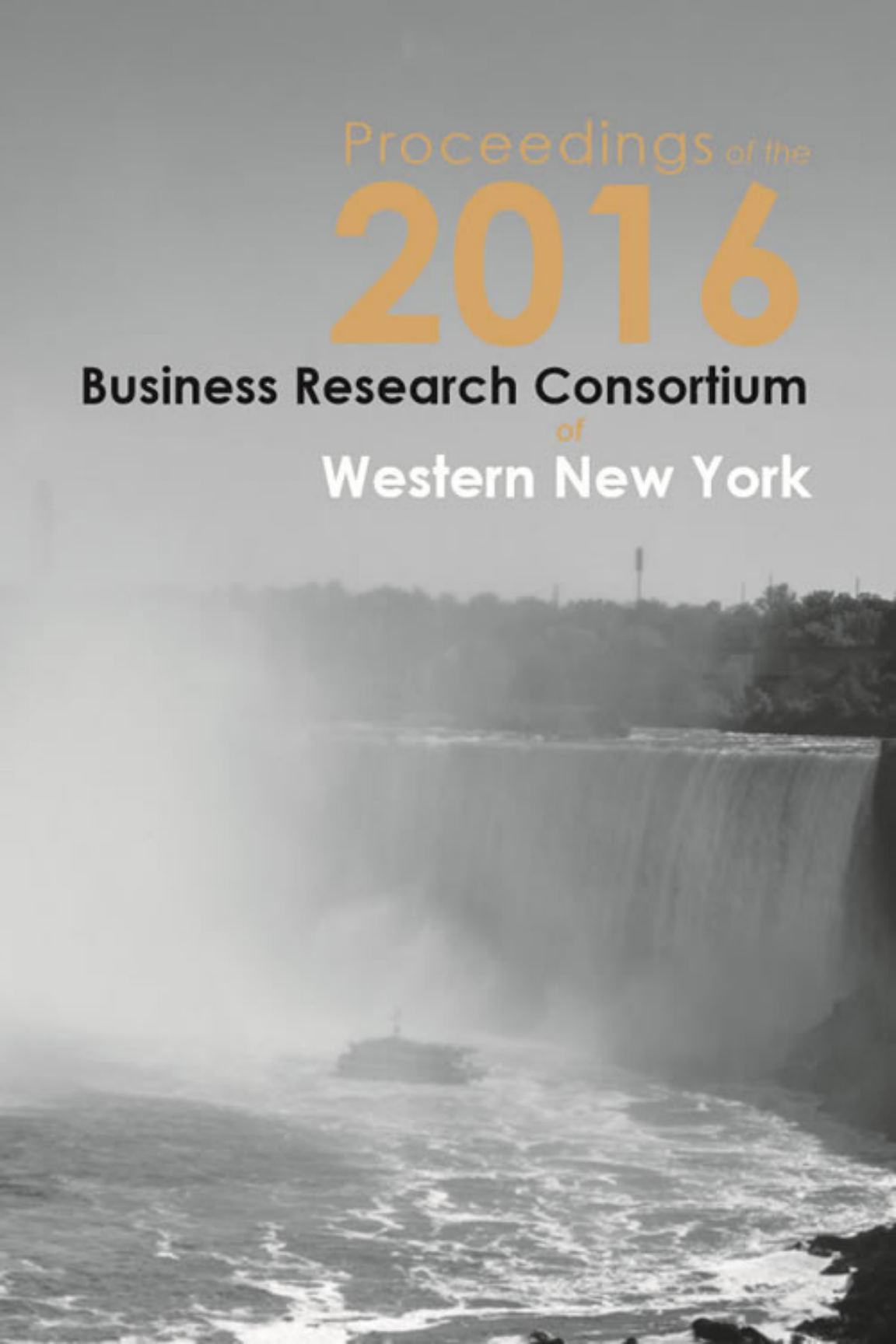

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Inflation Hedging and Industry Stock Returns

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ABSTRACT

We examine an inflation-hedging ability of stock returns, using cyclical and non-cyclical industries from 1961Q2 to 2014Q4. We document that the returns of the non-cyclical industry portfolio are positively associated with expected inflation. A sub-period analysis shows that the relation is stronger during the bull market period of 1983Q1-2001Q4. Given the empirical findings of the influence of expected and unexpected inflation on the market-to-book (M/B), return on assets (ROA), and leverage ratios, we test and support validity of the Fisher effect for both cyclical and non-cyclical industry portfolios over the entire period. In addition, using the Fama-French three factor model, we examine whether the excess stock return is further explained by expected inflation. Although its effect seems captured in the risk-free rate, stocks of the non-cyclical industry portfolio have hedged inflation better

than stocks of the cyclical industry portfolio particularly during the 1983Q1-2001Q4 period.

Keywords: inflation, stock returns, Fisher effect, cyclical and non-cyclical industries

Data Availability: Data used in this study are available from public sources.

Introduction

The nominal stock return moves one-on-one with expected inflation under the Fisher hypothesis, given that the real return is independent of a change in expected inflation. Although nominal stock returns are claims against real assets, they are negatively associated with inflation. Fama (1981), Kaul and Seyhun (1990), Geske and Roll (1983), and Kaul (1987) explain the puzzle based on the real economic activity, the relative price variability of oil products, and the Fed's pro- and counter-cyclical policy.[1] Further studies by Boudoukh et al. (1994) document that there are cross-sectional differences in the relationships between industry stock returns and inflation, showing that an increase in expected inflation causes an increase (a decrease) in the expected returns of non-cyclical (cyclical) industries. Pilotte (2003) finds that dividends and capital gains are related differently to inflation in post-World War II data. Dividend yields are significantly positively associated with expected inflation as opposed to capital gains. Encompassing longer sample periods and using modern econometric approaches,[2] a strand of research provides evidence of validity of the Fisher hypothesis, asserting that the Fisher coefficient is negative at shorter horizons, but becomes positive at longer horizons (Boudoukh and Richardson, 1993; Solnik and Solnik, 1997; Schotman and Schweitzer, 2000).[3]

In this paper, we first test whether the Fisher hypothesis holds across cyclical- and noncyclical industries. Cyclical industries include those that produce durable goods such as raw materials and heavy equipment.

Gomes et al. (2009) assert that firms producing durable goods are exposed to higher systematic risk than those producing nondurable goods and services because the cash flows of durable goods producers are more volatile and more correlated with aggregate consumption as opposed to those of nondurable goods and services producers. Based on the validity test, we examine stocks of which industry, cyclical or non-cyclical, have earned higher returns and have hedged inflation better over the high inflation period.

Inflation risk is the risk that deteriorates purchasing power and redistributes wealth between parties depending on whether firms are net nominal debtors or creditors (French et al, 1983). Inflation risk is also one of the economic risks faced by individual and institutional investors who must have the appropriate amount of money available to cover retirement expenses and make payments to beneficiaries when inflation is high (Bekaert and Wang, 2010). Boudoukh et al. (1994) view the inflation risk factor in a macroeconomic scope where the variation in its coefficient can be directly related to economic fundamentals, e.g., aggregate output growth, which influence the covariance between stock returns and inflation. In contrast, we employ a firm's financial data to examine the potential microeconomic factors, and thus show their contribution to inflation risk. To be more precise about our microeconomic framework, consider that inflation risk is the risk that stock has poor returns when inflation is high. Low returns can occur for many reasons, one of which is associated with adverse cash flow performance. Campbell and Mei (1993) claim that stock returns are determined by innovations in future cash flows, real interest rates, and excess returns, and show that the coefficient of the inflation rate is negatively associated with expected cash flows and stock returns. In other words, inflation may lead to an increase in volatilities of the firm's operating income, inventory and fixed asset investments, cash flows to creditors and stockholders, debt to equity value, and thus the stock returns.

If inflation has an effect on the firm's financial characteristics and investment and financing decisions, how does it differ across firms? Do investors require an equity premium on inflation risk? Bernard (1986) finds that unexpected inflation is associated with firm characteristics, e.g., operating profitability, which captures the cross-sectional variations between stock returns and unexpected inflation.[4] Revisiting the puzzle of expected inflation being negatively correlated with stock returns, Sharpe (2002) provides evidence that it could be to the large extent explained by a negative relationship between expected inflation and expected real earnings growth. We investigate whether expected and unexpected inflation has an effect on the microeconomic factors, i.e., the market to book ratio (M/B), return on assets (ROA), and leverage ratio.

We estimate expected inflation based on Sims' (1980) vector autoregressive model (VAR)[5] for six macro variables, i.e., real GDP, M2, CPI, employment in manufacturing, manufacturing wage rates, and import prices for all commodities over the 1959Q1 to 2014Q4 period. Using the CRSP and Compustat databases, sample data are collected for firms that trade on the NYSE and NASDAQ during the period of 1961Q2 to 2014Q4. Sample firms are assigned into fourteen industries based on Fama and French's twelve industry portfolio classification.[6] The industries are further categorized into three non-cyclical and six cyclical industries.

We test validity of the Fisher effect for cyclical and non-cyclical industries over the entire period of 1961Q2-2014Q4 and the sub-periods of 1961Q2-1982Q4, 1983Q1-2001Q4, and 2002Q1-2014Q4. The sub-period classification includes breakpoints of the Federal Reserve's tighter monetary policy in the early 1980s and the collapse of the dot-com bubble during the 1999 to 2001 period.[7] We find that the quarterly industry stock return is positively associated with the coefficient of expected inflation for eight of the nine industries except for mining although the coefficient is statistically insignificant. Moreover, the coefficient is significantly positive for the non-cyclical industry portfolio at least at the level of 10% during the entire period and the first two sub-periods, indicating

that returns on the non-cyclical industry portfolio tend to increase with inflation and thus stocks of the portfolio are good inflation hedges when inflation is high (Boudoukh et al., 1994).

Empirical findings of the micro economic factors show that for the cyclical and non-cyclical industries over the entire sample period, the M/B ratio is significantly negatively correlated with expected inflation while the ROA and leverage ratios are overall significantly positively correlated with expected inflation. In addition, the similar correlation is documented between unexpected inflation and the M/B ratio or the ROA ratio. Given the association between expected/unexpected inflation and the M/B, ROA, or leverage ratio, we find that stock returns on both cyclical- and non-cyclical industry portfolios would increase (decrease) more than twice as large as an increase in expected (unexpected) inflation over the entire period. Thus, we confirm the results of Bernard (1986) and Campbell and Mei (1993) that the cross-sectional variation in stock returns is explained by expected and unexpected inflation betas in the microeconomic scope.

Finally, we examine the additional explanatory power of expected and unexpected inflation in the Fama-French three factor model. We find that expected inflation is a weakly positively (negatively) correlated with stock return on the non-cyclical (cyclical) industry portfolio. Although the influence of expected inflation seems captured in the risk-free rate (Sharpe, 2002), stocks of the non-cyclical industry portfolio have hedged inflation better than stocks of the cyclical industry portfolio particularly during the 1983Q1 to 2001Q4 period. In addition, we find that stocks of the non-cyclical industry portfolio have covaried negatively with unexpected inflation.

The paper is organized as follows. The sample data is first described, followed by the model and empirical results for cyclical and non-cyclical industry stock returns. Finally, a brief conclusion is provided.

Data

We estimate expected inflation, using Sims' (1980) vector autoregressive model (VAR)[8] for six macro variables. These variables include the quarterly growth rates of real GDP (y_t), M2 (m_t), employment in manufacturing (u_t), manufacturing wage rates (w_t), and import prices for all commodities (pm_t), and the inflation rates for the CPI (π_t). The data are provided by the International Monetary Fund eLibrary-Data for the period of 1959Q1 to 2014Q4. Panel A of Table 1 reports results from the augmented Dickey-Fuller tests for the VAR model. The null hypothesis is that the time series has a unit root and thus is nonstationary. The results show that while the growth rates of GDP, M2, employment, and import prices are stationary, both the CPI inflation rate and the growth rate in wages are nonstationary over the sample period. To deal with these nonstationarities, we difference the respective time series of the CPI inflation and the growth rate in wages, which leads to stationary time series of these two variables as shown in Panel B of Table 1.

The VAR model is estimated with four quarterly lags over the 1959Q2 to 2014Q4 period.[9] The parameter estimates for the change in the inflation rate, $\Delta\pi_t = \pi_t - \pi_{t-1}$, are presented in Panel A of Table 2. The results indicate that all lags of the change in inflation, the second, third, and fourth lags of the change in wages, the first and fourth lags of the growth rate of import prices, and the first lag of the employment growth rate are significant at least at the 10% level for the $\Delta\pi_t$ equation. Since all information is available at the end of t−1, expected inflation for period t, conditional on t-1 information, is derived by adding the expected change in the inflation rate, $E_{t-1}(\pi_t - \pi_{t-1})$, to the actual inflation rate in t-1, i.e., $E_{t-1}\pi_t = E_{t-1}(\pi_t - \pi_{t-1}) + \pi_{t-1}$. The average quarterly expected inflation rate is 0.74% with a standard error of 0.72% during the entire sample period. See Panel B of Table 2.[10]

Our sample consists of firms that trade on the NYSE and NASDAQ during the 1961Q2 to 2014Q4 period, covering 215 quarters. Stock return data are collected from the CRSP database, and financial data are from

the quarterly Compustat database. Based on Fama and French's twelve industry portfolios, we group financial and non-financial firms into fourteen industries. See Table 3 for details. The industries are categorized into cyclical, non-cyclical, and neither. Consumer non-durables, utilities, and healthcare are classified as non-cyclical industries while consumer durables, manufacturing, chemicals, shops, mining, and construction are classified as cyclical industries. The remaining industries are classified as neither. Thus, the sample consists of three non-cyclical and six cyclical industries.

Panel A in Table 4 documents summary statistics of the nine industries for quarterly nominal return, the market to book ratio (M/B), the return on assets (ROA), and the leverage (total debt) ratio from 1961Q2 to 2014Q4. The M/B, ROA, and leverage ratios are winsorized at 5% and 95% where observations below 5% are replaced with 5%, and observations above 95% with 95%. The average quarterly return is higher for healthcare (4.6%) and lower for utilities (3.1%) while the standard deviation is higher for construction and mining and lower for utilities. The M/B ratio is defined as the market value of equity divided by the book value of equity where the book value of equity is computed by subtracting total liabilities from total assets. The book value of total assets is adjusted to eliminate outliers, adding 10% of the difference between market and book equity to the book value of total assets (Cohen et al., 2003). The average M/B ratio ranges from 1.24 (utilities) and 1.40 (construction) to 1.85 (chemicals) and 2.51 (healthcare). The average quarterly ROA is larger for utilities (.9%) and consumer nondurables (.8%) and lower for healthcare (-1.2%) and mining (-.1%). Leverage is calculated as the book value of total debt divided by the book value of the adjusted total assets.[11] The average leverage ratio varies as high as 65% (utilities) and 56% (construction) and as low as 32% (mining) and 36% (healthcare).

Summary statistics of the variables in Panel A of Table 4 are also tabulated for the cyclical and non-cyclical industry portfolios in Panel B. The entire sample period of 1961Q2 to 2014Q4 is divided into the following

three sub-periods, 1961Q2-1982Q4, 1983Q1-2001Q4, and 2002Q1-2014Q4. Determination of breakpoints for the sub-period analysis is based on the Federal Reserve's tighter monetary policy in the early 1980s and the collapse of the dot-com bubble during the 1999 to 2001 period. The average quarterly return is almost same for both portfolios over the entire and the recent sample periods. However, the return is higher by about 1% for the cyclical portfolio during the first sub-period and for the non-cyclical portfolio during the second sub-period. Note that standard deviation of the return is 1.3% to 3.5% higher per quarter for the cyclical portfolio than for the noncyclical portfolio over the periods. The average M/B ratio is consistently higher for the non-cyclical portfolio and has increased for both portfolios over the periods. The average ROA is slightly larger for the cyclical portfolio over the entire sample period. In addition, the average leverage ratio is somewhat higher for the non-cyclical portfolio over the periods. On the other hand, the opposite holds for the median leverage ratio.

Model and Empirical Results

Fisher Effect

We first test validity of the Fisher effect over the 1961Q2-2014Q4 period and the sub-periods of 1961Q2-1982Q4, 1983Q1-2001Q4, and 2002Q1-2014Q4 as follows:

$$R_{i,t} = \beta_0 + \beta_1 E_{t-1}\pi_t + \varepsilon_{i,t} \quad (1)$$

where $R_{i,t}$ is the average quarterly return, $E_{t-1}\pi_t$ is the expected quarterly inflation rate, and $\varepsilon_{i,t}$ is a residual and distributed as a normal distribution. The residual includes information that is not explained by expected inflation. Variance in equation (1) for each of the nine industries is estimated with the Huber/White/sandwich robust variances estimator (White, 1980). Residuals of the cyclical- and non-cyclical industry portfolios are estimated based on the fixed-effects model in panel regression. The Fisher hypothesis holds when the expected inflation beta is equal to

one, implying that the stock return covaries with expected inflation in the same direction and same amount of its change, and thus the stock is a perfect hedge against inflation.

The average quarterly return is regressed on expected inflation for three non-cyclical and six cyclical industries, and the cyclical and non-cyclical industry portfolios. The coefficient of expected inflation ranges from -0.88 (mining) and 0.28 (utilities) to 1.51 (nondurables) and 2.07 (construction), positive for eight of the nine industries, and greater than one for five industries over the entire period although it is statistically insignificant for all of the industries (Table 5). This result indicates that stocks of construction and nondurables industries with high inflation betas have hedged inflation better than stocks of utilities, chemicals, and manufacturing industries with low inflation betas. The negative inflation beta of mining industry exhibits that its stock performed poor when inflation was high.

The bottom of Table 5 presents the inflation betas of the cyclical industry portfolio (0.81) and the non-cyclical industry portfolio (1.05). The inflation beta of the non-cyclical portfolio that is significantly different from zero at 10% provides evidence that it has been a good inflation hedge compared to the cyclical portfolio, earning return of 1.05 percent as inflation increases 1 percent. In contrast to the earlier findings of stock returns being negatively associated with inflation,[12] the result of Boudoukh et al. (1994) is confirmed in our sample.

The sub-period analysis is also documented in Table 5. Results during the high inflation period of 1961Q2-1982Q4 are similar as those during the entire sample period. On the other hand, the inflation betas of the industries except mining and utilities and of the cyclical- and non-cyclical industry portfolios have significantly increased during the 1983Q1-2001Q4 period, ranging 3.37 (manufacturing) to 8.92 (healthcare), and 3.52 (cyclical) to 4.61 (non-cyclical). Note the inflation beta of the non-cyclical industry portfolio is also significantly different from zero at the level of 5%. This empirical finding indicates that the non-cyclical industry

portfolio has hedged inflation better than the cyclical industry portfolio. During the 2002Q1-2014Q4 period, the coefficient of expected inflation is almost zero or negative for the industries except consumer nondurables (1.22) and consumer durables (1.31), and negative for the cyclical industry portfolio (-1.03) and almost zero for the non-cyclical industry portfolio (-0.10) in spite of all of the coefficients being insignificant.

As a result, the Fisher hypothesis is not rejected for the non-cyclical industry portfolio at least at the level of 10% during the entire and 1961Q2-1982Q4 periods, and for the cyclical industry portfolio at the level of 10% during the 1983Q1-2001Q4 period. Furthermore, the high inflation betas of both the cyclical- and non-cyclical industry portfolios during the 1983Q1-2001Q4 period approximately coincide with the most prolific bull market period of 1980s and 1990s (Ritter and Warr, 2002). Despite the use of a relatively short investment horizon of quarterly returns, the result of the non-cyclical industry portfolio is overall consistent with that of Boudoukh and Richardson (1993), Solnik and Solnik (1997), and Schotman and Schweitzer (2000) who show to the larger extent that the Fisher hypothesis is not rejected at long investment horizons over the sample period that approximately overlaps our first two sub-periods.

To investigate validity of the Fisher effect, we also employ the real return that is regressed on the expected inflation.[13] The real return is defined as the average quarterly return minus the actual inflation rate. The regression result exhibits that the expected inflation betas are not significant for all of the industries and for the cyclical- and non-cyclical industry portfolios over the above sample periods except for the non-cyclical industry portfolio during the 1983Q1-2001Q4 period at the level of 10%. Therefore, the Fisher effect is broadly not rejected in our sample. See Appendix A for details.

Inflation and the Microeconomic Factors

The cross-sectional variation in the inflation beta can be explained by the cyclicality of an industry. Boudoukh et al. (1994) provide evidence that

stocks of non-cyclical industries have higher inflation betas and lower correlations with aggregate industrial production growth than stocks of cyclical industries. Compared to their view of the cross-sectional variation being macroeconomic in scope, we employ a firm's financial data to examine the potential microeconomic factors, and thus show their contribution to inflation risk. Campbell and Mei (1993) show that the inflation beta is negatively associated with the firm's cash flows and stock returns. Inflation is likely to cause the equity value of a firm to change, the product cost to increase, and the leverage ratio to change. Using the potential microeconomic factors, we examine the influence of inflation on the industry's investment and financing decisions, i.e., volatilities in its market-to-book (M/B) ratio, return on assets (ROA), and total liabilities to total assets (leverage) ratio. In other words, we investigate whether the M/B ratio, ROA, and leverage ratio are influenced by the expected and unexpected inflation rates, using the following equations (2) to (4),

$$M/B_{i,t} = \beta_0 + \beta_1 U_t\pi_t + \beta_2 E_{t-1}\pi_t + \varepsilon_{i,t} \quad (2)$$

$$ROA_{i,t} = \beta_0 + \beta_1 U_t\pi_t + \beta_2 E_{t-1}\pi_t + \varepsilon_{i,t} \quad (3)$$

$$LEV_{i,t} = \beta_0 + \beta_1 U_t\pi_t + \beta_2 E_{t-1}\pi_t + \varepsilon_{i,t} \quad (4)$$

where $U_t\pi_t$ is the unexpected quarterly inflation rate, $E_{t-1}\pi_t$ is the expected quarterly inflation rate, $M/B_{i,t}$ is the average quarterly market to book ratio, $ROA_{i,t}$ is the average quarterly return on assets, $LEV_{i,t}$ is the average quarterly leverage ratio, and $\varepsilon_{i,t}$ is a residual and distributed as a normal distribution. The unexpected inflation rate is defined as the actual inflation rate minus the expected inflation rate.

Panels A and B of Table 6 show that the sensitivity of the M/B ratio to expected inflation is significantly negative for all of the nine industries over the entire sample period and for cyclical and non-cyclical industry portfolios over the sample periods except for 2002Q1- 2014Q4. In addition, the unexpected inflation beta is negative for the industries except mining over the entire period, and significantly negative for both industry portfolios over the entire and the 1961Q2-1982Q4 periods and for the non-

cyclical industry portfolio over the 1983Q1-2001Q4 period. In contrast, the unexpected inflation betas become significantly positive for both industry portfolios over the 2002Q1-2014 period. These empirical findings indicate that increases in expected and unexpected inflation overall lower the equity value of a firm relative to its book value over the period before 2002 when inflation was high, confirming the findings of Campbell and Mei (1993) and Sharpe (2002).

The sensitivities of the ROA to expected and unexpected inflation are significantly positive for all of the nine industries and both industry portfolios over the 1961Q2 to 2014Q4 period. Moreover, the sub-period analysis shows that the coefficient of expected inflation is significant for the cyclical portfolio over the first and third sub-periods, and for the non-cyclical portfolio over the second sub-period. In addition, the coefficient of unexpected inflation is significantly positive for both industry portfolios during the sub-periods except the non-cyclical portfolio for the first period. These findings indicate that facing higher inflation, a firm in the cyclical- or non-cyclical industry is likely to pass an increase in its product cost on to its customers although the firm's ability to raise the product price may depend on the sample period.

The sensitivity of the leverage ratio to expected inflation is significantly positive for healthcare, chemicals, shops, durables, and non-durables, and for both cyclical and non-cyclical industry portfolios while significantly negative for chemicals during the entire sample period. The coefficient of unexpected inflation is also significantly negative for chemicals at the level of 5%. The sub-period analysis documents that the coefficient of expected inflation is significantly positive for both industry portfolios during the first two sub-periods, and that the coefficient of unexpected inflation is significantly positive and negative for the portfolios during the first and recent sub-periods. In sum, expected inflation appears to increase the leverage ratio during the sample period before 2002, and unexpected inflation appears to increase (decrease) it during the high (low) inflation period before (after) 2002. This result implies that when

inflation is high, a firm is likely to increase the amount of liabilities relative to assets because inflation increases the wealth of the firm as a debtor, confirming to some extent the nominal contracting hypothesis.

Up to this point, we assume that the M/B, ROA, and leverage ratios are influenced by the expected inflation rate estimated one quarter earlier and the contemporaneous unexpected inflation rate. However, it would take longer than a quarter for a firm to examine the inflation impact and make investment and financing decisions.[14] Therefore, we examine the impact of the lagged expected inflation rate estimated two quarters earlier and the unexpected inflation rate estimated one quarter earlier on the above microeconomic factors at the current quarter. Appendix B shows that over the entire sample period the lagged expected inflation betas are almost same as the expected inflation betas for all of the nine industries and the cyclical- and non-cyclical industry portfolios, while the lagged unexpected inflation betas are overall larger than the unexpected inflation betas in the M/B and leverage equations of Table 6. In addition, the lagged expected and unexpected inflation betas are somewhat smaller than their counterparts in the ROA equation of Table 6. The sub-period analysis with the lagged variables in the leverage equation exhibits the similar findings in Table 6 except that the lagged expected inflation betas are significantly negative for both industry portfolios in all of the sub-periods while the lagged unexpected inflation betas are significantly positive before 2002 and significantly negative after 2002 for both industry portfolios.

Fisher Effect with the Microeconomic Factors

Given the influence of expected and unexpected inflation on the M/B ratio, ROA, and leverage ratio, we examine whether the Fisher effect holds for the cyclical- and non-cyclical industries over the sample periods. To test its validity, stock returns of the industries are regressed on the expected and unexpected inflation and the three ratios as follows:

$$R_{i,t} = \beta_0 + \beta_1 U_t\pi_t + \beta_2 E_{t-1}\pi_t + \beta_3 M/B_{i,t} + \beta_4 ROA_{i,t} + \beta_5 LEV_{i,t} + \varepsilon_{i,t} \quad (5)$$

where $R_{i,t}$ is the average quarterly return, $U_t\pi_t$ is the unexpected quarterly inflation rate, $E_{t-1}\pi_t$ is the expected quarterly inflation rate, $M/B_{i,t}$ is the average quarterly market to book ratio, $ROA_{i,t}$ is the average quarterly return on assets, $LEV_{i,t}$ is the average quarterly leverage ratio, and $\varepsilon_{i,t}$ is a residual and distributed as a normal distribution.

Panels A and B of Table 7 report that the coefficient of unexpected inflation is insignificantly negative for all of the nine industries, but significantly negative at 5% for cyclical and non-cyclical industry portfolios over the entire period and the sub-periods before 2002. Thus, this finding indicates that stock returns on these industries fall as inflation unexpectedly rises during the periods.

The expected inflation betas are positive for the industries except mining (-5.72), ranging from .51 (utilities) to 4.79 (durables). The significantly positive betas of durables, manufacturing, and construction are good inflation hedges compared with the significantly negative beta of mining. In addition, the expected inflation betas of cyclical- and non-cyclical industry portfolios are significantly positive, 2.58 and 2.72, during the entire period, and 3.14 and 4.04 during the 1983Q1-2001Q4 period. Controlling for the effect of expected inflation on the aforementioned three ratios as well as unexpected inflation, these empirical findings provide evidence that the expected inflation betas are much larger for all of the industries except mining, and significantly positive and larger for the cyclical- and non-cyclical industry portfolios than those in equation (1) over the entire sample period. As a result, we find that stock returns of the cyclical- and non-cyclical industry portfolios would increase more than twice as large as an increase in inflation.

As expected, the M/B ratio has a significantly positive effect on nominal stock returns for all of the industries but utilities and for both industry portfolios except for the high inflation period of 1961Q2-1982Q4. Similar but weaker results are found for the ROA. These results are consistent with those of Bernard (1986) who documents that the cross-sectional variation in unexpected inflation is explained in part by an interaction

between unexpected inflation and operating profitability. Finally, the coefficient of the leverage ratio is significantly positive for mining and healthcare while significantly negative for utilities. In addition, the coefficient is significantly positive for the cyclical industry portfolio over the 1961Q2-1982Q4 and 2002Q1-2014Q4 periods.

Fisher Effect with Three Factor Model

In this section we employ the excess stock return over the risk-free rate to examine the additional explanatory power of expected and unexpected inflation in the three-factor return model as follows:

$$R_{i,t} - R_{f,t} = \beta_0 + \beta_1 U_t\pi_t + \beta_2 E_{t-1}\pi_t + \beta_3 MRP_t + \beta_4 SMB_t + \beta_5 HML_t + \varepsilon_{i,t} \quad (6)$$

where $R_{i,t}$ is the average quarterly return, R_{ft} is the quarterly rate on one-month Treasury bill, $U_t\pi_t$ is the unexpected quarterly inflation rate, $E_{t-1}\pi_t$ is the expected quarterly inflation rate, MRP_t is the quarterly market risk premium, SMB_t is the quarterly size premium, and HML_t is the quarterly value premium. See Fama and French (1993) for definitions of the equity risk premium variables.

Panels A and B of Table 8 document regression results of equation (6). We find the coefficient of unexpected inflation is significantly negative for durables, nondurables, healthcare, and shops while significantly positive for mining. Furthermore, the coefficient of unexpected inflation for the non-cyclical industry portfolio is significantly negative over the entire and 1962Q2-1982Q4 periods. Therefore, the stock return on the non-cyclical industry portfolio tends to decrease as inflation is unexpectedly higher during the sample periods. In contrast, the unexpected inflation beta of the cyclical industry portfolio is insignificantly positive over the sample periods. The expected inflation betas of the industries are overall smaller and insignificant than those in equations (1) and (5), ranging from -1.48 (mining) to 0.93 (healthcare) over the entire period. The betas of the non-cyclical industry portfolio are all positive over the sample periods and significantly positive during the 1983Q1-2001Q4 period, while the betas of the cyclical industry portfolio are insignificantly negative except

the period of 1983Q1-2001Q4. These results show that although the influence of expected inflation seems to be captured in the risk-free rate as in Sharpe's (2002) claim, stocks of the non-cyclical industry portfolio are better inflation hedges than stocks of the cyclical industry portfolio.

