155	0.9835	1.0871
	(0.5943)	(0.3845)	(0.6922)	(0.7276)
CEO Gender	-54.0762*	46.8501*	66.0930	-67.8511
	(0.0571)	(0.0891)	(0.2344)	(0.2843)
R-Squared	0.0757	0.0863	0.0196	0.0198
N	1560	1560	1272	1272
Year Dummies	Yes	Yes	Yes	Yes
Industry Dummies	Yes	Yes	Yes	Yes

5. CONCLUSION

The prudent management of working capital holds significant importance as it constitutes a substantial portion of total assets for firms globally. This paper delves into the impact of employee satisfaction on working capital management in corporate entities. Our findings reveal that a higher level of employee satisfaction within a firm contributes to the shortening of the cash conversion cycle, primarily facilitating favorable credit terms with suppliers by extending Days Payables Outstanding. Additionally, we observe that the influence of employee satisfaction on these aspects is more pronounced in non-high-tech firms compared to high-tech companies. More importantly, we find that employee friendliness becomes even more beneficial to the firms during the crisis. This evidence shows support for the prior literature which suggests that treating employees well will benefit the firms in many aspects, especially during difficult times. In conclusion, our results underscore the substantial importance of employee satisfaction in fostering effective working capital management practices.

This paper has several implications. First, it shows that employee satisfaction can have a positive impact on a company's working capital management. This is because satisfied employees are more likely to go the extra mile to help their company succeed, which includes building strong relationships with suppliers and negotiating favorable trade terms. The implication is that companies and human resource departments should focus more on making their employees satisfied and happy. Second, the paper finds that the impact of employee satisfaction on working capital management is applied to all firms. Managers of non-high-tech firms might prioritize their policies differently than those of high-tech firms based on our findings. Third, the paper shows that employee satisfaction can help companies fare better during difficult economic times, which implies that satisfied employees are more likely to be loyal to their company and to help it weather the storm. Last, from a regulatory standpoint, the positive impact of employee friendly policies on working capital management can be used to promote regulations that enhance employee welfares such as profit sharing, retirement, union policies etc., since both firms and their employees can benefit from those policies.

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Appendix I

We utilize the MSCI ESG (formerly KLD SOCRATES Research and Analytics) database to create the Employee Friendliness Index (EFI).

EFI =(Union + Profit Sharing + Employee Involvement +Retirement + Work_Life)

Union represents union relations. If the company has taken exceptional steps to treat its unionized workforce fairly, then the rating will be 1; otherwise, 0.

Profit sharing presents cash profit sharing. If the company has a cash profit-sharing program through which it has recently made distributions to most of its workforce, then the rating will be 1; otherwise, 0.

Employee Involvement equals 1 if the company strongly encourages worker involvement or ownership through stock options available to most of its employees, gain sharing, stock ownership, sharing of financial information, or participation in management decision making, and 0 otherwise.

Retirement equals 1 if the company has a notably strong retirement benefits program, and 0 otherwise.

Work_Life represents the work/life benefits. It equals 0 if the company has outstanding employee benefits or other programs addressing work/family concerns, (for example, childcare, elder care, or flextime), and 0 otherwise.

EFI is Employee Friendliness Index which is between 1 (lowest employee friendliness) and 5 (highest employee friendliness)

LAUNDERING DOUGH MAKES YOU LOTS OF BREAD…BUT CAN GET YOU TIME IN PRISON!

Martin S. Bressler, Professor Emeritus, Southeastern Oklahoma State University

ABSTRACT

According to the Money Laundering Offense Report (cited in Yaqub, 2023), an estimated $300 billion annually is laundered each year through businesses in the United States. Money laundering is not only a crime affecting businesses in this country globally, as each year money laundering may be as high as $2 trillion, or 5% of global GDP (Yaqub, 2023). Surprisingly, 90% of laundered money goes undetected and 20.3% of laundered money is for $40,000 or less. This, and additional data, suggests money laundering is a much larger problem than law enforcement and governments around the world acknowledge.

White-collar crimes are not violent, but there are real victims who suffer real losses. White-collar crimes can devastate a business, eradicate a family's life savings, cost stockholders billions of dollars, and destroy public trust in business and financial institutions. Money laundering is a particular problem as laundered money can be used to further expand criminal activity or fund terrorist activity.

The authors present a summary of money laundering and discuss the importance of stepping up enforcement of anti-money laundering prevention, detection, and remedy (See Figure 1 below).

Key words: *machine learning, Smurfs, Smurfing, Suspicious Activity Reports, cyber-laundering, anti-money laundering, Treasure Men*

INTRODUCTION

What is money laundering?

"Money laundering refers to a financial transaction scheme that aims to conceal the identity, source, and destination of illicitly obtained money" (https://www.law.cornell.edu). Money laundering is problematic as it seeks to hide proceeds from other crimes that can vary from robbery, illegal drugs, gambling, and prostitution. Although governments lose significant amounts of tax revenue, there does not appear to be much effort to seek out and prosecute money launderers. The greater concern is the use of illegal profits to fund additional criminal activities, and more importantly, terrorist activity.

How does the money laundering process work?

Money laundering is a three-step process. The first step is an illegal activity that generates revenue for the money launderer. The second step is more complex, as the money

launderer routes the money through a complicated set of business transactions to hide the person or business who originally obtained the money from the criminal enterprise. In the third step, the laundering scheme repays the money to the money launderer in an ambiguous and roundabout way.

Common methods of money laundering include creating forged invoices and other phony business transactions, creating shell companies and use of offshore banks, smuggling cash, structuring bank deposits and withdrawals to avoid reporting requirements (for example, just under a $10,000 reporting requirement), and use of money transfer services such as MoneyGram and Western Union. Money launderers who structure bank deposits at just below the $10,000 required reporting level are referred to as Smurfs and the actual practice is referred to as Smurfing. The money is spread over several or more accounts to further avoid reporting and detection. According to *Investopia*, the terms Smurf and Smurfing appear to have been copied from illegal methamphetamine manufacturers (What Is a Smurf and How Does Smurfing Work? 2023)

Investopia finds the more common ways to launder money using shell corporations, smurfing, and by using mules. Increasingly, money launderers invest in real estate, works of art, and buy and sell commodities. Gambling and counterfeiting are additional ways to launder money and today, with improved digital technologies, money laundering is easier for financial criminals (What Methods Are Used to Launder Money, 2023).

DISCUSSION

Many experts agree that the best way to address money laundering is through prevention and detection. Detection is both the responsibility of government and business. Government's responsibility to minimize crime keeps the population safe from criminal activity and ensures collection of required taxes. Business shares the responsibility for prevention and detection of money laundering as businesses, banks, and other financial institutions are where most money laundering occurs.

Banks and other financial institutions play a significant role in money laundering detection as criminals often use them to launder illegal funds. The Suspicious Activity Reports (SAR's) are the primary means of alerting government agencies of potential criminal activity. The Patriot Act fueled the call for the means to detect terrorist funding and resulted in SARs as the appropriate response.

Why businesses should be concerned

The most obvious reason that businesses should be concerned is that ethical businesses should not knowingly be aiding criminal enterprises in avoiding tax liability and financing additional criminal activities. Money laundering can result in several negative effects on businesses, including:

- Money laundering undermines the integrity of the business and financial institutions and often leads to further corruption.
- Money laundering allows products and services to be sold at below market value, thereby making it more difficult for honest businesses to remain competitive in the marketplace.
- Money laundering results in reduced tax revenues for governments to provide services to the population.

Not in my backyard!

Some cities become hotbeds for white collar crime activity. In the United States, Richmond, Virginia, reports the highest number of white-collar crimes per 10,000 population (see Table 1 below). Additionally, small businesses knowingly or unknowingly facilitate money laundering as 20.3% of money laundering incidents total $40,000 or less.

Several of the cities listed in the top ten cities for white collar crime are heavily involved in the sale of luxury residential real estate of $5 million or more. Real estate laws allow for real estate purchases to be made offshore "shell companies." In New York, over half the $8 billion in sales of homes valued at $5 million or higher are made through shell companies. According to Jay Ryan, Executive Vice President at *Accuity*, global money laundering through the sale of luxury real estate through shell companies is quickly becoming the method of choice for money launderers (Ryan, 2018).

According to Ryan (2018), the U.S. Treasury's Financial Crime Enforcement Network agency (FinCEN) began in 2016 implementing Governmental Targeting Orders (GTO's), that requires title insurance companies, in addition to their subsidiaries and agents to report when shell companies are used to purchase luxury residential real estate (meaning real estate above a certain price) in specific locations. Under the Bank Secrecy Act, real estate agents and brokers must now collect, report, and retain information on specific luxury residential and commercial real estate.

Table 1 Ten U.S. Cities with Highest Number of White-Collar Crimes per 10,000 people

U.S. City	# Of White-Collar Crimes Per 10,000 Population
Richmond, VA	7,504
Miami, FL	4,237
Atlanta, GA	3,008
Columbus, OH	2,788
Riverside, CA	2,625
San Francisco, CA	2,466
Orlando, FL	2,452
Charlotte, NC	2,065
Denver, CO	1,782
Tampa, FL	1.561

Source: Zippia Research, 2023. 20 Shocking White-Collar Crime Statistics: The State of White-Collar Crime in the U.S

Prevention

Businesses should view prevention and detection as key activities that go hand in hand (See Table 2 and Exhibit 2 below). Prevention in larger companies often begins with the help of anti-laundering software. As money laundering continues to increase across the globe, more businesses have adopted technology to assist in prevention and detection of money laundering activity. By the year 2025, the commercial market for anti-money laundering software (AML) is expected to exceed $2.77 billion.

Prevention should begin with clear, detailed, specific policies and procedures for employees to follow during their routine business activities. These policies and procedures need to be communicated when hiring employees, during employee training seminars, and published within the employee manual. Banks and financial institutions need to pay special attention in developing money laundering prevention methods as those organizations are most likely to encounter attempts at money laundering. In addition, these institutions tend to be larger in numbers of employees and resources to address money laundering.

Some money launderers engage in a practice referred to as Smurfing. Smurfing occurs when the money launderer breaks up large sums of money into smaller amounts of less than $10,000 to avoid his/her financial transaction appearing on a Suspicious Activity Report (SAR) to the government (What is Smurfing?). However, smart computer programming can look for large volumes of transactions just shy of the $10,000 SAR requirement.

Table 2 Money laundering prevention methods

- Designate an AML Compliance Officer
- Create written Internal Policies, Procedures and Controls
- Ensure continuous AML program Training for Employees
- Conduct risk-based due diligence
- Thorough identification verification of anyone who moves finances into, out of, or around your company
- Effectively train staff
- Create a clear technology plan
- Ask a lot of questions when approached with a business proposition
- Learn about money laundering schemes

Source: Thomson Reuters Legal, 2023

Small companies should not assume that their company will be immune from money laundering attempts as the U.S. Sentencing Commission (2020) reports 20.3% of money laundering amounts to $40,000 or less funds. This is often due to small businesses managing many cash transactions. Although small businesses lack resources to develop an elaborate prevention strategy, key employees should be trained on how they can assist in preventing and detecting attempts at money laundering.

Your organization's Anti-Money Laundering strategy should include three activities: prevention, detection, and penalty response. Stronger and more effective prevention activity will reduce some pressure on detection activity. Penalty response will primarily be the responsibility of government agencies, except for some civil lawsuits.

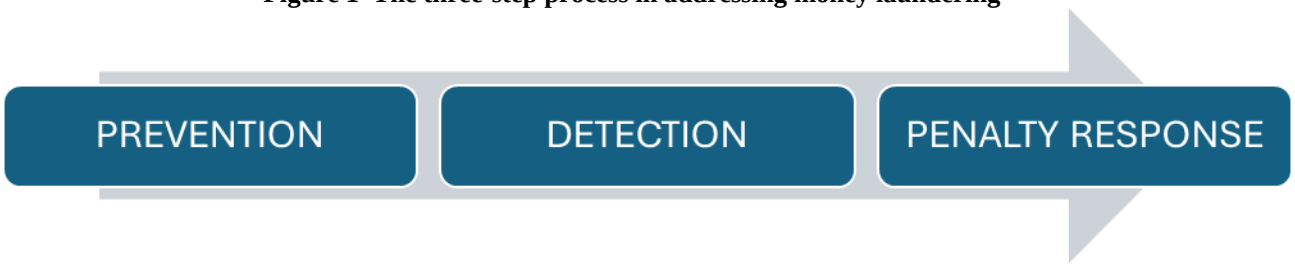
EXHIBIT 1
Money Laundering Red Flags

1. The client provides minimal, vague, or fictitious information that cannot be readily verified.
2. The buyer's agent is especially guarded about his or her client.
3. The client is in an undue hurry to complete the purchase.
4. The purchase is made without anyone viewing the property; the buyer shows no interest in the features of the property.

5. The sale price is abnormally high or low.
6. The client has an unusual lack of concern regarding commissions or other transaction costs.
7. A 100 percent cash deal. The buyer brings a paper bag full of cash to the closing.
8. The property is purchased without a mortgage, and that behavior does not match the characteristics of the buyer.
9. The client is not able to account for the source of payment from his or her income or assets.
10. The client tells you that funds are coming from one source, and at the last minute the source changes.
11. Payments arrive from several individuals or sources and remember that payments made through the mainstream banking system are not guaranteed to be clean.
12. The client makes payments using various monetary instruments. If those instruments are sequentially numbered or if their value falls just beneath the $10,000 reporting threshold, something is fishy.
13. You discover, or suspect, that cash has changed hands directly between the seller and the buyer.
14. The client requests an unusual or noncustomary way to manage the transaction.
15. The client requests to settle the sale through means outside of a recognized clearing system.
16. A residential property is titled in the name of a third party.
17. The purchased property is immediately resold, and the resale entails a significant increase or decrease in the purchase price.
18. The transaction involves a recently created legal entity, and in your estimation, the sale amount is large compared to the new entity's assets.
19. Or if you witness any other weirdness. You have been in the business long enough to know what is considered usual and customary and what is not. Anything unusual is a red flag.

Source: D. Redic, Inman Intel, 2015

Figure 1 The three-step process in addressing money laundering



Detection

Suspicious Activity Reports (SAR's) accounted for blocking 31% of laundered money annually (Renolon). Suspicious Activity Reports (SAR's) serve as the record that financial institutions and other businesses are obliged to file with the Financial Crimes Enforcement Network (FinCEN) when there is a suspected case of fraud or money laundering. Businesses ranging from insurance companies, card clubs and casinos, dealers in gems and precious metals in addition to banks and other financial institutions are required to file an SAR when fraud or money laundering is suspected.

Whenever there is the opportunity for criminal activity such as tax evasion, criminal financing, or money laundering to occur within the routine business of the company or institution, employees and the company are required to file an SAR. Filing an SAR is a highly confidential process and unauthorized disclosure is a federal offense. Suspicious Activity Reports originated through the Bank Secrecy Act of 1970 and were originally called a "criminal

referral form". In 1996, the SAR became the standard form to report suspicious financial activity (https://www.legal.thomsonreuters.comen/insights/articles/what-is-a-suspicious-activity-report).

The Bank Secrecy Act of 1970 (BSA) was the federal government's first real step in fighting money laundering. Under the Act, banks and other financial institutions were mandated to assist U.S. government agencies in detection and prevention of money laundering. Under the Act, financial institutions must keep records of cash transactions that exceed $10,000 and report any suspicious activity that might suggest tax evasion, money laundering, or other criminal act (FinCEN-Financial Crimes Enforcement Network, 2023).

The Bank Secrecy Act also requires financial institutions to establish a compliance program based upon the four pillars listed below:

1) Internal controls custom-designed to address risks the institution faces
2) Designation of a Bank Security Act/Anti-Money Laundering officer
3) Development of an institution Bank Security Act/Anti-Money Laundering training program for employees
4) Independent third-party testing to assess programs

(FinCEN-Financial Crimes Enforcement Network, 2023).

EXHIBIT 2
5 Ways to Combat Money Laundering

Improve searches with technology

With the advancement of technology, such as Artificial Intelligence (AI), detect false positives and conduct searches 24/7 to lessen the burden of the anti-money laundering (AML) regulators to weed out false positives and expand searches.

Regular-cross communication

Constant communication among different parties, including law enforcement agencies, governments, and regulators etc. Communication can keep all parties up to date, verify any suspicions, identify networks, and enhance the public-private partnership, creating a united front against money launderers.

Leverage data analytics to detect patterns

As there is more data available nowadays, regulators can identify and detect patterns through past data information and develop a client model to trace any suspicions.

System standardization

With the different anti-fraud measures in different regulatory institutions, some issues may arise from different jurisdictions using a network of legacy computer systems. Without standardization, it makes it harder to communicate and process data in a collective way with other parties and hence can hinder fraud detection.

Training

Having the right personnel is particularly important when it comes to detecting fraud. Training is essential and companies may consider people to train employees, make stakeholders aware of any suspicious activity and take relevant action when there is any hint of fraud. It is also important to have someone in charge to stay on top of news and technological developments, and to oversee the fraud detection process.

Source: Blockpass, Blockpass.org 08/06/2020

Increasingly, companies are investing in technology to detect money laundering. Advanced software programming using machine learning (ML) with powerful algorithms can be developed to identify patterns that correlate with suspicious financial transactions. According to KPMG financial consulting, ML provides more accurate and effective screening. KPMG also reports their experience working with a leading bank resulted in suspicious activity identification improved 40% when replacing traditional scenario-based and rule-based tools with ML models (Machine Learning for Anti-Money Laundering, 2023).