The sensitivity of the return on the market risk premium varies from .69 (utilities) and .70 (mining) to 1.35 (construction) and 1.29 (healthcare), and is consistently larger for the cyclical industry portfolio than the non-cyclical industry portfolio during the sample periods (Gomes et al., 2009). The coefficients of the size and value premiums are significantly positive for the industries except for both premiums being insignificant for healthcare, and the size premium being insignificant for utilities. Moreover, the size and value betas are also larger for the cyclical industry portfolio than the non-cyclical industry portfolio over the sample periods, indicating that the cyclical industries are smaller in market capitalization than the non-cyclical industries, and that the former is comprised of value stocks while the latter is comprised of growth stocks.

Conclusion

We examine an inflation-hedging ability of stock returns on cyclical and non-cyclical industries over the entire period of 1961Q2-2014Q4, and the sub-periods of 1961Q2-1982Q4, 1983Q1-2001Q4, and 2002Q1-2014Q4. Expected inflation is estimated based on Sims' (1980) vector autoregressive model (VAR), and the sample data of three non-cyclical and six cyclical industries are collected using the CRSP and Compustat databases. We find that the expected inflation beta is significantly positive for the non-cyclical industry portfolio at 10% over the entire period and the sub-period of 1961Q2-1982Q4 when inflation was high, and at 5% over the sub-period of 1983Q1-2001Q4. Thus, the result of Boudoukh et al. (1994) is confirmed in our sample, indicating that returns on the non-cyclical industry portfolio covary positively with inflation and the stocks of the portfolio have hedged inflation better than stocks of the cyclical industry portfolio. Moreover, the high inflation beta of the non-cyclical industry

portfolio over the 1983Q1-2001Q4 period corresponds to the bull market period of 1980s and 1990s (Ritter and Warr, 2002).

Compared to the Boudoukh et al. (1994) view of the inflation risk factor being macroeconomic in scope, we employ a firm's financial data to examine the potential microeconomic factors, and thus show the contribution of real microeconomic factors to inflation risk. In other words, we investigate whether expected and unexpected inflation has an effect on the M/B, ROA, and leverage ratios. We report that the M/B ratio (ROA/leverage) is significantly negatively (positively) correlated with expected inflation. In addition, we find the similar correlation between unexpected inflation and the M/B and ROA ratios. These results broadly indicate that when inflation is high, the market value of equity is lowered relative to its book value (Campbell and Mei, 1993; Sharpe, 2002), the operating profitability is maintained via passing the cost increase on to customers, and the leverage ratio is increased. Controlling for the above microeconomic factors, we next test validity of the Fisher effect and find that returns of the cyclical- and non-cyclical industry portfolios would increase (decrease) much larger than an increase in expected (unexpected) inflation over the entire sample period. Thus, we offer some evidence that a portion of the cross-sectional differences in returns is predicted by inflation in the microeconomic scope (Bernard, 1986; Campbell and Mei, 1993).

Finally, we investigate the additional explanatory power of the expected and unexpected inflation rates in explaining the industry return based on the Fama-French three factor model. We find that expected inflation is broadly positively (negatively) associated with the return on the non-cyclical (cyclical) industry portfolio, while unexpected inflation is negatively associated with the return on the non-cyclical industry portfolio. Although the influence of expected inflation seems captured in the risk-free rate (Sharpe (2002)), stocks of the non-cyclical industry portfolio have hedged inflation better than stocks of the cyclical industry portfolio particularly during the 1983Q1 to 2001Q4 period.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p1b.pdf

Notes

1. Fama develops the proxy hypothesis where an increase in inflation signals a decrease in expected output which leads to lower stock prices. Thus, stock returns are inversely related to inflation.
2. Modern econometric approaches that are used to test validity of the Fisher hypothesis are the cointegration, instrumental variable regression, vector autoregressive model, and vector error correction model.
3. Engsted and Tanggaard (2002) and Kim and Ryoo (2011) support the sensitivity of stock returns to inflation turns positive over the longer horizon during the lower inflation period, using the cointegration and vector autoregressive model (VAR),
4. Bernard (1986) show that the cross-sectional differences between stock returns and unexpected inflation are explained by the revaluation of nominal monetary assets and liabilities and tax shields, firm characteristics that could capture an interaction between unexpected inflation and operating profitability, and cross-sectional variations in systematic risk that reflect changes in aggregate real activity.
5. Lee (1992), Bagliano and Favero (1998), Engsted and Tanggaard (2002), and Bekaert and Engstrom (2010) estimate expected inflation using the VAR.
6. See Kenneth French's data library, http://mba.tuck.dartmouth.edu/pages/faculty/ken.french/data_library.html.
7. We thank an anonymous referee for the sub-period determination.
8. See endnote 5.
9. Given quarterly data, four lags capture potential seasonal patterns.
10. The sub-period analysis also documents that the expected inflation rates/standard errors are 1.09%/0.93%, 0.57%/0.33%, and 0.42%/0.48% over the sub-periods of 1961Q2-1982Q4, 1983Q1-2001Q4, and 2002Q1-2014Q4, respectively.
11. To compute the ROA and leverage, the book value of total assets are also adjusted, following the procedure of Cohen, Polk, and Vuolteenaho (2003).
12. See Fama (1981), Kaul and Seyhun (1990), Geske and Roll (1983), and Kaul (1987).
13. We thank an anonymous referee for suggesting a test of the Fisher effect in the real return framework.

14. We thank an anonymous referee for providing the possible interaction effect between the lagged expected and unexpected inflation and the microeconomic factors.

Professional Associations and Deflection Tactics: A Theory and Exploratory Analysis

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ABSTRACT

This study introduces deflection as a new form of institutional maintenance that enables established actors in an institutional field to mitigate negative impacts of legitimacy judgments. Deflection

may be considered to be a special form of buffering that can appear when the legitimacy judgment and the sentencing decision are discrete events. Specifically, this study presents two propositions to explore the ability of actors to draw upon the influence of their counterparts to engage in the deflection strategy which, in turn, can influence the stability of the population in an institutional field. 897 decisions of the appellant court of the National Organic Program from 2009 until 2012 were analyzed to assess the impact of field level characteristics (trade association membership) and organizational attributes (country of origin, subsidiary status, and revenue) upon the success of deflection strategies. When the characteristics of both the firm facing the court's decision as well as their certifying agent were considered, it was found that the professional association membership status of the certifying agent significantly related to the outcomes of the court's ruling.

Keywords: institutional theory; institutional maintenance; institutional work; confrontation; deflection; field level dynamics; professional associations; organic food industry; logistic regression

Data Availability: The authors used publicly-available data.

Introduction

Lately organizational scholars have returned their focus to intentionality and agency with new found emphasis on topics such as the creation and disruption of institutions (Lawrence, Suddaby, & Leca, 2011; Scott, 2014) and the influence of corporations on regulatory agencies (Barley, 2010). However, with the notable exceptions of Hirsch and Bermiss (2009) and Trank and Washington (2009), the maintenance of institutions, another intentional process, has received less attention. Another topic receiving little empirical consideration has been the role of professional associations in institutional fields (Greenwood, Hinings, & Suddaby, 2002), although many authors have acknowledged professional associations as influential actors (Barley, 2010; DiMaggio & Powell, 1983; King & Lenox, 2000; Suddaby & Viale, 2011). In order to better understand the

role of professional associations and institutional maintenance, literature concerning strategic responses to institutional pressures (Meyer & Rowan, 1977; Oliver, 1991) and institutional work (Lawrence & Suddaby, 2006) were examined in order to introduce deflection, a new tactic of institutional maintenance. Deflection preserves existing institutions as it aims to protect organizations from an impending legitimacy challenge by ensuring the continuity of membership in an institutional field and may be understood as a special form of buffering (Meyer & Rowan, 1977) that occurs when the legitimacy judgment and the sentencing decision occur separately.

The organic food industry was used as an empirical context to explore the role of a professional associations' deflection strategies and how they protect their member organizations from legitimacy challenges. Since the organic industry relies upon third party certifiers to verify the operations of these firms, the impact of membership status of the certifying agency upon the outcome of the deflection tactic was also explored in this study.

This research makes at least three contributions to the literature. First, it recognizes deflection as a new form of institutional maintenance, a strategy intended to mitigate the effects of an impending legitimacy challenge. Deflection strategies represent a special case of buffering, as they are most likely to occur when the legitimacy challenge and judgment are discrete events. Second, the study furthers an understanding of the maintenance tactics of professional associations by highlighting the impact of professional associations upon deflection strategies. Finally, by considering the characteristics of an important partner firm, the paper incorporates an additional dynamic to institutional studies.

Literature Review

Institutional Work

This research was developed on the concept that institutional work is the "purposive action of individuals and organizations aimed at creating,

maintaining, and disrupting institutions" (Lawrence & Suddaby, 2006, p. 125). While the literature concerning the creative and disruptive elements of institutional work is well-established (Scott, 2014), maintenance efforts have only recently begun to receive attention and some argue that understanding the dynamics of institutional maintenance may be more important to the understanding of institutions than the mechanisms of their creation (Lawrence & Suddaby, 2006). More broadly, the focus on maintenance may indicate a shift in the scholarship from the perspective that institutional fields are self-maintaining (c.f. Hannan & Freeman, 1984) towards a view that considers organizations to be destined for entropy (Scott, 2014; Zucker, 1988). Yet, these competing views may be reconciled if one recognizes that once institutional logic is established, institutions require maintenance only when disrupted. Once a disruption inevitably occurs, influential actors will engage in intentional actions to protect their status to avoid any future disruptions (Giddens, 1984; Scott, 2014; Suddaby & Viale, 2011). It is this perspective upon which this paper draws, however, the above argument is also extended by recognizing the heretofore unidentified opportunities to engage in institutional maintenance.

Previous research identified at least six types of maintenance activities deployed by actors to ensure field stability. These include enabling, policing, deterring, valorizing/demonizing, mythologizing, and embedding/routinizing (Currie, Lockett, Finn, Martin, & Waring, 2012; Lawrence & Suddaby, 2006). The goal of each of these activities is to buttress, restore, or reconstruct "the social mechanisms that ensure compliance" of the actors in the field (Lawrence & Suddaby, 2006, p. 230). However, maintenance could go beyond compliance efforts by including activities that are less visible, such as efforts to deflect the impact of negative outcomes (Meyer & Rowan, 1977).

Oliver's (1991) work sheds light on some of the less overt tactics available to firms facing institutional pressures. She identified five possible reactions to institutional pressures including acquiescence,

compromise, avoidance, defiance and manipulation. While not universally recognized as such, they also may be considered institutional work as they require effort and intentionality (Lawrence et al., 2011). Indeed, there is considerable overlap between the Oliver typology and institutional work since the former served as a basis for Lawrence and Suddaby's (2006) influential piece on the latter. Similarly, Meyer and Rowan (1977) and others (March, Olsen, & Christensen, 1976; Weick, 1976) recognized that decoupling the technical core of the organization could protect it from sanctions.

All of these strategies assume that the "charging" and the "sentencing" of the actor occur simultaneously, but little is written about situations in which the two events are discrete. In these situations, the period between judgment and sentencing affords an actor the opportunity to engage in a form of damage control that may be able to lessen the severity of the sentence. In other words, these actions can deflect the full impact of the negative outcome. One potential opportunity to observe the deflection strategy can occur when professional associations protect existing members from legitimacy challenges, such as potential sanctions from a regulatory agency. Since an effort such as this, if successful, would retain the status quo and protect the validity of the institution, deflection tactics could be considered as a form of institutional maintenance.

Professional Associations

An actor's position in the institutional field is likely to determine the type of institutional work performed (Currie et al., 2012) and professional associations tend to serve as agents of conformity because their members often hold powerful positions within the field (Suddaby & Viale, 2011). Professional associations can be considered a "command post;" an entity that maintains order in a field by ensuring compliance with established norms and regulations (Zald & Lounsbury, 2010). Thus, professional associations are one of the primary vehicles to maintain institutionalized activities (Granovetter, 1985; Greenwood et al., 2002).

Professional associations maintain the established institutional logic by providing support, expertise, and definitions to actors in the field. Professional associations contribute financial support to political action committees, ad hoc organizations, and other peak organizations. They also extend other forms of support to law, lobbying, and public relation firms. Professional associations also represent their industry to external actors, serving as experts during testimonials and committees, and assuming key positions in government (Barley 2010). Lastly, professional associations define elements of the institutional logic, such as pricing, safety, and quality standards, as well as the definition of causal relationships and social hierarchies (Currie et al., 2012; DiMaggio & Powell, 1983; Lane & Bachmann, 1997; Marchington & Vincent, 2004).

In other words, professional associations bestow legitimacy to actors and practices in a field through these various mechanisms (Meyer & Scott, 1983). Thus, professional associations fortify institutional practices by disseminating shared meanings and facilitating the internalization of legitimacy criteria by actors in the field (Lane & Bachmann, 1997; Marchington & Vincent, 2004; Ruef & Scott, 1998). It is through this process that professional associations serve as gatekeepers to an institutional field (Lane & Bachmann, 1997; Marchington & Vincent, 2004; Suddaby & Viale, 2011).

Given this gatekeeper role, it is important to recognize the reflexive nature of the relationship between trade associations and its members, as the viability of the trade associations depends on the membership of its leading organizations. Without member organization's support, professional associations could not exist. Professional associations are a "peak organization," formed as a collection of organizations that is reliant upon the funding of its constituents for its survival (Barley, 2010). This reciprocal dynamic between the professional association and its member organizations echoes Giddens' "structuration" theory, as member organizations simultaneously define and adhere to the social structure of the field (1990). Therefore, professional associations not

only select organizations that adhere to the established criteria (Trank & Washington, 2009), they also retain incumbent organizations that contribute to the maintenance of the institutional field. However, this role presents an opportunity for a moral hazard as well; professional associations may outwardly claim incumbent members' observance to a standard, while internally allowing for violations to continue, so long as the professional association's survival is secure (King & Lenox, 2000).

It is this incentive to engage in deflection strategies, an attempt to preserve legitimacy in the face of disruption that suggests some interesting field-level dynamics. The paper seeks to explore these dynamics through two propositions developed to understand how effectively professional associations protect their incumbent organizations from disruptions. In other words, the propositions and subsequent analysis are meant to uncover evidence of *ex post* buffering tactics (Meyer & Rowan, 1977; Thompson, 2008) that occur prior to the determination of sanctions. In this context, the technical core, represented by the incumbent members, are protected by the ceremonial adoption of the periphery. As such, this research extends the work of Meyer and Rowan (1997), Oliver (1991), and Hirsch and Bermiss (2009) by extending the notion of buffering beyond the firm's margins and into the realm of peak organizations. Moreover, this paper identifies an additional opportunity to engage in buffering by recognizing the distinction between legitimacy judgment and sentencing.

Propositions

If professional organizations sustain institutionalized practices and represent members to external actors (Greenwood et al., 2002), they would be expect to protect the status of incumbent members and to mitigate the effect of disruptions for their member organizations, so that they improve the likelihood of mutual survival (Suddaby & Viale, 2011).

In this context, professional associations can mediate the regulatory environment for member organizations in a more subtle manner and

potentially weaken the effect of a disruption by making promises to regulators regarding future action by the member organization (Lane & Bachmann, 1997; Marchington & Vincent, 2004; Tucker, 2008). Thus, when organization faces a disruption, professional associations may be able to deploy this assurance of future behavior as a deflection strategy against violations of past behavior. Although this action influences an individual organization, the phenomenon belies a broader level of influence since the strategy must be effective throughout the field in order for the professional association to maintain viability.

> *Proposition 1*: When faced with an impending sanction, members of a professional association will be more likely to successfully deflect negative consequences than non-member organizations.

Moreover, the effectiveness of the professional association would be expected to increase as the member organization strengthens their tie to the professional association, as the co-dependency between the two organizations will deepen. Earlier research illustrated how relationships between actors can serve as a vehicle for institutional work (Empson, Cleaver, & Allen, 2013) and this relationship possibly can also facilitate institutional maintenance. In the context of this study, the partner firm – the certifying agency – not only serves as the agent for coercive isomorphism (DiMaggio & Powell, 1983), but it may also serve as an agent of the target firm by decreasing the severity of negative outcomes. Therefore, the potential amplification effect of the member organizations' certifying agency upon potential disruptions can also influence the outcome of deflection tactics.

> *Proposition 2*: When faced with an impending sanction, firms who have been certified by a member of a professional association will be more likely to successfully deflect negative consequences than firms certified by non-member organizations.

Method

Empirical Context

This section briefly describes the context for the present study, with a particular focus on the basis for legitimacy in the industry. Since the topic of interest is the manner in which actors respond to legitimacy challenges when the judgment and sentence are separate, the population of this study consists of firms that appealed a violation from the National Organic Program (NOP). A brief summary of the appeals process is provided since the outcome may be associated with the professional association membership status of the offending firm and/or its certifying agency.

The organic industry provides an interesting context to explore these propositions. The industry is highly interconnected (Howard 2009), a characteristic that increases the likelihood professional associations, rather than individual organizations, will respond to institutional (Clemens & Douglas, 2005; Goodstein, 1994; Hamel, Doz, & Prahalad, 1989; Meyer & Scott, 1983; Oliver, 1991). Moreover, the organic food industry features a strong moral undercurrent (Ingram & Ingram, 2005), which makes it well-suited to analyzing legitimacy loss. Indeed, illegitimate behavior may be interpreted as sacrilege in some cases (Ashforth & Gibbs, 1990).

Description of Data

The data were primarily drawn from three sources. The first source was a list of the appeals filed with the National Organic Program (NOP) in response to a reported violation of the USDA organic food standards. This database contained the name and address of the appellant and the associated certifying agency, as well as the outcome of the NOP ruling. This measure represents the "charge" component. The initial organic certification received by the organizations in this sample was considered to be a type of "social test" (Thompson, 2008) and, as such, provided the organization with license to operate. The appeals team can sustain, deny, dismiss or close the appeal without a decision or, alternatively, the case may be remanded. It is the decision of the appeals team that

serves as the "sentencing" component in this study. Specifically, the act of filing an appeal with the NOP was considered as an attempt to mitigate the disruption (Ashforth & Gibbs, 1990). When the certification is suspended or revoked, the deflection attempt either did not occur or was unsuccessful. However, when the appeals team decides to sustain or close the appeal without a decision, the legitimacy of the appellant remains intact. Unfortunately, a number of these outcomes had very few observations and thus were turned into a dichotomous dependent variable: penalized, which included revocation or suspension of license and settlements paid, and non-penalized.

Organic Trade Association membership data was drawn from the OTA website (https://www.ota.com). Information about the firms, such as age, ownership class, size, and revenue levels were gathered from Hoover's Company Records. Ten firms were eliminated from the list due to duplication of cases and because key information about revenues or firm age was missing.

The data set included both qualitative and quantitative independent variables and were analyzed with logistic regression. The categorical variables for the appellant were coded as dummy variables and included OTA membership, ownership type, industry, and country of origin. The data set also contained the ratio variables for the appellant firm, including the number of employees, age, and revenues. Categorical variables were also dummy coded for the associated certifying firm. These included the OTA membership status, sector (public or private), and the country in which the certifier was registered. The ratio variables for the certifier included age and revenues. Since the range of the values of the revenue levels for the appellant firm were much larger than those of the other data, the data were transformed the by taking the log of the revenue levels.

Results

Field (2009) lists three assumptions for testing the data for a logistic regression: independence, linearity, and multicollinearity. The independence of the variables was confirmed by ensuring that no observation occurred twice in the dataset. Linearity examines the relationship between the dependent variable's logit values. This was checked by examining if the relationship between the predictors and the log of the dependent variable was significant (Field, 2009; Hosmer Jr & Lemeshow, 1989). Only one of the ratio variables, size of the firm, seemed to have a problem with the linearity of the logit model. This variable, however, was removed in the model estimation since it did not meet the selection criteria. The residuals of the estimated model were also analyzed according to Cook's distance (Field, 2009), and all residuals were below 0.06163, indicating that there were no individual cases which had a large effect on the model estimation. The DFBeta, which measures the exclusion of one case and its effect on the calculated parameter, was also calculated. For all of the parameters which were kept in the model, the values of the DFBeta were all less than one, indicating that no single case had a large influence on the model (Field, 2009). Moreover, an examination of the standardized residuals indicated no outliers. A sample size of at least two-hundred observations effectively eliminates the effects of non-normality, and with the final sample size of n=879, any possible effects from non-normal data should have no impact (Hair, Black, Babin, Anderson, & Tatham, 2006).

Multicollinearity was tested by examining the correlation matrix of the variables to check for large numbers of high correlations, i.e. values of $r>0.90$, between the independent variables. None of the pairs of variables had a correlation above 0.265. The data were tested for multicollinearity by checking the tolerance and Variance Inflation Factor (VIF) for the data (Field, 2009; Hair et al., 2006). The values for tolerance ranged between 0.266 and .957 and the VIF scores ranged from 1.104 to 3.386, indicating low levels of possible multicollinearity.

Preliminary data analysis included testing for missing data. Since some of the cases had some missing data for the variables, the data were analyzed with Little's MCAR test for missing data. The test showed that about 50 individual observations were missing across four variables, namely certifier age (1 missing observation), company age (2 missing observations), company revenue (21 missing values) and certifier revenue (30 missing values). These values were missing completely at random with $\chi^2_{(df = 19)} = 10.617$, sig. $p < 0.936$. The missing data were substituted with the series mean rather than through linear interpolation due to the low level of missing data and to reduce the possibility of artificially strengthening the linear relationship of the variables (Hair et al., 2006).

A backwards stepwise method for estimating the logistic regression model was applied to the data with a final model emerging after twenty-five steps. The following firm characteristics were selected as the base comparison variables for the dummy variables; region of origin and industry sector. For the certifier, region of origin, and industry type: N. America (country of origin), N. America (country of origin), and Vegetable Producer (Industry Type) were used as the bases. For simplification purposes, the first step and the last step of the regression process have been reported in this paper. For further questions about the intermittent steps in the regression process, please contact the first author. Variables which were non-significant were eliminated until the model contained only variables which were statistically significant at $\alpha = 0.05$. The final model correctly predicted 69.4% of the observed dependent variable values and contained four statistically significant independent variables: certifier age, certifier OTA membership, and companies from Africa or Europe.

Since logistic regression is based on probability and not on the ordinary-least-squares technique, it does not generate an R^2 value for the measure of the variance explained by the model. Nagelkerke's R^2 is one of the most widely-reported forms of measuring a pseudo- R^2, the similar concept in logistic regression (Field, 2009). The model's pseudo-R^2 had a value of 0.084.

The impact of the independent variables can be seen from Table 2. The B value indicates the value of the coefficient. The value Exp(B) indicates the change in the odds ratio for the variable. The odds ratio is obtained by dividing the probability of an event occurring by the probability of an event not occurring. A value greater than 1 indicates that the event is more likely to occur, a value less than one indicates the opposite. The positive or negative sign for the value of B also indicates the probability of occurrence. If the coefficient is positive, the odds ratio will be greater than one, if negative, it is less than one.

In the case of the current study, the event of occurrence is the positive outcome was the positive result of having no offence or successfully winning an appeal and a negative outcome of being penalized with revocation or suspension of the license or a fine. This analysis did not indicate any significant influence of Organic Trade Association membership for the firm on the outcome. Therefore, no support was found for the first proposition.

The largest impact on the model came from the firm's country of origin. Countries which were established in Africa had a significant predictor ($p<0.005$) with a coefficient of -2.203 and an odds ratio of 0.110. This means that companies from Africa were less likely to have a positive outcome in the court case compared to US firms. Companies with a certifier located in Europe were also statistically significant ($p<0.005$) with a coefficient of -0.681 and an odds ratio of 0.506, indicating that such firms were less likely to have a positive outcome in the court case compared to firms with a certifier located in the US. The age of the certifier was also statistically significant ($p<0.005$) slightly negative with a coefficient of -0.007 and an odds ratio of 0.993, indicating that companies with older certifiers were slightly less likely to have positive outcomes as compared to companies with younger certifiers.

Certifier OTA membership was the only statistically significant ($p<0.005$) positive predictor with a coefficient of 0.651 and an odds ratio of 1.918 indicating that if the certifying agency was OTA certified, the

company had better odds for having a positive legal result. This result provides support for the second proposition.

Discussion

The lack of support for the first proposition indicates that the trade association membership does not directly deflect disruptions for member firms in this dataset. However, the lack of significance may be because only 112 of the 879 firms belonged to the Organic Trade Association (OTA). This characteristic of the population may lead one to tentatively conclude that OTA members are less likely to face sanctions because the professional association is exercising its traditional gatekeeping role of professional associations by denying membership to firms that do not exhibit legitimate characteristics (Lane & Bachmann, 1997; Marchington & Vincent, 2004; Ruef & Scott, 1998). Indeed, such an interpretation would lend credence to Barley's assertion that the "protection of legitimacy may be built into the structure of the field itself" (2010, p. 796). Future research may seek to determine if members of a professional association will be more likely to avoid legitimacy challenges than non-member organizations. In fact, the avoidance of potential disruptions to their activities may be the preferred response to institutional forces, since it requires relatively minimal effort (Oliver, 1997)

While the influence of the OTA may not be evident in the membership status of the offending firm, the results show that the certifiers' status was significantly related to the outcome of the appeal. Thus, support for the second proposition was found and suggests that the certifiers serve as a buffering device for the OTA by deflecting negative outcomes for existing members through the deployment of the OTA's legitimacy. Although certifiers can exert coercive isomorphic pressures, the results indicate they may also be able to buffer potential legitimacy challenges by providing legitimacy that non-member firms lack. Thus, if the legal proceedings metaphor advanced earlier was extended, one could argue that the certifying agencies are serving as effective council; implicitly bargaining

the sentence down to a more manageable outcome. Conversely, these findings could be interpreted from the perspective of the non-member certifier. Without access to the influence of the OTA, these certifiers may have to take greater risks by certifying more suspect firms in order to generate sufficient revenue to sustain operations.

Lastly, it is important to call attention to the liability of foreignness that is apparent in the findings for both target and certifying firms. This result could point to a lack of familiarity with the United States legal system as well as a diminished level of embeddedness in the organic food network. Future research may wish to further explore the country of origin effect.

Contributions

This study makes both theoretical and practical contributions. First, this study advances the literature on the role of professional associations in exerting institutional pressures. Although scholars have maintained that professional associations act as "agents of reproduction" (Greenwood et al., 2002), few studies have directly measured the strategies professional associations deploy to maintain prevailing institutional logic. This study represents perhaps one of the first efforts towards this end. The study provides additional insight into institutional maintenance process by calling attention to deflection, a new strategy of institutional maintenance, which may be considered to be a special form of buffering that occurs after the firm is subjected to a legitimacy challenge. Finally, by considering the influence of the certifying agencies, an additional dynamic into institutional work analyses has been proposed. As such, the study may provide an opportunity to further integrate social network theory into institutional studies (Rowley, 1997).

The study also makes two contributions for practitioners. For firms seeking certification, the results of this study highlight the importance of the membership status of the certifying agency. Firms looking to enter into the United States organic food industry would benefit from seeking

certifiers based in the US with an active OTA membership. Additionally for certifiers, these findings suggest the value of professional association membership when a client faces sanctions.

Limitations and Future Research

The study had a number of limitations that restrict the generalizability of the findings and may not capture the entire range of dynamics present in the processes. First, the study only considered the events occurring in the US organic food industry. While such a boundary may have eliminated the potential for co-founding variables, it is uncertain if these trends may be observable in other industries or countries. Future research may explore the influence of trade association membership in other contexts in which deflection may occur. One potentially interesting extension may be the lumber industry, since the growth in the popularity of environmentally-responsible certifications.

Another limitation to the study was that the use of archival data necessitated the assumption that current Organic Trade Association membership denoted membership at the time of the sanction. However, because the period of analysis was six years, this assumption seems to have had little impact on the results.

Further limiting the generalizability of these findings may have been that only the process of maintenance through the protection of membership was considered. Because various types of institutional work occur simultaneously (Empson et al., 2013), future research may wish to consider the manner in which trade associations create and disrupt institutions as well. Furthermore, this analysis did not consider the micro-processes of institutionalization (Lawrence et al., 2011), such as lobbying efforts or congressional testimonies of the OTA members. An avenue for future research may be able to examine the specific activities of trade association's representatives.

Finally, this study analyzed an unusual circumstance in which the charge and the sentencing occur separately. The structure of legitimacy decisions is normally more compressed; with the sanction and decision occur almost simultaneously, and thus the ability to observe deflection tactics may be more elusive in other contexts. Future research may seek other situations similar to the empirical context found here to explore questions such as the influence of more powerful trade associations such as the United States Chamber of Commerce. Various appellant courts and plea-bargaining or negotiation proceedings offer other promising venues for researchers. Analyzing instances of compromise represents another intriguing avenue for future research. If firms cannot successfully deflect a disruption, they may seek to compromise (Oliver, 1991).

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p2b.pdf

Overall Injustice, Workplace Deviance and Turnover Intention Among Educators and Supporters

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ABSTRACT

Organizations strive for environments where employees effectively interact. Innovative approaches are, therefore, necessary for organizational sustainable growth, development and survival. Fundamental to human social interaction is fairness and justice. Fairness and justice has to be addressed in such organizational decisions as promotion, task assignment, reward distribution and

other social exchanges (Coetzee, 2004). Employees' perception of organizational justice affects their behavior performance and organizational success. This paper reports a field study based on the survey method targeting higher education institutional employees. The research objective is to highlight the relationship between overall injustice and unfairness perception in the organizational climate and negatively-oriented employees' behaviors (e.g., workplace deviance and turnover intention). The perception of overall organizational injustice was positively correlated to workplace deviance and turnover intention. However, the correlation between overall organizational injustice and turnover intention among educators was higher than that of the staff supporters. In addition, the correlation between overall organizational injustice and workplace deviance for staff supporters was higher than that of the educators. Implications are discussed.

Keywords: Overall organizational injustice, workplace deviance, turnover intention

Introduction

Organization justice is important because positive outcomes result from its presence and negative outcomes result from its absence. These outcomes include employee performance, satisfaction, withdrawal (i.e., absenteeism, turnover), counterproductive work behavior (e.g., employee theft), organizational commitment, and organizational citizenship behavior (Cohen-Charash and Spector, 2001; Colquitt et al., 2001).

Employee perceived organizational fairness or justice perceptions positively affects their attitudes and behaviors. Employees exhibit increased job commitment and Organizational Citizenship Behavior (OCB) (Wat and Shaffer, 2005; Williams, et al., 2002; Colquitt et al., 2001); high job satisfaction (Colquitt et al., 2001); high organizational trust and psychological empowerment (Wat and Shaffer, 2005); high organizational commitment, social behavior, and team loyalty (Murphy et al. 2006);

increased job performance (Colquitt et al. 2001) and satisfaction with performance appraisal system (Pareke, 2005).

When employees' perception about organizational fairness is negative (i.e. they perceive injustice) their attitudes and behaviors are negatively affected and in that case their OCB tends to be low, increased crimes and intention to protest (Skitka and Bravo, 2005), feel anger and disrespect (Miller, 2001); involve in Organizational misbehavior (OMB), Vardi and Wiener, 1996), counterproductive work behavior (CWB) Spector and Fox (2002); and workplace aggression (Baron and Richardson, 1994).

Perception of organizational injustice is also found to affect employees' health. In a longitudinal research brought about in Finland it was identified that "lack of organizational justice causes decline in subsequent self-rated health status" (Elovainio, Kivimaki, and Vahtera, 2005), "absence due to sickness" (Kivimaki et al. 2007), and "psychiatric disorders" (Kivimaki, Elovainio, Virtanen, and Stansfeld, 2003). Positive or negative effects of injustice are actually the ultimate outcome of the employees' behavioral responses to injustice.

Previous research addressed the effect of distributive and procedural justice on employees' job satisfaction (Fields et al., 2000). Pareke (2005) argued that distributive and procedural justice influence employees' job satisfaction. Samad (2006) concluded that procedural and distributive justice affect job satisfaction. While Martinez-tur et al. (2006) concluded that distributive justice is the main determinant to predict customer satisfaction, followed by procedural, and interactional justice, respectively.

Procedural justice concentrates on the fairness of processes and procedures related to employee in an organization while interactional justice is concerned with the interpersonal dealing; employees receive from their managers during these procedures (Chang, 2005). Originally interactional justice was a third type of justice as described by Bies and Moag (1986). However, following studies identified interactional justice as the ''social'' side of procedural justice, rather than any different type of justice (e.g., Brockner and Wiesenfeld, 1996; Cropanzano and Greenberg, 1997; Folger

and Bies, 1989; Tyler and Bies, 1990). Yet some studies have recommended considering interactional justice a distinct form of justice (Malatesta and Byrne, 1997; Masterson, Lewis-McClear, Goldman and Taylor, 1997; Moye, Masterson and Bartol, 1997).

People react not only to outcomes and procedures, but also to interpersonal treatments. It is also clear that there are both structural and social elements that affect justice perceptions (Brockner, Ackerman, and Fairchild, 2001; Cropanzano and Greenberg, 1997; Folger and Skarlicki, 1998; Greenberg, 1993a).

Research Problem

Organizations like to maintain the environment of fairness in their affairs, (e.g., distribution of rewards, procedures pertaining to the appraisals) but they often fail to make their employees satisfied in this regard. Such unsatisfied employees are likely to develop grievances against their organizations and frequently look for alternative job opportunities. In addition there is an increasing tendency of employees of becoming involved in workplace deviance; organizational or interpersonal. On the other hand student in the universities are found complaining against the education (teaching) and non- education (support) staff of non-cooperation and negative behaviours towards students. Therefore it is important to study the perception of employees' about organizational injustice and its relational impact on employees' behaviors.

Research Objectives

The research has two objectives. First, determine the relationship between perceived overall organizational injustice (OOIj) and workplace deviance (WD) among two groups: educators and supporters. Second, this study investigates the relationship between the perceived overall organizational

injustice (OOIj) and turnover intention among two groups: educators and supporters.

The objectives of the research are to be achieved by focusing on the following questions:

i- What is the effect of perceived overall organizational injustice on work place deviance (WD)?

ii- What is the effect of perceived overall organizational injustice on turnover intention (TI)?

Literature Review

Organizational Justice/ Injustice

Nowadays fairness and justice are core issues for managers interested in ensuring equal employment opportunities, fair labor practices and devising performance based compensation. Managers are responsible for fair treatment among employees from all the three dimensions of justice (distributive, procedural and interactional). Differing perspectives, interests and goals of managers and subordinates about fair and just treatment, make the objective complicated and difficult. The multidimensionality of fairness becomes more important when we consider how people disagree about the definition of fairness. The different answers to questions about fairness depend on whether the focus is on outcomes, procedures or motives.

Since the beginning of organizational justice research, scholars were concerned about maintaining fairness in organizational domains such as conflict management, staff selection, employee disputes and wage compromise, etc.

Distributive Justice

Historically, Adam's (1965, p. 267-299) equity theory addressed justice issue. According to the theory "people balance the ratios of their own

work outcomes (rewards) to their own work inputs (contributions) and the same ratios of a fellow-worker. If the ratios are not equal, the person whose ratio is higher is thought to be inequitably overpaid, whereas the person whose ratio is lower feels that he was inequitably underpaid"(Adam, 1965). The equity theory pointed out that relatively low reward would produce dissatisfaction which would then motivate individuals to act to reduce the inconsistency between their ratio and that of their coworker. According to equity theory, this difference gives rise to negative emotions and motivates the individual to reduce the imbalance (Cropanzano, 1993). Various studies have been conducted to determine how employees behave when they perceive an injustice. Managers should pay close attention to justice violations in the workplace since these may give rise to employees' negative responses. Injustices, however, can also generate negative consequences that are less direct. Various studies have examined the influence of fair treatment of employees on organizational variables such as job satisfaction (Bateman and Organ, 1983), trust in and loyalty to the leader (Deluga, 1994), organizational citizenship behavior (Morrison, 1994), and employee theft (Greenberg, 1990). The fair treatment among employees increases job satisfaction, develops relationships between supervisors and employees, promotes organizational citizenship behavior, and decreases cases of employee theft, thus indirectly benefiting the organization.

Normally, people use three main justice rules to determine outcome justice: the contributions rule (equity rule), the needs rule, and the equality rule (Leventhal, 1976.). The purpose of outcomes or decisions based on the equity rule is to achieve and increase productivity and a high performance level. The equality rule is used when the goal is to preserve social harmony, while the needs rule is applied when the objective is to foster personal welfare.

Procedural Justice

Outcomes or decisions (distributive justice) are not the only relevant issue to an individual - the way one is treated is equally important.

Skarlicki and Latham(1996), defined procedural justice as "the extent to which fair procedures and processes are in place and adhered to and to which individuals see their leaders as being fair and sincere and logical or rational in what they do" (Ivancevich and Matteson, 2002). Folger and Cropanzano (1998:26) define procedural justice as the "fairness issues concerning the methods, mechanisms, and processes used to determine outcomes".

According to Thibaut and Walker (1975), employees evaluate the fairness of procedures using two types of control: the amount of control they have over the procedures used to make a decision (process control) and the amount of control they have to alter the decision (decision control). People like procedures that permit them to feel that they have participated in making a decision that will affect them. Later, research concluded that procedures which allowed employees the opportunities to influence a decision were perceived as fairer than those procedures which ignored process control.

Interactional Justice

The concept of interactional justice was introduced by Bies and Moag (1986). It is defined as "the quality of interpersonal treatment that people expect to receive when procedures are implemented" and emphasizes "the importance of truthfulness, respect and justification as fairness criteria of interpersonal communication" (Bies, 1987; Bies and Moag, 1986; Tyler and Bies, 1990). Thus, interactional justice deals with the human aspect of organizational practices such as politeness, honesty and respect and, as such is related to the communication aspects between the source and target of justice, (Bies and Moag, 1986; Tyler and Bies, 1990). It has been argued that fairness is not only determined by the formal policies and procedures of the organization but leaders are also considered to be an important source of fairness (Cobb, Vest and Hills, 1997). Many researchers have generally focused on the leaders' treatment with their subordinates. This "treatment" is exhibited by the content of the message conveyed by the leaders as well as by the conduct of their

behavior like courtesy, respect (Bies, Shapiro and Cummings, 1988; Cobb, 1992; Tyler, Lind et al., 1998), or the way of implementing the policies and procedures (Bies, Martin and Brockner, 1993; Cobb and Frey, 1996; Tyler and Bies, 1990).

Interactional Justice is one of the most important considerations in an organization due to its impact on an individual's feelings, perceptions and consequent behavior. For example, interactional fairness is considered to improve employees' attitude and conduct towards the source of a particular treatment (Bies and Moag, 1986; Colquitt et al., 2001). Moreover, research has proved a positive relationship between interpersonal justice and employees' level of trust and collective esteem of the group experiencing the treatment or interaction (Colquitt, 2001).

Normally, although organizations make efforts to display fair conduct, employees will perceive some types of interpersonal treatment to be unfair and other types of treatment to be fair (Folger and Cropanzano, 1998). That is why it has been observed that the interpersonal sensitivity component of interactional injustice is associated with the quality of the interpersonal treatment an employee receives within an organization (Colquitt et al., 2001; Folger and Cropanzano, 1998; Folger and Konovsky, 1989). It has also been stated that interpersonal treatment is related to varied emotions that individuals feel towards agents or authority figures in response to their decision making within an organizational structure (Tyler, 1989).

Overall Justice/Injustice

Despite the fact that there is a considerable amount of research that focuses on three dimensions of justice perceptions, there is evidence that recent research shifted its emphasis on the examination of overall justice judgments (Tomblom and Vrmunt, 1999: Lind, 2001a, b: Ambrose and Arnaud, 2005). One of the reasons is that different types of justice may not accurately express individuals' justice experience (Ambrose and Schminke, 2009). Research has suggested that when individuals look at

justice they make a holistic judgment about justice (Greenberg, 2001), while Shapiro argued that individuals are more concerned about their general experience of injustice than types of injustice (Shapiro, 2001). Moreover it has been suggested that a simple approach to justice may be more valid than those focusing on different types of justice (Flinder, 2001). In present research this simple approach to overall injustice was adopted.

In most of the researches the term justice has been used for explaining the fairness at workplace, but some researchers have suggested that it is more appropriate that we should consider the psychology of injustice. This shift in the terminology is due to the fact that the organizational justice construct is discussed heavily from the situation of injustice rather justice (Bies, 2001) and individuals feel more strongly affected by unfair incidents than fair incidents (Folger and Cropanzano, 1998; Judge and Colquitt, 2004). Therefore, instead of discussing justice, it would be more appropriate to discuss injustice because this will make a more logical sense for the readers (Ambrose and Schminke, 2009). Hence in this study overall injustice would be studied in relation to the workplace deviance (WD) and turnover intention (TI).

Employees' Responses and Reactions to Injustice

When employees face injustice, it is a bitter experience for them and damaging for individuals as well as for organizations. Very few get benefit from an environment of unfairness and injustice but most of the employees bear harm in such situations. So, organizations should reduce injustice by studying employees' responses to injustices and prepare written guidelines, procedures and policies to make decisions and engender fairness.

According to Sheppard et al (1992), employees generally deal with injustices in one of four ways. Firstly, they live with the injustice and continue as if nothing has happened. Secondly, they can change their behavior to remove the injustice - for example; they can work less hard if their efforts are not equitably rewarded. Thirdly, they can rationalize

the injustice by renaming, removing or redefining it. Lastly, employees can decide to resign or request a transfer in order to avoid confronting continued injustice. It is important to discuss employees' behavior when they experience injustice and to provide guidelines for what organizations can do to improve the perceived fairness of practices.

Counter Productive Work Behavior, Workplace Sabotage and Workplace Deviance

Organizational theorists have concluded that organizations cannot afford to hire employees involved in counterproductive work behavior (CWB) like aggression, interpersonal conflict, theft, sabotage etc. (Fox Spector et. al. 2001). Researchers have pointed out that counterproductive work behaviors (CWB) are emotion-based responses (over acts, disobeying instructions or a deliberate error in doing work, anti-social behavior, delinquency, revenge, mobbing/bullying and deviance) to adverse and stressful environments of the organizations (Fox and Spector, 1999).

Workplace sabotage (WPS) is a behavior that ''damages, disrupts, or subverts the organization's operations for the personal purposes of the saboteur by creating unfavorable publicity, embarrassment, delays in production, damage to property, the destruction of working relationships, or the harming of employees or customers'' (Crino, 1994, p. 312). Recent research conceptualizes sabotage as a rational behavior that emerges from one's reaction to one's surroundings (Analoui, 1995; DiBattista, 1996; Jermier, 1988). In literature workplace sabotage (WPS) and work deviance (WD) are used with overlapping definitions, yet WPS is broader category of WD (Ambrose et al., 2002). In this research we will consider WD as a limited concept of WPS.

When employees' behavior significantly violates a company's norms, policies, or rules and endangers the well-being of the organization and/or its members, such behavior is termed as work deviant behavior or work deviance (Robinson and Bennett, 1995). WPD is an intended desire to harm an organization (Omar et al. 2011). A study conducted on sample of

nurses in Pakistani culture revealed negative behaviors of mistreatment with nurses in hospitals (Somani and Khowaja, 2012). It has also been concluded that mistreatment at workplace results in negative outcomes (Laschinger et al., 2014).

Employees normally retaliate against abusive supervisor in a deviant manner (Tepper et al., 2009). Workplace deviant behavior includes both behaviors targeted at organizations (e.g., theft, coming to work late, putting little effort into work) and individuals in the workplace, such as supervisors or coworkers (e.g., making fun of others, playing mean pranks, acting rudely, arguing).

In this limited sense WD has two perspectives: organizational deviance (OD) and interpersonal deviance (ID). The former refers to a situation-based perspective caused by an unpleasant work environment, while the latter is person-based and depends upon the personality and the tendency of individuals behaving in such disappointing situations irrespective of the nature of the situation.

Turnover Intention

Unfair treatment in the organization has also been frequently linked to increased intention to leave the organization (Li and Cropanzano, 2009; Cole et al. 2010). Turnover intention is, "the extent to which an employee plans to quit the organization, reflect an alternative form of withdrawal and is the strongest predictor of actual turnover" (Podsakoff et al. 2007). Obviously, a fair treatment in the organization informs the employee that the organization values them as an important member of the organization (Lind and Tyler, 1988), while unfair treatment may be an indication of disrespect for the employee, who will decide not to stay further in this organization.

Theoretical Support and Hypothesis

According to the social exchange theory and OCB, an individual who perceives the reciprocity between contributions and benefits as fair,

will try to strengthen the relationship by acting with a pro-social or constructive behavior: with a voice or loyal behavioral response. If the individual experiences the relationship as unfair, an anti-social or destructive behavior is adopted (e.g., exit, neglect, or increasing turnover intentions and work deviance).

According to the Cognitive Appraisal Model (Lazarus and Folkman, 1984) people respond to an event by mentally imagining the impact on them, and the event causes stress only if it is cognitively appraised as a stressor. This cognitive appraisal process will happen, according to Lazarus and Folkman (1984), in two different stages: one primary appraisal when the individual considers the extent to which he or she could be harmed by the event, and a second appraisal when he or she considers different coping strategies to avoid or minimize harm. Organizational injustice could constitute a feeling of interactional unfairness according to the cognitive appraisal model (Greenberg, 2004).

Reactive content theories focus on how individuals respond to unfair decisions, situations or relationships. These theories explain that people react to unfair relations by exhibiting certain negative emotions such as resentment, anger, dissatisfaction, disappointment and unhappiness (Folger, 1984). In an attempt to redress the experienced inequity, employees will seek restitution, engage in retaliatory behavior or restore psychological equity by justifying the injustice or leaving the organization. While justifying his retaliatory behavior the employee may become involved in work deviance otherwise intend to change the organization.

Research Hypothesis

H1: Perception of overall Organizational Injustice (OOIj) is positively and significantly correlated to Work Deviance (WD).

H1a: Perception of overall Organizational Injustice (OOIj) is positively and significantly correlated to Organizational Deviance (OD).

H1b: Perception of overall Organizational Injustice (OOIj) is positively and significantly correlated to Interpersonal Deviance (ID).

H2 Perception of overall Organizational Injustice (OOIj) is positively and significantly correlated to Turnover Intention (TI).

Methodology

The present research is quantitative and empirical in nature and focuses on the relationship between perception of overall injustice, work deviance, and turnover intention. The hypotheses of the study were tested through the collection of quantitative data obtained with the use of a questionnaire from the relevant respondents to ascertain any causal relationships. This was a cross sectional field study using survey strategy. The population of the research comprised of the employees of higher education institutions. The participants belonged to the four different universities of Rawalpindi and Islamabad regions of Pakistan.

Stratified quota sampling was used and the respondents were classified into two strata, educators-employees engaged in teaching (lecturers, Assistant Professors, Professors) and supporters-engaged in other administrative and office assignments (Clerical staff, Assistant Directors, Deputy Directors, Directors etc.) The respondents constituted a convenient sample. Data was collected through self -administration of questionnaires by the investigator or his representative.

Instruments and Measures

Overall organizational injustice: Employee perceptions of injustice were measured through six-item scale developed and validated by Ambrose and Schminke (2009), with a slight modification. The OOIj scale consists of three items to measure individuals' personal injustice experiences: "Overall, I'm treated unfairly by my organization" (OOIj1); "In general,

I can count on this organization to be unfair" (OOIj2); "In general, the treatment I receive around here is unfair" (OOIj3).

The OOIj also includes three items to measure the fairness of the organization: "Usually, the way things work in this organization are not fair" (OOIj4); "For the most part, this organization treats its employees unfairly" (OOIj5); "Most of the people who work here would say they are often treated unfairly" (OOIj6).

Individuals responded their agreement with each OOIj statement (as well as those for work deviance and turnover intentions below) on a 7-point scale between 1 (*strongly disagree*) and 7 (*strongly agree*). Responses to the items were recorded to parallel the specific injustice items, such that higher ratings reflect greater perceptions of unfairness. The α for overall injustice was .91

Organizational deviance: OD *(*Organizational deviance) of employee was measured though a 9-item (α =.94) organizational deviance scale (Bennett and Robinson, 2000). Turnover intention (TI) was assessed using a 5-item scale adapted from Hom and Griffeth (1995). Responses to all items were made on a 7-point Likert scale between (1) "Strongly Disagree" and (7) "Strongly Agree"

Data Analysis

Three hundred questionnaires were distributed among teaching and non -teaching staff of the three universities of Islamabad, out of which 235 responded, representing 78% response rate. As Table 1 reports, 66% were male and 44% were female, 140 (60%) were educators and 95(40%) were supporting staff. The demographic details tell that majority of the respondents were male 156 (66%) married 173 (70%), having high qualification-above master degree 228(97%) and having job experience of more than 5 years 153 (65%). Demographic variables are kept as control variables. Data was analyzed using SPSS version 22.

Confirmatory Factor Analysis of the Study Variables

For the confirmation of a pre-specified relationship and for evaluating the distinctiveness of all the measures, a confirmatory factor analysis (CFA) using covariance matrix was undertaken. 17 items were used to identify the respondents' responses. Six items were used to measure the perception of overall organizational injustice (OOIj). Five items were used to measure organizational deviance (OD), four items for measuring interpersonal deviance (ID) and two items for turnover intention (TI).

Construct and instrument reliability

The reliability of the construct was measured by computing the Cronbach's alpha values.

As Table 2 shows, the reliability of overall organizational injustice is .87, and for dependent variables organizational deviance, interpersonal deviance, and turnover intention, it is .79, .81 and .76 respectively, representing acceptable internal consistency of the study variables. The value of comparative fit index (CFI) is higher than .90. This indicates the strong evidence of unidimensionality. Further, NFI (Normed Fit Index) values range between .90 and 1.00. This is the indication of convergent validity. All the CFI and NFI values for educators and supporters are given in Table 2.

Descriptive Statistics and Correlation

The descriptive statistics and the correlation among the study variables (predictor and criterion variable) are shown in Table 3. Educators' perceptions of overall organizational injustice were relatively high; (M=5.88, SD=1.05). It was (M=5.63, SD=.87) for organizational deviance, (M=5.29, SD=.77) for interpersonal deviance and collectively (M=5.83, SD=1.05) for work deviance. The level of turnover intentions experienced by the respondents was relatively high (M=5.91, SD=1.02).

All study variables were found to be significantly inter-correlated. Correlations among overall organizational injustice and dependent

variables were significantly high, ranging from r = .48 ($p < 0.01$) to r = .83 ($p < 0.01$). Accordingly, the correlations between overall organizational injustice and organizational deviance, interpersonal deviance, work deviance were ($r = .52$, $p < 0.01$), ($r = .52$, $p < 0.01$), ($r = .83$, $p < 0.01$, ($r = .74$, $p < 0.01$), and ($r = .63$, $p < 0.01$) respectively.

The perceptions of non-teaching staff/supporters for overall organizational injustice was also high; (M=5.96, SD=0.99). It was (M=5.52, SD=.92) for organizational deviance, (M=5.46, SD=.92) for interpersonal deviance and collectively (M=5.92, SD=1.02) for work deviance. The level of turnover intentions experienced by nonteaching staff were relatively low (M=5.29, SD=0.98).

All study variables were found to be significantly inter-correlated. Correlations among overall organizational injustice and dependent variables were significantly high, ranging from r = .63 ($p < 0.01$) to r = .83 ($p < 0.01$).

Hypothesis Testing

Before hypotheses testing two sample were identified different on the basis of t-test using SPSS. Hierarchical regression was conducted to measure the relationship between perceived overall organizational injustice work deviance and turnover intention, separately for both types of respondents, educators and non-educator staff. Demographic variables (age, gender, marital status, education level and organizational tenure) were considered controlled variables Table 4 shows that overall educator organizational injustice was found to explain 48% ($R^2 = .48$, $p < 0.01$) of the observed variations in organizational deviance, 38% to explain interpersonal deviance ($R^2 = .38$, $p < 0.01$), 40% of work deviance ($R^2 = .40$, $p < 0.01$) and 68% of turnover intention ($R^2 = .68$, $p < 0.01$). While for non-teaching staff (supporters), overall organizational injustice was found to explain 52% ($R^2 = .52$, $p < 0.01$) of the observed variations in organizational deviance, 48% to explain interpersonal deviance ($R^2 = .48$, $p < 0.01$), 66%

of work deviance (R^2 = .66, p < 0.01) and 36% of turnover intention (R^2 = .36, p < 0.01). In the light of the above results it is concluded that H1, H1a, H1b and H2 are supported.

Discussion

It was found that perception of overall organizational injustice has a significant positive influence on work deviance and turnover intentions. This result is consistent with the previous studies (Appelbaum, Laconi and Matousek, 2007; Browning, 2009; Omar, Halim, Zainah, Farhadi, Nasir and Kairudin, 2011.)

An interesting finding of the present study is that, educators are less responsive towards work deviance (.48) which is relatively less than the same response of supporters (.58). But on the other hand their turnover intention (.58) is higher than the turnover intention of the supporters (.42). It is also obvious that educators' turnover intention (.58) is greater than their work deviance (.48) while it is opposite in the case of supporters where supporters work deviance (.58) is greater than their turnover intention (.42) as indicated in Figure2.

These results may be interpreted on the basis of nature of the job and opportunities of alternative jobs. The job nature of the educators requires a high level of commitment and courtesy therefore despite the perception of overall organizational injustice; educators' response is low towards workplace deviance while in situations of injustice their turnover intention is relatively higher than that of the supporters, as many good alternative teaching opportunities are available for university teachers and they do not normally keep sticking to one institution for long.

On the other hand non-teaching staff is connected to public dealing so they involve in workplace deviance more frequently than the educators, while due to non-availability of alternative jobs, their turnover intention is relatively low.

Strengths of the Study

The present research used a measure of overall organization injustice directly keeping in view the psychology of injustice (De Cremer & Ruiter, 2003) because people are normally affected more by unfair event than by fair events (Folger, 1984; Folger & Cropanzano, 1998; Judge & Colquitt, 2004), while most of the previous studies used term justice for discussing fairness.

Second, this study has been conducted in a culture of high power distance with risk averter population in a developing country like Pakistan- a different contextual perspective.

Conclusion

Previous research has established a negative relationship between three dimensions of organizational justice (distributive, procedural and interactional), workplace deviance and turnover intentions, and some research concluded that in this relationship perception of overall injustice mediates the relationships. However this study has validated the construct of overall injustice and established a direct relationship between workplace deviance and turnover intention using two types of samples. The study based on a small size of the sample and may have common method bias. Further research may use large sample size and further validate the overall injustice construct and considering removal of CMB if found.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p3b.pdf

Corporate Social Responsibility Reports: A Review of the Recent Accounting Literature

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ABSTRACT

Concerns regarding corporate social responsibility (CSR) have been present for many years and have fostered a mature and rich literature. In more recent years there have also been significant developments in the area of CSR reporting. Examples include the dissemination of such concepts as the "triple bottom line;" the development and promulgation of standards by various international groups; and the creation of the Sustainability Accounting Standards Board (SASB) in the United States.

Recent evidence indicates that CSR information is increasingly seen by investors as being a valuable supplement to traditional financial statements, and that the U.S. Securities and Exchange Commission

(SEC) is evaluating the need for expanded disclosure requirements. This is a rapidly developing area in the overall financial reporting arena. However, the extent that recent accounting research has addressed this area is not clear.

This paper reports on an examination that was undertaken of the publications regarding CSR reporting in twelve mainstream accounting journals during the period from 2010 to 2015. A summary of the recent accounting literature regarding CSR reports is provided. There appear to be numerous opportunities for contributions by accounting scholars across the full range of basic, applied, and instructional scholarship.

Keywords: corporate social responsibility reports, sustainability, environment, assurance, integrated reporting

Introduction

Corporate social responsibility (CSR)[1] has attracted a great deal of attention in both the academic and practitioner business literatures for many years. While no single, generally agreed-upon definition of CSR yet exists (on this point, see e.g., Sheehy, 2015), the following seems to capture many of the important elements; corporate social responsibility reflects:

> A company's commitment to operating in a socially, economically and environmentally sustainable manner, while recognizing the interests of its stakeholders. (PwC, 2010, p. 51)

Systematic CSR reporting has not been in existence for as long as business researchers have engaged in general discussions regarding corporate social responsibility. Nevertheless, CSR reports have been issued by a variety of companies for some time. Regarding the prevalence of CSR reporting, PwC indicated in 2010 that "CSR reports are becoming an integral part of a company's relationship with employees, suppliers, customers, investors and communities" (p. 2), and reported that 81% of the 423 companies they studied had CSR information on their websites

(p. 3). Similarly, by 2013 KPMG indicated in its *Survey of Corporate Responsibility Reporting* that "the debate on whether companies should report on CR [Corporate Responsibility] is dead and buried" and "in the 21st century, CR reporting is – or should be – an essential management tool" (p. 9). In that same report, KPMG defined CR reporting as:

> the process by which a company can gather and analyze the data it needs to create long term value and resilience to environmental and social change. CR reporting is essential to convince investors that your business has a future beyond the next quarter or the next year. (2013, p. 9)

Publications calling for and describing CSR and related types of disclosures have been emerging in recent years. Perhaps among the most recognized, at least for its title, is *The Triple Bottom Line* published by Savitz and Weber in 2006. The triple bottom line is built around the concept of "sustainability" and calls for companies to report on (and actively manage) their economic, environmental, and social performance.

There have also been increasing efforts in recent years to develop and promulgate standards for this type of reporting. The Global Reporting Initiative (GRI) has published guidelines and standards for sustainability reporting. Four generations of the GRI "guidelines" have been published, with version G4 issued in 2013. The GRI issued its first set of "standards" in 2016. The Social Accountability Standards Board (SASB) was formed in the U.S. as an independent 501(c) (3) corporation in 2011 "to develop reporting standards and benchmarks for environmental, social and governance issues" (Verschoor, 2012, p. 13). As of March 2016, the SASB had completed issuance of its first full set of provisional standards for 79 industries in 10 sectors (SASB, 2016).

Related developments have also occurred in the area of integrated reporting. Early works calling for an integrated approach have included *The ValueReporting Revolution* (Eccles, et al., 2001), and more recently *One Report: Integrated Reporting for a Sustainable Strategy* (Eccles and Kruzus, 2011) and *The Integrated Reporting Movement* (Eccles and Kruzus,

2015). The International Integrated Reporting Council (IIRC) was formed to develop a global framework for integrated reporting, with a vision "to align capital allocation and corporate behavior to wider goals of financial stability and sustainable development through the cycle of integrated reporting and thinking" (IIRC, 2016). The IIRC first disseminated its International <IR> Framework in 2013.

Various standards have also been developed for assurance services on CSR reports. For example, the International Auditing and Assurance Standards Board (IAASB) issued International Standard on Assurance Engagements (ISAE) 3000, *Assurance Engagements Other Than Audits or Reviews of Historical Financial Statements* in 2003. In the U.S. "the AICPA Attestation Standards (AT Section 101) allow CSR assurance engagements in certain circumstances, including when the practitioner has adequate knowledge of the subject matter and reason to believe that the subject matter is capable of evaluation against criteria that are both available and reliable to a user" (Lynch, 2013, p. 35).

Given the apparently accelerating developments in this area in recent years, reflected in the significant growth in rates of CSR reporting and the ongoing efforts to develop guiding standards, it would seem reasonable to ask whether this phenomenon has been subjected to study by accounting researchers, and what we have learned about CSR reports from their publications. This paper reports on a review of the recent accounting literature undertaken to answer these questions.

The following section of this paper presents an overview of the method employed in conducting the literature review as well as a summary of the papers reviewed; the final section then provides a summary and conclusions.

Research Method and Findings

An examination was undertaken of the contents of twelve leading accounting journals for the period from 2010 to 2015. CSR reporting is

a relatively recent phenomenon that has been experiencing significant growth in practice. Although there certainly were publications on this topic prior to 2010, this relatively short window for examination was chosen in an effort to assess the current literature in this rapidly-developing area.