Seven hundred and fifty-five money laundering cases were reported to U.S. Sentencing Commission in Fiscal Year 2020 (Yaqub, 2023). The median money laundering loss amount in 2020 was $301,606. However, 22% of losses amounted to $1.5 million or greater. Surprisingly, 22.3% amounted to losses of $40,000 or less suggesting that money laundering is a problem within small businesses as well as larger businesses (U.S. Sentencing Commission, 2020).

Remedy---federal and state penalty response

Although prevention and detection are the preferred methods to avoid money laundering, some consequences to those who commit the offense are necessary to further deter others from laundering funds.

Money laundering laws vary from state to state**.** For example, in California money laundering is considered a wobbler offense, that is, the state can penalize the case as a misdemeanor or felony if the crime involves less than $50,000. However, crimes greater than $50,000 must be punished as a felony. Courts often have a great deal of latitude regarding the actual penalty and the judge will consider the amount of money involved, the type of unlawful activity, and the intent of the offender.

Under federal law, money laundering is prohibited under two statutes. Both statutes stipulate severe felony penalties upon conviction. If convicted, the defendant faces 10 to 20 years in federal prison in addition to fines up to $500,000 or double the value of the laundered funds involved in the crime. If the money laundering was part of an ongoing criminal enterprise or related to terrorist activities additional penalties may apply.

Of the 755 cases brought to court in FY2020, 87.7% of offenders were sentenced to prison with an average sentence of 60 months (U.S. Sentencing Commission). Interestingly, 57.3% of money launderers convicted under laws mandating a minimum sentence were relieved of the prescribed minimum sentence (U.S. Sentencing Commission).

Table 3 Legal penalties for money laundering

- Criminal sentence of up to 20 years in a federal prison facility
- A criminal penalty of up to $500,000 in fines; and/or
- A civil penalty lawsuit filed by the government for the value of funds or property that engaged in money laundering.

Source: What is Money Laundering? www.legalmatch.com

Money laundering is considered a criminal offense, however, both individuals and financial institutions may be held civilly liable. The federal or state government can file a civil penalty lawsuit against the money launderers based upon the value of funds or property laundered. Under money laundering laws the Department of Justice is granted power to pursue civil lawsuits.

This special power under money laundering laws provides the Department of Justice the ability to file civil lawsuits against financial institutions even when they have not been charged with money laundering, if the lawsuit alleges employees laundered money, and asks for the same sum of money laundered.

Forbes magazine reports that 90 percent of money laundering in the United States goes undetected. Globally, that figure jumps to 99 percent! Anti-money laundering (AML) activities currently only recover 0.1% of criminal funds and the average prison sentence for those convicted is only 64 months (U.S. Sentencing Commission).

Just last year, USAA Federal Savings Bank was fined $140 million for poor AML controls and failing to correct and improve controls after notification from the U.S. Treasury's Financial Crimes Unit. The $140 million fine included $80 million by the Office of the Comptroller of the Currency. In addition, the U.S. Treasury's Financial Crimes Enforcement Network, known as FinCEN levied an additional $60 million fine (*The New York Times*, March 17, 2022).

"As its customer base and revenue grew in recent years, USAA F.S.B. willfully failed to ensure that its compliance program kept pace, resulting in millions of dollars in suspicious transactions flowing through the U.S. financial system without appropriate reporting," FinCEN's acting director, Himamauli Das, said in a statement. The bank "received ample notice and opportunity" to fix its anti-money-laundering controls, he added, "but repeatedly failed to do so."

Money laundering goes global

Money laundering is not a crime confined to the United States. Estimates of global money laundering vary, ranging from $800 billion to $2 trillion annually (Yaqub, 2023). Raol (2021) reports that the United Nations Office on Drugs and Crime considers money laundering a major worldwide issue that will continue to increase unless laws and regulations are in place to combat it. In addition, the Fifth EU Anti-Money Laundering Directive (5AMLD), pending approval, places the obligation on European companies to meet more demanding US regulations.

In their white paper titled *Discover the four global trends driving increased money laundering risk in 2023*, LexisNexis international sales division discusses four key trends in money laundering around the globe. The first trend is the further development of crypto currency changes. Crypto currencies make for a more difficult environment for governments to track money. In the last year, the European Council adopted new rules to regulate cryptocurrencies (*Discover the four global trends…2023)*.

The second trend identified in the report is the growth of increasingly complex and sophisticated methods of money laundering. This is the key factor driving the need for investments in technology such as AML software to detect and deter financial crimes (*Discover the four global trends…,2023)*.

According to the LexisNexis report, the third key trend is the development of innovative technologies to combat money laundering. These technologies include machine learning and artificial intelligence. Cited in this report, McKinsey reports that most major U.S. banks currently use or will be adopting Machine Learning as a valuable tool to detect financial crimes such as money laundering (*Discover the four global trends…2023).*

Finally, the Ukraine conflict caused the European Union and many other countries to impose economic sanctions against companies and certain individuals in Russia. Now, banks receiving funds for which they cannot establish ownership or source are now subject to breaching the economic sanctions (*Discover the four global trends…2023).* In 2019, anti-money laundering (AML) non-compliant banks paid $8.4 billion in fines.

Recent major players

Criminals who need to launder money include:

- Drug traffickers
- Embezzlers
- Corrupt politicians and public officials
- Mobsters
- Terrorists
- Con artists

Source: Layton & Curran, 2021

Paul Manafort, campaign manager for former President Donald Trump had been found guilty on eight counts of bank and tax fraud back in September 2018**.** Manafort was also charged with money laundering---more than $18 million, which he allegedly obtained illegally from leaders of the Ukrainian government from 2006 to 2015. Allegedly, Manafort received millions from former Ukrainian President Viktor Yanukovych which he kept in offshore accounts to later purchase high-priced U.S. real estate. After purchasing the expensive U.S. real estate, he used the real estate as collateral for loans from U.S. banks. As Manafort had bank loans rather than income, he was not required to pay income taxes on the money (Layton & Curran, 2021).

Two others player allegedly involved in international money laundering are Hunter Biden and his uncle James (Winter, Fitzpatrick, Atkins, Strickler, 2022). Hunter Biden is being investigated for alleged money laundering from Ukrainian energy company Burisma, questionable financial activities that triggered more than 150 Suspicious Activity Reports (SAR's), and for setting up more than twenty foreign shell companies.

The most significant crypto-crime occurred within the last few years, orchestrated by Sam Bankman-Fried. In fact, this is the largest fraud case since the Bernie Madoff Ponzi scheme back in 2009. Bankman Fried was recently found guilty of pilfering billions of dollars from customer accounts of his crypto exchange company, FTX. Bankman-Fried was also found guilty of defrauding lenders to the FTX sister company Alameda Research, the company which held FTX customer funds in a bank account (Morrow, 2023). A jury has found 31-year-old Bankman-Friend guilty on seven counts of fraud, conspiracy, and money laundering. In a brief period Bankman-Fried has gone from one of the wealthiest persons in the country to now facing up to 110 years in prison (Morrow, 2023).

Cyber-laundering

Crypto currency has provided money launderers with a new opportunity. In fact, online criminals prefer anonymous cryptocurrencies as the preferred method of payment. When the haul of virtual currency needs to be exchanged for hard cash, the money launderer looks for a "Treasure Man" (Murphy, 2021). "Treasure Men" can be found on websites such as Hydra on the dark web. According to Dr. Tom Robinson (cited in Murphy, 2021) Treasure Men will leave bundles of cash for you to pick up at coordinates they send to you. Sometimes the cash is buried underground, or it may be hidden behind a bush or other spot that is out of sight.

Companies like Hydra often offer ways to cash out of cryptocurrencies such as exchanging bitcoin for prepaid debit cards, gift vouchers, or iTunes vouchers. Cryptocurrencies are especially appealing to online criminals as you are not required to disclose your identity. In 2020, online hacker gangs such as Darkside received more than $350 million in payouts from those being ransomed (Murphy, 2021).

As demand for AML software and other technology increases, the world will continue looking to financial companies that develop technology to meet their needs. Some of the leading AML software providers include AML, CLEAR by Thomson Reuters, Quantexa, World Check by REFINITIV, and Dow Jones Risk and Compliance.

SUMMARY AND CONCLUSION

Currently, the Department of Justice appears to be focusing enforcement activities on banks and institutions that fail to comply with anti-money laundering regulations, rather than on the persons who commit money laundering. Anti-money laundering activities currently recover only 0.1% of criminal funds (BusinessDIT). In 2019, the U.S. handed out only twenty-five penalties totaling $2.29 billion (Accountability Daily cited in Business DIT).

The increase in white collar criminal activity suggests the Department of Justice needs significantly more resources to be able to step up enforcement activity. Additionally, minimum penalties need to be enforced and assets seized to send the message that money laundering is a serious offense. The public should also be better informed of how money laundering helps fund criminals including drug dealers and terrorists.

Despite approximately $300 billion per year in money laundering activity in the United States, the growth in fraud crime, which includes money laundering, strains existing enforcement resources. Increasingly, financial institutions will adopt innovative technologies as the primary means to prevent and detect money laundering. Technology can more easily manage the increased number of daily financial transactions.

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SHAREHOLDER INFLUENCES TOWARD ADVANCES IN DEI REPORTING

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ABSTRACT

Corporate policy can be influenced by the board of directors, executives, politics, and even shareholders. The research described in this paper is based upon the premise that the best way to improve upon diversity, equity, and inclusion (DEI) matters is to use a holistic approach and consider all possible suggestions. Corporate strategy and implementation on DEI starts at the top, but shareholder proposals can also help shape corporate policy. The specifics of shareholder proposals are provided to other shareholders in proxy materials, while the board of directors offers a statement of support or opposition before a vote takes place.

This article investigates the impression that shareholder proposals can have on corporate reporting of DEI and the current model of assurance. This article explores the evidential trends in increased stockholder ideologue and proposals for diversity, equity, and inclusion issues, and reviews the number of proposals from the Fortune 250 companies encompassing DEI topics and the voting results of such proposals from 2006 to 2022, using the data analytics of Proxy Monitor.org. The findings show that shareholder proxies are asking for more disclosure and reporting of DEI issues, but the companies' directors are typically in opposition. The topics of the shareholder proposals, the boards of directors' stances, and the voting results are revealed. The authors propose a revised model with inclusion of DEI and ESG disclosures in financial reporting and assurance.

INTRODUCTION

Numerous diversity, equity, and inclusion (DEI) issues face United States (U.S.) companies. While there are many issues that could be addressed on the topic, this article investigates shareholder proposals and what they expect to see from companies regarding DEI issues. Proxy materials, which contain shareholder proposals, are reviewed by other shareholders and a vote is held on the matter. In the proxy materials, the company's board of directors (BOD) will make a statement of support or opposition on the shareholder proposal. Once reviewed by the shareholders, a vote is held on whether to accept or reject said proposal. This article reviews DEI-related, shareholder proposals and the respective directors' recommendations to vote "for" or "against" the proxy proposals, and the voting results of each DEI proposal among the Fortune 250 companies. Activism among shareholders can influence corporate policies, and this article assesses the proxy proposals and results.

Other research emphasizes capitalism at various levels, including distinctions between narrower shareholder versus broader stakeholder capitalism (Bebchuk & Tallarita, 2020); the

research in the current paper, while not neglecting the total interests of the broader stakeholder groups, rather focuses on the direct inputs of shareholders through their voting process. This paper subscribes to the theory that investors can become pro-social (Hart & Zingales, 2017), and attempts to show that advances in DEI reporting evolve from concerns about interests in general stakeholder protection as is evident from European Union Accounting Directives. However, the footprint of societal welfare in the United States has taken a different approach, attributable in part to regulatory requirements and rules-based financial reporting.

The successful votes of the owner-investor-shareholder serve as catalyst for improved disclosure and reporting of DEI issues in U.S. companies. The market mechanism of direct ownership votes supporting their objective functions of profitability and welfare improves the commercial operations of the enterprises themselves but may also have spillover benefits for the greater society. Other research draws upon the assumption that the objective function of shareholders differs from other stakeholders (Broccardo, Hart & Zingales, 2022). This paper does not make such an assumption. Measurable recognition of DEI and its full consideration in the financial reports provides a major step in economic progress. Prior research has generally neglected the importance of proxy voting, the integration with financial reporting, and accompanying professional assurance. This paper attempts to narrow the research gap.

DIVERSITY, EQUITY, AND INCLUSION

DEI efforts fall under the umbrella of "Social" in the current Environmental, Social, and Governance (ESG) model. DEI has been a hot topic in the media nationwide in the U.S. over the past few years. Recently, the diversity efforts of companies and the accounting profession have been challenged (Rosenstock & Shenkman, 2021). Certain events have raised awareness to such issues, spilling over to large corporations raising social progress concerns. With the DEI-related policies and shareholder proposals continuing to increase, company strategies are adapting to conform with expectations of these policies through formal reporting.

Society and accounting have made progress in addressing diversity issues, but there is still more work needed going forward (Hays, 2017; Pendergast, 2015). Companies may state that they are addressing DEI issues, but what is actually being accomplished? There may be vague reports that companies are changing their hiring practices, but elaborating on those efforts seem to be the missing pieces. The population in the U.S. has become more diverse, and the hiring practices of businesses have been pressured to mirror that change in diversity (Goldberg, Kessler, & Govern, 2019). Companies and businesses need to understand the importance of employing a diverse workforce (Jenkins & Calegari, 2010). Hiring those with different backgrounds and viewpoints can open up discussion and allow new ideas to surface. No business or industry is immune from implementing DEI, as the accounting profession itself has made strides in improving DEI efforts in the hiring process (Bishop-Monroe, Geng, & Law, 2019). Improvements in DEI may be occurring, but transparency of those efforts is being demanded.

Improving DEI will not only benefit shareholders and investors, but society as a whole. Companies that are transparent can be seen as more trustworthy and having great leadership. The advancement of DEI in organizations increases trust between the company and its customers

(Foma, 2014). The reputations of businesses will enhance, drawing in more social-conscious customers. Establishing trust is the first step to improve customer loyalty. Younger generations tend to be more loyal to companies that treat them with respect, make them feel welcome and special, and ones they trust (Bilgihan, 2016; Nichols, Raska, & Flint, 2015; Ordun, 2015). If companies are showcasing their DEI efforts while their competitors continue to lag behind, then the DEI leaders may reap benefits while gaining a competitive advantage. Becoming leaders on DEI can provide a standard benchmark that other companies must target to achieve. Setting high standards can promote the company in a positive social manner and possibly create a healthier bottom line in the process.

Successful DEI efforts can bolster employee morale and recruit a more diverse workforce. Retaining current employees is extremely vital in this day and age, especially in the great resignation era. Discussing and making progress on DEI efforts can improve communication and provide employees with a voice and an opportunity to discuss sensitive topics with top management. Increased communication, where employees feel more valued and heard, can bolster their commitment to the organization. Many of the younger generations tend to gravitate toward companies that share their same values and beliefs (PriceWaterhouseCoopers, 2008; Ng, Schweitzer, & Lyons, 2010), so attracting new, diverse talent is also a benefit of enhancing DEI efforts. Companies making an authentic, collective effort toward DEI will lead to a more diverse and dedicated workforce, along with generating an inclusive organizational climate and culture.

The following research addresses the question: How much influence do shareholder DEI-related proposals have on overall corporate accountability and reporting, and does a congruency exist demonstrating that corporations with developing DEI reporting achieve greater financial realization? As the trend of DEI reporting is still in infancy and not all companies are pursuing DEI efforts, any cause-and-effect relationships, or correlations of any kind, between profitability and DEI is left for later research. This current paper highlights the beginning of a trend in shareholder power that appears to be strong in yielding societal benefits.

CURRENT STATE OF DEI REPORTING

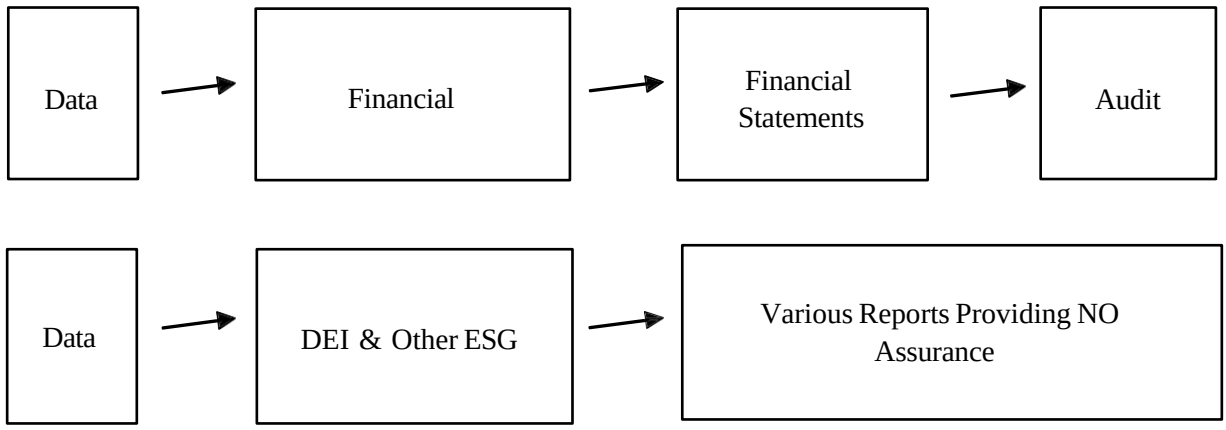
Regulators and accounting professionals historically preferred the separation of financial accounting data from the DEI and other ESG metrics in reporting company performance. Financial and ESG data are normally detached, reported and disclosed separately with assurance only provided to the traditional financial metrics, as seen in Figure 1.