The journals selected for examination are indicated in Figure 2. These journals publish articles spanning the spectrum of basic, applied and instructional scholarship. Articles addressing CSR reporting have been published in other outlets, but these particular journals were selected as representing the "mainstream" of accounting publications across these multiple categories of scholarship. The contents of each issue of the twelve journals published during the indicated time period were reviewed. All articles dealing with CSR reports and reporting[2], including assurance of those reports, were selected for examination. As indicated in Figure 2, a total of 35 articles dealing with these topics were identified.

Each identified article was reviewed. A simple schema for categorization of the articles was then developed by the authors after all the articles were initially read. Each article was then sorted into one of the following five categories:

1. Conceptual: CSR Reports and Reporting
2. Conceptual: CSR Assurance Services
3. Empirical: CSR Assurance Services
4. Empirical: Correlates of CSR Reporting
5. Empirical: Examination of CSR Reports

Figure 3a presents a listing of the 35 articles sorted into these five categories; Figure 3b then provides a graphical depiction of the distribution of articles across the category. The remainder of this section provides an overview of the articles in each category.

1. Conceptual: CSR Reports and Reporting

This is the largest single category of publications during the time period examined. However, many of the articles were relatively short. These papers were further judgmentally grouped into a total of three sub-categories for purposes of this review: (a) those providing overviews of CSR reporting; (b) articles addressing technical aspects of CSR reporting; and, (c) those providing academic literature reviews or proposed research frameworks. Each of these three sub-categories is briefly summarized in the remainder of this section.

Articles providing overviews of CSR reporting

Interestingly, all of the identified articles providing general overviews of CSR and integrated reporting were published in *Strategic Finance*. Drawing heavily on the 2011 *KPMG International Survey of Corporate Responsibility Reporting*, Verschoor (2012) provided an overview of the growth in rates of CSR reporting, as well as brief summaries of the various standards for such reporting then under development or in place. Verschoor cited the lack of standardization to-date as an impediment to further growth in and reliance on CSR reports (p. 13). A series of three articles were then published on the related topic of integrated reporting (Monterio, 2014, 2015; Dzinkowski, 2015). All three of these articles included descriptions of standards for integrated reporting, with the focus largely on the International Integrated Reporting Council's (IIRC) Integrated Reporting (IR) framework. In the Dzinkowski article, IR is described as "a vision of corporate reporting that brings together, in an integrated fashion, key nonfinancial performance indicators and value drivers, including a company's efforts and impacts related to corporate responsibility and sustainability development" (p. 41). All of the authors argued for the future of integrated reporting and the need for generally accepted standards. Dzinkowski also described the formation of the Sustainability Accounting Standards Board (SASB) and their mission to "develop one set of rigorous standards for sustainability disclosure that

will be *widely accepted and used consistently* by U.S. public companies in their SEC filings" (2015, p. 43; italics in original).

Articles addressing technical aspects of CSR reporting

A total of five papers were published in the time frame under study that addressed technical aspects of CSR reporting. In 2011, the *Journal of Accountancy* published an article by Fornaro that provided an overview of the then-new SEC guidance on disclosures related to climate change. *Strategic Finance* published a series of articles by Monterio (2010 a & b; 2013) that described ways in which XBRL capabilities could be used in implementing CSR reporting systems. Finally, an article by Thomas (2015), drawing on work done by the SASB, describing the value of key performance indicators in CSR reporting was published in *Strategic Finance.*

Articles providing literature reviews or research frameworks

A total of four papers were grouped into this sub-category. Unerman and Chapman reported on their review of the literature on accounting and reporting for sustainable development in a 2014 *Accounting, Organizations and Society* article. They identified what they considered to be three broad strands in the literature: one seeking "to demonstrate relationships between social and environmental performance, social and environmental reporting, and economic performance;" a second, suggesting "that social and environmental unsustainability is largely a consequence of the capitalist system and that the best (or only) way to move towards a socially and ecologically sustainable system is to radically reform or even overthrow markets and capitalism;" and, a third strand that "seeks to constructively engage with businesses and other organizations to help them identify a range of social and environmental sustainability risks and make changes to the way they operate in a direction intended to result in less unsustainable operations" (p. 385). They then focus on further review of the third strand of literature.

A second review of the academic literature was published in the *Journal of Accounting Literature* in 2015 by Huang and Watson based upon a review of 47 papers published in thirteen top accounting journals from 2004 through 2015. Through their review, they identified four segments of the literature: (1) determinants of CSR; (2) the relation between CSR and financial performance; (3) consequences of CSR; and (4) the roles of CSR disclosure and assurance (p. 1). However, they identified little prior literature that reported the details from direct examination of CSR reports. In fact, they indicate that "compared to research on the existence or quantity of CSR disclosure, research on CSR disclosure *quality* is quite limited" (p. 11; italics in original).

In a 2012 article in *The Accounting Review*, Moser and Martin argued for a "broader perspective" on CSR reporting research, particularly through the use of experimental studies as a complement to those undertaken using archival methodologies. Based on their review of the literature, they indicate that "despite a significant amount of prior research, we do not yet fully understand the extent to which certain CSR disclosures are directed toward investors, other stakeholders, or both. Nor do we fully understand how investors and other stakeholders react to CSR disclosures. Further, without understanding managers' incentives for disclosing CSR information, we are unsure whether such disclosures are reliable" (p. 801). They go on to argue that "archival CSR studies alone are unlikely to provide us with a full understanding of the motivations for, and consequences of, CSR activities and managers' related disclosure choices. Consequently, we suggest that controlled experiments be used to address important CSR issues that are difficult to address effectively in archival studies" (p. 802). They then provide a summary of CSR reporting research performed to date using experimental methodologies and offer recommendations for future research.

In the final paper in this sub-category, Ramanna (2013) applied agency and positive accounting theories to derive a set of hypotheses to distinguish between explanations for CSR reporting and then offered sugges-

tions for the empirical testing of these hypotheses. Ramanna suggested that CSR reporting should be an area of greater focus by accounting researchers since it is a growing phenomenon and because "accounting researchers have a comparative advantage in studying corporate accountability reporting" (p. 411).

2. Conceptual: CSR Assurance Services

There are several papers that explore the topic of CSR assurance services at a conceptual level. First, in a *Journal of Accountancy* article in 2013, Lynch provided an overview of the growth in the prevalence of independent assurance reports accompanying CSR reports, the share of the assurance market held by accounting firms (approximately 52% in 2012), and standards regarding independent assurance service examinations and reporting.

Two conceptual articles regarding CSR assurance services were published by Cohen and Simnett in 2015. The first (2015a) was a lead-in to a forum on CSR and assurance services in *Auditing: A Journal of Practice & Theory*; and, the second article (2015b) was their own contribution to that forum. The latter article provided a description of the current environment for assurance services on CSR reports, articulated opportunities for research regarding CSR assurance services, and concluded with an overview of the other papers in the forum. Like Lynch, Cohen and Simnett identified significant growth in the rates of CSR reporting, independent assurance of those reports, and assurance services being provided by accounting firms (2015, pp. 59-60). However, they also indicated that "little is known about the best-practices for conducting a high-quality assurance engagement" of CSR reports (2015, p. 62).

3. Empirical: CSR Assurance Services

A total of six papers were identified that reported on a variety of empirical studies of CSR assurance services. Two very different articles in 2011 were the first to be published in this category during the examined time period.

Pflugrath, et al. (2011) reported on a behavioral experiment with financial analysts in Australia, the United States, and the United Kingdom as subjects. The research instrument included selected financial and CSR information, as well as assurance reports, for two fictitious companies. The research results indicated that "the credibility of a CSR report is greater when it is assured and when the assurer is a professional accountant" (2011, p. 239).

O'Dwyer, et al. (2011) published the results of a field study examining the processes of legitimating CSR assurance services in a Big 4 firm in Europe. In motivating their study, the authors cited a "…trend in academic auditing research in which direct engagements with practitioners (assurers) seeking out their perspectives on their work and its evolution remain relatively rare" (2011, p. 32). In this particular study, however, the authors focus on the social processes surrounding CSR assurance services, rather than on the conduct of CSR assurance engagements.

The other four papers in this category were all published in the 2015 *Auditing: A Journal of Practice & Theory* forum on CSR and assurance services mentioned in the preceding section. Casey and Grenier (2015) examined what they described as the "enigma" of CSR assurance (CSRA) services in the US: that the level of voluntary assurance sought by US firms significantly lags that of their international counterparts. Through their study, they "find that CSRA is associated with a reduction in the cost-of-capital along with lower analyst forecast errors and dispersion" (p. 100). They concluded by stating that "our results suggest that the scarcity of CSRA in the U.S. is puzzling, as it is reasonable to speculate that many U.S. firms would benefit from CSRA, but are currently not obtaining

it" (p. 100). Their methodology did not involve the direct examination of either CSR or CSRA reports; rather just whether those reports were or weren't issued by the examined firms.

Brown-Liburd and Zamora, and Cheng, et al. both reported on the results of experiments examining the impact of CSR report assurance on various other factors. In an experiment involving investors, Brown-Liburd and Zamora (2015) examined "the role of CSR assurance when information on CSR investment level is integrated with information on whether managerial pay is explicitly tied to sustainability" (p. 75). They reported their finding that "in the presence of pay-for-CSR performance and high CSR investment level, investors' stock price assessments are greater only when CSR assurance is also present" (p. 75). Based on an experiment involving graduate students in a financial analysis course, Cheng, et al. (2015) found that "investors perceive ESG [Environmental, Social, and Governance] indicators to be more important, and are more willing to invest in the company if ESG indicators have higher strategic relevance. [The results] also provide evidence that assurance increases investors' willingness to invest to a greater extent when ESG indicators have high relevance to the company's strategy…[and that] the assurance of ESG indicators has a beneficial signaling role in communicating the importance of this reported information to investors" (p. 131). Both experiments used simulated CSR report materials developed based on actual reports; neither paper included the report materials used.

Finally in this category, Peters and Romi (2015) used archival information to examine whether the presence and characteristics of a Board of Directors' sustainability committee and a Chief Sustainability Officer (CSO) impact the voluntary assurance of corporate sustainability reports. Based on their study they report that (1) "the presence of a CSO is positively associated with corporate sustainability report assurance services, and that this association increases when the CSO has sustainability expertise" (p. 163); (2) "only those environmental committees containing directors with greater expertise influence the likelihood of obtaining

assurance services" (p. 163); and, (3) "environmental committees with greater expertise appear to prefer the higher-quality assurance services of professional accounting firms. Expert CSOs, on the other hand, prefer assurance services from their peers with sustainability expertise" (p. 163). Assurance reports were apparently not examined in any detail in this study; rather, just the presence or absence of a report and the nature of the provider were noted.

4. Empirical: Correlates of CSR Reporting

There were eight papers published during the time period that empirically examined various correlates of CSR reporting. Two of the studies were by Dhaliwal and co-authors. Dhaliwal, et al. (2011) reported their findings that "firms with a high cost of capital in the previous year tend to initiate disclosure of CSR activities in the current year and that initiating firms with superior social responsibility performance enjoy a subsequent reduction in the cost of equity capital. Further, initiating firms with superior social responsibility performance attract dedicated institutional investors and analyst coverage. Moreover, these analysts achieve lower analyst forecast errors and dispersion" (p. 59). Dhaliwal, et al. (2012) reported that "the issuance of stand-alone CSR reports is associated with lower analyst forecast error" (p. 723). There was no detailed examination of the contents of CSR reports in either of these studies; rather, CSR reporting was operationalized as just the presence or absence of a report.

Kim, et al. (2012) conducted a study to determine whether socially responsible firms behave differently from other firms in their financial reporting. They report that "socially responsible firms are less likely to (1) manage earnings through discretionary accruals, (2) manipulate real operating activities, and (3) be the subject of SEC investigations" (p. 761). Extent of social responsibility of the examined firms was based on third-party evaluations conducted and published by Kinder, Lydenberg, Domini Research and Analytics (KLD). No direct examination of CSR reports was performed by the researchers.

Gao, et al. (2014) also employed KLD ratings to operationalize firm commitment to social good in their study. They reported that "the executives of CSR-conscious firms profit significantly less from insider trades and are less likely to trade prior to future news than executives of non-CSR-conscious firms" (p. 150); thus, firm corporate social responsibility appears to carry over to the behavior of its managers as well. As with the previous studies reviewed in this section, there was no review of actual CSR reports conducted or reported.

Elliott, et al. (2014) studied the effect of CSR performance on investors' estimates of value based upon an experiment conducted with MBA students serving as proxies for investors. The experimental materials included simulated CSR disclosures. Based on their study, the authors reported that "investors who are exposed to, but do not directly assess, CSR performance, derive higher fundamental value estimates in response to positive CSR performance, and lower fundamental value estimates in response to negative CSR performance. Explicit assessment of CSR performance, however, significantly diminishes this effect" (p. 275).

Next in this set of studies are two papers by Cho and co-authors. In 2010, Cho, et al. published an article examining "whether there are self-serving biases present in the language and verbal tone used in corporations' environmental disclosures" (p. 431). They performed content analysis of the environmental disclosures contained in the 10-K reports of 43 U.S. companies, and found evidence of the hypothesized self-serving biases (p. 431). Cho, et al. (2012) then investigated "the extent to which firms' environmental performance is reflected in perceptions of their environmental reputation and whether environmental disclosure serves to mediate the negative aspects of poorer environmental performance" (p. 14), reporting that "voluntary environmental disclosure appears to mediate the effect of poor environmental performance on environmental reputation" (p. 14). In a significant departure from the methodology employed in most of the other papers in this category, the authors operationalized extent of disclosure using a 95-point index in their

examination of the actual CSR disclosures made by the 92 US firms in their sample.

Finally in this category, Lys, et al. (2015) published their findings that "CSR expenditures are not a form of corporate charity nor do they improve future financial performance. Rather, firms undertake CSR expenditures in the current period when they anticipate stronger future financial performance…[therefore CSR reporting] is another channel through which outsiders may infer insiders' private information about firms' future financial prospects" (p. 56).

5. Empirical: Examination of CSR Reports

Finally, there were a total of five articles during the time frame studied that empirically examined CSR reports as the primary phenomenon of interest rather than as an independent variable. Three of the articles were published in the practitioner-oriented *Strategic Finance*, and the other two appeared in the academic-focused *Accounting, Organizations and Society*.

In 2010, Borkowski, et al. published in *Strategic Finance* the results of a case study of sustainability reporting by Johnson & Johnson (J&J). The study involved the content analysis of sustainability reports published by J&J from 1993 through 2008 as well as interviews with executives. The article included comparative summaries of the analysis of the report contents along various dimensions. In 2014, Busco, et al. published an article in *Strategic Finance* that provided an overview of the IIRC's Integrated Reporting (IR) framework. The article also provided a detailed overview of the most recent integrated reports published by four different companies involved in piloting the IR framework. Finally, later in 2014 *Strategic Finance* published an article by Verschoor that provided an overview of the current state of IR as well as a relatively brief overview of the 2014 Clorox Corp. integrated report. In the article Verschoor indicated that "the movement to address stakeholders beyond investors is gaining strength, but (in the U.S.) it still lags behind other countries" (pp. 13-14).

The final two papers in this category were both published in *Accounting, Organizations and Society* in 2014. Tregida, et al. (2014) investigated how organizations represented themselves relative to sustainable development in 365 publicly available CSR reports issued by 47 different organizations between 1992 and 2010. The analysis indicates that organizational identities as represented by the CSR reports tend to change over time, and that the identities portrayed tend to be of three distinct types: environmentally responsible and compliant organizations; leaders in sustainability; and, strategically "good" organizations (p. 477). Taking a different approach, Contrafatto (2014) reported on a prolonged field study of the organizational dynamics that began with the introduction of social and environmental reporting (SER) in a single Italian company. The results indicate a three-step process through which SER came to be institutionalized in this organization: "(i) the construction of a common meaning system around the concept of social and environmental responsibility; (ii) practicalisation involving the emergence of rules and routines; and (iii) reinforcement through the implementation of inter-organizational managerial procedures and structures" (p. 414). Neither of these articles reported any details of the CSR reports issued by the studied companies.

Summary and Conclusions

The preceding section has provided a summary of the 35 papers published during the period from 2010 through 2015 on the topic of CSR reporting in the twelve journals selected for examination. There are limitations of the study reported here. The most obvious limitations relate to the time period and individual journals selected for review. There are papers on the topic of CSR reporting that were published prior to 2010. Similarly, there have been many publications on this topic in journals other than the twelve that were selected as the focus of this study; for example, such other accounting journals as *Sustainability Accounting, Management and Policy Journal* and *Social and Environmental Accountability Journal*, and such non-accounting journals as *Journal of Business Ethics* and *Business &*

Society have published papers examining various aspects of CSR reports and reporting. However, the intent of this study was not to provide an exhaustive review of the literature, but rather just an overview of the most recent publications in what might be considered "mainstream" academic and practitioner accounting journals.

The limitations notwithstanding, the study reported here provides significant insights into the nature of recent accounting publications regarding CSR reports and reporting. Many of the reviewed papers cite this as an area of growing interest and importance for both accounting practitioners and academics. However, this is also a rapidly evolving area. The depth and diversity of knowledge regarding CRS reports and reporting is at a much earlier stage than that of traditional financial reporting. Rather than well-established, "generally accepted" standards as is the case with financial accounting and reporting, there are a variety of different standards for CSR and related types of reporting, none of which are yet authoritative, even in a single country such as the U.S. And, rather than being required like financial reporting, CSR reporting is still largely voluntary.

The publications reviewed provide clear evidence of the apparent benefits of voluntary CSR reporting, as well as of obtaining independent assurance on the issued reports. For example, the research indicates that among the apparent benefits of voluntary CSR reporting are reduced cost of capital, greater levels of analyst coverage, and reduced analyst forecast error. Similarly, research suggests that voluntary assurance on CSR reports increases the credibility of the reports, and is associated with reduced cost of capital and lower analyst forecast errors. However, unlike the literature on traditional financial reporting, the research on impacts of CSR reporting and assurance is less mature, and there appear to be considerable opportunities for further research. For example, this literature could be meaningfully advanced through research that seeks to replicate, and assess the robustness of, the results of the small body

of existing studies across different sets of companies, industries and time periods.

Further, most of the empirical studies that have been published have employed very simple proxy measures, e.g., the presence or absence of a published CSR report or assurance report. There would appear to be great potential for enhancing understanding through the use of more granular measures. For example, the impact of the *extent* of CSR disclosure or the disclosure standards followed on such outcomes as cost of capital and analyst forecast error could be studied. Similarly, the effect of assurer choice (e.g., Big 4 CPA firm or other assurer) or assurance standards applied on these same outcomes could be examined.

Performing such finer-grained studies will be facilitated by a detailed understanding of existing practices in CSR reporting and assurance. However, at least in the last six years in the twelve journals reviewed, there has been relatively little information published regarding the contents of actual CSR reports or CSR assurance reports. Rather, the articles that have reported on the examination of actual CSR reports have tended to be limited case studies of one or several companies, and have tended to present just relatively brief overviews of the disclosures. Further, there were *no* published articles that reported on the detailed examination of CSR assurance reports or examinations.

There appear to be very significant opportunities for descriptive studies that report on detailed examination of actual CSR reports and related independent assurance reports. Examples of a few of the questions that could be examined through such descriptive studies are:

- Who are, and what are the characteristics of, the companies that are voluntarily issuing CSR reports?
- Where is this information reported (e.g., in stand-alone reports, or integrated with financial reporting information such as the Form 10-K)?
- What is the content of published CSR reports?

- What is the manner in which information is presented (e.g, are KPIs or other metrics used)?
- What standards, if any, are followed in preparing the reports?
- Is there an "auditor effect" (e.g., are the financial statement audit clients of particular firms more likely to report, or to report in different manners)?
- What are the characteristics of companies that issue CSR assurance reports?
- What are the contents of published CSR assurance reports?
- What standards, if any, are followed in the published CSR assurance reports, and in the underlying CSR assurance examinations?

In addition to providing descriptive information that will be valuable in its own right, the insights gathered through such studies would also be beneficial to scholars undertaking research into the correlates of CSR reports and CSR assurance reports, who to-date appear to have relied almost exclusively on very simple proxy measures (e.g., presence or absence of a report).

After a richer understanding of CSR reports and reporting has been developed through descriptive research to answer questions such as those posed above, there would then appear to be significant opportunities for developing an understanding of what the reports are *telling us* about companies' socially responsible behavior; this level of understanding appears to be currently almost non-existent, at least in the mainstream accounting literature. Similarly, there appears to be very little in the literature examining how published CSR information is *used*; for example, by owners and other stakeholders, analysts, prospective investors, and regulators.

Another area of research opportunity, particularly after a richer understanding of the reporting behavior itself has been developed, involves manager choice. A few such relevant questions are: why do firm managers choose to engage in this costly reporting and assurance behavior; and, why do they choose to follow the standards that they

do? While some answers might be inferred from the results of studies examining the benefits of reporting choices, the greatest insights would be obtained through studies that involve direct engagement with managers.

Finally, one of the most striking findings of the study reported in this paper has been the apparent total lack of any published educational research in this domain. While the study certainly did not entail an examination of all outlets that may have published educational papers regarding CSR reports and reporting, the accounting education journals that were selected for examination—*Issues in Accounting Education*, and *Advances in Accounting Education*—are two of the leading academic accounting education outlets. Given the growing number of companies issuing and seeking assurance on CSR reports, it appears likely that many accounting students will encounter the preparation, assurance, and interpretation of CSR reports during their careers. Therefore, there appear to be significant opportunities for a variety of scholarship in this area. Of particular value may be case studies and other instructional materials that could be utilized in teaching students about CSR reporting and assurance.

The voluntary issuance of CSR reports and assurance reports thereon has increased substantially in recent years. Further, it appears that increased attention from at least two related groups—investors and the SEC—may foster additional growth in, and perhaps reshaping of this activity. The SEC issued a Concept Release in April 2016 asking for feedback on a broad range of issues related to disclosures under Regulation S-K (SEC, 2016). Preliminary analysis of the 227 total letters received indicated that approximately two-thirds commented on sustainability disclosures, despite the fact that only 11 of the 341 pages in the Concept Release were related to sustainability (SASB, 2016). The responses received indicate that there is significant interest in CSR disclosures, but that there is significant dissatisfaction with what is presently being disclosed. One source summarized the findings as follows: "there is an emerging understanding among investors that corporate ESG [Environmental,

Social, and Governance] information can be important in their investing decisions, and that the current patchwork of ESG reporting methods does not make such information readily accessible" (Lexology, 2016). This same outlet suggested that it is likely that the SEC will introduce some additional standards regarding sustainability reporting in the not-too-distant future (Lexology, 2016). These findings and interpretations are similar to those reported by PwC indicating great interest in sustainability reporting among investors, but dissatisfaction with both the current reports and a low level of confidence in the results (PwC, 2016b). Another PwC report summed up the needs as follows:

> The challenge for companies? The determination of which sustainability metrics are material and decision-useful to their stakeholders, and then the implementation of appropriate processes, systems, and controls to produce them reliably. (PwC, 2016a, p. 4)

Accounting scholars have much of value to contribute in addressing this challenge, and it appears that the current literature has only begun to scratch the surface.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p4b.pdf

Notes

1. A summary of the various acronyms used throughout this paper is provided as Figure 1.
2. A variety of terms are used to describe this type of reporting; e.g., responsibility reporting; sustainability reporting; environmental, social, and governance (ESG) reporting; and environmental reporting. Also, the developing area of integrated reporting includes and extends the concept of CSR reporting. Articles covering all of these types of reporting were included in this review. The terms "Corporate Social Responsibility" and "CSR" are used in the paper to refer to all these types of reporting.

A Data Analysis Based Framework to Detect Anomalies in Large Data Sets Using Benford's Law

Mustafa Canbolat and D. Donald Kent, Jr.

ABSTRACT

In this paper we propose a data analysis based audit framework where we identify and eliminate clusters of data points that do not have the characteristics of a Benford conforming data set. By looking at the attributes of these data sets, we identify potential audit candidates iteratively with the objective of utilizing the auditing budget in a more efficient way. We analyze a publicly available real data set that contains a list of contracts belong to a public health care organization using the proposed framework. We believe this systemic approach is better than a random selection process to better utilize audit resources.

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Keywords: Benford's Law, audit, auditing

Introduction

According to a Department of Justice's recent media brief (d.o. Justice, December 2013) procurement fraud matters had a peak in fiscal year 2013. The department recovered $3.8 billion from false claims where more than $887 million of this amount was in settlements and judgments based on allegations of false claims and corruption involving government contracts.

It is certain that these kind of fraudulent activities or anomalies are not common, but when they happen it is not easy to detect them and even if they are eventually detected, their negative effect on the perception of these entities in public will be huge.

Health care sector is not immune to this kind of behaviors, either. The National Health Care Anti-Fraud Association (NHCAA) reports that the financial losses due to health care fraud are in the tens of billions of dollars each year.

Therefore it is important to have a data analysis based auditing mechanism in place that detects anomalies and fraud in the past data so that it will create a physiological barrier to the people who have intent to transgress. The difficulty comes with such a system is to determine how to classify the data set in a way that minimizes the cost to identify the maximum number of anomalies.

Data analysis is commonly used in accounting and auditing to detect errors and fraud and to assess performance. One of the most common data analysis methods is financial statement analysis. This method includes, but is not limited to, vertical analysis (common-size financial statements), horizontal analysis (percentage changes) and ratios. Ratio analysis

includes performance measures for liquidity, activity, profitability, and coverage (Kieso, Weygant, and Warfield, 2016). The authors note that, while ease of computation is an advantage, limitations of ratios include the use of historical cost, estimated amounts such as depreciation and bad debt expense, and comparability with the same or other entities. Another method of data analysis used by fraud examiners is the Net Worth Method which is part of the investigative methods for conversion of embezzled funds (S. W. Albrecht, Albrecht, Albrecht, and Zimbelman, 2016). The authors show, through a series of computations, that the Net Worth Method computes an amount representing unknown sources of income. Successful use of this method requires skillfulness in obtaining known information from public and private sources, including online sources. Lastly, with the increased power of computers and increased amounts of data, Big Data Analysis is gaining importance. It is changing the way we analyze data by the ability to explore large data sets, assess data lacking neatness and exactness, and focus on correlation over causality. (Mayor-Schonberger and Cukier, 2013).

In this paper, another data analytical method that is widely used in fraud detection and known as Benford's Law is discussed. Benford's Law is a data analysis methodology supported by statistical rigor and can be applied to large data sets using data other can accounting numbers. We propose a data analysis focused audit system where we identify and eliminate clusters of data points that do not have the characteristics of a Benford conforming data set. By looking at the attributes of these data sets, we identify potential audit candidates. We believe this systemic approach is better than random selection process.

Bierstaker, Brody, and Pacini (2006) investigated the accountants' perceptions regarding fraud detection and prevention methods through a survey research and found out that despite the advancements in information technology part of fraud detection such as firewalls, virus and password protection to identify and prevent fraud, most companies lack the analytics part of fraud detection that we discuss in this paper.

The accountants surveyed believe that the use of analytics tools would be highly effective but yet admit that they do not have firm resources including software and man power dedicated to fraud analytics.

Background and Literature Review

The phenomenon which is the basis of this paper suggests that the leading significant digits that happen naturally in real life do not appear with the same frequencies but rather they follow a logarithmic pattern where the frequency of occurrence decrease with the increase in the digits. This characteristics of naturally occurring numbers first discovered by mathematician Simon Newcomb (Hill, 1995) in 1881 who realized that the logarithmic tables that scientists use to simplify difficult calculations wear out faster in the first pages than the last pages where the digits appear in an ascending order indicating a higher frequency in the lower digits than the higher digits. The idea was rediscovered by Frank Bedford in 1938. Benford tested the existence of this law by collecting many diverse data sets including numbers on the first pages of newspapers, all the numbers in Reader's Digest, mathematical tables, drainage areas of rivers, population numbers and American League statistics. The collection which contained about 20,000 numbers empirically proved the existence of the law and the idea became the Benford's Law. Newcomb and later Benford independently developed a set of formulas for the probability of digit frequencies as given below.

P(First Digit = d1)= log(1+1/d1), d1{1,2,...,9}

P(Second Digit = d2)= (d1= 1 to 9) (1+1/(d1d2)), d2{0,1,...,9}#

P(First and Second Digits = d1d2)=log(1+1/(d1d2)), d1d2{10,11,...,99}

It is interesting to emphasize that if there is a law of digits, it has to be scale invariant. For example the sizes of lakes can be given in square mile or in square km. Or the invoice amounts can be given in different currencies. So that means if you convert the numbers in a data set that follows the

Benford's Law to another unit it should still follow the Benford's Law, and it does. The reason for that is the Benford's Law is scale-invariant (Hill, 1995). Further mathematical details of the theory of Benford's Law can be found in Berger and Hill (2011).

Benford's Law has also been used to discover fraud by uncovering abnormalities in data sets not conforming to this pattern. Nigrini (2012) notes that certain the following data sets do not follow Benford's Law: data sets containing minimum/maximum limits, data used as identification numbers or labels, and data containing more small values than large ones.

Research in accounting and auditing has focused on both applications and problems in using Benford's Law. Applications include use as an "aid in analytical procedures" (Nigrini and Mittermaier, 1997), selection of "more promising" audit samples (da Silva and Carreira, 2013), and fraud detection (Nigrini, 1999; Johnson, 2009 ; Jordon and Clark, 2011; Yang and Wei, 2010). In analyzing state government financial statements, Johnson and Weggenmann (2013) demonstrated that Benford's Law can be used effectively for smaller data sets but noted that smaller data sets may also increase the occurrence of false positives. Grabinski and Paszek (2013) showed that Benford's Law was reliable for analyzing large financial data sets using European publicly listed companies. They noted however a "lesser extent" of reliability to those "representing financial ratios."

Research on Benford's Law has also produced some criticisms. Diekmann and Jann argue that Benford's Law is not a useful tool when discriminating between manipulated and non- manipulated estimates. They also question validity based on the high occurrence of false positives. Research has also noted the potential high results of Type 1 errors (Cleary and Thibodeau, 2005; Rodriguez, 2004); using a Bayesian approach (Geyer and Williamson, 2004). There are also other streams of research aiming for implementing better methodologies for detecting fraud. A basic non-exhaustive classification of these methods are provided in Figure 1.

Kirkos, Spathis, and Manolopoulos (2007) looked at the effectiveness of three different data mining techniques to detect fraud in financial

statements. They considered a Bayesian belief network model, neural network model, and decision tree model and found the Bayesian belief network superior to the other two.

Cecchini et al. (2010) collected a large empirical data set containing fraudulent and nonfradulent companies along with their quantitative financial attributes. They implemented a fraud detection model using support vector machines and validated the use of model on a new set of data. The model they used correctly labeled 80% of the fraudulent cases and 90.6% of the non-fraudulent cases indicating that the model has lower Type 1 error rate than Type 2 error rate.

Game theory is also present in fraud detection literature. Cook et al. (1997) is the first paper that considered a game model of auditing using both cooperative and non-cooperative game analysis. Later, Coates et al. (2002) used a modified version of the chicken game (Szilagyi, 2007) to more formally model client-auditor strategies using players as ethical and unethical clients on one side and an auditor on the other with an aim to provide additional insight into ethical and audit effort issues. Recently Anastasopoulos and Anastasopoulos (2012) employed the evolutionary game theory to model the fraud detection problem in auditing. One of the important findings of the model indicates that if the auditor is partially informed about the auditee firm, a more comprehensive audit is necessary to guarantee quality of audit. This means that the additional knowledge such as data collection and analysis is important.

Lately, there is a successful attempt to use the social network theory in fraud detection. Baesen et al. (2015) and Van Vlasselaer et al. (2016) study the knowledge and impact of network information for social security fraud detection. The objective of the paper is to detect a set of companies "that intentionally go bankrupt to avoid contributing their taxes". The novel approach that the authors identified the shared resources between the companies and used this as a linkage between them.

Modeling approach

As every audit comes with a cost tag attached, it is not always possible to take a look at every item in a large data set. Businesses often conduct audits using a random selection process without conducting a thorough analysis on the data set that is subject to the audit. As the traditional data analysis tools fail to catch anomalies that are related to digit frequencies, some unusual data values stay unrecognized by the system being used.

We propose an elimination and selection based auditing system in place of a random selection process where we look at a data set by calculating statistical error measures for the expected and observed digit values using the first order tests suggested by (Nigrini, 2011, 2012). We mainly consider the significance of the Z-statistic. Figure 2 shows the overall framework of the system proposed.

In order to understand the applicability of the proposed system we analyzed a publicly available real data set of a government health care organization. In this data set we identified the contractor name as the attribute of interest.

Figure 3 is the first two digit distribution for the data set. The figure identifies large spikes at 50 and 99 first two digit combinations. These large spikes suggest that the data may not conform to Benford's law as the deviations are large. We can also see that proportions for some other digit combinations are below and above their respective expected proportions. These additional digit values also contribute to nonconformity of the data to Benford. However we only look at the largest spikes as long as the errors from the other ones stay within the significance level. Table 1 below shows the magnitude of these largest errors.

The results suggest that we first need to take a closer look at the records with the first two digit values of 99. The increase in the frequency of these data values may indicate that the company officials have a tendency to issue an invoice that has a slightly lower value than a value that requires additional authorization which is a common practice.

A closer look at the data set revealed that 32 out of 81 invoices that have the first two digits 99 were issued to a specific contractor. Therefore we take this contractor in our audit pool and remove the records related to this contractor. We call this contractor Company A to conceal its name as we only intent to show how our methodology works.

An interesting fact about Company A is that 20 out of these 32 transactions happened on the same day and they are in the amount of $9,999. A closer look at this company also revealed that there are some other transactions for this company issued on the same day in the amounts of $9,830 and $9,829.

We then remove Company A from the data set and iterate the analysis again this time finding the most occurring FT digits as 50. Notice in Table 2 that some of these 50s from the initial data set are eliminated by the removal of Company A and the largest z value is now dropped to 7.71.

We found that 17 out of 94 of these 94 records are belong to another company, Company B. Adding Company B to the audit pool and removing the data related to Company B completes the second iteration. Table 2 shows the FT digits distributions of the actual and expected proportions after the second iteration. If we continue doing this, the histogram for the actual proportions in the modified data set will become closer to their expected proportions while adding more contractors to the audit pool. It may be a good idea to look at some other attributes such as contractor name, the contract specialist or the completion date for the contract after every iteration and run association rules data mining analysis to identify the relation of these attributes to the significant digits. Note that we only looked at one of the first order tests suggested by Nigrini (2012) in our framework. It may be a good idea to apply some other tests if the removal procedure does not improve the fit.

Conclusion

Benford's Law is a powerful tool to understand if certain digit combinations occur in abnormal proportions in a data set. It differentiates itself from traditional statistical data analysis as forensic accounting look for characteristics of outliers rather than the characteristics of the data set itself as a whole. There are many different types of tests available to conduct deeper analysis on a large data set. With the advancements in data mining research and computer technology, better models and frameworks can be implemented to diagnose and identify "sick" data that also take into consideration the difficulties that "big data" may bring as although Benford's Law works well with larger data sets the statistical significance tests it uses suffer from the excess power issue caused by large sample sizes. We will continue working on this framework to create a structural process that is suitable for very large datasets and also capable of running a different number of tests in a sequential order. Lastly, we want to emphasize that, as with all data analysis related to fraud, this analysis suggest the possible occurrence of anomaly or fraud. Fraud examiners must carefully look at each potential incident and perform a full audit to see if it is an error, discrepancy, or fraud.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p5b.pdf

The Stateholder Allocation Statement (SAS) and Decision Making at Private Not-For-Profit Colleges in Western New York

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ABSTRACT

Two suggestions to improve financial reporting to stakeholders at private not-for-profit colleges are: (1) to use a new financial report format and (2) to adapt a century old financial tool. First, the stakeholder allocation statement (SAS) is introduced to facilitate a better understanding of an institution's financial affairs by key constituents. The SAS reformats the statement of activities away from a bottom line focus to a "fair sharing" emphasis. The revised format helps to promote a collegial process among administrators, faculty, and trustees when making decisions involving the allocation of limited resources. Second, the DuPont financial

ratio analysis is adapted and applied to not-for-profit institutions. Audited financial data for Saint Bonaventure University, Canisius College, and Niagara University are used to demonstrate these suggestions. Benchmarks are provided to assist in the interpretation of the three colleges' observed allocations and related analyses.

Keywords: not-for-profit, financial reporting, stakeholder allocation statement, DuPont analysis

Data Availability: Data used in this study is available from public sources.

INTRODUCTION

Generally accepted accounting principles (GAAP) that guide not-for-profit financial statements are currently undergoing a thorough review related to numerous proposed changes. The Financial Accounting Standards Board (FASB) has issued an exposure draft: "Not-for-Profit Entities (Topic 958) Presentation of Financial Statements of Not-for-Profit Entities" (April 22, 2015). Among the areas being examined is the content and format for the statement of activities, as required by the Accounting Standards Codification: ASC 958-225-05. Subsequently, a FASB memorandum (February 10, 2016) states the Board has tentatively decided to improve the presentation of expenses on the required statement of activities. The FASB unanimously voted to enhance disclosures to include reporting expenses by natural classification and to require NFPs to provide enhanced disclosures about the method(s) used to allocate costs among program and support functions. Furthermore, the Board also affirmed the proposal to refine the definition of "management and general activities" and to provide additional implementation guidance to better depict the types of costs that can be allocated among program and/or support functions and those that should not be allocated. While all three of these proposals will enhance the required financial statement for external use, the improvements are ignoring critical stakeholders in institutions of higher education. The FASB bias is rooted in its traditional emphasis

on providing useful information to investors and creditors, where the NFP trustees and donors replace the investors. This traditional bottom line focus is important to an entity's fiscal sustainability. However, can a university exist without intellectual capital? Why should an integral component of an entity be portrayed as a negative, "necessary evil" via: Revenues – Expenses = Surplus?

The objective of this empirical study is to suggest a new financial report format for internal use to highlight information that enables long-term stakeholders to make rational decisions about the allocation of limited resources. This new format, called a stakeholder allocation statement (SAS), has three primary features:

1. new measures of relevant entity-specific accomplishments, i.e., *academic core sum (ACS)* and *primary operating sum (POS)*.
2. an effective tool to communicate the *allocation of finite resources*, and
3. a special emphasis on an entity's *financial capital maintenance* policy.

Audited financial data from the National Center for Education Statistics (NCES) Integrated Postsecondary Education Data System (IPEDS) is reformatted into a stakeholder allocation statement. In addition, an enhanced DuPont analytical tool is demonstrated to examine the trade-offs with respect to the sharing of resources among a college's stakeholders, its overall financial performance, and ability to borrow funds. The study is based on 48 colleges' financial data for the three most recent years available (2012, 2013 & 2014). The sample selection criteria consisted of colleges classified as private NFP "large masters" schools located in mid-eastern states. These criteria initially produced 54 schools, but six were removed due to missing data or unusual size which thereby established a sample size of 48. The 48 schools are listed in Appendix A. Three colleges from the Western New York area are highlighted by presenting their SAS and DuPont analyses (Saint Bonaventure University, Canisius College,

and Niagara University) in order to ensure the paper's relevance at the WNY Business Research Consortium.

WHAT IS A STAKEHOLDER ALLOCATION STATEMENT (SAS)?

Exhibit 1A illustrates Saint Bonaventure University's stakeholder allocation statement (SAS) for the fiscal years ended 2014, 2013 and 2012. This stakeholder statement is derived from a value-added statement (VAS) format that was recommended in *The Corporate Report* by the Accounting Standards Steering Committee of the Institute of Chartered Accountants in England and Wales (ICAEW 1975) and the American Accounting Association Committee on Accounting and Auditing Measurement (1991). The ICAEW defines value-added as total revenue (including other income and gains) less conduit costs [i.e., costs incurred by the company in exchange for goods and/or services provided to the company by suppliers]. It is important to note that conduit costs do not include employee-related costs, interest, taxes, depreciation, and amortization expenses. Furthermore, the ICAEW specifies the following five stakeholder allocations to: employees, investors, creditors, government, and the entity itself must be disclosed on the VAS. On a related note, Orsini, Hudack and Zekan (1999) introduced the use of a value-added statement for a private not-for-profit university. Orsini et al. replace investors and government with students, and split the allocation to employees into two groups (faculty and all other employees), in their adaptation of a VAS for a not-for-profit entity.

The stakeholder allocation statement in this study improves the value-added statement format by fixing three major criticisms. First, the "value added" terminology is eliminated. Value added is misleading when analyzing an institution of higher learning, i.e., many would contend that the value added is the increased knowledge acquired by students. Second, the number of stakeholders is expanded to be consistent with the stakeholder statement's primary purpose, i.e., an inclusive report to the providers of both human capital (faculty, administrators, and various

support personnel) and financial capital (creditors). Related expenses include direct costs for items such as office supplies, photocopying, conference related costs, etc. for faculty, academic support, student services, and administrators. Auxiliary enterprises frequently refer to direct costs associated with providing room and board services. The physical plant includes direct costs such as maintenance personnel, utilities, property insurance, etc. Finally, the financial assistance to students related to tuition discounts was not used in this study's SAS, due to the lack of an "arm's length" validation; whereas, Orsini et al. did include such an amount in their VAS for a NFP College.

The stakeholder allocation statement is a useful tool to effectively communicate the allocation of finite resources to a not-for-profit entity's stakeholders. This statement forces all stakeholder groups to realize that a trade-off exists. If one group seeks to increase their share, then other group(s) will incur a decrease unless the proverbial pie is made larger, i.e., increase the institution's total revenue and gains. Most importantly, it should be noted that the entity's share for commitments and future operations [resources retained] is to the long-term benefit of the creditors and employees, especially faculty with long-term contracts or tenure. The entity's share is the [A1] surplus / (deficit) plus the [A8] depreciation expense, i.e., a hidden reserve. It is important to note, depreciation is a non-cash flow, accountant created cost allocation that enables the university to retain the necessary resources to refresh / replace fixed assets in order to properly maintain its operations. An equitable goal should be to grow the pie, while maintaining fair shares among the various stakeholders.

The stakeholder allocation statement in Exhibit 1A is based on data presented in publicly available information from the university's completed NCES IPEDS survey (available online at www.nces.ed.gov). This informative government survey-based data is derived from the University's audited annual financial statements, with expenses presented by functional and natural classifications, rather than by program or activ-

ities as prescribed by generally accepted accounting principles (GAAP). It should be noted that the net revenues and gains on the SAS are equal to the GAAP-based amount on the statement of activities. Furthermore, all other aggregate amounts are the same for the GAAP-based financial statements and NCES IPEDS survey. However, the primary difference is the arbitrary cost allocations for depreciation and the physical plant costs to the programs or activities in the GAAP-based statement of activities. In contrast, the prescribed SAS format simply reports these two indirect costs as separate line items.

The SAS introduces two economic measures of entity-specific accomplishments, i.e., *academic core sum (ACS)* and *primary operating sum (POS)*. The primary operating sum represents distributions of resources to the university's various employees responsible for instruction / research / public service, student advisement, general administration, and the institution itself. The academic core sum places a special emphasis on the allocations to the core employees, who furnish educational and student-focused academic / advisement support services, in accordance with the University's mission statement. In addition, the bottom section gives special attention to the university's *financial capital maintenance policy* by the highlighting the relationship between increases to productive (fixed) assets and the depreciation component of resources retained by the entity. An institution must re-invest in its productive (fixed) assets to remain competitive in the future.

The GAAP-based statement of activities for Saint Bonaventure University is presented in Appendix B to compare Exhibit 1A Saint Bonaventure University's stakeholder allocation statement FYE 2014. Key points to note are that both statements have the same amounts for (a) revenues and support/gains equal to $ 59,454,802 (b) total expenses / allocations equal to $ 54,013,331, and (c) surplus equal to $ 5,441,471. (Any minor differences for these three items are due to rounding to the nearest thousand in the SAS.) Meanwhile, the primary difference is how functional expenses are reported. The GAAP-based statement uses absorption costing for the

report's activities that include arbitrary allocations for both the physical plant and depreciation costs. In contrast, the SAS format is reporting the more relevant direct costs for its reported activities and separate line items for both the physical plant and depreciation costs.

ADAPTING AN ENHANCED DUPONT ANALYSIS OF RETURN ON NET ASSETS

The stakeholder allocation statement's expanded scope enables a more complete assessment of a university's *resources generated* with respect to *resources retained.* Accordingly, the DuPont system of financial analysis is adapted to assess a private NFP college's financial management. The SAS enables the component ratios to be expanded for a more in depth understanding of the factors (allocations of resources to stakeholders) that affect an institution's return on net assets. The expanded version of the DuPont system for a private NFP college is an important process that enables a critical stakeholder group (e.g., faculty) to evaluate its "fair" compensation, while being sensitive to the institution's ability to provide for modern facilities to remain competitive in the future. The latter is particularly important for anyone who desires job security (e.g., tenure) and has many more years until retirement.

Exhibit 2 illustrates the enhanced DuPont analysis, while using data from the private NFP college's stakeholder allocation statements. Eight component ratios for the various stakeholders [A] through [H] are designed to indicate the proportionate sharing of limited resources. A fiscally responsible interpretation of the *faculty* component [A] should consider the institution's long-term survival in determining an appropriate "fair share" since job security is linked to the university's ability to maintain its competitiveness. For instance, the higher the variable indicates a smaller slice for providers of intellectual capital with respect to a focused proverbial pie. To be more specific, the faculty component represents the sharing of the *academic core sum* available (after being reduced by the compensation and related costs to academic support

personnel) between the faculty and the university itself. The supporting calculations for the enhanced analysis that decomposes the university's *return on net assets* into ten ratio components in accordance with the SAS format are presented in Appendix C.

EMPIRICAL OBSERVATIONS

Human nature encourages us to ask the question: how will a suggestion for change affect me? Accordingly, three local colleges are highlighted to increase the readers' interest and the study's relevance. The exhibits and figures each have a suffix letter for the following institutions: (A) Saint Bonaventure University, (B) Canisius College, and (C) Niagara University. Exhibit 1 communicates the "big picture" to enable an informed decision when making rather sensitive demands/requests. Can the institution afford to pay the requested salaries and benefits? The current secretive approach by most private institutions often creates a lot of unnecessary bad will and frustration. Figures 1 and 2 are pie charts that attempt to effectively communicate a lot of useful information without a blurry-eyed response by the reader. Exhibit 2 depicts specific trade-offs with respect to the sharing of resources among a college's stakeholders, its overall financial performance, and ability to borrow funds.

Saint Bonaventure University's Stakeholder Allocation Statement in Exhibit 1A indicates a relatively consistent pattern for allocations to stakeholders over the three-year period. Furthermore, most of these allocation percentages are similar to the three-year averages for the 48 colleges in the study (i.e., three-year norms). The primary differences are for student services and auxiliary operations versus the norms. Furthermore, SBU is using a significant portion of its surplus to replace fixed assets, i.e., over twice the amount of its annual depreciation expense in the fiscal years ended 2014 and 2013 was incurred. Figure 1A presents the SAS allocation percentages in a pie chart to promote a better understanding that the "proverbial pie" has limited resources to share among the stakeholders, in accordance with the age-old proverb that a picture

is worth a thousand words. Figure 2A focuses more specifically on the university's actual resource distributions to stakeholders. These distributions are depicted on a percentage basis of net revenues less the university's share (i.e., the surplus or deficit plus depreciation expense). A focus on actual distributions removes any distortions that may occur during either substandard or exceptional economic years. The FYE 2014 norms (n = 48) in Figure 2A are the averages from the 48 colleges for the fiscal year ended 2014 only.

Canisius College's Stakeholder Allocation Statement in Exhibit 1B indicates a relatively consistent pattern for allocations to most stakeholders over the three-year period. However, arguably the two most important stakeholder allocations (retained for future & faculty) are signs of financial challenges. More specifically the deficit and substandard surplus in 2012 and 2013, respectively, are the problem. Meanwhile, the SAS FYE 2014 appears to be consistent with the three-year norms which is an indication that the financial difficulty has been corrected. Also, Canisuis does make a significant financial commitment to its future in 2013 via an over 4 times its depreciation expense in fixed asset acquisitions. Both Figures 1B and 2B help to communicate Canisius SAS data in a more coherent fashion.

Niagara University's Stakeholder Allocation Statement in Exhibit 1C indicates a relatively consistent pattern for allocations to stakeholders over the two most recent years. Furthermore, most of these allocation percentages are similar to the three-year averages for the 48 colleges in the study (i.e., three-year norms). A noteworthy exception is the significantly higher surplus in the two most recent years. Meanwhile, the FYE 2012 had a substandard surplus which is also reflected in a slightly higher allocation percentage to its faculty. Also, Niagara does make a significant financial commitment to its future in 2013 via an over 4 times its depreciation expense in fixed asset acquisitions. Both Figures 1C and 2C help to communicate Niagara's SAS data in a more coherent fashion.

A general rule of thumb to understand the enhanced DuPont analysis is a higher number is better. With that said, a review of the three colleges reveals the following. First, according to Exhibit 2A SBU's numbers are relatively consistent over the three-year period. The university's return on net assets (RONA), asset turnover, and financial leverage are below the three-year norms. Second, according to Exhibit 2B most of the numbers for Canisius are relatively consistent over the three-year period. However, significant differences are noted. The college's RONA is significantly below the three-year norms. On a related note, the intellectual capital is well below the norms FYE 2013 and 2012. Also, both the college's asset turnover and financial leverage are below the three-year norms. Third, according to Exhibit 2C Niagara's numbers are relatively consistent over the two most recent years. The university's return on net assets (RONA), asset turnover, and financial leverage are below the three-year norms for FYE 2014 and 2013.

CONCLUDING COMMENTS

The study's empirically based demonstration is best recapped by the following four noteworthy points: First, "not for profit" does not mean no surplus; the industry's foremost authority, Prager et al. (2010) recommend that private NFP colleges should generate a minimum return of 4% from its' operating activities. The SAS places a special emphasis on the importance of retaining resources for future operations and commitments. Furthermore, the reporting of "capital additions to depreciation" is critical to understanding the use of surplus for future operations. Second, the absorption costs reported in the functions on the GAAP-based statement of activities are not relevant when making budget decisions related to compensation and direct costs for the entity's stakeholders. Most business entities use the more focused direct costs for internal budget related decisions, while the external audit reports are designed to assist in investment and credit related decisions. Third and most importantly, faculty requests based solely on published average salary and benefits

paid by other institutions are akin to making decisions in a vacuum. To improve this process, communication of useful financial information to the providers of intellectual capital will facilitate a more harmonious negotiation process. An awareness of the big picture should reduce the likelihood of unreasonable requests and facilitate an acceptance of what the institution can afford to pay its faculty. Transparent reporting of the college's limited financial resources by administrators with faculty should promote a shared responsibility when allocating resources. Fourth, the enhanced DuPont analysis will help the college's Accounting and Finance Faculty to become knowledgeable about their institution's sharing of resources among stakeholders, its overall financial performance, and credit worthiness. They can then take the lead in assisting their colleagues to appreciate a more cosmopolitan and fiscally responsible perspective.

In closing, a private NFP institution's willingness to open its books and share such vital information, without any distortion from arbitrary cost allocations, is a sign of trust and respect for its providers of intellectual capital. While this study does shed some light on these private NFP colleges' financial affairs, it is albeit almost two years behind the present-day scenario. The releasing of relevant financial information in a more-timely fashion, will improve its usefulness for making rational budget related decisions, and promote harmony within the organization.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p4e.pdf

A Study of Changes in Online Graduate Business Student Perceptions over a Course

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ABSTRACT

Prior research indicates that as students experience more online (OL) courses, their perceptions of the OL environment compared to the face-to-face (FTF) learning environment changes. This study evaluates the perceptual changes for graduate students *over a single course.* Over the semester, graduate student perceptions with respect to difficulty, cheating, and preference changed, while student perceptions of motivation, discipline, self-directed preference, independence, time and cost investment, student-to-student interaction, student-to-instructor interaction, schedule flexibility, happiness and appropriateness of OL education did not. Differences in perceptions between novice and more experienced

learners are explored. These results have implications for both instructors and administrators.

Keywords: student perceptions, online, graduates

LITERATURE REVIEW

As indicated by a recent Babson Survey, the use of online (OL) education in higher education is on the rise, and many academic administrators believe that OL education learning is the same or superior to those in traditional face-to-face (FTF) classrooms (Allen & Seaman, 2013). Contrastingly, others argue that due to intrinsic differences, learning through OL education does not replicate the learning in the FTF classroom (Bejerano, 2008). With this increase in OL courses, several studies evaluated both student perceptions and student performance in the OL environment (e.g. Allen & Seaman, 2013; Braunscheidel, Fish & Shambu, 2013; Fish, 2015; Fish & Snodgrass, 2014, 2015; Perreault, Waldman, Alexander & Zhao, 2008; Tanner, Noser, and Langford, 2003; Tanner, Noser, Fuselier & Totaro, 2004a; 2004b; Tanner, Noser, Totaro & Birch, 2006; Tanner et al., 2009). Perception and performance results are mixed.

According to theory, the more someone is exposed to and uses a particular method or model, the more adept they become in using it (Dobbs, Waid & del Carmen, 2009; Tanner et al., 2003; Tekinarslan, 2011). Several studies demonstrated differences between students who have taken OL courses and those who have not (Dobbs et al., 2009; Tanner et al., 2003). Students not taking OL courses perceive that faculty have low expectations of OL students, contrary to OL students that perceive instructors as having higher expectations (Dobbs et al., 2009). In a study of business students – regardless of whether the student took or did not take OL courses, students favored FTF courses; however, most OL respondents only took one course (Fish & Snodgrass, 2014). As students take more courses, studies evaluating student's perceptions of OL courses demonstrate an increasing acceptance of OL as being equal

to or better than FTF (Dobbs et al., 2009; Fish & Snodgrass, 2014; Mortagy & Boghikian-Whitby, 2010; Perreault et al., 2008; Tanner et al., 2003). Using the same survey instrument as a previous study, results indicated that as business students took more courses, their perceptions of the OL environment improved, and their perception that OL courses were more difficult than traditional classes increased (Fish & Snodgrass, 2014). Therefore as shown in many studies (Dobbs et al., 2009; Mortagy & Boghikian-Whitby, 2010; Perreault et al., 2008), as students experience in the OL environment increases *over time*, their perceptions improve with increasing exposure to the OL environment. Prior research indicates that students need to complete at least 5 OL courses before they perceive that they learn more in the OL environment than FTF (Dobbs et al., 2009). *When does this change in perception occur? Does this change occur as students are taking courses or as they reflect back on courses in-between taking another OL course?* A literature search revealed that no research to date has evaluated the change in business student perceptions of the OL environment *over a single OL course. Do students' preconceived perceptions prior to a course continue throughout the course, or do they change significantly? Does their prior experience in OL learning impact upon their perceptions?* These questions are the focus of this study.

Two streams of research in the OL environment exist: student characteristics (such as motivation, discipline and independence) and program characteristics (such as academic rigor or the ease of cheating) (Fish & Snodgrass, 2014). A survey instrument that includes these two streams of research, developed and used in prior studies, will be used in this study (Fish & Snodgrass, 2014, 2015). The previous studies compared undergraduate, graduate students and international students who experienced OL education versus those who did not. The results of previous studies are briefly reviewed here.

Student Characteristics.

In the OL environment, student emotions impact upon a student's ability to learn, and student perceptions should be realistic (Tanner et al.,

2009). In FTF classrooms, instructors recognize, react and modify their lessons based upon real-time feedback they receive from the students (Reilly, Gallager-Lepak, & Killion, 2012); however, this feedback does not exist in today's OL environment. Studies that analyze OL and FTF student perceptions are mixed, and results often conflict with other studies. Student characteristics that may impact upon a student's ability to learn include student motivation, discipline, self-directed learning environment, independence, time and cost investment, and preference and happiness in the OL or FTF learning environment. Also, whether a student feels the environment – OL or FTF – is appropriate may impact upon his ability to learn.

Motivation, Discipline, Self-directed, Independence, and Happiness. In general, when students find the material to be relevant and the content interests them, they are more motivated (Adler, Milne & Stablein, 2001). With regard to student motivation and learning environment, results are mixed. Some studies indicate that the OL environment increases critical thinking and work motivation (Larson & Sung, 2009), while other studies indicate that the OL environment offers low motivation for students to learn (Fish & Snodgrass, 2014; Maltby & Whittle, 2000) with retention issues (Abouchedid & Eid, 2004) and low student satisfaction (Muilenburg & Berge, 2005). In our prior study, both OL students and FTF students (who never experienced OL) indicated that they were more motivated in the FTF environment (Fish & Snodgrass, 2014).

In order to be successful, OL students should be disciplined (Schott et al., 2003) as students that are not self-motivated and committed will not be happy in the OL learning environment (Rivera & Rice, 2002). In our prior study, OL learners and FTF learners felt the discipline required in their group is 'equal to or more' than the other instructional method (Fish & Snodgrass, 2014). Also, once OL students experience the OL environment, they are 'okay' with it but do not appear to be as happy as those who are entrenched in the traditional FTF classroom. OL learning requires self-directed learning and autonomy, but self-discipline and motivation are

also required to complete the course (Gifford, 1998; Kearsley, 2002). In our prior study, both FTF and OL students felt the independent learning was about the same for both learning environments, but slightly favored their own learning environment (Fish & Snodgrass, 2014). Our previous results found that OL students prefer the discipline and independence of OL learning over FTF classes, but are indifferent to the self-directed OL learning environment (Fish & Snodgrass, 2014). Some students always prefer to work independently (Hiltz & Turoff, 2005). Cultures may regard independent versus collective work differently; for example, U.S. students prefer independent work, while their Chinese counterparts prefer group work (Lin. Lee & Magjuka, 2010).

Time Investment and Cost Investment. Results regarding time and cost investment in the OL environment are mixed as some studies indicate that students perceive OL learning to be more time consuming (Dobbs et al., 2009; Gifford, 1998; Perreault et al., 2008), indicate student indifference (Fish & Snodgrass, 2014), or report FTF students studying more than their OL counterparts (Horspool & Lange, 2012). Good time management skills are critical in OL learning (Cheung & Kan, 2002). Student beliefs regarding OL education may also include the educational benefit and monetary cost associated with a course (Chawla & Joshi, 2012). Traditional FTF students felt the value from an OL course would be less than FTF (Chawla & Joshi, 2012); however, in our prior study, OL students were indifferent to cost investment (Fish & Snodgrass, 2014).

Preference and Appropriateness. In our prior study, while OL and FTF students both felt OL courses are appropriate at the university, both groups preferred FTF classes (Fish & Snodgrass, 2014).

Program Characteristics.

Students perceptions may be shaped by OL and FTF program characteristics, such as course difficulty, cheating, schedule flexibility, student interaction and instructor interaction as well as the various technologies and activities used in the course. Whether students are properly prepared through formal training is another factor that may impact upon student

perceptions. Research on student perceptions on program characteristic also produced mixed results as outlined below.

Difficulty. Student perceptions on course difficulty vary as some studies indicate FTF courses are easier than OL (Dobbs et al, 2009), while others indicate OL courses are easier than FTF (Armstrong, 2011). In our prior study, students indicated a dislike towards OL learning (versus FTF) for difficulty (Fish & Snodgrass, 2014).

Schedule Flexibility. A common reason OL students choose to take OL courses is flexibility and convenience (Chawla & Joshi, 2012; Grandon, Alshare, & Kwun, 2005; Horspool & Lange, 2012; Perreault et al., 2008), the ability to self-control the learning environment (Armstrong, 2011), avoiding a commute to campus, and work demands (Horspool & Lange, 2012). In our prior study, OL students preferred the schedule flexibility afforded through OL classes, while traditional FTF students did not perceive the schedule flexibility benefit associated with OL classes (Fish & Snodgrass, 2014).

Academic Integrity - *Cheating*. Rumors surrounding OL cheating abound. Student perceptions on cheating indicate that it is easier to cheat in the OL than FTF environment (Lanier, 2006; Fish & Snodgrass, 2014).