The traditional financial data set is exposed to audits by independent firms who in turn provide reasonable assurance. On the other hand, the varying DEI statements and reports are not being regulated nor provided with assurance. DEI data is currently reported in supplementary information, annual meeting materials, stand-alone DEI reports, and corporate websites, among other areas. Therefore, the current model of reporting is divisive and fails to provide reasonable assurance to its broad stakeholder constituents over both social and economic factors.

Financial statements, along with the supplementary information including the accompanying notes, are considered “an integral part thereof.” The financial data audit is

performed by independent Certified Public Accountants (CPAs). CPAs reviewing financial data for public companies must adhere to auditing standards established by the Public Company Accounting Oversight Board (PCAOB). Reasonable assurance for private companies follows the American Institute of Certified Public Accountants' (AICPA) Auditing Standards Board (ASB). Companies can elect to disclose their DEI data in any amount and in a manner of their choosing, and as shown in Figure 1, the reporting is not accompanied by independent assurance nor is it governed by any reporting standards.

Figure 1. CURRENT MODEL FOR REPORTING & ASSURANCE



In an ideal world, an enhanced model for reporting and assurance would advance the reliability and transparency of DEI efforts and provide for integration of financial and non-financial factors affecting an entity's economic and social performance.

WEAKNESS IN CLARITY AND TRANSPARENCY

Although many companies demonstrate awareness of DEI, reporting of such efforts tend to lack clarity and contribute to the lack of comparability and interpretations. Due to the lack of required disclosure on the topic, companies may choose what they want to report. Cherry-picking information management and directors determine to disclose can lessen the reliability and credibility of their reports. Companies stating that they provide or are moving toward remediation efforts without much detail are generalized and vague. Those reports lack the transparency necessary to persuade investors and customers that their efforts are sincere. Checking a box and moving on is not enough, as details will legitimize the genuineness of their efforts. Breuer (2016) suggested that the Securities and Exchange Commission (SEC) should bolster and further regulate the reporting of DEI-related issues and initiatives.

Changing a company culture takes time and considerable effort from the top down. The "if it ain't broke, don't fix it" mentality is easy to maintain, and it is commonplace to simply remain with the status quo. Businesses have varying DEI issues to report depending on their size

and industry, and DEI efforts are not universal. When efforts are heavily directed toward specific shareholder economic returns to the exclusion of ESG factors, roadmaps are needed to view the long run and view the other variables that will render overall desired results. Changes to a company's culture and efforts within an organization take time and planning (Dittmer, 2017). Absence of immediate results does not imply a company is not trying, sometimes it just takes time.

MOVE TOWARD INTEGRATED REPORTING

The disclosure of non-financial information, including DEI, in the financial statements or supplementary information does not alleviate the need to consider other reporting methods. Financial statement disclosures are important for investors and stakeholders to evaluate the company as a whole. Disclosure in other various documents does not atone for what is needed in the audited financial statements.

Integrated reporting can be described as the disclosure of both financial and non-financial data on ESG measures (Eccles & Saltzman, 2011). King III, working with Meryn King, had significant influence pushing for integrated reporting (Institute of Directors in Southern Africa, 2009). The basic principles of integrated reporting are described by Cheng, et al. (2014).

The disclosure of ESG measures along with a company's financial information has progressed over the years (Beck, Dumay, & Frost, 2017; Adams, 2015). Green and Cheng (2019) discuss how the International Integrated Reporting Council (IIRC) 2013 framework calls for companies to report material facts about their performance on social and environmental issues. The inclusion of both financial and non-financial data in integrated reports should strengthen accountability in the corporate world (IIRC, 2013; Hoang, et al., 2020).

Integrated reports are normally forward- looking, so that may cause an issue for any audits of integrated reports providing reasonable or limited assurance (Briem and Wald, 2018). Other than assessments about an entity's ability to continue as a going concern and contingencies, auditors are limited in their view toward the future. Accordingly, their attest reports may not provide reasonable assurance due to unforeseen future issues. The evolving literature suggests auditors consider expanded assurance to enrich the reliability of reports to satisfy overall stakeholder needs (Brown-Liburd & Zamora, 2015; Casey & Grenier, 2015; Cohen & Simnett, 2015; Briem & Wald, 2018; Prinsloo & Warren, 2021). Providing independent, outside assurance strengthens the quality, reliability, and credibility of ESG information along with financial information.

SHAREHOLDER INFLUENCE

Boerner (2006) claims there are arguments that shareholder proponents are the most important influencers of corporate governance. Shareholder input has become an increasingly important aspect of shaping corporate policy and has influenced the concept of corporate social responsibility (CSR) topics (Glac, 2014). Shareholder proposals promoting CSR/ESG topics have been increasing in the 21st century (Guay, Doh, & Sinclair, 2004). Shareholder activism in

the U.S. is shaping public company policies. Most shareholders can draft and submit a proposal, as long as they meet the company requirement of ownership and comply with the Securities and Exchange Commission's (SEC's) requirements under Rule 240.14a-8. The shareholder can be an individual or group owner, and not-for-profit and religious organizations can also present proposals.

For example, a shareholder proposal for the United Parcel Service (UPS) (2022) asks for UPS to provide an annual report on diversity and inclusion, and to disclose quantitative data on the effectiveness of their DEI programs. A shareholder proposal for Nike (2021) suggests that Nike should disclose and report their assessment on the process and effectiveness of their DEI programs and outcomes. Also, in order to understand the effectiveness, the proposal asks Nike to provide quantitative data on DEI programs.

The board of directors will respond to each shareholder proposal and offer their response with either support or opposition. Even with increased public scrutiny surrounding DEI topics, companies tend to oppose most shareholder proposals. Company management tends to respond defensively to stockholder proposals, and they also counteract criticisms with proactive measures. The level of defensiveness may vary with the independence of directors from the company's operating management.

In response to the shareholder proposal to UPS, the BOD recommended voting against the proposal. The BOD's response included race and gender statistics about their BOD, executive leadership, and managers. They also stated that they already include those statistics in their publicly available Annual Sustainability Report and publicly disclose race and gender breakdowns of their workforce in their Equal Employment Opportunity (EEO-1) report. The Nike BOD recorded a very similar response.

Although the vast majority of shareholder proposals are opposed by management and the board, the process allows shareholders a platform to formally voice their opinion on sensitive topics such as DEI. Those proposals (although mostly opposed) do require corporate management to discuss the topic in a public forum and explain how they are addressing the issue.

FINDINGS AND RESULTS

Shareholder DEI Proposal Activity

To collect the data for this project, the authors utilized Proxymonitor.org, which provides proxy information on shareholder proposals for the Fortune 250 companies dating back to 2006. The authors extracted the data and filtered out the proxies related to DEI issues under "Social Policy", which falls under the "Proposal Type General" category. To narrow down the search to only include DEI topics, more specific proposal types were chosen ("Proposal Type Specific"). Those specific topics include "Board and CEO Diversity", "Civil Rights Audit", "Diversity", "Gender/Racial Equality", and "Racial/Social Justice".

Exhibit 1 in the Appendix displays the total number of DEI proposals and the total number of proposals since 2006. The first two formal DEI proposals did not originate until 2015. DEI issues began to gain further national media in 2020, and the total number of DEI proposals have

steadily risen since. There have been more DEI proposals in 2021 and the first half of 2022 (the time of submission of this article) than all the prior years combined. Exhibit 2 (Appendix) provides the breakdown of each individual DEI topic and year. From 2015 - 2020, Gender/Racial Equality dominated the proposal type. In 2021 and the first half of 2022, Civil Rights Audit and Racial/Social Justice have become the most significant.

Table 1 shows the success rate of DEI-related proxies measured by votes of 50% or greater for each year there was a DEI-related proposal. Columns are also presented for proxy proposal votes that failed, while also showing those that failed but achieved at least 25% of support.

The trend is noticeable in that the number of DEI-related proposals have dramatically increased in recent years. There have been more successful (over 50%) votes on DEI proxies in the first half of 2022 than all other reported prior years combined. The trend shows that shareholder proposals are achieving some success in regard to corporate DEI policies. The 15 successful DEI proposals are discussed below and detailed in the Appendix Exhibits to this article.

Table 1
SUCCESS RATE OF DEI-RELATED PROXIES
(Stockholder Votes "For")

			Success Counts	
Year	0-24.99%	25.00-49.99%	50.00-100.00%	Total
2015	2	0	0	2
2016	5	1	0	6
2017	13	3	0	16
2018	2	3	0	5
2019	8	9	1	18
2020	12	4	1	17
2021	10	14	5	29
2022	23	12	8	43
Totals	**75**	**46**	**15**	**136**
Source: Drawn from Proxymonitor.org				

Table 2 displays the breakdown of vote percentages by DEI topic. The topic of Gender/Racial Equality has seen the largest number shareholder proposals, as it has received 61 of the total 136 proposals (44.85%). While that topic has received the majority of the proposals, Civil Rights Audit has received the largest percentage of success votes at 28.57% (4 success votes out of 14 proposals), followed by Diversity at 21.43%, Racial/Social Justice at 8.33%, and Gender/Racial Equity at 4.92%. Board and CEO Diversity has not achieved a success vote at the time of this article. Overall, DEI topics have a success vote rate of 11.03%.

Table 2
SUCCESS RATE OF DEI-RELATED PROXIES BY DEI TOPIC
(Stockholder Votes "For")

			Success Counts	
Topic	0–24.99%	25.00–49.99%	50.00-100.00%	Total
Board & CEO Diversity	8	1	0	9
Civil Rights Audit	10	0	4	14
Diversity	7	15	6	28
Gender/Racial Equality	39	19	3	61
Racial/Social Justice	11	11	2	24
Totals	**75**	**46**	**15**	**136**
Source: Drawn from Proxymonitor.org				

Exhibits 3 – 7 in the Appendix show the breakdown of success rate of DEI-related proxies by topic and year. All 14 of the Civil Rights Audit proposals and four success votes have occurred in 2022.

Exhibit 8 (Appendix) provides especially revealing information. It lists the successful DEI-related proxies by company, year, and DEI topic. Only one company has more than 1 success vote on DEI-related topics. Union Pacific Corporation (UNP) has 1 success vote for the Gender/Racial Equality topic and 1 for the Diversity topic. Both occurred during 2021 and had success votes of 86.44% and 81.38% respectively. International Business Machines Corporation (IBM) had the highest success vote rate of 94.3% in their 2021 proxy for the Diversity topic. While the Civil Rights Audit topic has the highest percentage of success votes in relation to their total proposals, 75% of their success votes are in the bottom four at 55.14%, 54.46%, and 53.55%. The average success vote rate of each topic is Diversity at 73.99%, Gender/Racial Equality at 67.86%, Racial/Social Justice at 62.71%, and Civil Rights Audit at 56.33%.

Of the 15 total successful votes, only one received a "recommendation" from the company BOD to approve. The lone support from the BOD was in the case of Diversity at IBM, that received support from 94.3% of voters, the highest of all successful votes. All the other successful proxy votes were opposed by the BOD. In fact, all other proposals in total were opposed. Therefore, only 1 out of 136 proposals had support from the BOD. The proposal for IBM asked for an annual report that assesses their DEI efforts. The BOD responded that they already had a policy in place to support that request, so they will now include an assessment of the effectiveness of the DEI programs, and metrics for recruitment, promotion, and retention (IBM, 2021).

A total of 50 companies have received DEI-related proposals. Of the 136 total DEI proposals, Amazon.com Inc. (AMZN) is the only company in double digits with 11. Alphabet Inc. (GOOG) follows with 8, Meta Platforms, Inc. (FB) with 7, and The Travelers Companies Inc. (TRV) and Wells Fargo & Company (WFC) each with 6. Those five companies combined have received 27.94% of all DEI-related proposals. Six other companies have received 5 proposals each, so 11 companies have received exactly 50% (68 out of 136) of all DEI-related proposals. 22 of the 50 companies have only received 1 DEI-related proposal, with 9 others receiving 2 proposals. Of the top 11 companies receiving proposals, only 3 have had a successful vote on DEI proxies.

Overall, 64 of the 136 (47.06%) proposals had a proponent type specified as "Socially Responsible Investing Funds". "Undisclosed" proponents were responsible for 23 proposals (16.91%). "Public Services Employee Union Pension Funds" proposed 12 (8.82%) and "Individuals" had 10 (7.35%). No other proponent type had double digits. The successful DEI proposals were brought forth by six different types of proponents. Of the 15 successful DEI proposals, only 1 was from an individual, and 2 were from religious institutions. The other 12 had mention of "Investing" or "Pension Fund" listed as their proponent type.

Exhibit 9 in the Appendix suggests compelling information, as it entails the "Title" of the proposals. Every single one of the 15 successful votes deals with the aspect of reporting of DEI data. All of the titles mention something in relation to "audit", "report", or "disclosure". In fact, 121 of the 136 (88.97%) total proposals mention one of those words in the title. Of the 15 overall that did not include those words, 9 mentioned the word "Board", which was the only DEI topic to not yet receive a successful vote. "Pay Equity" was in the title for 4 of them, and the vague "Increase Diversity" made up the other 2.

DISCUSSION AND CONCLUSION

DEI issues seem to have taken a backseat to other ESG measures such as environmental, sustainability, and corporate governance issues. The total number of DEI-related shareholder proposals is 136, as compared to 677 for environmental/sustainability since 2006. The SEC (2022) has proposed mandates for climate-related issues, as they claim it will provide reliability, consistency, and comparability for ESG reports.

If the SEC is proposing mandates for climate-related disclosures, then why not the same for DEI- related data? If the goal is for companies to create ESG reports to accompany their financial data, then having a standardized metric for DEI reporting will provide the relevant, comparable data necessary for stakeholders to make informed decisions. The type of DEI data reported will vary by company and industry, but there could be universal mandatory requirements, such as including the results of their EEO reports. However, it appears that companies and their BODs are in clear opposition to additional, mandatory reporting on DEI, since only 1 out of 136 proposals were supported by the company's BOD.

According to Spencer (2021), the AICPA recommends that companies should create the systems and controls to enhance reporting of ESG information. If this type of data is included within the integrated reporting concept, this could lead to independent assurance on ESG reports

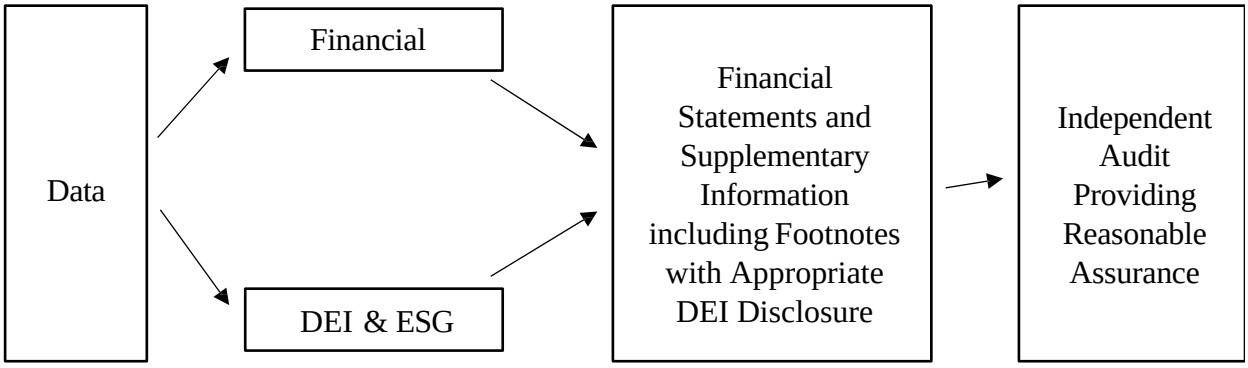
along with typical financial information. Since stakeholders rely on audited financial statements from external CPAs and auditors and that trust is already established, it would be logical to include ESG (including DEI) metrics as part of the package of audited financials. The Center for Audit Quality (CAQ, 2019) concluded that auditors are an appropriate player to evaluate data useful to stakeholders, including both financial and non-financial information prepared by the company.

DEI information, if disclosed in a manner consistent with a standard or framework, could be very important to stakeholders when reviewing financial and non-financial data. This framework would provide comparability with other companies as well as within the company itself. If the DEI information could be disclosed and coupled with an independent auditor's reasonable assurance, then all stakeholders could benefit. SEC Rule 10b-5 prohibits false and misleading statements, whether it be in a SEC filing, company website, or other such report, so attesting the DEI data could help reinforce their reliability and trustworthiness. In 2020, the SEC started requiring disclosures of key performance indicators (kpi), which are defined as any key variable or other metric that could be material in nature for stakeholders (SEC, 2020).

There are multiple advantages that independent public auditors can provide when providing assurance on DEI and other ESG information. The auditors already have experience in collecting and analyzing data for many different companies and industries. They already comply and follow professional standards and frameworks, and they are independent, follow a code of ethics, and can assess business processes and risk.

The level of assurance provided in the auditor's report is vital. Most auditors and stakeholders are aware that negative assurance is essentially a low level of assurance. Limited assurance is better than negative assurance, due to the various review procedures followed. On the other hand, reasonable assurance would provide a high level of assurance. If an auditor can provide reasonable assurance on DEI and other ESG matters along with the typical financial package, then the data can be trustworthy and believed to be authentic. Creating a new model (Figure 2) for assurance would be vastly superior to the model in Figure 1.