Student Interaction and Instructor Interaction. With respect to 'people' interaction, results are mixed. Some studies indicate OL courses enhance learner participation and interactivity (Maeroff, 2004), and others highlight a general feeling of 'disconnect' due to the lack of FTF interactions (Stodel, Thompson & MacDonald, 2006) or student distress (Hara & Kling, 2003). When OL students do not perceive that they are part of the 'group', they tend to be disgruntled and report inadequate student communication (Horspool & Lange, 2012), a lack of student interaction, and a general unwillingness of other OL learners to participate in group assignments (Maeroff, 2004). Studies offer mixed results as some indicate that OL students like the OL interaction with other students more (Wang & Morgan, 2008) while others indicate they like it less (Horspool and Lange, 2012) than FTF.

When students perceive faculty as missing, they perceived the course quality as poor and vice versa (Armstrong, 2011). With respect to instructor interaction, mixed results exist again. Some studies indicate that OL interaction with the instructor is weaker (Wang & Morgan, 2008), indifferent (Horspool & Lange, 2012) or equal or even more positive than FTF (Boyd, 2008). In our prior study, OL and FTF learners preferred the student and instructor interaction in the FTF classroom over OL (Fish & Snodgrass, 2014).

Course Activities and Prior OL Training. OL education requires additional student and instructor skills (Tekinarslan, 2011), but it offers greater access to additional learning resources (Sener & Stover, 2000). For the most part, OL and FTF students appear technically well-equipped and comfortable in taking OL courses as few report significant communication issues (Horspool & Lange, 2012). Early research favored training or tutorials for OL students prior to OL enrollment (Perreault, Waldman, Alexander, & Zhao, 2002). Recent research indicates that students without OL training felt they were adequately prepared (Perreault et al., 2008). In our prior study, over 90% of the students who completed OL courses did not complete any formal OL training prior to taking the OL course (Fish & Snodgrass, 2014).

As for valuable OL activities, students perceived video modules, quizzes and the textbook as valuable to the learning environment regardless of whether the course was OL or FTF (Horspool & Lange, 2012). Other researchers indicated that students found the most used and valued OL activities include lecture/lab notes, unit learning resources and information, OL discussions, contacting lecturers/tutors and assignments (Palmer & Holt, 2010). Students perceived receiving assignment feedback from the instructor and reviewing unit progress as important to OL learning (Palmer & Holt, 2010).

Literary Conclusions for Study.

While not comprehensive, this literature review clearly indicates that ambiguity exists in the debate between OL and FTF education. Research also indicates that a student's experience with OL education changes over time, with a particular focus on 5 OL courses as a critical point in perceptual development. This research seeks to explore the time frame associated with perceptual changes by examining changes over one semester at a mid-sized, Jesuit, Catholic, business school with a focus on business.

METHOD

At an AACSB accredited, Jesuit, Catholic University in the northeast, students in an OL graduate business course in global supply chain management participated in pre-course and post-course surveys regarding their perceptions of OL versus FTF education. Since the classes are small (less than 20 students per class), the survey was distributed in two different semesters for the same OL course and framework. Differences between the sections in perception were only noted on 2 parameters, as discussed below. The same instructor, materials and framework for the OL courses was used for both semesters. In both sections of the OL course, graduate students completed the pre-course survey over the weekend prior to the start of class, while they completed the post-course survey over exam week. In the fall 2015, sixteen students completed the course; however, only 13 students completed both the pre-course and post-course surveys. While in the fall 2016, eighteen students completed the course; however, only 16 students completed both surveys.

In the fall of 2015, the OL course was the first OL course taught by the instructor, who taught for 22 years prior at the institution in FTF classes and the FTF version of the OL course 11 times prior. The instructor completed the university's OL training course in preparation for the course. The student weekly activities included completing the required

textbook readings in conjunction with a weekly handout highlighting critical material, answering study group questions (worth 25% of student's final grade) and individual questions, and completing a weekly quiz (worth 20% of student's final grade and administered through the Desire2Learn course management system). Additional readings and/or Executive Briefings with additional individual and study group questions were also included in the course as material warranted. All weekly material, except the quiz, was available on Sunday, 12:00 a.m. The study group questions were due on Wednesday evenings at 11:59 p.m., and general instructor feedback on the questions appeared at 6:00 a.m. on Thursday mornings. The groups consisting of 4 students each were assigned and rotated four times throughout the semester. At the end of each rotation, information on the group performance was gathered and grade adjustments could be made. (The instructor never needed to address group issues as no major problems were indicated.) The weekly quiz became available at 12:00 p.m. on Thursday and was due by Saturday, 11:59 p.m. Quizzes, which were timed, consisted of multiple choice questions, mapping and short answer questions, and the lowest 2 scores (out of the 15 were) dropped. In addition to the weekly activities, 5 assignments (worth 30% of student's final grade) were due throughout the semester. Students also completed a term paper (worth 25% of the student's final grade) on a student-proposed, instructor-approved topic. Students were required to verbally meet with the instructor over the semester (either through a verbal phone call or OL office hours). Only 1 student failed to meet this requirement.

Based upon prior research as noted above, the instructor administered a survey similar to other studies (Fish & Snodgrass, 2014, 2015) through the University course management software – Desire2Learn. The pre- and post- perception surveys questions included questions on motivation, discipline, self-directed, independent, time and cost investment, student and instructor interaction, difficulty, cheating, schedule flexibility, course activity preference, preference for OL versus FTF education, happiness, and the appropriateness of OL education at the university (See Appendix).

In the pre-course survey, students answered additional questions on whether they had taken a prior FTF course with the instructor, the number of OL courses taken prior not at the university, the number of OL courses taken prior at the university, and whether they had taken an OL preparation course, through the university, textbook publisher or other. In addition to specific questions regarding the handouts, quizzes, additional readings, Executive Briefings, assignments, study group questions, the individual term paper, textbook, final grades, office hours, and other potential activity changes to the course, students were surveyed on the average number of hours they spent working on course material each week (excluding two very intense weeks noted prior to the course by the instructor). Survey information was codified as noted in parentheses in the Appendix, and the data was entered into an EXCEL spreadsheet for analysis.

ANALYSIS

Out of the 29 students, the pre-course survey indicated that 3 students (out of 16) in the fall of 2015 and 2 (out of 18) students in the fall of 2016 took a prior course with the instructor. With respect to taking a prior OL course, over both sections, 6 students never took an OL course prior, 4 students took 1 OL class, 9 students took 2 OL classes, 5 students took 3 OL classes, 1 student took 4 OL courses, another student took 5 OL courses, 2 students took 6 OL courses, and 1 student took 7 OL courses. On average, the fall 2015 students took 2.15 OL courses (σ = 2.34), while the fall 2016 students took 2.31 OL courses (σ = 1.54). The classes were not significantly different with respect to the number of OL courses taken prior (p=.84), averaging 2.24 OL classes (σ = 1.90). Twenty-seven (of the 29) students (93.1%) never took an OL preparation course, 1 student took the school's OL preparation course, and another student used outside preparation materials. In the fall 2015 pre-course survey only 3 students commented on student interaction, instructor interaction and activities that increased or decreased their understanding

of course material. Therefore, the results on these parameters are the mainly perceptions of the fall 2016 class; however, the fall 2015 class did not significantly differ on these parameters from the fall 2016 class (as noted below).

As shown in Table 1, the class sections only significantly differed in their pre-course perception of total costs (p=.04), and a mild difference on post-discipline (p=.08). With respect to the fall 2015 class and total costs, the students did not significantly change their perception over the course (p=.21); however, for the fall 2016 class, there was a significant change in perception (p=.04) as students went from expecting costs to be equal (μ =3.13,σ =.62) to less (μ = 2.75, σ =.58). With respect to discipline, the fall 2015 class, results indicate a mild change in perceptions (p=.07); while the fall 2016 students did not change their perceptions on discipline. Both sections were similar in their pre-course discipline perceptions (fall 2015 μ =3.75, fall 2016 μ =3.85), but their post-course perceptions differed as the fall 2015 students felt there was less discipline required (μ =3.46, σ =.78), while the fall 2016 student felt slightly, but insignificantly, more discipline than they originally perceived, was required (μ = 3.94, σ = .77).

Given the insignificant difference between the sections on the other parameters, the analysis that follows includes all data from both classes combined, for a total number of students completing the pre- and post-surveys of 29 students. Comparison results (student t-test, one-tail, pairwise) indicate that students perceptions remained the same for all parameters except difficulty (p=.01), cheating (p=.04), and preference (p=.01). With respect to difficulty, students felt that the OL environment was more difficult – and perceived it to be significantly more difficult following the course than FTF. Prior to taking the course, students perceived that the OL environment would be easier to cheat in; however, following the course, they were relatively indifferent. Prior to the class, students' motivation and self-direction were indifferent to taking the class OL or FTF; however, following the OL course, a significant shift towards FTF classes was noted. In general, students were equally motivated in both

environments. Both classes indicated that the OL environment required more discipline than FTF. Graduate students felt that OL classes required more discipline and time investment than FTF. In general, students were indifferent to student-to-student and student-to-instructor interaction in the OL environment versus the FTF one. Graduate students enjoyed the schedule flexibility the OL environment affords them over the FTF environment and are generally happy with the OL environment. Students felt that OL courses are appropriate at the institution.

Eight students never changed their mind over the course and indicated that they would've preferred to take the class as a FTF class. Pre- and post-course completion, five students desired an OL course, and six students were indifferent. Six students began the course as indifferent between the two environments, but by course completion indicated that they would prefer a FTF course. Two students began the course as indifferent, but by course completion they indicated that preferred the OL environment. Similarly, two students began the course as favoring OL, but by the end of the course, were indifferent.

The pre- and post-surveys for the fall 2016 students included a question about the average number of hours they expected to spend or spent on the class. There was a significant difference in the students expectations ($p=.04$) as students expected to spend more hours ($\mu=5.56$ hours, $\sigma=2.55$), than they actually spent ($\mu = 4.88$ hours, $\sigma = 2.0$).

With respect to activity preference, only three of the fall 2015 students completed the pre-survey questions, while only 1 of the fall 2016 students failed the answer the questions. Students' pre- and post- thoughts regarding activities that increased and decreased their understanding of the material are summarized in Table 2. Out of the 18 students who completed the pre- and post-survey questions, only 7 students did not change their mind over the course regarding the most important teaching activity. At course end, out of the 7, 6 students preferred the homework assignments, while one preferred the videos. In general, students felt the homework (10) and discussion boards/study groups (7) increased their

understanding the most. With respect to decreasing understanding, only 3 students did not change their mind over the course as the majority (20) would not remove any activities.

OL Perceptual Differences with OL Experience: Transition. Given the small class sizes, subdividing and statistically comparing student perceptions by the number of OL courses that students have taken is not statistically acceptable. While the numbers are small, comparing the perceptions of students without prior OL experience ('novices'; 6) to those with OL experience ('experience', 23) reveals very little difference in perceptions between the two groups as shown in Table 3. However, a significant difference in post-course perception on student interaction exists (p=.04) between the two groups. After the course, novices liked the student interaction ($\mu = 3.33$, $\sigma = 52$) more than their more experienced colleagues ($\mu = 2.83$, $\sigma = 72$) who tended to dislike the student interaction. Mild differences in pre-course motivation (p=.09) and discipline (p=.09) and post-course cheating existed. Pre-course novices were equally motivated ($\mu = 3.0$, $\sigma = 0$), while experienced students were less motivated ($\mu = 2.87$, $\sigma = .46$).

Since these results indicate that over a single course, students do not appear to change their perception, the question remains, "*Do students' perceptions regarding OL versus FTF change over time*?" Table 3 reviews the transition from novice (no prior OL experience) versus students who have taken 1 or more OL courses. Interestingly, differences in perspectives start to appear. When comparing novices versus experienced students, mildly significant differences exist for pre-course motivation (p=.09) and discipline (p=.09) as well as post-course cheating (p=.09). When students have taken one or less courses versus students taking 2 or more OL courses, student perceptions are significantly different prior to the course for discipline (p = .03), time investment (p=.05), and student interaction (p=.05) as well as time investment (p =.05) and student interaction (p=.04). Mild significance exists prior to the course for motivation (p=.09), and cheating (p=.09) and preference (.07) after

the course. When comparing students' perceptions with 2 or less courses verses those with 3 or more courses, significant differences occur prior to the course for motivation (p=.05) and discipline (p=.010), with a mild significance for difficulty (p=.06). Post perceptions for these groups reveal significant differences for motivation (p=.03) and schedule flexibility (p=.02) and mildly significant differences for instructor interaction (p=.10) and difficulty (p=.06). Interestingly, when comparing the pre-course perceptions of students with 3 or less prior OL courses versus those with 4 or more, there are no significant differences in student perceptions. Post-course significance between these groups exists for student interaction (p=.03) and a mild significance for cheating (p=.09). In general, there appears to be a transition in students' perceptions as more courses are taken, particularly around 2 to 3 courses.

OL Perceptual Differences with OL Experience: Courses Taken & Hours Invested. However, as shown in Table 4, the correlations between student perceptions and the number of courses taken as well as the correlations between student perceptions and the self-reported average weekly hours invested in the course yield some interesting results. In general, there are weak – and usually negative - relationships between student perceptions and the number of OL courses taken; however, there is a moderate relationship prior to taking a course and discipline (.41) and time investment (.43), and a moderate, negative relationship with student interaction after the course (-.33). Essentially, going into a course, students perceive that discipline and time investment are important to their learning experience. However, following a course, they perceived the interaction with other students as a negative one. With respect to the number of OL courses, a positive change in the relationship with the students' perception for motivation, self-directed, independence, instructor interaction, cheating, schedule flexibility, and happiness exist, while a negative relationship occurred over the course for discipline, time investment, cost investment, and student interaction.

Prior to taking the course, a moderate, negative relationship exists between average hours invested in the course and the self-directed learning environment (-.39), independence (-.58), and happiness (-.53), while a positive relationship exists between average weekly hours invested and instructor interaction (.35). Perhaps, students expected the instructor-to-student experience to be more positive and were not looking forward to the self-directed, independent OL experience. After the course, students continued to demonstrate this moderately negative relationship with motivation (-.35), independence (-.46), student interaction (-.32) and happiness (-.30), and a moderately positive relationship with cost investment (.58). With respect to the average weekly hours invested in the course, a positive change in the relationship with the student's perception of self-directed, independence, cost investment, preference and happiness occurred, while a negative change occurred for motivation, discipline, student interaction, instructor interaction, and appropriateness.

DISCUSSION

The key focus of this study is to evaluate graduate student perceptual changes over a semester OL course at a business school with a focus on teaching. As students take more courses, studies evaluating student's perceptions of OL courses demonstrate an increasing acceptance of OL as being equal to or better than FTF (Dobbs et al., 2009; Fish & Snodgrass, 2014; Mortagy & Boghikian-Whitby, 2010; Perreault et al., 2008; Tanner et al., 2003). This study sought to explore when this change occurred as students' perceptions over a single course were analyzed. In general, students' preconceived perceptions did not change - except on difficulty, cheating, and preference. However, the majority of students took less than 5 OL courses, prior to the study. Prior researchers indicate that at least 5 OL courses should be taken before students perceive OL education to be equal to or better than FTF (Dobbs et al., 2009). This study demonstrates that over a single OL course, students' perceptions

on difficulty, cheating and preference changed, regardless of the number of OL courses taken prior.

The instructor took great care in ensuring that the OL course mirrored the difficulty and demands of prior FTF class offerings. Perhaps as the semester wore on, graduate students became less enchanted with working alone. They may have realized that the difficulties of working alone to 'figure it out' versus being in a traditional classroom. The result that students' perception on difficulty increases as they take more OL courses corresponds to prior results (Fish & Snodgrass, 2014). Over the semester, students' perceptions on cheating changed from regarding it to be easier to cheat OL to essentially being equal. This differs from prior studies where students felt it was easier to cheat OL (Fish & Snodgrass, 2014). Perhaps, students may have realized that they had to complete the assignments on their own and couldn't just 'look up the answer' for quizzes. Essentially, students may have realized that they actually had to learn the material similar to a FTF class. While the course was well-received (3.9 out of 5), there was a significant shift of students' preferences from undecided toward a preference for a FTF class. However, the preference for FTF courses for this population – regardless of OL experience - has been noted in other similar studies (Fish & Snodgrass, 2014). Similar to other studies (Chawla & Joshi, 2012; Fish & Snodgrass, 2014; Grandon et al., 2005; Horspool & Lange, 2012; Perreault et al., 2008), graduate students overwhelming favored OL education for the schedule flexibility that OL offers. In general, graduate students perceived OL courses to offer more independence, discipline, and time investment than FTF courses. They were essentially 'happy' and accepting of OL courses at the University. However, graduate students indicated that they would be less motivated OL, enjoyed the self-directed OL environment less, and disliked the student and instructor interaction OL less than FTF. They were essentially indifferent to the cost investment differences between OL and FTF education. Graduate students felt their time investment was significantly greater OL than FTF both prior to the course and after taking the course. Ironically, the expected number of hours (5.56) for the

fall 2016 section was significantly more than actual hours they reported spending on the class (4.88 hours)! A traditional FTF class has a 2.75 hour class associated with it, along with readings, studying, problem solving and homework to complete, which probably takes the average student longer than 6 hours per week. Perhaps since the OL student is 'alone' the majority of time, they perceive the time investment more than in a FTF class.

While research from over a decade ago favors training for OL students (Perreault et al., 2002), today's students feel they are adequately prepared for OL education as over 93% of the students in the study did not take any OL training prior to the course. This is in keeping with similar research for today's generation (Fish & Snodgrass, 2014). While exposing a student to tools and techniques, OL training also impacts upon a student's perceptions and expectations. So, while students felt that they were adequately prepared to participate in the OL course, it is interesting to note that their perceptions still favored the FTF classroom. If potential OL students are required to take OL preparatory courses, perhaps their expectations would be different.

As for OL activities, results confirm that assignments (Palmer & Holt, 2010) are perceived as being valuable to OL learning. However, most students did not find videos (Horspool & Lange, 2012), instructor office hours or instructor chat/email as valuable, which contrasted with prior studies (Palmer & Holt, 2010). Graduate students perceived OL discussions, or in this case, study groups, differently. Prior to the course, most students did not perceive study groups positively – in fact, most regarded them negatively; however, by the end of the course, many graduate students favored study groups as having a positive impact upon their learning experience. In general, students recognized the importance of learning from others through the study groups, but they also value individual assignments. Interestingly, the majority of students (69%) indicated that all of the activities were beneficial to their learning, which speaks positively to the course framework and OL teaching method chosen!

This study sought to explore student perception changes over a time. As the results indicate, student perceptions (with the exception of difficulty, cheating and preference) remain the same over a single course. Interestingly, when comparing novices to students who had prior OL experience, student perceptions on student interaction following the course were significantly different. As noted above with activities, while the classes positively regarded the study groups, novices perceived them more positively than their more experienced colleagues. Perhaps, novices were not cognizant of the OL interaction that could occur online or the experienced groups disliked the 'study groups' more than traditional 'discussion boards'. (Note, the study group questions were graded responses, while discussion boards tend to be more difficult to grade and tend to be a pass/fail grade. Experienced students may have expected the pass/fail grading instead.)

In evaluating perceptual differences based upon OL experience, there appears to be a transition in students' perceptions as more courses are taken, particularly around 2 to 3 courses. However, these results should be interpreted with caution given the population and subgroup (number of prior OL courses) sample sizes. Comparing novices versus more experienced OL users indicated that novices were indifferent to student interaction; however, as the course progressed, novices enjoyed it significantly more than their more experienced counterparts. Perhaps, since novices had not experienced this constant student-to-student interaction in the FTF classroom, they enjoyed it more than their more experienced counterparts. Perhaps the 'novelty' wore off for the experienced OL students. Similarly, differences in motivation and discipline between novices and experienced users were noted, and students with 3 or more courses significantly differed from students with 2 or less courses in their perception on motivation. Students with 3 or more courses were significantly less motivated in the OL environment than in a FTF course. Perhaps, as students take more OL courses, they become 'burned' out due to the independent nature of the OL environment. With respect to students' perceptions on difficulty and cheating, which significantly

changed over the course, a mild change in cheating is noted immediately after one OL course. As for difficulty, a mild change is noted after 2 OL courses. No significant changes in student perceptions between increasing OL experience is detected for self-directed, independence, cost investment, happiness and appropriateness.

Students with more OL course experience responded positively on motivation, self-directed, independence, instructor interaction, cheating, schedule flexibility, and happiness. However, students with more OL experience responded negatively on discipline, time investment, cost investment, and student interaction. Essentially the change in each of these perceptions is related to students' prior experiences in the OL environment. In general, students appear to be more motivated, enjoyed the self-directed, and independence and were happier in this OL class than they expected to be based upon prior experience. While they initially felt they could cheat easily in an OL class, their perception changed over the course. OL students enjoy the schedule flexibility afforded them in the OL environment. However, students with prior OL experience did not enjoy the discipline, time and cost investment, and student interaction required in this OL course versus other OL courses. However, the majority of students indicated that they would not change any of the class activities.

As students invested more time into the course, they were less motivated, dislike the discipline required more, enjoyed the student and instructor interaction OL less, and they were not as happy as in a FTF classroom. However, the more time they invested, the more they enjoyed the self-directed, independent learning environment, and they perceived the cost investment more positively in the OL environment. With more time spent on the course, students' preferences for OL were improved as well as their happiness.

Limitations. A few limitations in this study exist. First and most importantly, the number of students that participated in the classes were relatively small, with only 29 completing both the pre- and post-course surveys. Hopefully, future offerings of the class will include more data.

Additionally, given the small class sizes, the ability to evaluate differences between students with more OL experience was difficult. Similarly, a more robust sample can be subdivided into relevant subgroups sample sizesand offer more complex statistical analysis. As another drawback to the current study, since few students completed the pre-course survey questions regarding activity preferences, the study was unable to analyze these perceptual changes. Hopefully, future studies will be able to gather this information. Another limitation of the study was the fact that the instructor was new to OL teaching as well. Perhaps a more experienced OL instructor may have a different impact upon the OL course and students.

Similar to our prior study (Fish & Snodgrass, 2014), graduate students perceptions tended to favor FTF education in both the pre-course and post-course survey. Assuming as administrators do that OL education is equivalent to FTF (Allen & Seamen, 2013), then students should be indifferent to all of the factors surveyed. This study and others indicate that this is not the case. Contrasting to prior claims that students do not experience a change in their perceptions until at least 5 OL courses are taken (Dobbs et al., 2009), this study demonstrates that student's perceptions on difficulty, cheating and preference changed over just one course. However, in keeping with the prior studies, all other perceptions did not change significantly as students retained the majority of their perceptions of OL versus FTF education over the course. Students with relatively little exposure to the OL environment (less than 5 OL courses) – and no formal OL training - preferred FTF courses at the teaching university.

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Web Appendix

A web appendix for this paper is available at: http://www.businessresearchconsortium.org/pro/brcpro2016p1e.pdf

Instructor Satisfaction and Motivation in Online Teaching Environments: A Job Design Framework

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ABSTRACT

Research that compares online and traditional classroom instruction is plentiful but focuses mostly on student satisfaction and learning outcomes. Despite advancements in online learning management systems, proliferation of personal devices adapted for online learning, increasing demand for flexible degree programs, and institutional pressure to offer more online courses, many instructors resist the transition to teaching online. Research that addresses instructors' satisfaction and motivation to teach online is therefore important. Few models link satisfaction to the work characteristics or provide suggestions for improvement. We propose that the nature of the work itself influences instructor satisfaction and motivation to teach online. We therefore evaluate online instructor satisfaction and motivation using the well-accepted core characteristics job design model (Hackman, Oldham, Janson, & Purdy, 1975), and offer job design prescriptions that increase instructor satisfaction and motivation to teach online.

Keywords: online instruction, motivation, faculty satisfaction

Introduction and Literature Review

Satisfaction and motivation are key indicators of student engagement and success in online learning. Not surprisingly, many pedagogical studies focus on these two areas. An important component of online learning effectiveness is faculty satisfaction and motivation to teach online. A pillar of online teaching quality proposed by the Online Learning Consortium (OLC) is "faculty (being) pleased with teaching online, citing appreciation and happiness" (Moore, 2005, 2). Despite advancing technology, proliferation of personal devices that can be adapted for online learning, and institutional pressure to offer online courses, many instructors resist the transition to teaching online (Mitchell, Parlamis & Claiborne, 2015; De Jong, 2012). While many factors contribute to instructors' resistance to change, it is important to understand the specific aspects of the job that influence an instructor's satisfaction and

motivation to teach in an online format. Understanding how and why classroom and online instructor satisfaction differ can provide insights for improvements in instructor satisfaction and delivery.

Faculty understanding of the unique challenges and opportunities presented by online teaching will likely create the conditions for a successful online course. On the other hand, faculty who are not as aware or fully vested in implementing best online teaching practices are more likely to teach poorly. Chickering and Gamson (1987, 2001) identified best practices as seven principles of job design that correspond to student learning and instructor satisfaction, while (Shieh et al, 2008) demonstrate the struggle of faculty to translate these best practices from the classroom to the online course. Surveys of self-efficacy in teaching (Horvitz, Beach, Anderson & Xia, 2014) suggest that perception of student learning is the single most influential independent variable on satisfaction along with the demographics of the instructor. Repeatedly teaching online and in faculty cohorts is associated with faculty satisfaction (Moore, 2005). Each of these studies suggests future work to provide faculty members with training and support structures.

Barriers to Teaching Online

Previous research addressed barriers to teaching online. These barriers include the initial framework identified by Muilenberg (2001), which included multiple perspectives of those involved (including institutions, policy makers, users, as well as instructors). The ten factors found by Muilenberg (2001) to be most challenging for distance learning adoption were administrative structure, organizational change, technical expertise, social interaction and quality, faculty compensation and time, threat of technology, legal issues, evaluation of effectiveness, access, and student-support services. Lloyd, Byrne and McCoy (2012) listed four areas of faculty concern related to low online teaching satisfaction: interpersonal barriers (e.g., lack of creating interpersonal relationships with students), institutional barriers (e.g., online teaching not valued for promotion and tenure), training and technology barriers (e.g., lack of support therein),

and cost/benefit analysis barriers (e.g., increased workload and time commitment).

Motivating Factors to Teach Online

Shea (2007) identified specific motivators including teaching schedule flexibility, the opportunity to experiment with new pedagogy, and altruism related to providing learning access to underserved groups. A later replication of this study again found that novelty and enabling access were emergent motivators (MacKeogh & Fox, 2008). Bollinger and Wasilik's (2009) meta-analysis of previous research categorizes potential motivators into three categories: student related, instructor related, and institutional related factors. Student-related factors identified by Bollinger and Wasilik (2009) most often refer to the instructor's desire to afford higher education to a student population that would not otherwise be able to attend due to other obligations. Instructor-related factors for motivation to teach online included the challenge of providing high-quality instruction using technology while institutional-related factors refer to the value placed on online learning by the institution. Interestingly, Ragsdale (2011) summarized previous findings on faculty motivators with an eye on providing tools for administrators dealing with resistance to adoption. These motivators allowed faculty to observe and practice prior to teaching an online course; manage realistic teaching time commitments; foster a supportive community of practice; emphasize online education the institutional benefits; define extrinsic rewards; and recognize intrinsic motivators. The promotion of intrinsic motivators is arguably the most effective strategy in engaging faculty in online pedagogy. Intrinsic motivators such as intellectual challenge, use of innovative technology, and the self-motivation required for effective online teaching have been found to be the most compelling factors to teach online (Panda & Mishra, 2007). Notably, advantages to online instruction identified in these studies are the intellectual challenge for faculty and scheduling flexibility (Green, Alejandro & Brown, 2009; Maguire, 2005).

Emerging research explores concepts of job satisfaction as it relates to the practice of online teaching. Margalina et al. (2014) used a framework of relational coordination in examining how supporting organizational structures positively reinforced perceptions of faculty satisfaction. The research that explores faculty satisfaction and motivation is tactical and prescriptive, but lacks a conceptual or theoretical foundation. This paper proposes a job analytical/design approach to understanding faculty satisfaction and motivation to teach online.

Job Design Model

Research has long supported the finding that sound work design influences employee performance, motivation and job satisfaction (Wageman, Hackman & Lehman, 2005). Past research stressed characteristics of the work itself that influence work outcomes. Early research focused on scientific management and job rotation. Building on Herzberg's (1979) concepts, job enrichment is among the early constructs that emphasized the meaning of the tasks themselves (Gullickson, 2011; Hackman, Oldham, Janson, & Purdy, 1975). Subsequent attention focused on the Core Job Characteristics model (Hackman & Lawler, 1975; Hackman & Oldham, 1980; Hackman & Oldham, 1976) and the psychometric properties of the Job Diagnostic Survey (JDS) and the Job Description Inventory (Wageman, Hackman & Lehman, 2005; Cordery & Sevastos, 1993; Fried, 1991; Taber & Taylor, 1990; Sims, Szilagyi, & Keller, 1976). Research has established the job characteristics model and supported acceptable JDS psychometric properties. We therefore employ the Core Job Characteristics model in the present paper (Figure 1).

The Core Job Characteristics model (Hackman & Lawler, 1975) states that core job characteristics lead to critical psychological states, that in turn result in favorable outcomes (e.g., performance, satisfaction, low absenteeism and low turnover). Skill variety refers to the faculty belief that they use their valued skills. Task Identity is the perception that work is holistic and viewed in its totality rather than an isolated small piece

of the whole. Task significance is the belief that the work matters and is important. These three core dimensions result in job meaningfulness. Job autonomy is the amount of decision-making authority a person has with respect to the execution of their work. Job Autonomy leads to experienced responsibility for work outcomes. Feedback results in experienced knowledge of results and increased motivation, long believed by psychologists to be important for performance and satisfaction.

An important job characteristics model implication is to imbed the core characteristics into work so that employees perceive that work is meaningful, employees take responsibility for their success and failures, and performance improves based on feedback from the work itself. These critical psychological states of perceived meaningfulness, responsibility and knowledge of results result in increased performance, motivation and job satisfaction. The last element of the model is that employees vary with respect to their need for the job characteristics (growth need strength). Hackman and Lawler (1975) contain comprehensive accounts of the model. The Core Job Characteristics model serves as a theoretical foundation to compare online and traditional classroom instruction. The two instructional delivery modes overlap in some respects (e.g., subject matter, cases, and assigned readings). However, the two delivery modes may differentially influence faculty motivation and satisfaction if one exercises more of the core job characteristics than the other.

Measuring student engagement and learning can be challenging, especially when there is limited face-to-face contact. Yet, there are aspects of online teaching that give the faculty member an advantage in an online course. The student must read the text, module content, or other supporting material prior to completing an assignment or discussion. In the classroom, students may not feel the same sense of urgency to engage proactively with the material since a faculty member is physically in the classroom to provide verbal guidance, transmit information, and provide immediate feedback to the student. In this respect, online learning is a good option for students who are self-regulated and independent

(Abrahamson, 1998). Similarly, we often see that students with full-time jobs and personal obligations choose online courses for the flexibility they offer (Allen & Seaman, 2008, Mitchell, Parlamis & Claiborne, 2015). These "non-traditional" students may be more motivated to deeply understand content and excel because the concepts are relevant to their occupation and will enable advancement through the acquisition of knowledge, skills, or degrees (Bye, Pushkar & Conway, 2007). Therefore, the challenge with online instruction is not necessarily a lack of student engagement and learning. Instead, the challenge lies in our ability as instructors to find fulfillment along the core job characteristics. Fulfillment of the three psychological states of job characteristic theory are required to keep instructors motivated and performing well (Oldham & Hackman, 2005; Oldham, Hackman, Smith, & Hitt 2005).

If we consider that motivation, and ultimately performance, in online instruction is impacted by the three psychological states, we are able to utilize the five job characteristics to evaluate and redesign the work to improve both satisfaction and performance. Preliminary analysis of the Core Job Characteristics dimensions help us understand how elements of online instruction influence each psychological state for the online instructor and provide implications for future research.

Skill Variety

Depending on individual approaches to instruction, faculty may find there to be more skill variety in one instructional delivery mode versus another. When we breakdown the actual activities being performed in the classroom and online, there are many similarities. The verbal presentation of material is often the most often cited difference between instructional delivery modes (Simonson, Smaldino, Albright, & Zvacek, 2014). The control of the classroom associated with the face-to-face lecture and facilitation is one of the most difficult aspects for the instructor to forego when moving to online instruction (Palloff & Pratt, 2013). Yet, there are opportunities for video lectures and synchronous/live sessions in online courses. Depending on faculty practice in online courses,

there may be less facilitation and direct feedback to students due to scalability, or class size. Finally, faculty may employ in-class activities or simulations to emphasize key learning objectives in the classroom. Facilitation of active learning in an online environment may present unique challenges, but technological advances in conferencing software, simulations, and collaborative work spaces provide growing alternatives to face-to-face learning. These emerging technologies require a higher level of technical proficiency on the part of both instructors and students. The job characteristic of skill variety contributes to the psychological state of experienced meaningfulness, or the extent to which the instructor finds the work meaningful and can offer their unique skills to others.

Task Identity

Task identity in the classroom is well defined. Classrooms are physical environments in which the faculty member and student meet and interact each week. Furthermore, many faculty members received their education in a traditional, classroom environment and may feel more comfortable in a physical classroom than in a more abstract online setting (Oleson & Hora, 2014). Online instruction may not be as well defined in terms of approach, best practices, and expectations.

Another way to conceptualize Task Identity is the opportunity to directly observe the learning process, student by student. Bloom's taxonomy may be useful in this context (Bloom et al, 1956). Classroom instruction may afford greater first hand observation of students as they progress through the remembering, understanding, applying, analyzing, evaluating and creating learning domains as compared to online instruction (Halawi, Pires, & McCarthy, 2009). As students and faculty interact increasingly in an online or blended format, the discrepancy in task identity across delivery modes may diminish. Task Identify also contributes to the instructor's psychological state of experienced meaningfulness.

Task Significance

Faculty members may have had instructors that inspired them to teach. These relationships form over the course of a semester(s) as the faculty member and student learn more about one another. Faculty-student interaction in an online environment can be more challenging as the student and faculty member may not physically see and/or hear one another in an asynchronous environment (Kuo, Walker, Schroeder, & Belland, 2014). As a result, the extent to which a faculty member may have an impact on a student in an online course is unclear, yet this is the third job characteristic that is required to fulfill a sense of experienced meaningfulness for the online instructor.

Autonomy

Pedagogical autonomy refers to the extent that faculty are free to choose teaching methods, materials and content. Of course, faculty also differ with respect to their preferences. For example, certain faculty members may prefer speaking and storytelling, while others may prefer the use of mixed media and technology. Traditional classrooms tend to be rigid in location and time, while learning management systems, faculty technical skill, and Information Technology (IT) restrict the range of options and autonomy afforded to faculty in the online classroom. Autonomy directly impacts the psychological state of experienced responsibility, or the degree to which the instructor feels they are both accountable and responsible for the quality of the instruction.

Feedback

Similar to Task Identity, many faculty members place value on the immediate feedback they receive from students with respect to subject matter mastery as well as their own classroom performance. Verbal and non-verbal cues available in traditional settings help faculty ascertain a wide range of student emotions, including comprehension, excitement and engagement. In an asynchronous online setting; however, students have time to construct their responses. Feedback in terms of learning is

captured most often with written assessments and examinations. While certain students may email or speak with the faculty directly in online courses, most students may limit these direct interactions. Regardless of teaching format, faculty often collect student evaluations at the end of the course, but this is a lagging indicator of performance. The job characteristic of feedback influences the third and final psychological state, knowledge of results.

Future Research

The Core Job Characteristics model has implications for improving faculty online instruction satisfaction, motivation and performance by directly influencing instructors' critical psychological states of experienced meaningfulness, experienced responsibility, and knowledge of results. Future research can explore the impact of increased skill variety, task variety and task significance on experienced instructor satisfaction and performance. For example, the impact of training and use of enhanced technology designed to increase synchronous student discussions on satisfaction and motivation can be explored.

Online techniques and technology that enables instructors to more fully observe student progression through Bloom's Taxonomy stages of learning should also be explored. Such research may help understand methods that increase online instructors' level of task identity. Instructor familiarity and increased competence using enhanced online technologies may also increase perceived job autonomy as instructors decrease their dependence on IT assistance.

Conclusion

Given increases in online course offerings, we have an opportunity and an obligation to critically evaluate the determinants of instructor satisfaction and motivation. We propose that evaluating online instruction

using the Core Job Characteristics is a useful framework. Through the job characteristics model, we've identified differences that influence faculty member satisfaction and motivation to teach online. The Core Job Characteristics provide a framework to make recommendations for job redesign to improve faculty member satisfaction, motivation, and performance.

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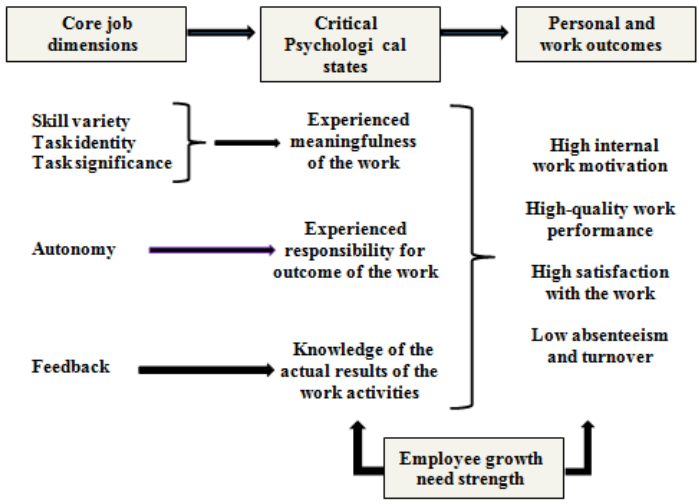
Appendix

Figure 1. Core job characteristics model.



Source: from Hackman, J. R., & Oldham, G. R. (1975). Development of the Job Diagnostic Survey. *Journal of Applied Psychology*, 60, 159-170. http://dx.doi.org/10.1037/h0076546.

Figure 2. Core job characteristics and online instruction.

Core Job Dimension	Aspects of Instruction	Online Teaching Implications
Skill Variety	• Presentation skills • Facilitation of cases/simulations • Facilitation of student discussions • Processing skills • Group dynamics skills • Interpersonal skills • Class management skills • Assessment skills • Feedback skills	• Identify, develop and deploy online valued skills. • Vary online instructional methods • Provide technical tools, training and assistance that increase faculty ability to effectively facilitate cases, discussions and student interactions • Provide tools that make feedback to students more informational and motivating
Task Identity	• Content expertise • Student experience in delivery mode • Clarity in expectations of instructor • Availability of support	• Provide faculty with technology and opportunities to facilitate students through the learning process (Bloom, 1956).
Task Significance	• Student learning • Student engagement with faculty • Student engagement with peers	• Increase online tools that assess the impact teaching has on students
Autonomy	• Instructor ownership of content • Flexibility in approach to instruction • Flexibility in schedule	• Provide institutional flexibility regarding online teaching decisions: course content, methods and techniques • Provide technology and assistance to expand faculty choices among online methods. • Provide training to decrease instructor IT dependence
Feedback	Student: • Performance along key learning objectives • Interest in material • Satisfaction with course throughout the semester • Satisfaction with course at the end of the semester • Satisfaction after course	• Provide opportunities and technologies that personalize the feedback faculty receive from students that the teaching is effective and has impact

Source: Adapted from Hackman, R. J., Oldham, G., Janson, R., & Purdy, K. (1975). A new strategy for job enrichment. California Management Review, 17(4), 57-71. http://dx.doi.org/10.2307/41164610.

Drilling the Data: Students Use Six Sigma DMAIC to Improve Dental Practice Inventory Management

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ABSTRACT

This work explains how data analytics within the framework of Six Sigma Quality, known as DMAIC (Define, Measure, Analyze, Improve, and Control), was used to diagnose and improve the inventory management process at a local dental practice which was operating at a loss. The analytics was done as part of a capstone

project. The students defined the problem using data mining, and further identified the scope of the problem using Critical-to-Quality trees, Supply-Input- Process-Output-Customer (SIPOC) diagramming, and prioritizing the focus on the problem using a prioritization matrix. They further refined the business case and set specific goals for the improvement, in terms of revenue spent with regard to inventory and enumeration of expired materials. As a result, the dental practice got a report that allowed them to realize significant savings. Additionally, the students gained invaluable experience in taking a data-driven look at problems.

Keywords: Six sigma, inventory management, data analytics, business case

Introduction

Name any media outlet, and it's a safe bet that the spiraling costs of healthcare have been discussed, argued, solved, and resolved. When one thinks of healthcare costs, the predominant image may be one of hospitals, prescription drugs, and high-end medical devices. But what about dental medicine? Indeed, dentistry is a particular niche of medicine, with its own set of challenges when it comes to cost management. One source of costs for dental practices is the cost of inventory, the materials and supplies used in the procedures that ease pain, repair bites, and provide a winning smile.

This is a case study account of how 25 operations management (OM) students in the fall 2015 semester employed the project management framework of Lean Six Sigma (LSS), that is, Define-Measure-Analyze-Improve-Control (DMAIC) (Brussee, 2004), through experiential learning in a 15-week operations management course in which these students evaluated and proposed improvements for the inventory management system of a local dental practice. Experiential learning has been found to engage students with the curriculum and to enhance their understanding of complex ideas (Papamarcos, 2002). Thus, this project was a perfect fit: enhance the learning of complex quality concepts of the students while

assisting a community business with its own expense management and simultaneously educating them on the use of data to manage inventory.

The Course Client: The Dental Practice

The dental practice which participated in this course project has existed since 1972. Recognized as a "People's Choice Dental Practice" in its geographic area, this practice has enjoyed a history of financial success. To protect its market presence, the name of the practice will remain anonymous. This practice operates as a full-service, state-of-the art dental practice, providing general family dentistry and all phases of modern stomatology, including periodontal specialty services. The practice uses the latest technologies in preventive, restorative and cosmetic dentistry as a multi-service group practice. The practice consists of over 54 staff members, including doctors, hygienists, assistants, administrative and in-house laboratory staff.

This practice is located in an economically-challenged area, which suffered greatly in terms of employment as a result of the 2008 recession. Additionally, with a recently announced downsizing of a substantial employer, the practice has well-founded concerns about managing costs to ensure on-going business sustainability.

The Lean Six Sigma DMAIC Framework

LSS employs five essential phases to systematically effect an improvement in a process wherever such an improvement is needed (Furterer, 2013). These improvements may be in terms of efficiency as well as effectiveness, where efficiency is gained by the elimination or minimization of waste, and effectiveness is gained by achieving consistency in meeting identified targets with virtually zero defects. Each of the five phases of LSS has a specific goal, and each phase has different tools associated with it, some of which overlap phases. The Define phase has the aim to identify

the project's scope, goal, and objectives as well as to understand the high-level process and that process's stakeholders, inputs, outputs, and functionality. The goal of the Measure Phase is to understand the process at a more detailed level, identify metrics to characterize the process, and measure it at a base level to serve as a basis for improvement. The Analyze Phase must aim to identify the influencers of the process's performance. The goal of the Improve Phase is to identify new process operating conditions and improvement recommendations. The Control Phase concerns establishing a plan to ensure that the gains in improvement are sustained.

While Lean Six Sigma had its first applications within manufacturing sectors, it is a methodology that may be applied to a service industry, enhancing productivity of operations and contributing to objectivity in results through the use of data driven analytics in lieu of guesswork. As a result, in healthcare, the tools of Lean Six Sigma can be implemented if practitioners understand the concepts of the methodology (Eckes, 2003). The understanding of LSS has an endless scope of possibilities. For example, there are institutions that have experienced more than a 50% improvement in patient satisfaction, reduced the length of service in the emergency department by 25%, and gained more than $4 million in the cost of quality, through the successful adoption of this procedure (Furterer, 2013).

The healthcare environment currently is an area, where the stakeholders in the practices must work together to optimize the performance of health delivery. Studies demonstrate an inflation of waste in health services (Goodwin & Nick, 2005). Complicating this condition, many medical organizations do not consistently maintain comprehensive process documentation, making it very difficult to trace the sources of wastes and identifying subsequent amicable solutions to the same (Iyer & Levin, 2006).

Through LSS, not only is it possible to improve the quality of the health services in terms of delivery, but it is also possible to enhance the

context of the healthcare delivery system, that is, the business aspects of the delivery system. Like most businesses, dental practices and other healthcare providers focus on return on investment (ROI). Careful analysis of problems through the adoption of LSS can make it easier for these providers to meet the ROI (George, 2003) and improvement targets they have established.

An additional benefit of LSS is that it is based fundamentally on customer needs, with resulting solutions verified by data to those customers' needs. As a result, solutions resulting from its application may be determined as more ethical when compared to solutions that result from hunches and guesswork (Furterer, 2013).

LSS then is ideal for all types of medical professionals, from dentists to nurses and middle level healthcare providers (Trsuko, 2007). Thus, LSS provides an excellent framework for this course project, allowing the students to apply LSS to the course client's (the dental practice) cost minimization problem, and in turn, teaching the course client of the benefits of data in managing its practice.

Purpose and Research Questions

The purpose of this study is to determine if business management students in an undergraduate OM course were able to apply the LSS concepts to provide a recommendation to the course client, an established dental practice that would achieve the client's identified business goal. An additional purpose was to determine whether this project would influence the approach the dental practice would take to future business problems. To this end, the following research questions guided the study:

Research Question 1: How likely are the recommendations developed by the students to result in the stated business goal of the course client?

Research Question 2: How likely will the results of this project be in influencing the approach the client takes on future business problems?

Overview of the OM Course

The 15-week senior level OM course emphasizes the nature of OM and its inter-relationship with quality. This course is an applied class, as the students build on the concepts and themes learned earlier within their initial OM course with an emphasis on quality practices. The initial OM course provides the student with a conceptual understanding of the body of knowledge of OM. The general goals of this second OM course are to gain exposure to the various activities and decisions that involve an operations manager, learn about the trade-offs associated with these decisions, and acquire the conceptual and empirical tools for improving the performance of an organization.

In the fall 2015 course, 25 traditional, full-time college students (15 males and 10 females) were enrolled. These students majored in business administration, with a concentration in management. This course section met three times weekly for 50 minutes each meeting.

The overarching goal of the course was to apply the concepts of the QM tool of Lean Six Sigma (LSS) in assisting the dental practice described above to minimize cost expenditures; this problem was specifically related to the cost of its inventory management system. The course was based on learning centered on a conceptual understanding of QM practices and techniques as they apply to inventory management processes, with an emphasis on LSS and its systematic problem-solving model of Define-Measure-Analyze-Improve-Control (DMAIC). The students were randomly assigned into groups of equal size using the random group generator available in the learning management system. Between class meetings, the students applied the conceptual learning to the dental practice project, in terms of the DMAIC model, which resulted in deliverables to be presented at the next in-class meeting. For example, after an in-class discussion on Measure, the students determined their measurement plan for the dental practice's inventory management process and implemented that plan such that data were collected to describe the process behavior. At the next class, time was spent on

evaluating that data as a class and then using that data to segue to the next phase of DMAIC, i.e., Analyze. During discussions with the professor, students would be individually called upon to provide an in-depth update regarding the project. The professor would randomly select students within the groups to provide this update. The intent of this questioning was to assure the professor that individuals were contributing to the group, as opposed to allowing others to do the work and simply receive the same grade. If an individual could not contribute to this update, the professor would withhold 10 points from that student's score for the project. Additionally, that same student would be questioned more frequently, thereby maintaining a higher risk of losing more substantial points. This method appeared to be rather effective, as students maintained meticulous notes and were consistently able to provide the professor with in-depth information when randomly selected. Further, no groups complained to the professor about any one group member throughout the progression of the project. Additionally, students individually completed quizzes and essays concerning Six Sigma concepts to determine differences in performance among the students with regard to content understanding and project participation.

Toward the end of the semester, a report was prepared by the students that described the project and included all phases of the DMAIC model. It also included a formal presentation of the project to the course client.

Overview of the LSS Course Project

To begin the project, students were introduced to the LSS process through in-class lectures, in-class exercises, and required readings. In this way, the students were given an overview of the DMAIC model, which set the stage for the more detailed DMAIC work on the dental practice's inventory management business problem. These tasks took several weeks, and when a foundation of LSS was in place, representatives of the dental practice visited the class to provide information on the current inventory management process. Because the students did not directly access any

patient information but rather focused on anonymous data sets, health care privacy was not a concern in this particular case. However, in general, such concerns should be taken into consideration in health data analytics. The client class visit began the Define Phase of the project.

Define

The dental practice representatives provided both qualitative and quantitative information to the students. Quantitatively, the practice shared the last year of inventory materials purchases, including quantity and costs. From the data, it was determined that 10% of revenue is expended on inventory, where inventory was defined as the expendable materials used in specific dental procedures, such as crown prep, restorations, cleanings, etc. Additionally, data provided to the students by the practice originating from a large dental inventory supplier indicated that the percentage of revenue expended to inventory should be close to 5%. Additionally, the dental practice identified about $5000 worth of expired or out-of-date inventory in the inventory storage areas.

Qualitatively, they described a high-level process flow of the current state of the inventory ordering process. For each process step, the suppliers of each input to that process step were identified, as well as the outputs and the customers of those. This information was used in the Suppliers-Inputs-Process-Outputs-Customers (SIPOC) diagramming tool to establish the boundaries of the project. (See Fig. 1)

This diagram illustrates that the focus on the inventory management process is perceived as existing within the inventory ordering process. But which aspect of that process?

To begin answering this question, the students interviewed the practice representatives to describe their particular needs in terms of the inventory management system. These requirements were considered as the Voice of the Customer (VoC) for the inventory management process. They were organized as a Critical-To-Quality (CtQ) diagram. (See Fig. 2)

The CtQ Diagram identifies not only the requirements of the customers of the inventory management system (the practitioners), but also more specifically, how these requirements can be translated into measurable terms. Its construction begins with identifying broader needs of the customers and then drilling into those needs to better operationally define what the needs mean. Finally, a measure is associated with the requirements, which will be valuable again later during the Control Phase of DMAIC.

The high-level inventory management process was mapped to the VoC requirements using the primary matrix of the Quality Function Deployment (QFD) tool, which facilitates understanding of the requirements that please a customer and the process attributes that are essential to those requirements. (See Fig. 3)

This matrix is constructed by listing the measures from the CtQ diagram in the first column, with the larger process steps from the SIPOC listed as the first row of the matrix. Weights are assigned for the CtQ measures, as defined by the customer (the practice representatives). In this case, if the measure was considered very important, it was weighted a 5. If it was of moderate importance, it was weighted a 3. If it was not of any great importance, it was rated a 1.

The relationship between the measures and the process steps from the SIPOC were then determined and ranked, using a 1 – 9 scale, with 1 being little to no relationship, and 9 translating into a very strong relationship. This relationship rating was done with the practice representations. Each relationship rating was multiplied by the weight of the customer's measure, providing a weighted relationship rating. These weighted ratings were totaled for each column, and divided by the total weight of the customer measures, providing a weighted average. The process step with the highest weighted average is the area of focus for the process, thereby providing the scope of the problem. Hence, this tool demonstrated the need to improve the process of identifying the amount of inventory to order.

As a result of this phase, the problem was defined as: *the process to identify needed inventory is not effective to ensure that expenditures on inventory as a function of revenue do not exceed 5%. Currently the practice spends 10% of revenue on inventory. Additionally, expired products have been identified in available inventory. The goal is to reduce the percentage of revenue spent on inventory to 5% and reduce the amount of expired inventory to zero.*

Measure

The Measure Phase seeks to characterize the process as it exists prior to the improvement. Qualitatively, to understand the way the dental practice identified how much inventory it needed, the inventory clerk was interviewed and the process mapped. From the interview, it was determined that no formalized process existed, and the inventory clerk essentially ordered inventory by intuition based on historical usage. Additionally, the clerk had no formal training in inventory management, nor did the clerk have a designee when she was unavailable.

Quantitatively, an ImR chart was constructed to determine if the inventory ordering process capability in terms of the number of times a month orders were placed. An ImR chart is a graphical representation of process performance comprised of two separate charts, with the *I* chart displaying the individual value of each measurement with the corresponding average of values, and *mR* chart representing the variation of each measurement in terms of the preceding point. The ImR chart is used as part of statistical process control (SPC) to monitor processes and detect any special causes which may signal the process could move out of predictable movement ("out of control"). It also provides, as part of the *I* chart, the upper control limit (UCL) and the lower control limit (LCL), representing the expected high and low values of the process movement. The information in terms of the number of times a month an order was placed was charted, as the dental practice owners desired an order to be placed only several times per month, to minimize ordering costs and time spent in ordering. (See Fig. 4.)

The ImR chart illustrates that the number of orders placed per month can range from a low of about 14 orders to a high of about 33 orders, with an average of about 23. These values are clearly much higher than several times per month desired by the practice. In September, an out-of-control data point indicates a trend below the lower control limit, which coincides with the actions taken by the dental practice management to limit orders beginning in May. In May, the practice began to realize the amount of money being spent on inventory; as a result, the practice management directed the inventory clerk not to order any more inventory until the dentists gave the authorization to order based on inventory depletion. This action resulted in less monthly orders; however, the need to order was reactive and not based on any systematic method of inventory control.

Analyze

The analysis phase seeks to establish the data gathered in the measure phase to ascertain the most basic of reasons for the stated problem. The tool used for this problem analysis was the fishbone diagram, which is used to align possible causes of a problem and then attempt to drill into those possible causes to determine a root cause. Six dimensions of process inputs were evaluated as part of the fish boning exercise: human (man), method, supplies (materials), measurement, equipment (machine), and environment. (See Fig. 5.)

A number of possible causes were identified as part of this analysis. Although the equipment bone was essentially devoid of data, some of the other bones exhibited an area of commonality: a lack of written procedure, which would include critical information for the ordering process, such as when an order should be placed, as defined by standard stock levels and reorder points (ROPs).

Improve

To improve the process, standard inventory levels and reorder points for critical materials for six key dental processes were established. These

procedures were: hygiene, amalgam restoration, composite restoration, crown preparation, endodontic surgery, and post and core.

For each dental procedure and with the input of the dentists, a bill of materials (BOM) was generated. These BOMs were used chairside for a period of several weeks to capture average use of each material per procedure. Times series forecasts were conducted for each procedure. The forecasts were for a 12-month horizon. The standard stock levels were calculated as the product of the average use of the material per procedure and the forecasted average of procedure type per month, providing an exploded BOM.

The standard stock levels were used to determine the reorder points for each material according to the formula:

(Demand for the material per year/Number of working days per year)*Lead time.

Demand for the material per year was the standard stock level for the year. The practice operates for 250 days per year. The *lead time* was established as three days and represents the time elapsed from the time an order is placed until the time it is received.

To implement the reorder points, the storage areas of the dental practice were subjected to the lean tool of 5-S (sort, set in order, shine, standardize, and sustain). An intern was selected to assist in this endeavor. First, all inventory areas were evaluated and items not necessary to the dental procedures were removed and put into long term storage in the basement. The remaining inventory was organized with regard to frequency of use and by procedure. All shelving and inventory locations were labeled with item type and re-order point for that item. This labeling assists in keeping the areas orderly and consistent. Lastly, a procedure was developed describing how inventory items would be ordered going forward, based on the reorder points. This procedure constituted the standard work of the inventory management system.

Control

To ensure the sustainability of this improvement, all staff members were trained on the new procedure, and job descriptions were updated reflecting accountability for compliance to the procedures. One aspect of the new procedure requires the inventory clerk to physically evaluate the inventory areas to ensure that all items remain set in order, and no expired inventory exists. Additionally, a visual graphic demonstrating the cost of inventory as a function of revenue was posted in the staff break area so that cost savings could be easily viewed by staff. This visual control had the additional benefit of allowing staff to understand the extent of expenditures required by the practice, resulting in an increase in staff commitment toward this cost-saving effort as evidenced by staff offering further cost-savings ideas for consideration by the practice, including and beyond the inventory system.

Methodology

To answer the research questions, a mixed-methods approach was taken. To answer Research Question 1, quantitative data were evaluated. To answer Research Question 2, qualitative data were evaluated. Each research question was evaluated as described below.

Research Question 1: How likely are the recommendations developed by the students to result in the stated business goal of the course client?

To answer this research question, the monthly revenue of the dental practice was determined. Additionally, for those same months, the cost of inventory was calculated. If the percent of revenue spent on inventory over those months appear to be moving in a downward direction, it appears likely the improvement would result in reducing inventory as function of revenue to approximately 5%, the stated business goal of the practice. Additionally, no expired inventory should be identified in the storage areas.

Research Question 2: How likely will the results of this project be in influencing the approach the client takes on future business problems?

To answer this research question, the dentists would be interviewed by the student-researchers in a non-structured setting to answer the following: Given the outcome of this project, what surprised you and what would you, as a practice, do differently, if anything? If the interview yielded a future orientation toward data-driven decision-making as well as employee engagement in solving practice issues, this research question would be considered to be answered in the affirmative sense.

Results

The data were collected two months after the implementation of the improvement. Each question will be considered separately below.

Research Question 1: How likely are the recommendations developed by the students to result in the stated business goal of the course client?

The monthly revenue of the dental practice was determined for the two months immediately after the implementation of the improvement. For the first month, inventory costs represented 8% of revenue, while in the second month, inventory costs represent 7% of revenue. During continued evaluation, the inventory costs as a function of revenue were determined as 5%. This percentage has been maintained for a period of seven months, the latest figures available to this research team. This percentage represents $250,000 returned to the practice. Additionally, no expired inventory was located in the inventory storage areas.

Research Question 2: How likely will the results of this project be in influencing the approach the client takes on future business problems?

The unstructured interview was conducted by the research team. The dentists were asked: “Given the outcome of this project, what surprised you and what would you, as a practice, do differently, if anything?” The dentists indicated they were surprised by the systematic nature of the

problem-solving effort, which they believed assisted them in gaining staff buy-in to the problem-solving effort. For example, because the problem was approached using data and not using personal attacks for failure to save money on inventory, staff were more likely to assist the practice in achieving the goal, offering suggestions and ideas for even more improvements. The dentists were also surprised by the power of the visual graphic detailing inventory expenses, noting this graphic generated quite a bit of discussion and helped staff understand the magnitude of necessary expenditures to sustain the practice. Staff members generally commented that "we didn't know how much money we spent on inventory!" The dentists also found that standard work and training in standard work with regard to inventory management assisted them in getting the inventory system up and running in a shorter period of time. Because of the standard work and training, everyone was clear on his or her role within the inventory management system, while embedding these roles within the job descriptions assisted in facilitating accountability for compliance with the inventory management system.

Going forward, the dentists indicated they would engage their staff more readily in the problem-solving effort, and make the expectations for problem solving solutions transparent and formal. Lastly, they indicated they would try to use data as much as possible in problem solving, because they agreed the focus on the data helped make the problem-solving effort objective and not staff focused.

Discussion

The results of the study indicate that the Lean Six Sigma methodology is valuable not only to traditional manufacturing, but also to the service industries, such as a dental practice. This finding is consistent with that of Trsuko (2007), who indicated that indeed this methodology can benefit healthcare endeavors. The project to date has eliminated waste as readily evidenced in the lack of expired materials noted, as well as the amount of revenue spent on inventory purchases, consistent with the findings of

George (2013) and Furterer (2013), who both noted that LSS can improve a firm's return on investment (ROI) and facilitate cost savings.

Additionally, this case study appears to have had the impact of influencing the dental practice to employ more data-driven solutions in the future, with an emphasis on the process that leads to the issues, rather than focusing on staff behaviors. This focus provides a more ethical framework of problem-solving, as noted by Furterer (2013), as staff are not immediately blamed for the problem at hand, and are, instead, considered partners in solving the issues, which may result in more robust and sustainable outcomes for all stakeholders, including patients. By continually employing the tools, the practice will undoubtedly become more proficient in the applications of this methodology, supporting the work of Eckes (2003).

Limitations and Further Study

This study was limited by several factors. The first factor is the amount of time available to complete the project. Because this project spanned only one academic semester, the amount of data collected during the measurement phase was limited. More data collected during that time frame may provide more robust reorder points; because the improvement is early in its implementation it is difficult to be entirely sure that the ROPs determined will be stable over the forecast period of one year. An additional consideration resulting from the time available for the project completion is the number of dental procedures considered. Six dental procedures were selected by the practice for analysis by the students; these were selected based on their frequency of occurrence. However, other dental procedures do exist which may influence the amount of revenue expended on inventory. To counter these limitations, it would be helpful to run the project again, perhaps over two semesters, to collect more measurement data and to also include all dental procedures.