Figure 2. NEW MODEL FOR REPORTING & ASSURANCE



Since all 15 of the successful votes and almost 89% of all DEI-related proxies mentioned some form of reporting in their titles, then disclosure and audit of DEI-related data is important to stakeholders. Full measurement and evaluation of a company's DEI programs and its achievements relative to operations and strategies can help stakeholders assess an entity's total value. Providing this detail may likely lead to removing the fluff and vagueness of social progress that may otherwise be publicized as a means to pacify activists. Accordingly, greater accountability and reporting is realized similar to the effects of removing "greenwashing" tactics in reporting climate-related environmental issues.

The mandatory reporting of DEI and other ESG matters would benefit general society so they could see firsthand the efforts that companies are doing to improve in those areas, but investors would benefit as well. A newer concept is impact investing, which has gained popularity in recent years, especially for assets managed in the U.S. For new U.S. fund launches that contain ESG characteristics, the one-year growth rate is 80% (Taylor & Collins, 2022). Taylor and Collins further believe that the worldwide, professionally-managed assets will be comprised of 50% of ESG-mandated assets by 2024. Company valuations can benefit from ESG ratings, as reports mitigating ESG matters are attractive to investors. Impact investments, normally non-financial, appear to limit volatility as they carry stability targets. Impact investing tends to lean toward reviewing the financial returns of ESG investments. Many social-conscious investors are attracted to impact investments because they align with their beliefs. The investors want their capital to go toward a good cause which will have a positive impact on society.

RESEARCH STRENGTHS AND LIMITATIONS

A major strength of this research is its call for investigation of the impact of shareholder proposals of DEI issues within the framework of traditional financial reporting. The research is not distracted by the multiple factors that might influence corporate policy on DEI matters, such as individual motivations by directors and management, their politics, and societal pressures. Many of those topics can be addressed under the "Governmental" aspect of ESG, but this article is only focusing on the "Social" issues. These interesting factors are left to other researchers. Further studies might explore reasons why certain proposals failed or succeeded. Research could also be extended beyond the Fortune 250 companies and examine shareholder activism prior to 2006.

This paper offers optimism in the positive trend of DEI and efforts toward integrating in a meaningful way with reports available to the U.S. shareholder. Not discussed are efforts of non-public companies, or the location of s of DEI information disclosure, or the timing of reports, or specific standards or frameworks to follow. The research does suggest a new model for ESG/DEI reporting integrated with financial reporting and attempts to show the increasing emphasis of shareholder activism in improving overall reporting of DEI issues via alignment with financial issues. Assessment and evaluation of proxy results reveal emergence of an increasing positive trend. Improving DEI reporting will not only benefit shareholders and investors but society as a whole:

- Company transparency leads to trustworthiness
- Customer and vendor relations are enhanced
- Competitive advantages are realized
- Workforce loyalty is expanded
- Opportunities for individual health and progress are offered
- Congruent social and economic orientation leads to profitability and sustainability
- Reporting both financial and non-financial information is relevant and useful
- Society benefits when commerce is successful.

Shareholder voices are being heard. Finally, improving DEI metrics and creating opportunity for future generations is important. What may have initially appeared as incidental externalities can rise to level of items with objective functions to maximize. DEI reporting can lead toward the creation of a more fair and equitable social system. Companies, and all their stakeholders, need to review and evaluate all social and economic inputs and outputs, so the system moves forward evolving with welcoming and inclusive practices. The benefits will be recognized as companies enhance their operational and strategic financial and non-financial outcomes. The direct input of shareholders through the proxy voting process allows for simultaneous profitability and welfare gains. The U.S. regulatory and financial reporting system continues to evolve. Perceptive shareholder demands will assist the evolution.

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APPENDIX

Exhibit 1 TREND IN SHAREHOLDER PROPOSALS			
Year	**Number of Proposals**	**Diversity, Equity, and Inclusion-Related (DEI)**	**% of DEI in Relation to Total**
2006	385	0	0.00%
2007	393	0	0.00%
2008	357	0	0.00%
2009	382	0	0.00%
2010	380	0	0.00%
2011	840	0	0.00%
2012	580	0	0.00%
2013	576	0	0.00%
2014	589	0	0.00%
2015	593	2	0.34%
2016	581	6	1.03%
2017	805	16	1.99%
2018	515	5	0.97%
2019	504	18	3.57%
2020	531	17	3.20%
2021	508	29	5.71%
2022 (through June 30)	557	43	7.72%
TOTALS	**9,076**	**136**	**1.50%**
Source: Drawn from Proxymonitor.org			

Exhibit 2 DEI SHAREHOLDER PROPOSALS BY TOPIC AND YEAR					
Year	**Board & CEO Diversity**	**Civil Rights Audit**	**Diversity**	**Gender/Racial Equality**	**Racial/Social Justice**
2015	0	0	0	2	0
2016	0	0	2	4	0
2017	0	0	4	12	0
2018	0	0	2	3	0
2019	0	0	5	13	0
2020	2	0	3	12	0
2021	2	0	9	7	11
2022 (through June 30)	5	14	3	8	13
TOTALS	**9**	**14**	**28**	**61**	**24**
Source: Drawn from Proxymonitor.org					

EXHIBITS 3 THROUGH 9 DISPLAY THE SUCCESS RATES OF PROXIES BY YEAR

Exhibit 3 BOARD AND CEO DIVERSITY PROXIES (Stockholder Votes "For")				
			Success Counts	
Board & CEO Diversity	0–24.99%	25.00–49.99%	50.00-100.00%	Total
2020	2	0	0	2
2021	2	0	0	2
2022	4	1	0	5
Totals	**8**	**1**	**0**	**9**
Source: Drawn from Proxymonitor.org				

Exhibit 4 CIVIL RIGHTS AUDIT PROXIES (Stockholder Votes "For")				
			Success Counts	
Civil Rights Audit	0–24.99%	25.00–49.99%	50.00-100.00%	Total
2022	10	0	4	14
Totals	**10**	**0**	**4**	**14**
Source: Drawn from Proxymonitor.org				

Exhibit 5 DIVERSITY PROXIES (Stockholder Votes "For")				
			Success Counts	
Diversity	0–24.99%	25.00–49.99%	50.00-100.00%	Total
2016	1	1	0	2
2017	2	2	0	4
2018	0	2	0	2
2019	3	1	1	5
2020	0	2	1	3
2021	0	5	4	9
2022	1	2	0	3
Totals	**7**	**15**	**6**	**28**
Source: Drawn from Proxymonitor.org				

Exhibit 6 GENDER/RACIAL EQUALITY PROXIES (Stockholder Votes "For")

			Success Counts	
Gender/Racial Equality	0–24.99%	25.00–49.99%	50.00-100.00%	Total
2015	2	0	0	2
2016	4	0	0	4
2017	11	1	0	12
2018	2	1	0	3
2019	5	8	0	13
2020	10	2	0	12
2021	3	3	1	7
2022	2	4	2	8
Totals	**39**	**19**	**3**	**61**
Source: Drawn from Proxymonitor.org				

Exhibit 7 RACIAL/SOCIAL JUSTICE PROXIES (Stockholder Votes "For")

			Success Counts	
Racial/Social Justice	0–24.99%	25.00–49.99%	50.00-100.00%	Total
2021	5	6	0	11
2022	6	5	2	13
Totals	**11**	**11**	**2**	**24**
Source: Drawn from Proxymonitor.org				

Exhibit 8 SUCCESS VOTES ON 15 DEI STOCKHOLDER PROXIES BY COMPANY, YEAR, AND DEI TOPIC

Company Name (Symbol)	Year	DEI Topic	Votes For %
Altria Group, Inc. (MO)	2022	Civil Rights Audit	62.16%
American Express Company (AXP)	2021	Diversity	59.69%
Apple, Inc. (AAPL)	2022	Civil Rights Audit	53.55%
DuPont de Nemours, Inc. (DD)	2021	Diversity	83.76%
Genuine Parts Company (GPC)	2020	Diversity	74.45%
International Business Machines Corp (IBM)	2021	Diversity	94.3%
Johnson & Johnson (JNJ)	2022	Racial/Social Justice	62.64%
Lowe's Companies, Inc. (LOW)	2022	Gender/Racial Equality	58.01%
McDonald's Corporation (MCD)	2022	Civil Rights Audit	55.14%
The Home Depot Inc. (HD)	2022	Racial/Social Justice	62.77%
The Travelers Companies, Inc. (TRV)	2019	Diversity	50.34%
The Walt Disney Company (DIS)	2022	Gender/Racial Equality	59.12%
Union Pacific Corporation (UNP)	2021	Gender/Racial Equality	86.44%
Union Pacific Corporation (UNP)	2021	Diversity	81.38%
Waste Management, Inc. (WM)	2022	Civil Rights Audit	54.46%
Source: Drawn from Proxymonitor.org			

Exhibit 9
SUCCESS VOTES ON 15 DEI STOCKHOLDER PROXIES BY PROXY TITLE, YEAR, AND DEI TOPIC

Proxy Title	Year	DEI Topic	Votes For %
Civil Rights Equity Audit	2022	Civil Rights Audit	62.16%
3rd Party Audit of Stakeholder Civil Rights	2022	Civil Rights Audit	55.14%
Civil Rights Audit	2022	Civil Rights Audit	54.46%
Report on Civil Rights Audit	2022	Civil Rights Audit	53.55%
Report Assessing Diversity, Equity, and Inclusion Efforts	2021	Diversity	94.30%
Annual Disclosure of EEO-1 Data	2021	Diversity	83.76%
Annual Diversity and Inclusion Efforts Report	2021	Diversity	81.38%
Human Capital Management Disclosure	2020	Diversity	74.45%
Annual Report on Diversity	2021	Diversity	59.69%
Report on Diversity, Including EEOC Data	2019	Diversity	50.34%
Annual Disclosure of EEO-1 Data	2021	Gender/Racial Equality	86.44%
Report on Pay Equity	2022	Gender/Racial Equality	59.12%
Report on Racial & Gender Pay Gaps	2022	Gender/Racial Equality	58.01%
Racial Equity Audit	2022	Racial/Social Justice	62.77%
Third Party Racial Justice Audit	2022	Racial/Social Justice	62.64%
Source: Drawn from Proxymonitor.org			

UNRECOGNIZED INTANGIBLES AND VALUE RELEVANCE: AN EMPIRICAL STUDY OF LUXURY INDUSTRY

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ABSTRACT

The objective of the study is to compare the impact of Self-Generated Goodwill on the "Market Valuation in Luxury industry" and "Market Valuation in Non-Luxury Industry". The Ohlson Methodology (1995) is extended to total intangible assets and self-generated goodwill variables. A set of six regression models has been analyzed to measure the impact of Intangible (independent variables) on Market valuation in Luxury and Non-Luxury Industry. The findings suggest that the Market valuation of Luxury industry is found to be less value relevant than the Market valuation of Non-Luxury Industry in the absence of Intangibles. The Value Relevance of Non-Luxury Industry can be further increased by incorporating the factors like Intangible Assets, Goodwill and Age of the firm. However, the Value Relevance of Luxury industry can only be increased by including Intangible Assets in the model. The role of self-generated goodwill often goes unmeasured as per the available accounting standards. Hence, the impact of self-generated goodwill on market valuation (MV) is also overlooked from investors' perspective. Therefore, the financial picture of a firm represented by MV is not a fair measure of its Financial Performance. The author has made an original attempt to study the impact of self-generated goodwill on the Financial Performance of Luxury Industry.

Key Words: *Value Relevance, Self-Generated Goodwill, Ohlson Methodology, Luxury industry*

JEL Classification Code: C52, C58, E22, G3, M41

INTRODUCTION

The process of investment decision-making involves a comprehensive evaluation of a company's financial indicators presented in its accounting documents. Savvy investors are perpetually in pursuit of opportunities that promise value augmentation and exceptional returns. Accounting information, specifically tangible variables, aids them in deducing a firm's financial health in terms of profitability, leverage, liquidity, and efficiency. Accounting norms primarily focus on tangible assets and liabilities disclosed on a balance sheet, as they signify a company's financial performance. However, are these tangible metrics all-inclusive and adequate for sophisticated decision-making? A candid affirmation might be overstated.

In this context, the Market Valuation (MV) of companies, as quantified by the Ohlson Model (1995), becomes noteworthy. The model categorizes MV's sources into two dependent variables, predicated on a clean surplus accounting approach. It implies the market valuation is governed solely by a firm's book value of equity and earnings. The present study intends to extend this model to encapsulate total intangible assets (like patents, copyrights, goodwill) and self-generated goodwill. Contemporary businesses have evolved, with a significant number focusing on delivering services or product-embedded services. This has given rise to a new asset type, self-generated goodwill, often overlooked in financial documents and investor analyses. It remains unquantified until a company undergoes a merger or acquisition. Similarly, internally developed expertise and skills, though intangible, contribute to a company's value but are not easily quantifiable or available as discernible variables. Therefore, their impact on market valuation remains largely unexplored, particularly in sectors like the luxury industry, where intangible assets are of pronounced explicitly important.

Appreciating the idea of Assets, then Intangible Assets, the Accounting Standards have seldom offered the due recognition to the “in-house” or “self-generated” Intangible Assets e.g. some Trade secret/Manufacturing process/Competitive advantage etc. However, as soon as a Merger/Acquisition takes place the companies are paid way above their Recognized Assets at times. What makes the Acquiring Companies offer beyond the Book Values. Is it the growth potential or something abstract persisting in the Company but lacking measurement. To proceed further, the unrecognized intangibles would be value relevant beyond what is already disclosed as happened in case of Tech-bubble in 1990s. Back then, the Technology sector was overpriced backed by the Softwares (again an Intangible Aspect). This led to overpricing of the Companies and later the bubble burst. So, any quantum of mis-valuation (be it undervaluation or overvaluation) would be depicting a hazy picture in the eyes of Investors and public at large. Investors persistently estimate and scrutinize a firm's financial performance. It poses the question of whether the available variables sufficiently portray a fair financial representation. This research, titled " Unrecognized Intangibles and Value Relevance (in Luxury Industry)," aims to unravel the role of intangibles, specifically the influence of self-generated goodwill on the luxury industry's financial performance. The study hypothesizes a higher prevalence of self-generated goodwill in the luxury industry compared to non-luxury sectors.

The value relevance of accounting information is central to this study, with the primary intent to investigate the factors contributing to the discrepancy between market value and book value of shares. The luxury industry has consistently outperformed non-luxury sectors over time, with intangible factors playing a potentially significant role, especially when the business extends beyond product markets. Accordingly, this study proposes to identify and analyze the intangible factors impacting the market valuation of both luxury and non-luxury industries, to compare their effects on market valuation, and specifically to compare the influence of self-generated goodwill on market valuation within these sectors.

Previous research has spotlighted sectors like banking, technology, and pharmaceuticals concerning self-generated goodwill. However, very few studies, if any, have examined self-generated goodwill in the luxury industry. This study seeks to fill this gap. Value relevance, measured as the proportion of adjusted R-square, informs investors' security evaluation and

decision-making process. Higher value relevance implies greater reliability of financial statements for investment decisions, as it indicates a stronger correlation between financial statement variables and a firm's market value. In this study, a lag of one quarter is considered in independent variables to reflect the delayed effect of investing in intangibles on market valuation. This research poses questions such as whether the financial performance of the luxury industry is less value-relevant than non-luxury sectors and whether certain intangible factors can explain this discrepancy. Additionally, it probes whether recognized total intangible assets and self-generated goodwill influence market valuation and whether this impact is uniform across luxury and non-luxury sectors.

CONCEPTUAL FRAMEWORK

A general description of the Luxury begins as something which is beyond necessity. The ordinary of extraordinary people and the extraordinary of ordinary people is Luxury (Kapferer & Bastien, 2009). However, Appadurai, lists five characteristics of Luxury (Appadurai, 1986),

(1) Restriction to elites by law or price

(2) Complexity of acquisition – which may or may not reflect real "scarcity"

(3) Semiotic virtuosity

(4) Codes for "appropriate" consumption demanding specialized knowledge

(5) High degree of linkage of their consumption to person and personality.

Intellectual Capital

The literature has observed various models and methodologies to define the concepts of Intellectual capital. The Intangibles can be classified into innovation (may be protected by patents, trademarks and copyrights), unique organizational structure, brand value and Human Resource practices (Lev, 2001).According to Sveiby (1997), the essentials of Intellectual Capital consist of employee competencies and internal and external structure. The list has been further extended to the fourth component i.e. *intellectual property*. Edvinsson (1997) in his research defines the Intellectual Capital as the sum of human, organizational, and customer capital. His research has also been supported by Edvinsson and Malone (1997); Bontis (1998); Sullivan (1998). Lev (2001) has somehow broadly classified Intellectual Capital(IC) into innovation (discoveries and knowledge), Human Resources and organizational practices. From strategic management perspective, the studies of Kaplan and Norton (2004), the relevance of IC has been put within the framework of value creation process. The approach of critically analyzing the balanced scorecard highlights the financial concepts and non-financial measures of value creation. The impact of IC is measured on value creation to define the corporate success of the firm. However, the definition by the IAS (Indian Accounting Standard) and US GAAP are as follows:

IAS 38: An Intangible Asset is an identifiable non-monetary asset without physical substance. An asset is identifiable if it either is separable; (capable of being separated from the entity and sold) arises from contractual or other legal rights. Monetary assets are money held and assets to be received in fixed or determinable amounts of money.

US GAAP 350: The Topic 350 of GAAP by FASB has defined Intangibles—Goodwill and other Intangible Assets. The Goodwill as detailed under the Subtopic 350-20 provides guidance on the measurement of Goodwill after acquisition, derecognition of some or all of Goodwill allocated to a reporting unit, other presentation matters, and disclosures.

Predominantly, the accounting statements are prepared following the accounting principles. These principles do not pay any attention to different issues pertaining to Self-generated Assets. These principles viz. Monetary measurement, Full disclosure principle, Matching principle, Cost principle, Relevance, Reliability, and Consistency and Principle of conservatism overlook the role of self-generated assets. All these principles have been consistently ignoring the recognition of Self-generated Assets despite available alternatives.

Firstly, the *Monetary measurement* principle believes that accounting records of any economic entity should capture only the quantifiable transactions. Here, the self-generated assets are totally ignored as far as measurement process is concerned. The accounting principles justifies it as these assets may not be easily quantified in monetary terms. Hence, they do not appear in the company's accounting records. Methodology may be designed to find the intrinsic value of self-generated assets instead of ignoring them and making easy escape.

Subsequently, the *Full disclosure* principle also ignores the importance of self-generated assets. This disclosure could be done in the form of Footnotes in order to report the complete information about the business developments. However, the inventory (stock) is also valued as Work-in-progress before the actual sales, then why these self-generated assets are denied space under the Full Disclosure practices.

Thirdly, the *Matching* principle asserts that the costs of doing business are to be recorded in the same period pertaining to the revenue generation. By overlooking the cost of self-generated assets, the cost estimates for potential merchandise (sold) will be utterly unfair.

Fourthly, the primary reason of restricting the use of *Cost principle* for self-generated assets is unavailability of actual cost for these assets. However, the measurement of costs of these assets is quite possible like the way the cost of human capital is measured as the cost to company in the name of salary and other benefits.

Fifthly, the Principle of *Conservatism* is very crucial while preparing financial statements of corporate entities. In case of self-generated assets, accountants can use their judgment to estimate its value. Currently, their judgement tends to be over-conservative to analyze this group of assets. Hence, this eliminates the role of in-house assets until they undergo Merger and Acquisition. *If an outsider company (during M&A) can assess the value of Goodwill, then certainly the Accounting Standards can also design a parameter to valuate and validate these assets.*

Lastly, the principles of *Relevance, Reliability and Consistency* are put under the lens, if these unacquired (inhouse generated) assets are skipped from the financial statements. The financial picture must be relevant, reliable and prepared in a consistent manner to be informative. If acquired assets are valued, then self-generated assets must also be given due recognition.

REVIEW OF LITERATURE

The conceptual framework of Value Relevance is empirically tested by Ohlson Model (1995). The model has tested Value Relevance of accounting information in various industries across time period. Works of several researchers have been discussed below. Value relevance criteria are referred to the ability of accounting numbers (independent variables) to explain the stock prices in capital markets (dependent variable). Value relevance of recognized Intangible Assets has been often tested using an accounting-based valuation model developed originally by Ohlson (1995), in which a firm's Market Value is a function of the Book Value of equity and Earnings. This approach was also tested by Lev and Zarowin (1999); Francis and Schipper (1999); Friday, LiEng and Liu (2006); Bugeja and Gallery (2006); Al-Jifri and Citron (2009). Chen, Chen and Su (2001) examined empirically whether domestic investors in the Chinese stock market perceive accounting information based on Chinese GAAP to be value relevant. They evidently found that investors place more weight on accounting information in A-share companies. It was reported evidently consistent with the notion that accounting information is value-relevant to investors in the Chinese market despite the young age of the market and the perception of inadequate accounting and financial reporting in China. In another study with a data ranging from 1991-2003, Vazquez, Valdes and Herrera (2007) tested the Value Relevance of Mexican accounting variables. The aim of the study was to provide evidence of the ability of Mexican accounting numbers to summarize the information from 166 companies listed in the Mexican stock market from 1991 to 2003. The Value Relevance was operationalized using the *Ohlson model* criteria (1995). The original Ohlson model is tested with Mexican accounting data using Ordinary Least Squared (OLS) Regressions. In addition to Book value of Equity, Earnings and CFOA, the variables, EBITDA, Operative Cash Flow, Net Cash Flow and Dividends have also been tested in the panel data in the original Ohlson model.

In a Spanish study, it has been noticed that listed groups are now obliged to prepare consolidated financial information under IFRS. Callao, Jose and Lainez (2007) have studied the differences between accounting figures and financial ratios under the two sets of standards (i.e. Spanish accounting standards and IFRS). They observed that there has been no improvement in the relevance of financial reporting to local stock market operators because the gap between Book and Market Values is wider when IFRS are applied. Bugeja and Gallery (2006) investigated whether the Value Relevance of purchased Goodwill holds as the company ages. Using an Australian sample, they found that newly acquired Goodwill has information content for two years, but older Goodwill does not. However, Vincent (1994) found that the Value Relevance relationship can hold for up to five years after the Goodwill is purchased.

There is a consensus among academicians that information about Intangible assets is relevant to the firm's Value and more and more information about Intangibles needs to be

recognized or at least to be disclosed. However, analysts in the business community have a different view about Intangibles. They treat Tangible and Intangible Assets substantially different. It is concluded that whenever analysts evaluate a firm's financial structure or debt levels, they usually use a measurement of Total Liabilities to Tangible Assets. Intangible assets are excluded as core assets. As argued by Wyatt and Abernethy(2008), the questions raised in Intangible studies are: first, why Intangibles are not considered as core assets even if it is agreed that it is a very important category of investment, and second, whether the reliability of reported Intangibles is of major concern to analysts. This issue needs to be further investigated. The relationship between the reliability of reported Intangibles and their Value Relevance is the key issue of research on Intangibles.

Oliveira et al. (2010) proved in the study a distinctive feature of the accounting by the sample companies is that when they adopted IAS 38 and IFRS 3 in 2005, they were no longer required to recognize some Intangible assets (such as start-up costs and research expenditures) and were no longer required to amortize Goodwill. Regarding Intangibles, the values recognized as R&D expenditures did not appear to be value-relevant for investors, in the Portuguese GAAP context. Ji and Lu (2014)examined the Value Relevance of Intangible assets, including Goodwill and other types of Intangibles in the pre- and post-adoption periods of IFRS. The paper reported whether the adoption of IFRS improves the Value Relevance of Intangible assets. The results indicate that an Intangible asset is value relevant for Australian firms. However, capitalization of Goodwill and other identifiable Intangibles has different Value Relevance for different types of firms.

A study by Tapia, Tascon and Fanjul (2006) conducted on commercial banks from 29 OECD countries over the period 1997–2003 suggested that the empirical use of the Ohlson (1995) model in commercial banks might be improved with a contextual approach through the identification of factors representing non-accounting information explaining the future abnormal Profitability, such as the competitiveness of banks and the accounting system. Kohlbeck and Warfield (2007) tested the Ohlson model on the Banking industry listed in the US market over the period 1992–1998 found a significant positive association between levels of the unrecorded Intangible assets of banks and residual incomes, revealing that higher levels of unrecorded Intangible assets increase the pricing multiples for residual incomes. Agostino, Drago and Silipo (2011) adopted the Ohlson model to verify the impact of IFRS on the Value Relevance of the accounting data of listed banks from 15 European Union countries over the period 2000–2006. They suggested that the introduction of IFRS increased the Value Relevance of both Earnings and Book Value for banks. Applications of the Ohlson model in the emerging markets can be found in the studies by Abuzayed, Molyneux and Fayoumi (2009); Dahmash (2013) who used it for investigating the Value Relevance of banks' accounting data in Jordan over the periods 1993–2004 and 2007–2011, respectively. Abuzayed et al. found that bank Earnings and their components are value relevant and able to explain the gap between Market and Book Values.

The literature has instances that Intangibles are value relevant. Scholars like McCarthy and Schneider (1996); Francis and Schipper (1999); Lev and Zarowin (1999); Goodwin and Ahmed (2006) have supported the statement that Intangibles are value relevant and that there

exists a statistically significant association or link between firms' Market Value and information about the value of Intangibles.

This study aims to find out the value relevance of the Self-Generated Goodwill of Luxury companies (LI) and S&P 500 companies (MP). To examine the same, a comparison of financial performance of the companies listed under S&P 500 and S&P Luxury index has been made. This study has examined the value relevance Ohlson model. The OLS (Ordinary Least Square) regression has tested the effect of variables such as Earning, Book Value of Equity, Intangible Asset, Goodwill, Age of the firms, Percentage Management's shareholding (PMS) and PB ratio on the dependent variable Market Valuation (in presence of control variable, Cashflow from Operating Activities). In this study, the returns of Luxury industry firms are hypothesized to be less explained than the returns of their counterpart Non-Luxury Industry companies.

DATA AND VARIABLES

A market Index representing Non-Luxury market portfolio and a Luxury Index representing luxury industry has been considered to study the financial Performance of Intangibles. The sample comprises of members of S&P 500 Index (505 companies) and S&P Global Luxury Index (76 companies). The data has been collected from Bloomberg Financial Database for the calendar year 2008-2019 (Q4:2008-Q2:2019). The quarterly data has been used for the study. It has been taken on the last day of every quarter of the calendar year i.e. 31st March, 30th June, 30th September and 31st December. The total observations for Non-Luxury Industry are 21,715(505x43)i.e. 505 companies for 43 quarters for each variable. Likewise, the observations collected for 76 companies for 43 quarters are 3,268(76x43) for each variable in the Luxury segment. These observations are compiled for the study, and then some missing values and extreme values are eliminated.

The data is compiled in MS-Excel format and **Stata** Software is used for data processing and statistical testing.

All the variables are denominated either in millions US dollars or in ratios. The two exceptions are: Age of the firm which is in quarters and Market Valuation which is in billions US dollar (See Table 1). The relevant variables used in the study always form the base of the results of study.

Table 1: Variables and formulas used in the past studies

Ratios	Descriptions
Earning **BV of equity** **Market valuation**	Omokhudu & Ibadin (2015); Ji & Lu (2014); Jifri& Citron (2009); Friday, LiEng& Liu (2006); Goodwin & Ahmed (2006); Bugeja & Gallery (2006); Lev &Zarowin (1999); Francis & Schipper (1999); McCarthy & Schneider (1996)
Age of the firm	Loderer et al. (2009); Liargovas& Skandalis (2008); Wang & Chang (2005); Agarwal &Gort (2002); Sorensen & Stuart (2000)
PMS	Eisenhardt (1989); Rosen &Quarrey (1987); Rosen, Blasi &Quarrey (1986); Green & Berry (1985); Walking & Long (1984); Rich & Larson (1984); Jensen &Meckling (1976)
PB Ratio	Rose & Thomsen (2004); Roberts & Dowling (2002); Stewart (1998); Luthy (1998)

Source: Author's compilation

Market Value (MV): The Market Value of firm is the sum of the equity share (at Market Price), preference share (at Book Value) and long-term Debt (at Book Value).

$$MV = EQUITY\ SHARE_{MP} + PREFERENCE\ SHARES_{BV} + LT\ DEBT_{BV}$$

Book Value of Equity: Book value is the amount that investors would theoretically receive if all company liabilities were subtracted from all company assets.

Earning: Earning refers to the undistributed part of profit, which is retained in the company.

Intangible Assets: Intangible Assets as disclosed in the Balance Sheet (excluding Goodwill).The assets which lack physical existence like licenses, trademarks, patents, copyrights, rights, trade secrets, trade formulae, brand equity.

Goodwill: The variable Goodwill is referred to the book value of Goodwill as disclosed in the Balance Sheet.

Age of the Firm: Age of the firm refers to Age of existence of firm beginning, from the date when that entity was incorporated, registered, or established.

Percentage Management's shareholding: The PMS as a variable shows the proportion of shares held by the management (BODs, executives, senior officials) of company.

$$PMS = \left(\frac{\text{Shares held by management}}{\text{Total number of outstanding shares}}\right)$$

Price to Book ratio: The Price to Book Ratio (P/B Ratio) is the proportion of stock price to Book value per share. Simply stating, it is calculated as:

$$P/B\ Ratio\ = \left(\frac{\text{Current Market Price}}{\text{Book Value Per Share}}\right) X\ 100$$

Cash flow from Operations (CFOA): Cash flow from Operations is the total amount of cash a company generates from its operations (Operating Activities).

CFOA = Net Income + Depreciation & Amortization + Other Non-Cash Adjustments + Changes in Working Capital + Other non-operating adjustments

RESEARCH METHODOLOGY

All the statistical tests are run separately for the two portfolios viz. Luxury Index and S&P 500 Index. Initially, the OLS (Ordinary Least Square) is run to test the significance of the independent variables on the dependent variable. After running the OLS, Hausman Test (1978) is run to select among Fixed effect (FE) model or Random Effect (RE) model of Individual Specific Effects. The null hypothesis of the Hausman Test is "RE Model is an appropriate model" as against the alternate hypothesis of "FE Model is an appropriate model". The statistical tests are interpreted at significance level of 0.05 and 0.10.

The study attempts to test the hypothesis that the accounting information that appeared in Balance sheet is not value relevant for Luxury companies. The impact of **Intangible Assets** on the financial performance (MV) of the firms is presumed to be higher in Luxury industry. Further, the impact of **Self-Generated Goodwill** on the financial performance (MV) of the firms is also higher in Luxury industry. The entire methodology has one dependent variable and a set of independent variables. The models are based on a set of assumptions mentioned below.

Assumption 1: The general market factors are influencing all the listed sample data companies (Non-Luxury Industry and Luxury Industry).

Assumption 2: The general market factors have some impact on the accounting variables which may vary from industry to industry.

Assumption 3: The companies with higher Percentage Management's Shareholding are assumed to have higher Self-Generated Goodwill.

Assumption 4: The experienced companies (Age-old companies) are assumed to have higher Self-Generated Goodwill.

Assumption 5: The companies with higher Price to Book Ratio are assumed to have higher Self-Generated Goodwill.

Table 2: Methodology for Value relevance of Intangibles, Ohlson valuation model, 1995				
MODEL	**Independent variable**	**Dependent variable**	**Control variable**	**Hypothesized Impact on MV**
Model 1	**$Earning_{it}$,** **Book Value of $Equity_{it}$**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ +
Model 2	**$Earning_{it}$,** **Book Value of $Equity_{it}$,** **Intangible $asset_{it}$**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ + +
Model 3	**$Earning_{it}$,** **Book Value of $Equity_{it}$,** **Intangible $asset_{it}$,** **$Goodwill_{it}$**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ + + +
Model 4	**$Earning_{it}$,** **Book Value of $Equity_{it}$,** **Intangible $asset_{it}$,** **$Goodwill_{it}$,** **Age of the $firm_{it}$**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ + + + +
Model 5	**$Earning_{it}$,** **Book Value of $Equity_{it}$,** **Intangible $asset_{it}$,** **$Goodwill_{it}$,** **Age of the $firm_{it}$,** **PMS_{it}**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ + + + + +
Model 6	**$Earning_{it}$,** **Book Value of $Equity_{it}$,** **Intangible $asset_{it}$,** **$Goodwill_{it}$,** **Age of the $firm_{it}$,** **PMS_{it},** **Price to Book $ratio_{it}$**	**Market $valuation_{it+1}$**	**$CFOA_{it}$**	+ + + + + + +

Source: Author's Methodology

The study has a dependent variable (Market Value) to test the Value Relevance of the Earning, Book Value of Equity as given in the Ohlson Model (1995) controlling Cashflow from Operating Activities (CFOA). Ohlson Model is extended to analyze the impact of the Intangible Assets and Goodwill of the firm (together known as total Intangible Asset) on the Value Relevance of Market Valuation. These accounting variables are recognized in the books of accounts, but at the same time some variables go missing and unmeasured as well. They are termed as Intangibles in this study. The three proxy variables of Intangibles are Age of the firm, PMS and PB ratio. The justification of these variables can be noted as follows:

1) Age of the Firm: Mature companies often have had more time to develop their unique processes, customer relationships, and brand reputation, which are key components of self-generated goodwill. Experienced firms might have accumulated significant intellectual ideas

through continued investment in research and development over time. The longevity of a firm can also be indicative of sustained competitive advantages due to established intangibles that are not reflected on the balance sheet.

2) Percentage Management Shareholding: A higher percentage of management shareholding can signal stronger alignment between management and shareholder interests, potentially boosting an environment that values the creation of intangibles such as brand value or proprietary knowledge. Managers with substantial equity stakes might be more incentivized to invest in long-term strategies that enhance self-generated goodwill and hence growth potential, as these can contribute to a durable competitive edge and, ultimately, to the firm's valuation.

3) Price to Book Value Ratio: A high PB ratio often suggests that the market recognizes the presence of valuable intangibles within a company, as these assets are typically not recorded on the balance sheet. This ratio can reflect the market's assessment of a company's intangible assets, like brand equity, customer loyalty, or proprietary technology, which are critical drivers of a company's overall value. When the market perceives that a firm has significant self-generated goodwill, this is often reflected in a higher price to book value ratio, as investors are willing to pay more for the firm's shares relative to the recorded book value of its tangible assets. Therefore, the impact of proxies of Self-Generated Goodwill (referred as *Intangibles* in the further discussions) is also tested in the Model 4, 5 and 6 with the purpose of analyzing the value relevance of the model.

$$Y_{it+1} = \alpha + \beta X_{it} + \epsilon_{it}$$

The impact of one lag independent variables is also tested on dependent variable (MV). A control variable (cash flow from operating activities) has also been included in the regression model. Further, please note that an increase in working capital represents a cash outflow and should, under typical circumstances, may be subtracted when calculating cash flow from operating activities. The rule of parsimony has been followed as in the negative outflows are already individually termed negative as variable (as extracted from the Database), hence not in equation. The following regression models provide a statistical relationship between the dependent and independent variables. The regression test and Hausman test results have been interpreted from the p-value or p-statistics.

$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 IA_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 IA_{it} + \beta_4 GW_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 IA_{it} + \beta_4 GW_{it} + \beta_5 Age_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

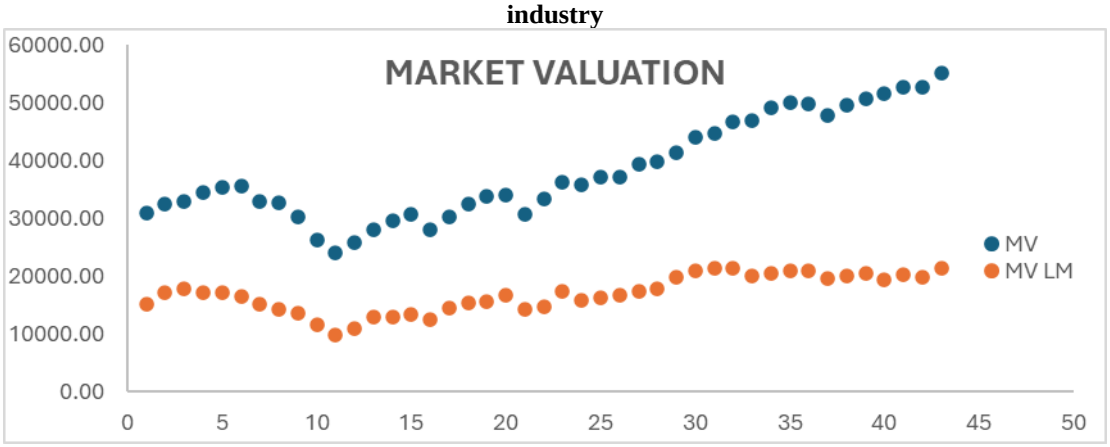
$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 IA_{it} + \beta_4 GW_{it} + \beta_5 Age_{it} + \beta_6 PMS_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

$$\textbf{Market Valuation}_{it+1} = \alpha + \beta_1 E_{it} + \beta_2 BVE_{it} + \beta_3 IA_{it} + \beta_4 GW_{it} + \beta_5 Age_{it} + \beta_6 PMS_{it} + \beta_7 PB_{it} + \gamma_1 CFOA_{it} + \epsilon_{it}$$

Where:

MV_{it+1}	=	Market Value of firm i after 1 quarter of time t
α	=	Intercept
β_j	=	Beta coefficient of the j^{th} independent variable
E_{it}	=	Earnings of firm i at time t
BVE_{it}	=	Book Value of Equity of firm i at time t
IA_{it}	=	Intangible Asset of firm i at time t
GW_{it}	=	Goodwill of firm i at time t
Age_{it}	=	Age of the firm i at the time t (in quarters)
PMS_{it}	=	Percentage of Management's shareholding of firm i at time t
PB_{it}	=	Price to Book Ratio of firm i at time t
γ_1	=	Coefficient of the control variable
$CFOA_{it}$	=	Cashflow from Operating Activities
ε_{it}	=	Error term

Graph 1: Quarter-wise average Market Valuation for companies in Non-Luxury industry as well as Luxury industry



Source: Author's compilation of data collected from Bloomberg Financial Database

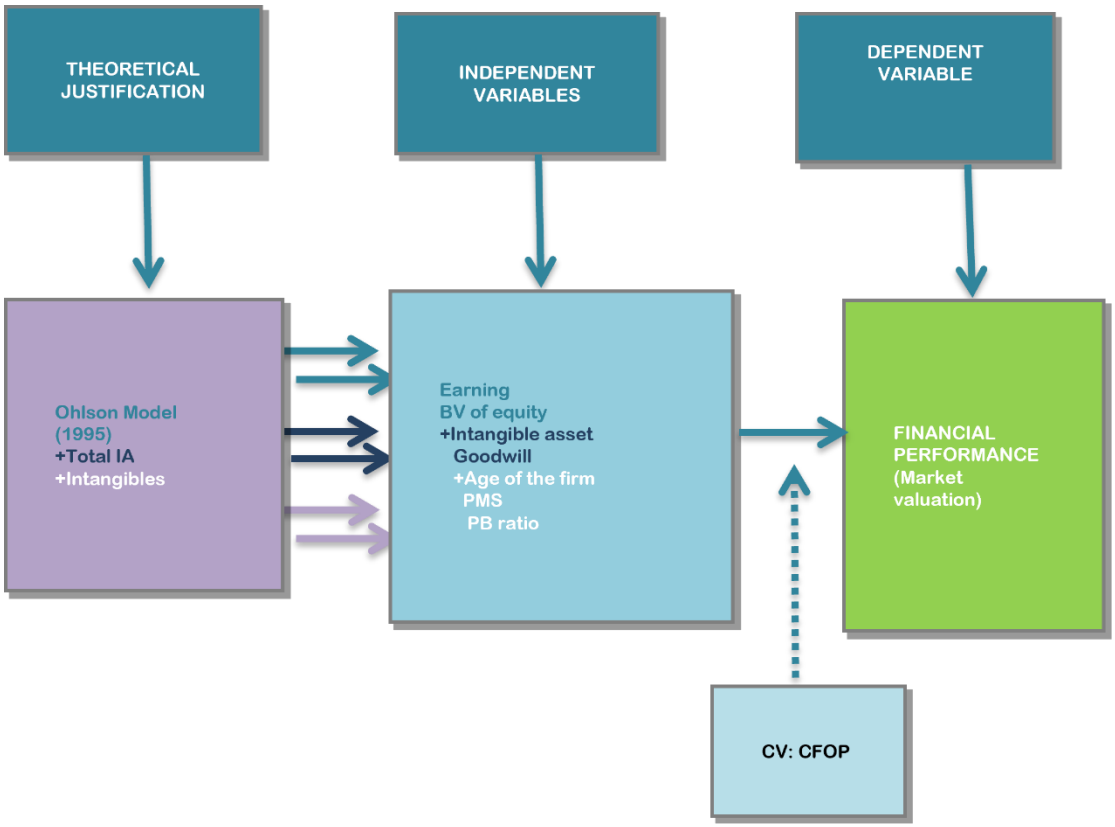
Whenever the *market factors* push the share prices up (or down), the trend is consistent for both the portfolios (See Graph 1). Factors causing further deviations in securities prices from their respective book values other than the market factors, could be two factors. These two factors could either be categorized as unrecognized missing intangible variables or the financial factors.

It is presumed that the impact of financial factors on both the portfolios is uniform. *Therefore, to study the impact of self-generated goodwill (and keeping the impact of market factors constant), a comparison of MV is made between Non-Luxury Industry and the Luxury industry portfolio for each model.*

The models are to test the beta coefficients of independent variables. The null hypothesis for every model is $\beta_j=0$ as against the alternative hypothesis $\beta_j \neq 0$. If the null hypothesis is true, X_{it} has no effect on $Y_{it+1}(MV_{it+1})$.

The Models have tested the impact of Earning, Book Value of Equity, Intangible Asset, Goodwill, Age of the firm, PMS and PB ratio on MV for Non-Luxury Industry and Luxury industry portfolio. In the final model of value relevance, two more variables are tested over and above the basic Ohlson model: total Intangible Asset (Intangible Asset and Goodwill) and Self-Generated Goodwill (Age of the firm, PMS and PB ratio).

Chart 1: Research Model



Source: Ohlson Model (1995) and Author's Research model

So, seven-null hypotheses are tested in the final model. The first null hypothesis of this model is *there is no significant linear relationship between independent variable Earning and*

dependent variable MV. The second null hypothesis of this model is *there is no significant linear relationship between independent variable Book Value of Equity and dependent variable MV*. The third null hypothesis of this model is *there is no significant linear relationship between independent variable Intangible Asset and dependent variable MV*. The fourth null hypothesis of this model is *there is no significant linear relationship between independent variable Goodwill and dependent variable MV*. The fifth null hypothesis of this model is *there is no significant linear relationship between independent variable Age of the firm and dependent variable MV*. The sixth null hypothesis of this model is *there is no significant linear relationship between independent variable PMS and dependent variable MV*. The seventh null hypothesis of this model is *there is no significant linear relationship between independent variable PB Ratio and dependent variable MV*. This tells us that the beta coefficients of Earning, Book Value of Equity, Intangible Asset, Goodwill, Age of the firm, PMS and PB ratio are equal to zero in the regression model. The alternative hypothesis states that the beta coefficients are not equal to zero.

EMPIRICAL ANALYSIS

Comparing the results of final models of the companies listed under of Non-Luxury Industry and Luxury index, the following observations have been drawn. *Firstly*, it has been ascertained that in Non-Luxury Industry, the variables viz. Earning, Book Value of Equity, Intangible Asset, Goodwill, PMS and PB ratio play significant role in determining the value relevance of accounting variables. These independent variables together explain 77.94% of MV. In the parallel market of Luxury industry, the variables Earning, Book Value of Equity, Intangible Asset, Goodwill, Age of the firm and PB ratio have shown significant impact on the dependent variable. *Secondly*, in both the industries, Earning of the firm is an independent factor with highest beta coefficients as .6506 and .5227in the Non-Luxury Industry and in Luxury industry respectively. *Thirdly*, the variables Age of the firm and PMS are having negative impact on the MV in Non-Luxury Industry.

Table 3: Comparative analysis of coefficient for the firms listed under Non-Luxury industry and Luxury industry				
	Non-Luxury industry		**Luxury industry**	
Market Value	**Coefficient (Std. Err.)**	**p-value**	**Coefficient (Std. Err.)**	**p-value**
Earning	.6506365 (.0107611)	0.0000*	.5226504 (.0545876)	0.0000*
Book value	Omitted		Omitted	
Intangible Asset	Omitted		Omitted	
Goodwill	.1053603 (.0049348)	0.0000*	.1090562 (.0190767)	0.0000*
Age of the Firm	-.0071551 (.0054186)	0.1870	.27109 (.0541095)	0.0000*
Percentage Management's Shareholding	-.0685863 (.0060666)	0.0000*	.0051498 (.0189262)	0.7860
PB Ratio	.1015903 (.0081933)	0.0000*	.010779 (.0323608)	0.0739
Cashflow from Operating Activities: CV	.0057937 (.0047275)	0.2200	.0724784 (.0210816)	0.0010*
Constant	5.197179 (.0755206)	0.0000*	3.073121 (.4935484)	0.0000*
Adjusted R-square		0.7794	0.6607	
Hausman Test		0.0000*	0.9058	
FE/RE Model	Fixed Effect Model		Random Effect Model	
Earning	.1527985 (.0052315)	0.0000*	.1275551 (.0222781)	0.0000*
Book value	Omitted		Omitted	
Intangible Asset	Omitted		.1380283 (.0302009)	0.0000*
Goodwill	.3585802 (.0063075)	0.0000*	.1187813 (.0584879)	0.0420*
Age of the Firm	.2751324 (.0118101)	0.0000*	.5461908 (.1196214)	0.0000*
Percentage Management's Shareholding	-.0658913 (.0055389)	0.0000*	.04766 (.0464539)	0.3050
PB Ratio	.2919938 (.0062415)	0.0000*	.3193319 (.0388717)	0.0000*
Cashflow from Operating Activities: CV	.0158778 (.0035941)	0.0000*	.0095687 (.0137218)	0.4860
Constant	3.459793 (.1041419)	0.0000*	1.489718 (1.136835)	0.1900

**significant at the 5% level*
significant at the 10% level
Source: Author's output table from data collected from Bloomberg Financial Database

Table 4: Beta Coefficients with standard errors in the six models of Ohlson model in the Non-Luxury industry and Luxury industry

MODEL	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6
VARIABLES	**E, BVE, CFOA**	**M1, IA**	**M2, GW**	**M3, AGE**	**M4, PMS**	**M5, PB**
Adj. R^2 of NLI	0.8155	0.8191	0.8216	0.8262	0.8091	0.7794
Adj. $R^2$of LI	0.8058	0.8215	0.771	0.77	0.7617	0.6607
β_1	0.516419*	0.512891*	.5180861*	.5302423*	.507669*	.6506365*
(β coef. of E)	(0.010839)	(0.011405)	(0.0119155)	(0.0119998)	(0.0136821)	(0.0107611)
	0.5419272*	0.466268*	.4336956*	.4300488*	.4186427*	.5226504*
	(0.033053)	(0.030579)	(0.041874)	(0.041645)	(0.047052)	(.0545876)
β_2	0.3307166*	0.276088*	0.2826716*	.2719027*	.2450525*	Omitted
(β coef. of BV)	(0.01057)	(0.010553)	(0.0110602)	(0.0114031)	(0.0120159)	
	0.2857924*	0.2564666*	.2962002*	.306686*	.284121*	Omitted
	(0.031046)	(0.032128)	(0.031666)	(0.034118)	(0.034539)	
β_3		0.060142*	Omitted	Omitted	Omitted	Omitted
(β coef. of IA)		(0.003366)				
		0.0467692*	.0591671*	.0661533*	.0896924*	Omitted
		(-0.012134)	(0.020859)	(0.021715)	(0.0257)	
β_4			0.0535306*	.0592225*	.0613584*	.1053603*
(β coef. of GW)			(0.0034057)	(0.0035733)	(0.003794)	(0.0049348)
			.0238056	.0152502	.0367014	.1090562*
			(0.013701)	(0.016275)	(0.020676)	(.0190767)
β_5				0.0063694	-0.0025282	-.0071551
(β coef. of Age)				(0.0044612)	(0.0050008)	(0.0054186)
				-.0385786	-.0416214	.27109*
				(0.037573)	(0.053526)	(.0541095)
β_6					-0.0534199*	-0.0685863*
(β coef. of PMS)					(0.0053127)	(0.0060666)
					.0268008	.0051498
					(0.015445)	(.0189262)
β_7						.1015903*
(β coef. of PB)						(0.0081933)
						.010779
						(.0323608)
β_8	0.0147153*	0.016327*	0.0198171*	.0188482*	.0132585*	0.0057937
(β coef. of CFOA: CV)	(0.003201)	(0.003445)	(0.0035251)	(0.0037339)	(0.0044432)	(0.0047275)
	-0.0050657	.0344098*	.0443251*	.0449818*	.0495991*	.0724784*

	(0.01326)	(0.012826)	(0.014502)	(0.014568)	(0.017344)	(.0210816)
Constant	3.971942* (0.043591) 4.140532* (0.136009)	3.983476* (0.042682) 4.363244* (0.128166)	3.939406* (0.0430173) 3.892165* (0.170254)	3.865708* (0.0633022) 4.183065* (0.292588)	4.342185* (0.0718236) 4.263683* (0.382212)	5.197179* (0.0755206) 3.073121* (.4935484)

**significant at the 5% level*
significant at the 10% level
Source: Author's output table from data collected from Bloomberg Financial Database

It may be interpreted as grown-up (or recently incorporated) companies have lower (or higher) MVs in Non-Luxury Industry. Whereas in Luxury industry, the relation between the Age of the firm and MV is positive. It can be inferred in the Luxury industry that a grown-up (or recently incorporated) company has higher (or lower) MV. This can probably be justified as the role of Intangibles increases with time. In Luxury companies, the impact of Age of the firm (as an intangible factor) is reflected in the company's MV later. Besides this, as higher PMS implies that a major Agency cost would be borne by the company, hence the Earning of the firm would go down, and thus the MV will fall in Non-Luxury Industry. In the markets of luxe, the shares are predominantly held privately, so the concept of ownership and management of the firm coincides. Therefore, the Agency cost theory may be exempted in Luxury industry. So, higher PMS in Luxury industry implies higher MV. *Fourthly*, the variables Book Value of Equity and PB ratio seem to explain the same underlying factor. Another multicollinearity has been observed between Intangible Asset and Goodwill of the firm.

On the other hand, the concept of the value relevance can be concluded by referring to the adjusted R-square statistics of the models. It could be observed from the Table that value relevance of accounting information is more recognized in Non-Luxury Industry whereas the Luxury industry still needs more factors to be included in the model to achieve parallel degrees of explanation.

In the study, *Value Relevance (Ohlson)* model has been estimated and examined. The test results are interpreted model wise. The research objective to compare the value relevance of Intangibles in Luxury industry and Non-Luxury Industry has been tested by the Ohlson Model (1995). The usefulness of accounting information has been conceptualized as Value Relevance. The value relevance is measured as a proportion of adjusted R-square. The extended Ohlson model has somehow a distinguished explanation comprising all the factors. Concluding all the six models tested by Ohlson methodology, the research question can be answered as follows:

1) The financial performance of Luxury industry is found to be *less value relevant* than the Non-Luxury Industry.

2) The value relevance of *Non-Luxury Industry* can be increased by the factors *Intangible Assets, Goodwill and Age of the firm.*
3) The value relevance of Luxury industry could possibly go up by including Intangible Assets in the model.
4) The factors like PMS and PB ratio could not significantly contribute to the value relevance of the models in both the markets.

From the statistical analysis, the impact of Total Intangible Assets (Goodwill and other Intangible Asset) and Intangibles (Age of the firm, PMS and PB ratio) can be concluded as follows: -

1) The interpretations from Ohlson model can be drawn as the Goodwill and other recognized Intangible Assets are significant variables to explain the MV.
2) The Goodwill and other Intangible Assets are measuring the same informational content (multicollinearity) for MV in the Non-Luxury portfolio study. This finding is found to be similar in both the markets.
3) The proxy variable PMS is negatively influencing the MV in Non-Luxury Industry. Unlike the Luxury industry, where the PMS is more privately held and lacks the conflict between management and owners of the company.
4) The PB ratio is a significant variable to have explained MV in the Non-Luxury Industry as well as in the Luxury industry portfolio.

The preliminary Ohlson model has shown less value relevance in the Luxury industry than the Non-Luxury Industry. The value is even less relevant when the Goodwill and other Self-Generated Goodwill (Age of the firm, PMS and PB ratio) are included in the regression model. However, *the accounting information recognized by Luxury companies is found to be less value relevant than the Non-Luxury Industry in the study.*

The impact of (recognized) Intangible Assets on financial performance has been interpreted by the beta-coefficient of the dependent variables (Goodwill and Intangible Assets). The following two inferences could be drawn from the result of statistical models. The impact of Intangible Assets on MV of firms (as a measure of financial performance) is found to be higher in the Non-Luxury Industry than Luxury industry. The impact of Goodwill of firm is parallel to the findings of Vincent (1994) and Bugeja and Gallery (2006). They found that merely the recently acquired Goodwill has significant information content. This study has also found similar results as the findings of Ji and Lu (2014). They have analyzed the Value Relevance of Intangible assets and have shown that Intangible assets are value relevant in Australia. The literature has drawn instances to show that Intangibles are value relevant. Scholars like

McCarthy and Schneider (1996); Francis and Schipper (1999); Lev and Zarowin (1999); Goodwin and Ahmed (2006) have supported the statement that Intangibles are value relevant and there exists a statistically significant association between firms' MV and information about the value of Intangibles.

The three proxy variables of Intangibles are Age of the firm, PMS, PB ratio. The PMS is the only dependent variables which has shown higher impact on the financial performance in Luxury industry than the counterpart Non-Luxury Industry. On the other hand, Age of the firm and PB ratio are more significant in Non-Luxury Industry than the Luxury industry to impact the financial performance.

The Age of the firm has had a negative impact on the MV of Non-Luxury Industry, which has also been supported by Agarwal and Gort (1996, 2002). They found that the old age of the firm may make knowledge, abilities, and skills obsolete and induce organizational decay. Loderer, Neusser, and Waelchli (2009) concluded also favour the similar research findings. They advocate that only the better firms survive with Age of the firm. In the Luxury portfolio, a contrary outcome has been observed that is the age-old firm has a positive impact on the MV. It has also been backed by Hopenhayn (1992) who has proved that older firms enjoy higher MV. In the Luxury industry, this positive impact is probably contributed by the (less quantified) Intangibles. However, the impact of PB ratio on MV is found to be positive. The similar statistical results have been contributed by Fama and French (1991) who recognized that the PB ratio explains MV better than beta does.

CONCLUSIONS AND RECOMMENDATIONS

The research entitled "Unrecognized Intangibles and Value Relevance" embarks on a journey to explore the determinants of market valuation within the luxury industry, benchmarking it against non-luxury sectors. The intention is to scrutinize the considerable influence of intangibles within the luxury industry. Despite observing parallels and sometimes opposite interpretations in the various models when comparing the two sectors, certain key conclusions are drawn.

Primarily, the value relevance statistic remains consistent across both markets. However, in the absence of intangibles, the financial performance of the luxury industry exhibits less value relevance compared to non-luxury sectors. Among the assessed independent variables, only recognized intangible assets emerged as a component that could further enhance the model's value relevance. Variables like goodwill and firm age appeared value relevant in non-luxury sectors but didn't hold true for the luxury industry. Profit Margin on Sales and Price-to-Book (PB) ratio did not further elevate the value relevance.

Secondarily, an important observation is that several intrinsic variables generated internally by the firm are omitted from accounting statements, though they are often mirrored in financial markets via fair equity pricing. This non-recognition tends to cause share prices to deviate from book values. These concealed self-generated goodwill often become quantifiable and public during mergers or acquisitions.

Thirdly, the findings hold substantial implications for corporate management and policymakers, urging the necessity for mandatory disclosure and reporting of intangibles within firms' accounting statements. This transparency will enable stakeholders to accurately assess a firm's true value.

Fourthly, unrecognized intangibles exert influence on financial performance, indicating that key variables may be systematically overlooked by accounting standard setters.

Fifthly, the success of an organization rests on its ability to utilize its workforce optimally to enhance the firm's value. Corporations should thus focus on intangibles to strengthen their financial statements and further increase the relevance of accounting information.

Sixthly, accounting standards have been framed in a way that consistently presents intangibles with recognition challenges.

Seventhly, prevailing biases and distortions in investors' perceptions can obscure the intrinsic connection between intangibles and subsequent financial performance.

Eighthly, to uphold the consistency principle for asset measurement, self-generated goodwill must be accorded the same importance as acquired goodwill. A balance must be struck between the principles of full disclosure and conservatism, particularly relevant to self-generated goodwill.

Finally, it is straightforward to adhere to the matching and cost principles for self-generated (not acquired) assets, especially before any third-party engagement for mergers or acquisitions.

LIMITATIONS AND SCOPE FOR FURTHER STUDY

After coming across numerous research studies and studying the methodologies, this study has located the research gaps and attempted to fill the identified ones. Despite trying the best of efforts, it faces the following limitations. *Firstly*, many unlisted companies are there in Luxury industry, but due to non-availability of financial data of such companies, they could not be included in the sample data collected. *Secondly*, the selection of a portfolio to study Luxury industry has been made without many options to choose from. The S&P Global Luxury Index has maximum number of available listed Luxury industry companies. So, the study is based upon the data collected merely from these handful number of companies. *Thirdly*, the variables associated to proxy self-generated goodwill may not be easily quantified and because of which the Intangibles measurement is often left incomplete. The future research can revisit the three limitations of the study mentioned above.

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LEADING AMIDST COVID-19: AN ATTENTION-BASED VIEW OF FIRM DISRUPTION RISK MANAGEMENT AND IMPROVED RESILIENCE OF INDIAN FIRMS

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ABSTRACT

Finance is an area that deals with the study of investments. Contemporary organizations require practicing cost control if they are to survive the recessionary times. The global outbreak of corona virus disease 2019 (Covid-19) has affected all segments of human lives, together with the physical world and is/was detrimental to human life, organizations, financial markets & economy as a whole. The pandemic highlighted the capitalist dysfunction presenting that taking into account profits over people can be deadly. But at the same time, the pandemic crisis has threatened the survival of firms at a global scale, with potentially disturbing economic outcomes. As Covid-19 raises a series of new concerns about how firms strategically steer through these turbulent times (Hitt et al., 2021), Covid-19 provides an exclusive prospect to examine the impact of an unprecedented pandemic – given its scope, rapid spread, health and economic destruction – on firms' behaviors (Ghobadian et al., 2021). Following the methodology of Ghobadian et al., 2021, the present study draws on two harmonious theories – contingency and attention-based view. Thus, this study attempts to examine the relationship between firm disruption and firms' Covid-19 attention focus. Ghobadian et al., 2021, also stated in the research that Industry external environments may influence which signals attracts managerial attention; hence, this study also examines if firm disruption–Covid-19 attention focus is moderated by industry dynamism. The present study, therefore, used a sample of 1,536 Indian firms for the study and concluded a positive relationship between firm disruption and Covid-19 attention focus for the Indian Firms and that industry dynamism negatively moderates this relationship.

Keywords: *Finance, Covid-19, firm disruption, Covid-19 attention focus, industry dynamism, Indian firms*

JEL Classification Codes: G32, M41

INTRODUCTION

The Covid-19 virus quickly surpassed other recent epidemics in both magnitude and scope due to its rapid global spread. In addition to the death toll and the disturbance of the lives of millions of people, there had already been extensive and severe economic harm. National economies, as well as the businesses and people within them, have gone through a number of international crises. They have responded, among other things, to the 1997–1998 Asian

economic crisis, the 2000–2002 dot-com bubble burst and the post–9/11 economic downturn, the 2008 financial and economic crisis, the 2011 Fukushima nuclear meltdown, the 2015 migration crisis, political crises like the rise of populism, conflicts over Brexit, trade wars, and the climate crisis. The causes and severity of these and other crises can vary (Bansal et al., 2018). However, they share the potential for disastrous individual, societal, economic, and natural repercussions, such as the collapse of businesses and industries, significant job losses, social precarity and natural damages (Hällgren et al., 2018). Since reactions are governed by the various governance structures of the impacted nation states and regions, these overwhelming repercussions frequently result from their global or cross-border implications.

Similarly, there have been five pandemics and epidemics in this millennium: SARS (2002–2003), Swine Flu (2009–2010), MERS (2012–present), Ebola (2014–2016) and Covid-19 (Honigsbaum, 2020). They are significant since there is evidence that they will probably happen more frequently in the future (Honigsbaum, 2020) recognizing their effects on all levels.

The pandemic crisis had an impact on people and organizations all around the world. More and more governments are putting into place measures like lockdowns, event bans and shutdowns as the corona virus Covid-19 spread. By reducing Covid-19's spread, these actions help prevent dangerous capacity overloads in the country's healthcare systems. At the same time, they pose a global danger to the continued existence of businesses in all sectors and industries. As prior crises have demonstrated, such risks not only cause significant economic recessions but also have negative societal effects when household incomes diverge.

There is a dearth of comprehensive empirical study at the national level compared to the vast firm level studies on their influence (Prager et al., 2017 and Fan et al., 2018). Different epidemics and pandemics have different fury and breadth; Covid-19was a once-in-a-century health crisis with effects on the economy that are comparable to those of a natural disaster. Natural disasters can have far-reaching effects, including the collapse of businesses and industries, significant job losses and social precarity (Hällgren et al., 2018).

As a result, the pandemic raised a crucial concern regarding how businesses might effectively address emergencies like the Covid-19 pandemic. We argue that Covid-19's impact would have been just as significant, if not more so, because it will provide the most relevant empirical illustration of a "doomsday" scenario in management literature (Narayanan et al., 2021). In this paper, we investigate the relationship between Covid-19-induced business disruption and managerial attention focus by utilizing two complementary and well-established management theories: contingency theory and attention-based view following the methodology of Ghobadian et al. (2021) on Indian Firms.

The growing body of research indicates that Covid-19 has different effects on firm and industry outcomes, which, in our view, leads to varying levels of managerial attention focus (hence the choice of firm disruption as our independent variable and managerial attention focus as our dependent variable). The author also investigates whether this link is moderated by industry dynamism.

Contingency theory states a leader's effectiveness "depends on how well the leader's style fits a particular context or situation" (Wolinksi, 2010). In the literature on organizations and strategic management, contingency theory—which links organizational resources with the

appropriate environmental context—takes centre stage. According to numerous studies (Baum and Wally, 2003; Wright and Nyberg, 2017), businesses that react quickly to environmental change outperform those that don't. Additionally, failing to adapt could cause businesses to fall into a vicious cycle from which they may never emerge (Cozzolino et al., 2018). It is perplexing that only a small minority of businesses pay heed to environmental signals (Bundy et al., 2013). Thus, the purpose of this study is to investigate this conundrum in light of the unparalleled disruption brought on by Covid-19.

Contingency theory links higher performance to environmental adaptability but says nothing about how adaptation occurs. It is an instrumental theory. The attention-based view, which claims that adaptation, necessitates a tripartite information processing sequence: attention, interpretation and action. According to both views, the environment serves as a constant source of input and stimulation, therefore for businesses to remain competitive, they must adapt to environmental change. The paper argues that the tripartite process—the crucial first phase in the process—underpins environmental alignment, therefore, the paper tries to investigate the connection between disruption brought on by Covid-19 and attention.

The attention-based view (ABV) of the company has become a major theoretical viewpoint in research on strategic organizations (Ocasio and Joseph, 2005). The ABV proposes three fundamental ideas that, taken together, postulate strategic behavior as a result of attention focus and manipulation. It emphasizes how strategic decisions and outcomes are impacted by the attention of decision-makers. This attention is contextually located and socially organized. Although significant uncertainties still exist regarding the types and dimensions of attention, the first principle of ABV (Ocasio, 1997), which states that decision-makers' selective focus of attention directly influences strategic behavior and outcomes in organizations, is well established empirically.

Additionally, the level of discretion depends on elements at the corporate, organizational, and individual levels. Industry dynamism is recognized as a critical industry-level characteristic influencing management cognition and discretion among these contextual factors (Steinbach et al., 2017). In light of this literature, the paper argues that the association between firm disruption and management attention focus is moderated by industry dynamism.

Combining all the concepts discussed earlier, the paper presents two research questions. First, does firm disruption affect managerial attention to Covid-19? Second, does the association between firm disruption and Covid-19attention focus is moderated by industry dynamism?

To answer the study objectives, the paper used a cross-sectional sample made up of 1,536 Indian firms. The study discovered a positive correlation between firm disruption and managerial attention focus on Covid-19, as well as a negative correlation between firm disruption and industry dynamism which is in line with the findings of Ghobadian et al. (2021). This research shows the significance of factors at the national, industrial, organizational and individual levels that influence management discretion.

Few things about this research contribute towards the literature available in context of Indian Firms and its response to Covid-19. First, the paper builds on contingency theory by showing how industry dynamism affects how managers pay attention to environmental signals in the face of objective disruption. According to Eggers and Kaplan (2013) businesses in dynamic

industry environments are more agile in response to unpredictability or more rigid as a result of noise and distraction. This research hypothesizes and illustrate that managers find it more challenging to pay adequate attention to the cause of sporadic disruption in dynamic situations. Additionally, there is a dearth of study overall, and none at all when it comes to pandemics, that looks at how environmental change, management focus and industry dynamism are related in Indian context. This paper provides a critical understanding of the management implications of Covid-19through the conduct of this research. The next contribution, it makes is a methodological one again in Indian context. This paper pays attention to the textual data in financial reports and suggests a new method to assess Covid-19attention focus because the present research on Covid-19primarily focuses on retrospective survey data (Huynh, 2020; Papanikolaou and Schmidt, 2020).

Future researches can also analyze managerial perspectives on Covid-19and related activities using this methodology. This study offers managers the opportunity to analyze their company in the context of the industry, compare their attention focus to that of their competitors in the industry and determine whether the divergence is appropriate.

LITERATURE REVIEW

Although Covid-19 began in the Chinese province of Hubei's city of Wuhan, it spread quickly throughout the world, causing human tragedies and significant economic losses. It was not a surprise that Covid-19has attracted the interest of management experts, academicians and researchers, as seen in the extensive commentary and conceptual papers that were frequently published in various national and international journals. Shankar (2020) outlined the necessity for mitigating action in the short, medium and long-term issues posed by Covid-19. Examining the effects of Covid-19on international supply chains, Verbeke (2020) suggested four directions for further study. Hitt et al. (2020) contended in a conceptual study that enterprises must modify their environments in response to Covid-19. The necessity of reshaping also applies to large corporations (Hitt et al., 2021).

Inaction in the face of a crisis is not an option, according to Wenzel et al. (2020), who described four major potential strategic responses: retrenchment, preserving, innovating and exiting. Brammer et al. (2020) concluded that the long-term effects of Covid-19on businesses and society are unpredictable. Wang et al. (2021) examined the connection between company communication (signals), consumer response and influence on trust recovery and emphasized on the significance of action in response to the Covid-19issues.

In the discussion of the possible effects of Covid-19on firms' non-market strategies, Lawton et al. (2020) identified three key trends: the emergence of novel cross-sectoral collaboration, the evolution of institutional environment-non-market strategy interplay and improved corporate socio-political alignment. Therefore, it can be further added that the Covid-19literature as a whole emphasized on the necessity of swift mitigation action.

The environment is not solely exogenous and managers' interpretations impact the organizational response. This point of view provides a logical justification for why certain businesses struggle to adapt to environmental changes. Cognitive limitations and uncertainties

that make it difficult to assign probabilities to events are two major variables that lead to the requirement for interpretation. According to Adner and Helfat's (2003) theoretical perspective, management cognition is a vital managerial skill and both structural and managerial effects are important in understanding company actions in the face of environmental changes.

The cognitive views are placing ‘attention’ in central position of cognitive perspective (Narayanan et al., 2011). The attention-based view explains how organizational action is shaped by attention in organizations. The attention-based view holds that Attention, interpretation, and action are the three steps in the tripartite information-processing sequence that managers use (Dutton and Jackson, 1987). Many researches employed ‘attention’ as a measure of cognition (Li et al., 2013).

The nature of the circumstances motivating managers to pay attention and the consistency of this attention across organizations is crucial questions given the significance of attention focus in eliciting organizational action. For a very long time, cognitive theorists have pondered why only some businesses pay attention to a crisis and are able to identify its presence. For instance, in order to prompt actions, a crisis must produce a clear threat that decision-makers should recognize. Crisis situations also swiftly bring about significant change, giving decision-makers a constrained window of opportunity to act. A crisis also typically arrives as a surprise because its occurrence cannot be predicted by decision-makers.

According to theory, a crisis typically lasts for three time frames: respond, during which a company manages continuity and deals with the current situation; recover, during which a company gains knowledge and becomes stronger; and thrives, during which a company gets ready for and shapes the "next normal." Managers and leaders have the significant and additional responsibility of quickly taking into account all three time frames at once and allocating resources appropriately.

Resilient leaders can take specific tactical actions within the context of these broad imperatives to enhance these attributes throughout the current crisis, blunting its impact, and assisting their firms to emerge stronger. Instead of simply returning to the status quo, the correct approach can turn this crisis into an opportunity to advance and provide even more value and great society effect. Companies that have created a playbook for preparing for a downturn have an advantage because many of the scenarios, projections and levers have already been defined and may just need to be modified to account for the current situation.

In this respect, the Covid-19 pandemic fits the definition of a crisis because it posed a clear threat, manifested itself suddenly and gave decision-makers a limited window of opportunity to respond. However, it had an unequal effect on businesses and industry outcomes. Whether or not, businesses viewed the pandemic as the root of the issue would be determined by the negative effects of Covid-19 on revenue. This paper argues that monetary losses were significant aspiration-level triggers, and that while businesses with lower levels of disruption might not consider Covid-19 to be a crisis, businesses with higher losses are more likely to be aware of the threats posed by the pandemic and thus to pay more attention to it.

Whether, this justification and the ensuing hypothesis holds true in Indian context is a crucial question. Consequently, the study poses the following hypothesis:

H_1: The degree of disruption that Indian Firms' faced is positively related with the Covid-19 attention focus.

The contextual factors at the organizational, industry and person levels influence managers' degree of discretion. The present study elaborated by offering a more thorough justification for why managers may overlook or misread a crisis even in the presence of triggers at aspirational levels following the methodology used in Ghobadian et al. (2021). Various industries change at various rates and are unpredictable to varying degrees. This quality is known as "industrial dynamism."

Due to the distraction of alternate explanations, managers in a dynamic workplace may find it challenging to comprehend the causes of disruption in the context of Covid-19. Since disruption is widespread in dynamic industries, attribution to a cause can be challenging. In contrast, in the absence of a compelling, alternative explanation, businesses engaged in a stable industry may be more likely to blame the sudden financial losses on the Covid-19 outbreak. But there are also arguments in opposition. Due to the high degree of unpredictability, some academicians contend that managers in dynamic sectors are more proactive in scanning their environments (Hough and White, 2004). Managers may become more aware of the Covid-19 threat, a new danger to their working environment, as a result of this. Further, attribution to Covid-19and attention to it may be delayed for managers working in dynamic sectors. This is because they frequently have to decide which of the many endogenous causes at play the primary driver of change is. A delay of this kind could have detrimental long-term effects in a crisis. The association between firm disruption and the Covid-19 attention focus is generally thought to be negatively moderated by industry dynamism. Consequently, the study offers the following nation based hypotheses.

H_2: The relationship between firm disruption and Covid-19 attention focus is negatively moderated by the level of industry dynamism in Indian Firms.

RESEARCH METHODOLOGY

The financial data for sample firms were drawn from CMIE-Prowess for all the 1,536 Indian Firms during the period of the study 2015-2020 covering 18 industries. The study assesses firm disruption using first and second quarter financial data from 2015 through 2020. The study employs the quarterly/semi-annual reports of Indian Firms released in 2020 for the managerial attention focus. To gauge industry dynamism, the study analyzes firm-level financial data from 2015 to 2019.

Dependent Variable

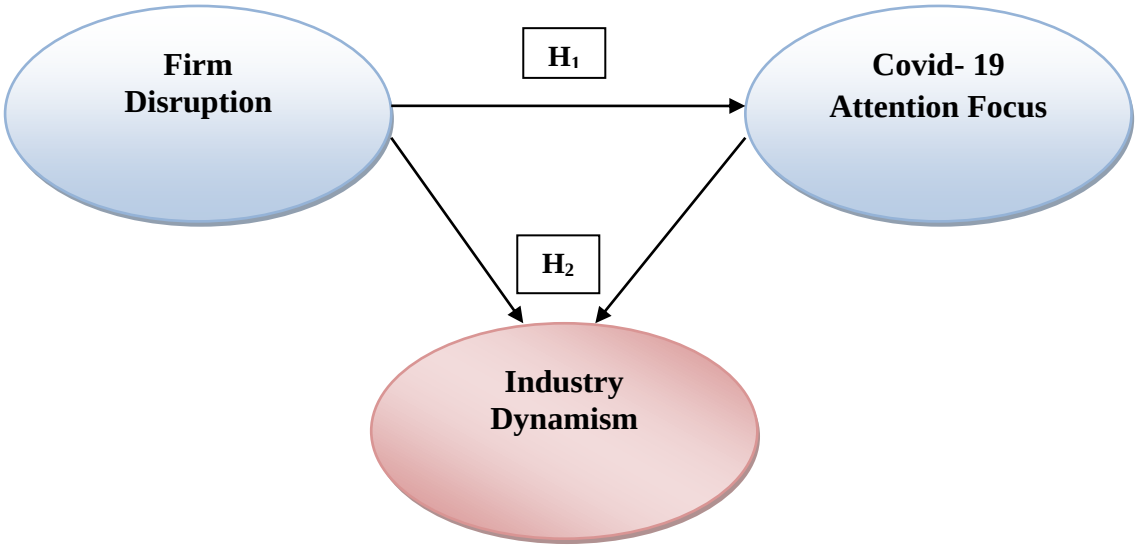
The COVID-19 attention focus at the firm level is the dependent variable. Financial reports, as opposed to surveys or interviews, which typically involve retrospective reconstruction, offer a more accurate measure of managers' attention since it record their

opinions in real time (Kaplan, 2011). Given the serious threat posed by the Covid-19 pandemic, many companies' quarterly/semi-annual reports addressed it, making them an appropriate source of information to gauge managers' attention focus for the present study. Here, the paper, substitute attention focus for the proportion of Covid-19 related material in the MD&A section of annual reports. The study argued that managers would discuss Covid-19 more if, cognitively, they perceived it as a salient issue to their firms (Nadkarni and Barr, 2008).

Following the approach of Hussainey et al. (2003), the present study developed a text-based method for evaluating the prospective data in the annual report. There were three steps in the computing process for each financial report. The evaluation started by identifying keywords connected to Covid-19. In order to accomplish this, the study examined 30 quarterly reports of Indian Firms and the study chose "Covid-19," "corona virus," "disease," "outbreak," and "pandemic" as the keywords. Second, the study considered a sentence to be relevant to Covid-19, if it contained any of these Covid-19 related keywords. Third, the study calculated the word count for the sentences relating to Covid-19 as well as the MD&A section. The word count of sentences relating to the Covid-19 and the word count of the MD&A section were divided to determine the attention score.

Independent Variable

The independent variable is firm disruption. This study uses an objective economic measure of disruption that follows a three-step approach and offers improved dependability and reproducibility. The paper solely considered the negative effects of the pandemic, in keeping with the developing COVID-19 literature as well as the crisis-related literature. For calculation, firstly, the study adds the company's revenues from the first and second quarters to determine its semi-annual total revenue. Secondly, the study determines the percentage change in each company's first-half revenues from 2015 to 2020. Lastly, the study uses the difference between mean value of firm revenue growth in the first half of 2020 and firm revenue growth in the first half of the previous five years (2015–2019) as a proxy for firm disruption. Negative performance changes are more likely to get managers' attention than positive ones. (Nadkarni and Barr, 2008).



Relationship between the three variables and Hypotheses drawn

Moderator Variable

Industry dynamism serves as the moderator variable. The study computed industry dynamism using a two-step procedure, following Richard et al. (2019). First, the study regressed the log-transformed industry sales of the past 5 years against time (2015–2019). Second, the study anti-logged the regression slope's standard error and utilized it to calculate the value of industry dynamism.

Control Variables

Anything kept constant or constrained in a research study is referred to as a control variable. Despite not being relevant to the study's objectives, this variable is controlled because it might have an impact on the results. It is possible to directly control a variable by maintaining it constant during an experiment, or indirectly by using techniques like randomization or statistical control.

Following the methodology of Ghobadian et al. (2021) and Hambrick and Finkelstein (1987), the study accounted for a number of individual, firm and industry-level variables that could have an impact on firm-level performance, including CEO tenure, CEO duality, firm size, current ratio, debt-to-equity, return on assets (ROA), revenue growth, capital intensity and industry-level factors like essential industry and industry revenue growth that might affect COVID-19 attention focus. According to the literature, managerial cognition and decisions are

influenced by a CEO's power. In this study, CEO tenure and CEO duality is taken as proxy measures of CEO power. CEO duality is a dummy variable with a value of one if the CEO also serves as the board chair and a value of zero otherwise. The CEO's tenure is the length of time since they first took office. The study adjusts for the firm size, as the natural log of the total assets of the firm.

The total asset of a company over its long-term liability is its current ratio. The hazards related to Covid-19 may be masked by strong historical performance, leading to decreased attention focus. By using ROA and sales growth, the study controls for prior performance of the firms in the sample. The financial data at the end of 2019 is used to construct these indicators.

Further, for controlling the factors at the industry level, two variables i.e. essential industry and industry revenue growth are considered. An industry thought to be important for a country's economy and that the government may safeguard or promote is known as Essential Industry. For example, Healthcare, Law enforcement, public safety, Food and agriculture, Energy, Transportation and logistics, Retail and wholesaling, Food services and accommodations, Communications industries etc. The argument supported is that as a result of government backing, companies involved in essential industries might pay less attention to Covid-19. The research created a dummy variable that is equal to one if an industry is considered to be essential and zero otherwise. Lastly, the study asserts that businesses in underperforming industries may be more attentive towards Covid-19 since these sectors are more susceptible to disruption brought on by the Covid-19 pandemic. Because of this, the study controls for industry revenue growth, which is the change in industry revenue as a percentage from the first half of 2019 to the same period in 2020.

RESULTS AND ANALYSIS

Descriptive Statistics

Table I, lists the important variables used in this study's descriptive statistics and correlation matrix. For multicollinearity analysis, the study computes variance inflation factors (VIFs). The variance inflation factor (VIF), which evaluates how much the variance of an estimated regression coefficient increases, if the predictors are correlated, is one approach to measure multicollinearity.

If the independent variables are not multicollinear, the variance is 50% higher than what would be predicted with a VIF of 1.5. Regression analysis is said to be strongly correlated if the VIF is greater than 5 as a general rule. The model's VIF value falls below 1.5.

Table I: Descriptive Statistics

Variables	Mean	SD	1	2	3	4	5	6	7	8	9	10	11
1. Attention Focus	8.64	5.22											
2. Firm Disruption	0.28	0.59	0.07										
3. Industry Dynamism	1.37	1.22	0.03	0.07									
4. CEO Tenure	4.93	4.1	0.15	0.21	0.08								
5. CEO Duality	2.37	0.28	0.42	0.06	0.23	0.01							
6. Firm Size	8.28	0.72	0.04	0.05	0.11	0.04	0.02						
7. Return on Asset	0.22	0.54	0.28	0.01	0.08	0.11	0.05	0.04					
8. Debt to Equity Ratio	0.73	2.22	0.02	0.15	0.03	0.02	0.06	0.07	0.08				
9. Current Ratio	4.12	2.2	0.6	0.07	0.05	0.09	0.01	0.05	0.09	0.04			
10. Revenue Growth	0.4	0.59	0.01	0.02	0.17	0.04	0.06	0.02	0.01	0.15	0.11		
11. Essential Industry	0.12	0.16	0.03	0.02	0.06	0.01	0.03	0.21	0.18	0.03	0.07	0.03	
12. Industry Revenue Growth	0.24	0.82	0.01	0.04	0	0.02	0.08	0.08	0.16	0.19	0.08	0.01	0.1

There is no evidence of multicollinearity in the model because the values are below the suggested limit of 5.

Regression Analysis

The data come from the sample of 1,536 Indian Firms in various sectors. The study employed Ordinary Least Squares Regression analysis, adding individual, organization, and industry-level control variables, with firm disruption as the independent variable, industry dynamism as the moderator and attention focus as the dependent variable. At the firm level, robust standard errors are clustered.

Regression analysis findings are shown in Table II in regard to the two hypotheses. According to H_1, managerial attention to Covid-19 is positively connected with Indian firm disruption. This theory is supported by the values in Main Effect (Table II). A significant and favorable coefficient of disruption is discovered (= 4.09, p 0.05). Therefore, Indian businesses were more likely to pay heed to interruption brought on by COVID-19.

Table II: Regression Analysis

	CONTROL VARIABLES	MAIN EFFECT	INTERACTION ANALYSIS
CONTROL VARIABLES			
CEO Tenure	0.07 (0.98)	0.03 (0.46)	0.61 (0.29)
CEO Duality	0.42 (2.54)	0.30 (2.09)	0.56 (2.18)
Firm Size	0.53** (7.39)	0.44** (6.90)	0.71** (6.93)
Return on Asset	1.98** (2.45)	1.08** (4.39)	1.49** (3.84)
Debt to Equity Ratio	0.01 (0.43)	0.04 (2.2)	0.19 (1.12)
Current Ratio	0.34 ** (1.23)	0.56** (1.81)	0.82 (2.09)
Revenue Growth	0.62 ** (3.09)	0.28 (3.01)	0.04** (1.92)
Essential Industry	4.29** (3.20)	4.09** (3.15)	4.27** (3.18)
Industry Revenue Growth	5.23*** (2.09)	4.46*** (2.17)	4.23** (2.97)
MAIN EFFECT			
Firm Disruption		4.09** (2.05)	5.16** (2.99)
Industry Dynamism		2.46** (4.21)	2.74*** (4.10)
INTERACTION ANALYSIS			
Firm Disruption × Industry Dynamism			37.82** (3.62)
No. observations	1536	1536	1536
Adj. R2	77.86	75.29	75.02

- Significance levels: **5% and ***1%

According to H_2, the link between firm disruption and management concentration to Covid-19 attention in India is negatively moderated by industry dynamism. In particular, the interaction between company disruption and industry dynamism is substantial and unfavorable in Interaction effect (Table II) (= 37.82, p 0.05). The findings are further supported in previous researches conducted on same paradigms. The study presents evidence for a distinct interaction effect in the context of Indian Firms.

Unlike Nadkarni and Barr's (2008) paper, which explores the relationship between clockspeed (factors endogenous to an industry), the mediating function of management cognition

and speed of response, this paper's origins are different. They show how managerial cognition moderates the link between industry characteristics and response time. This research explores the effects of external shock by combining the attention-based view and contingency theories to create and test a completely new theoretical framework. However, there are probably going to be distinctions in how much attention is paid to endogenous events (those that are part of current activities) and exogenous ones (one-off disruptions).

For instance, certain sorts of disruptions occur more frequently in high-clockspeed businesses than in slow-clockspeed ones (Nadkarni and Barr, 2008) and the frequency of these events may lead to attention inequalities between the firms in these two types of industries. However, disruptions like Covid-19, which are frequently treated as an infrequent occurrence, may receive managerial attention. However, managers may choose not to consider these disruptions to be worthy of their attention despite being aware of them because they perceive the crises as being out of their control. This perception of uncontrollability may prevent a response to the crises. Also, exogenous disturbances and crises are hardly discussed in the literature (Fan et. al 2018). Only some businesses respond to environmental change, but in the face of Covid-19, the most relevant apocalyptic scenario in terms of management research, environment-strategy alignment becomes more crucial (Brammer et. al 2020). The study hypothesized that if companies encounter more upheaval, managers would sharpen their Covid-19 attention focus. As a result, the study hypothesized that managers in dynamic industries were less likely to ascribe the reasons of disruption to Covid-19, which led to lower Covid-19 focus your attention. In other words, the research proposed that the relationship between business disruption and managerial attention focus is negatively moderated by industry dynamism.

This research created two separate hypotheses and evaluated each one with a sample of 1,536 Indian Firms. The result observed that both H1 and H2 were supported after empirically evaluating the hypothesis. Thus, as discussed in the previous section, the paper offers a significant methodological contribution.

CONCLUSION

How do firms handle crises effectively? This issue is becoming increasingly interesting to both academics and practitioners of strategy, also because to the covid-19's projected disastrous effects on the economy and society. According to Wenzel et.al (2020), crises have arguably become a more constant aspect of organizational life since the 1970s. Business leaders are understandably concerned about how their organizations will be impacted and what they need to do next in the face of definite problems and a still-uncertain set of hazards. Several historical lessons can be implemented right now, even in the heat of the moment. As a result, managers and workers are becoming unsure about the suitability of certain economic activities (Alvarez et. al, 2018). In light of this, it is unclear how managers can properly handle a crisis.

In addition to addressing a significant and unresolved theoretical problem, the study provides empirical data that will be useful to practitioners and policymakers in the country. By highlighting the significance of industry dynamism and external accountability in determining managerial attention focus, the study contributes significantly to the literature. Additionally,

because this research uses openly accessible data, it is replicable. Furthermore, the research delivers a high level of integrity and reliability because it relies on objective data (financial information) and current management perspectives rather than retrospective recollection.

Finally, the analysis advances knowledge of how epidemics and pandemics affect the behaviors of enterprises in Indian context, a topic that has received little attention in literature. It can be crucial to test the hypotheses using more extensive situational contexts in order to determine whether they are generalizable. In this work, the authors concentrated on the first stage of the tripartite process sequence: attention, with an eye toward future research. Prior to interpretation and action, there is attention. Future studies might look at the connection between Covid-19 attention focus and subsequent action – techniques and strategies businesses implemented to overcome Covid-19 effects.

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