A second limitation of the study was the current economic condition of the geographic location in which the practice is located. Currently, the major employer of that area is undergoing a relocation of much of its work to another manufacturing plant. As a result, dental insurances of those employees will no longer be available, many employees may need to leave the area, and economic instability will more than likely be introduced into the area. Thus, the forecasts of the dental procedures may not be stable, thereby influencing the integrity of the stock quantities. As a result, it may take longer to reach the ROPs, resulting in expired materials. Thus, it is critical that the practice monitor expired materials as part of its control phase.

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p3e.pdf

How Western New York CPA Licensure Qualifying Programs Are Meeting the Accounting Research Requirements

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ABSTRACT

New York State requires the coverage of "accounting research" in a 150 hour CPA licensure qualifying ("150 hour") curriculum. However, no additional guidance is provided in the regulations beyond an indication that coverage need not be provided through a stand-alone course. The purpose of the research reported in this paper is to provide information regarding the manner in which this accounting research requirement is currently being met in 150 hour programs in Western New York State. Specifically, the paper presents and discusses the results of a survey of all colleges and universities in Western New York State that have 150 hour

programs currently registered with the New York State Education Department.

Keywords: accounting research, FASB, Codification, CPA

Introduction

New York State requires the coverage of "accounting research" in a 150 hour CPA licensure qualifying ("150 hour") curriculum. However, no additional guidance is provided in the regulations beyond an indication that coverage need not be provided through a stand-alone course.

The purpose of the research reported in this paper is to provide information regarding the manner in which this accounting research requirement is currently being met in 150 hour programs in Western New York State. Specifically, the paper presents and discusses the results of a survey of all colleges and universities in Western New York State that have 150 hour programs currently registered with the New York State Education Department.

The following section of this paper provides an overview of the New York State accounting research requirement, as well as a review of the extant literature regarding accounting research education; the next section then describes the methodology employed in conducting this research and the research findings; and, the final section of the paper provides a summary and conclusions.

The NYS Accounting Research Requirement and Literature Review

As indicated earlier, the New York State regulations regarding the educational content of 150 hour programs require the coverage of "accounting research." However, little additional guidance is provided regarding the content or extent of coverage. More specifically, the education requirements specify only that, in addition to certain specified

courses, "the curriculum must also include, either as stand-alone courses or integrated into other courses, the study of business or accounting communications, ethics and professional responsibility, and accounting research" (NYSED.gov, Office of the Professions, Initial License, 2016). Individual programs are then able to determine for themselves the coverage that is appropriate, subject to review and approval by New York State at the time the curriculum is proposed.

Given the lack of specificity in the New York State requirements, a review of the recent accounting education literature was undertaken in an effort to identify publications regarding accounting research education in New York State or elsewhere. Unfortunately, the review revealed relatively little prior work in this area. All of the identified papers provided example instructional resources for the integration of research into various accounting courses, none of which were at New York State institutions. This prior research does suggest that the integration of "accounting research" into accounting education encompasses both published empirical research by accounting academics (e.g., Irving, 2011), and learning to solve practice problems using professional standards (e.g., Krishnan and Mintz, 2007; Brenner and Watkins, 2011; Alford, et al., 2011; Gujarathi, 2012; and, McNellis, et al., 2015). The publication of case studies for use in educating students on application of the financial accounting standards in research has been particularly common since the implementation of the FASB *Codification* (FASB).

None of the prior research in the recent accounting education literature, however, addressed the larger question of the overall contents or coverage of accounting research curricula.

Research Methodology And Findings

Given the lack of available guidance in this area, this study was undertaken with a primary objective of determining how the colleges and universities in Western New York with registered 150 hour CPA licensure

qualifying programs are meeting the accounting research requirement described in the preceding section.

For purposes of this research, "Western New York" was operationalized as Syracuse, NY and west. The colleges and universities within this geographic region that have registered 150 hour programs were identified through the New York State Education Department website (NYSED.gov. Office of College and University Evaluation. The Inventory of Registered Programs, 2016). Figure 1 provides a listing of the eighteen Western New York colleges and universities with New York State registered 150 hour programs in the Fall of 2015.

A survey was developed to gather information regarding the manner in which the accounting research requirement is being met in each of the WNY 150 hour programs. The survey was sent electronically to the department chair or other unit head for the accounting program as indicated on the institution's web site, with the request that they complete the survey themselves or ask that it be completed by a colleague who may be more familiar with their accounting research curriculum. A second request was sent to non-respondents approximately three weeks after the initial request. The survey request promised recipients that no information would be disclosed regarding either responding or non-responding institutions.

A total of nine surveys were completed, representing one-half of the population. Panel A of Table 1 summarizes the responses to the first substantive question in the survey: "Does your institution currently require a single course that is solely devoted to accounting research?" A total of six institutions indicated that they do require a single course solely devoted to accounting research; the other three institutions responded that they do not have such a requirement.

The survey then asked one set of questions of those institutions that do have a single course that is solely devoted to accounting research, and a different set of questions of those institutions that meet the accounting research requirement through inclusion within the content of one or

more broader courses. The results in Panel B of Table 1 indicate that five of the institutions with a single accounting research course offer that course at the graduate level, while only one includes the course in the undergraduate portion of their curriculum.

Tables 2 and 3 present the results of the questions asked only of the three institutions that do not have a single course devoted solely to accounting research. Panel A of Table 2 provides the results of a question asking "does your program meet the accounting research requirement principally through a single course in which accounting research is a significant component?" Two institutions responded that they do not have a single course in which accounting research is a significant component, whereas only one indicated that they do require a single course in which accounting research is a significant (even if not the sole) component. Table 2, Panel B indicates the other significant areas covered in the course that meets the accounting research requirement, with the responses equally split between financial accounting and accounting theory.

Finally, Table 3 summarizes the courses in which accounting research is covered by the two institutions not requiring a single accounting research course. The coverage of accounting research is spread fairly widely across the various courses in financial accounting (including accounting theory), taxation, and auditing by these institutions. Interestingly, none of the institutions include coverage of accounting research in their basic auditing course, while the greatest single number, two, include accounting research in their advanced auditing course.

Table 4 presents information regarding the areas covered by the accounting research requirements at all of the surveyed institutions. Through the question reported on in Panel A of Table 4, the researchers attempted to determine how the participating institutions interpreted the meaning or intent of the "accounting research" requirement. As indicated, the majority of the institutions, six of nine, interpret accounting research to encompass *both* original research conducted by accounting academics and practitioners *and* the process of conducting research by practitioners

using the relevant standards and codifications. Two institutions require only coverage of practitioner research in the professional standards and codifications. No institutions cover only original research conducted by accounting academics and practitioners. Finally, one of the institutions requires original research by students in the form of a thesis.

Panel B of Table 4 summarizes the content areas addressed by the schools' accounting research requirements. As shown, there is substantial coverage of accounting research across the three major areas of auditing and assurance, financial accounting and reporting, and taxation. However, there is apparently no single domain in which accounting research is covered by all of the nine responding institutions.

Since its introduction in 2009, the FASB Accounting Standards *Codification* has had a significant impact on the manner in which professional financial accounting and reporting research is conducted (FASB, 2016). Two questions were asked regarding utilization of the FASB *Codification*, the results of which are reported in Table 5. As indicated in Panel A, seven of the eight institutions that include coverage of financial accounting and reporting research utilize the FASB *Codification*. Panel B then summarizes the various courses in which the *Codification* is utilized, showing broad deployment across the curriculum, with the greatest utilization in intermediate financial accounting, accounting theory, and accounting research courses.

Finally, Figure 2 presents the responses received to an open-ended item asking about challenges that the surveyed institutions have met in integrating accounting research into their curricula. The final section of this paper now provides a summary and conclusions drawn from the research findings.

Summary And Conclusions

The results of this research provide important information regarding the manner in which the accounting research requirement is currently

being met by colleges and universities with registered 150 hour programs in New York State. This information should be particularly valuable for institutions in the western portion of the state, as they were the subjects of this research. Several major conclusions can be drawn from the results of the study.

First, the results provide insight into the meaning of the "accounting research" requirement, at least as interpreted by institutions in Western New York State. The majority (six of nine) of the respondents indicate their coverage of accounting research includes *both* original research conducted by accounting academics and practitioners *and* the process of conducting research by practitioners using the relevant standards and codifications. Two institutions reported that they include coverage only of professional research using the standards and codifications; and, none of the participating institutions interpret accounting research as covering only original research by accounting practitioners and academics.

Second, it is noteworthy that the majority (six of nine) of the responding institutions are meeting the accounting research through a single, dedicated accounting research course. Almost all (five of six) of those stand-alone accounting research courses are included in the graduate portion of the programs. The finding regarding the prevalence of stand-alone accounting research courses is interesting in light of New York State's explicit indication that the accounting research requirement need not be met through a stand-alone course.

Third, regardless of whether they require a single, dedicated accounting research course, or integrate the coverage of accounting research more broadly across the curriculum, the participating institutions appear to interpret the content domain of accounting research as being quite broad. There does not appear to be any single institution that currently incorporates into its curriculum research in all three major areas of audit and assurance, financial accounting and reporting, and taxation. However, the vast majority of respondents include research in all three of these domains.

Finally, the majority of the participating institutions incorporate the FASB *Codification* into their accounting research curriculum. Seven of the eight programs that cover financial accounting and reporting research utilize the *Codification*. This utilization is across a fairly broad range of courses, with the greatest number incorporating use of the *Codification* in their Intermediate financial accounting courses, followed closely by utilization in accounting theory and accounting research courses.

There are a number of limitations inherent in the study reported in this paper. The population sampled was deliberately limited to institutions in New York State with registered 150 hour programs. While this obviously reduces the generalizability of the results to institutions beyond New York State, this restriction was imposed to ensure that all of the sampled institutions were subject to the same educational requirements for licensure. The population was then further limited to only the eighteen 150 hour programs in the western portion of the state. While this restriction has the impact of further limiting the generalizability of the results, it was considered appropriate since the target audience was the institutions in the Western New York Business Research Consortium's region. It is also important to note that only nine of the eighteen programs in the region responded to the survey request; while a fifty percent response rate would be considered to be very good in most survey research, the limited participation must nevertheless be recognized as a limitation, particularly given the relatively small size of the population studied. Finally, it must be recognized that all of the information reported in this study is based on self-reports from the participating institutions. While there is no reason to question the veracity of these self-reports, it should be noted that the researchers have not endeavored to corroborate the information reported through any direct curricular examination, nor were there any checks to ensure that all respondents interpreted questions in the same way.

The results of this initial investigation into the manner in which the accounting research requirement is currently being met by colleges and

universities with 150 hour registered programs in Western New York also leaves a number of areas for further investigation; for example it could be beneficial to have the answers to such questions as:

- what is the specific nature and extent of coverage of various accounting research topics in the course or courses that are intended to satisfy this requirement?
- what are the specific student learning outcomes being met and how are they assessed?
- how, specifically, is use of the FASB *Codification* being integrated into Intermediate Accounting and other courses? and,
- does the approach to accounting research coverage differ depending on such factors as the nature of the institution's specialized business accreditation (AACSB, ACBSP, IACBE, or none), and the degree offered (MBA or MS)?

These questions and others, however, are left for future research.

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p2.pdf

Understanding and Evaluating Digital Currency

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Understanding and Evaluating Digital Currency

Abstract

As the Internet and e-commerce expands individuals will seek ways to earn and spend currency in the digital economy. Furthermore, faith in the fiat money systems of some countries is eroding and investors are searching for alternative ways to invest and store their wealth. Digital currencies (DC) are filling the demand for an alternative to government based currency. Currently there are over 600 DCs with a market capitalization of over 7 billion (in US dollars) that are traded in hundreds of markets. This paper reviews the literature and history of DCs. Then we explain the related risks and benefits. Next, we add to the literature by proposing a model for judging the maturity of a DC. The Digital Currency Maturity Model (DCMM) will help individuals and organizations evaluate the safety and reliability of DCs given their risk tolerance. Finally, we summarize our findings and suggest future research.

Key words: Digital Currency, Crypto Currency, Accounting

Introduction

The purpose of this paper is to help the reader assess the maturity and stability of digital currency (DC). We will not attempt to explain all of the technical aspect of DC since that would require a voluminous manuscript and is far beyond the scope of this paper. That being said, we must cover some technical topics to communicate the basic operation of a DC.

Digital currency is an Internet-based medium of exchange that is similar to physical currencies. Both virtual currencies (VC) and cryptocurrencies are types of digital currencies (DC). Similar to government-based money these currencies can be used to purchase goods and services. However, they could be restricted to certain communities. For example, use could be restricted to inside an on-line game or social network (closed VC with no connection to the real economy). Digital

currencies such as bitcoin are known as decentralized digital currencies since there is no central point of control over the currency supply.

E-Commerce relies almost exclusively on financial institutions such as credit card companies, PayPal, and banks serving as trusted third parties to process electronic payments and electronic funds transfers. While the system works well for most transactions, it suffers from the weaknesses of requiring a trusted third party. DC creates a peer-to-peer version of electronic cash that allows online payments to be sent directly from one party to another without going through a financial institution. In other words, DC allows individuals to transact over the Internet as though they were using cash in a face-to-face situation. Hence, the transactions are private and final (cannot be reversed).

In 2012 the European Central Bank has described virtual currency (VC) as "a type of unregulated, digital money, which is issued and usually controlled by its developers, and used and accepted among the members of a specific virtual community." The US Treasury Department has defined VC as "a medium of exchange that operates like a currency in some environments, but does not have all the attributes of real currency". This paper covers open VC that flows in two directions. An example of one direction VC is a coupon.

History of Digital Currency and the Start of Bitcoin

Digital currency (DC) is a peer-to-peer (person to person) system. In other words, users can transact directly with each other without going through an intermediary such as PayPal. The conspicuous example of a DC is Bitcoin. Bitcoin is a digital currency invented by Satoshi Nakamoto. He or she published the concept in 2008 and one year later in 2009 released Bitcoin to the public as an open-source software. Satoshi Nakamoto is a pen name, the identity of the real author is not known by the public.

Bitcoin got started as a digital currency in 2010. Laszlo Hanyecz offered 10,000 bitcoins (valued at $60 USD) on a bitcoin forum to someone who

would buy him a pizza. Today those Bitcoins would be worth about $4 million (417.67 (10,000) = 4,176,700) at current prices. A programmer living in England took his offer and called a Papa John's pizza in Jacksonville, placed the order, and paid with his credit card. Hanyecz sent over the 10,000 bitcoins to England for the two pepperoni pizzas. Hanyecz left the offer open, bought several more pizzas, and Bitcoin was off and running as the first digital currency. Since 2010 bitcoin has taken off there are now over 82,000 vendors who take bitcoin as currency.

How Cryptocurrency is Kept Secure

A cryptocurrency (CC) is a form of VC. CC uses cryptography to secure the transactions and to control the creation of new units. Bitcoin became the first decentralized cryptocurrency in 2009. Since then, numerous cryptocurrencies have been created. Cryptocurrencies use decentralized control as opposed to a third party such as a centralized banking systems, credit card company or PayPal. The decentralized control is related to the use of bitcoin's block chain transaction database which is like a distributed ledger or accounting information system.

Digital signatures provide part of the solution, but the main benefits having a DC that works like cash are lost if a trusted third party is still required to prevent double-spending of the same currency. In other words, counterfeit crypto-currency. The ownership of bitcoins means that the user (owner) can spend bitcoins from a wallet app that is part of the Bitcoin system. The Bitcoins are associated with a specific private key. To consummate a transaction, the spender must digitally sign the bitcoin transaction using a private key which will match up with a public key.

The public and private keys are part of a system of asymmetric cryptography. Without the private key, the transaction cannot be signed and the related bitcoins cannot be used. The network verifies the signature by matching up the private key with the public key. The two keys are related to each other through a one way mathematical algorithm. The

user must be careful with the private key. If it is misplaced, the bitcoin network will not acknowledge any other proof of ownership. Therefore, in the absence of the private key the coins are effectively lost and unusable.

How Accounting and Record Keeping is Performed

The block chain is an accounting information system that records an audit trail of bitcoin transactions. Maintenance of the block (batch) chain is performed by a distributed network of users running bitcoin software. Transactions of the form: "*payer Smith sends 100 bitcoins to payee Jones*" are communicated to this network. Network nodes can validate batches transactions, record the batch to their copy of the database, and then distribute these transactions to other nodes or users.

The block chain is a database that is distributed among the Bitcoin user community. Each network node stores its own copy of the batched transactions called the block chain. The chain of ownership, of every bitcoin, is recorded by the distributed network to achieve independent verification. Periodically a new group or batch of transactions is recorded (called a block), added to the block chain, and quickly broadcasted across the network to all the other nodes. This allows the Bitcoin software, which is running on each node, to determine when a particular Bitcoin amount has been used in a transaction. This system tracks the chain of ownership for each Bitcoin which is necessary to prevent the double-spending of the same Bitcoin. The public key encryption (block chain) prevents the same currency unit from being spent more than once. In other words, the system prevents counterfeiting of the VC.

Open Source Maturity Model

This section of the paper discusses the Open Source Maturity Model (OSMM) since that concept is the inspiration for the Digital Currency Maturity Model (DCMM). Maturity is an important concept in Open

Source Systems (OSS) because immature systems will not have a critical mass of support. This support includes consultants, training material, vendors, and a user community. To address the problem of "not ready for prime time" software, maturity models have been developed such as the Open Source Maturity Model (OSMM). This model measures a software's stage of growth, improvement and acceptance. The template for this model is displayed in Table 1.

Notice in Table 1 that software elements are listed down the left hand side of the model. Each element is scored based on its maturity. Then each element, such as Product Integration, is given a weighting factor based upon its significance to the decision makers. Then the element maturity scores are multiplied by the weighting factors to generate weighted scores for each element. In the final phase of the analysis, the element weighted scores are totaled to produce a software product maturity score out of a maximum score of 100. The various product maturity scores are then compared to determine the appropriate OSS system in relationship to the user's risk tolerance. A well designed and executed maturity model should help managers understand the development and stability level of an OSS product.

Contribution to the Literature

We have developed a Digital Currency Maturity Model (DCMM) to help investors judge the safety of digital currency. We borrowed the idea from the open source maturity model. As far as we know, this subject has not been addressed in the literature. Plenty of opinion pieces have been published which accuse DC of being a Ponzi scheme or a pyramid game but no one has suggested a model to judge the maturity and stability of DC. The DCMM can be used by individuals and organizations to help them answer questions such as:

- Should I invest in DC, if so which ones?
- Should we take DC payments from customers?

Our model will focus on digital currencies that have the following attributes:

- Openly traded on exchanges and can be traded for other currencies
- Allows for peer to peer transactions with no third party required, works like cash
- Two directional, users can pay and receive DC
- Open use in real economy, not just inside an environment such as a game
- Internationally accepted with no central bank
- Some form of security such as block chain and asymmetric cryptography

In summary, the Digital Currency Maturity Model (DCMM) will help individuals and organizations evaluate the safety and reliability of DCs given their risk tolerance.

Descriptive Statistics

Currently there are 675 DCs with a market capitalization of over 7 billion (in US dollars) that are traded in 1,841 of markets. Below we have constructed a table that displays three of the most popular CCs. We present this data to give the reader the sense of the scale of CCs.

As you can see from examining Table 2, Bitcoin is in a class all by itself. Bitcoin is the only digital currency (DC) that has market capitalization wroth over one billion US dollars. We expect other DCs will continue to grow in popularity in the future. But currently Bitcoin represents the vast majority of DC and related transactions.

Digital Currency Maturity Model (DCMM)

In Table 3 is the Digital Currency Maturity Model (DCMM). The format is similar to the open source maturity model but the factors that are measured in the model are different.

The elements listed down the left hand side of the model can be broken into two categories: quantitative factors and qualitative factors. The four quantitative factors can be directly measured in mathematical terms. For example, volatility can be measured with standard deviation. On the other hand, the four qualitative factors are rated through a judgement that is not directly related to a mathematical calculation.

Below we list the four quantitative factors in the DCMM along with a brief explanation of each factor:

- **Age:** How old is the currency? An older currency signals that DC is more stable since it has operated a medium of exchange without any major problems.
- **Market Capitalization:** How much DC value is out on the market? A higher balance would indicate that investors are willing to store their wealth in the DC and trust the DC.
- **Volatility (standard deviation):** How stable is the price of the currency? A stable price is an indicator of a more mature currency with an established price.
- **Trading Volume:** What volume of the DC is regularly traded on a public market? Higher trading volumes suggests that investor can liquidate their position in DC if required.

In the following list the four qualitative factors in the DCMM along with a brief explanation of each factor:

- **Acceptance:** Where is the DC accepted? A widely accepted currency indicates that the market place has accepted the DC. The DC would not be very useful as a currency if very few organizations accepted it. Below is a list of organizations that accept Bitcoin:

- **Overstock.com** – A company that sells big ticket items at lower prices due to overstocking
- **Amazon** – An online company that sells almost anything.
- **Target** – An American retailing company
- **CVS** – A pharmacy shop
- **Subway** – Restaurant that specializes in sub sandwiches
- **Victoria's Secret** – A lingerie outlet
- **Virgin Galactic** - Richard Branson company that includes Virgin Mobile and Virgin Airline
- **PayPal / Ebay** - Credit card, payment processor and auction site
- **Fraud Risk:** Are there reported fraud stories about the DC? If there are fraud related stories then the DC might have weak security. If so it would not be a good investment. Can the currency be counterfeited, forged, faked, and imitated? Also, can the currency be disrupted or destroyed by viruses or worms? Can the currency be hacked and stolen? Is the currency protected by an encryption protocol such as public key encryption technology?
- **Error Risk:** Are there reported human and technical errors that reduce the value of the DC? The accounting for the currency must be accurate and dependable or users may lose DC due to a recording error or technical breakdown. Can DC be lost due to a bookkeeping mistake or miscalculation?
- **Risk Tolerance:** What is your risk tolerance? If it is low stay away from DC and use something more mainstream such as PayPal.

Summary and Conclusion

Most people will not understand the technical details of DC. They will have to trust the system based on what they can observe. Trust should not be a problem, after all, very few people understand the Federal Reserve System, but they trust the US dollar. In this paper we created a method for systematically measuring the risk associated DC based on observable variables. We call the measurement the DCMM which

contains four quantitative measures and four qualitative measures. We hope this model will help the investors and users of DC make more rational decisions about what DCs to transact.

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p3.pdf

The Fraud Triangle Map: A Psychological Basis for Fraud

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Abstract

Fraud continues to be prevalent and troubling. Cressey's seminal Fraud Triangle posited that fraud results from the interaction of three factors: pressure, opportunity, and rationalization. However, a rigorous analysis of fraud from a psychological point of view is conspicuously absent from his model. We map the fraud triangle to several psychological theories that will build on Cressey's model. Accordingly, we propose to clarify fraud antecedents and ways to reduce its prevalence.

Key words: fraud triangle, psychological theories

Introduction

Fraud remains a significant issue for corporations despite internal controls, numerous well-publicized accounting scandals (e.g., Enron, Tyco, and Arthur Anderson), and extensive sanctions levied by the Securities and Exchange Commission (Ivanevich, Konopaske & Matteson, 2014). The Association for Certified Fraud Examiners (ACFE, 2016) defines fraud as "any crime for gain that uses deception as its principal modus operandus." Black's Law Dictionary defines fraud as a "knowing misrepresentation of the truth or concealment" (ACFE, 2016). Fraud can come in two forms: fraudulent financial reporting, where management manipulates the amounts reported in the financial statements or misappropriation of assets, where management, employees or customers steal the assets of the company. As early as 1981, roughly 33 % of employees surveyed by Hollinger and Clark, reported that they stole from the company (Wells, 2001). According to a study based on 1,388 cases of occupational fraud, corporations lose 5% of their annual revenues to fraud (ACFE, 2012). The median loss of an occupational fraud is $140,000 and 20% of these cases were over $1 million dollars (ACFE, 2012). Fraud is uncovered via tips from individuals, management reviews and internal audits (43.3%, 14.4% and 14.6%, respectively). In addition, fraud occurs a median of 18 months before detection (ACFE, 2012). The presence of a Performance

Measurement and Control System (PMCS) does not necessarily mean that employee dysfunctional behaviors (e.g., gaming the system, information manipulation) will not occur (Adnan, Jamil & Nor, 2013).

Literature Review

The Fraud Triangle

Criminologist Donald Cressey (1953) interviewed more than 200 convicted white-collar criminals and identified three underlying themes: pressure, opportunity and rationalization. He coined the three factors the: Fraud Triangle" (Figure 1).

Cressey's Fraud Triangle can be used with both fraudulent financial reporting and misappropriation of assets. At the top of Cressey's Triangle is pressure. Managers of publicly traded companies face much pressure when reporting financial information to meet or beat analyst's expectations. If the managers report earnings under analysts targets, shareholders' lose value when the market reacts to the bad news in the financial statements. When shareholders' lose value they may call for changes within the management of the company. Managers have even more pressure if part of the mangers' compensation is tied to the value of the stock of the company. Now the manager has a personal financial stake in the reporting of the financial statements, which raises the pressure on the managers. Pressure can also exist for the managers of private companies. Many bank loans have debt covenants, that companies have to maintain or the loan may be called in by the bank (have to be repaid on demand of the bank). For example, a bank may require a company to maintain a current ratio (current assets divided by current liabilities) of 2.0 or greater. This covenant puts pressure on the managers to report a balance sheet that has a current ratio of a least 2.0.

Employees face pressure to steal assets (misappropriation of assets) when they have financial difficulties, have a lifestyle way above their means, or have other emotional issues that cause them to steal. Employees

who need money may resort to stealing, who otherwise normally would not steal. Two examples come to mind that one of the author's has experience in her career. An administrative assistant at a company, was wearing an ankle bracelet and was sentenced to a half-way house for stealing thousands of dollars from a bank. When meeting this person, you would have never guessed her for a criminal. However, she was financially strapped after putting her parents in a nursing home and stole the money to pay for adequate care for her parents. In another example, a CFO of a company, began stealing money from a company to help cover the losses he sustained from his gambling addiction.

Pressure alone, will not always cause a person to commit fraud. Opportunity must exist in order for a fraud to be perpetrated. Internal controls in a company must be lacking for a fraud to occur. For example, if journal entries are not appropriately reviewed, there can be opportunities for journal entries to be made close to the end of the accounting period to fraudulently report the financial statements. Internal audit departments and external auditors need to spend time looking at journal entries entered into the accounting system very near the end of the period. Also, tying the trial balance or financial statements back to the details in the accounting system should be done to ensure managers are not just manipulating the accounting numbers directly at the financial statement level. Another opportunity can exist for fraudulent financial reporting if you do not have a strong audit committee. During the financial crisis of the early 2000s, it was found that some audit committees did not have any financial expertise within the committee. This gave the managers able opportunity to manipulate the financial statements and not be challenged by the audit committee. Sarbanes-Oxley now requires that there are members of the committee who have financial expertise.

Internal controls must also be in place to ensure that misappropriation of assets does not occur. Entire books can be written about the number of internal controls that can be put into place to ensure that theft does not occur. Some of the internal controls can be quite simple. For instance,

the use of locks can be helpful. As an example, consider a boat dealership that keeps its small boat inventory on boat trailers near the road to entice potential customers to come in a purchase a boat. Placing a simple trailer lock on the boat trailer will deter thefts. Sounds simple enough, right? However, it was reported that a certain boat dealership did not have this simple control and thieves pulled up with a truck and drove off with a boat, trailer and all. Leaving unlocked items around gives ample opportunity for thieves.

Rationalization, the final angle in Cressey's triangle refers to the thought process that an individual or group of individuals go through when committing the crime. If the tone at the top of the company is to have a general disregard for internal control over financial reporting, or the managers are generally over optimistic, then there is a great chance that fraudulent financial reporting will occur (Arens, Elder, Beasley, 2012). Mangers may think, "I have to make those expectations no matter what. It's all right to fudge the numbers a little. Everyone does it". Also a common rationalization when one cheat's on one's tax return, "I am over taxed and the systems is unfair".

Employees who steal from companies often rationalize their behavior. If they feel they are underpaid, employees will sometimes steal to make up for being underpaid. If they feel the boss has treated them mean they will steal to get back at him. Also, if there is a tone in the company of not taking ethics seriously, it may allow employees to rationalize their theft, as the company as a whole is not ethical.

Contribution to the Literature

This paper extends fraud related literature by extending the fraud triangle with a psychological perspective. We examine well-established psychological theories and compare them to the Fraud Triangle (Cressey, 1953). The fraud literature contains few contributions from this psychological perspective (Carpenter, Reimers & Fretwell, 2011; Murphy &

Dacin, 2011; Ramamoorti, 2008). Several theories in the psychological literature have the potential to provide insight into fraud. We organize these theories and map them to the Fraud Triangle.

Psychological Theories Related to Fraud

Individuals experience a feeling of Cognitive Dissonance or discomfort after they perform an action at odds with their self-concept (Festinger, 1957). Individuals attempt to reduce discomfort by changing or justifying the deviant behavior. Individuals can justify their behavior either changing one's attitude towards the behavior or adding new cognitions. Since fraud must be justified (Cressey, 1953) the theory of cognitive dissonance applies to the rationalization part of the triangle.

Fraudsters' level of moral development may be a contributing factor to committing fraud. Kohlberg (1973, 2008) states that moral reasoning constitutes a continuum that consists of six predictable stages: (1) obedience and punishment, (2) self-interest, (3) conformity, (4) social order, law and authority, (5) social contract orientation, and (6) universal ethical principles. Since fraud must be rationalized (Cressey, 1953) the theory of moral development stage may apply to the rationalization part of the triangle. A lower level of moral development may require less justification by the fraudster.

Expectancy theory states that motivation is a function of expectancy, instrumentality and valance (Vroom, 1964). Expectancy is the perceived probability that effort will result in performance (Effort to Performance expectancy). Instrumentality refers to the belief that outcomes will result as a function of achieving a given level of performance (Performance to Outcome instrumentality). Valence is the perceived value an individual places on the outcome (Issac, Wilfred, & Douglas, 2001; Porter & Lawler, 1968). Therefore, a fraudster will not attempt the fraud unless there is an expectation of success given effort (E-P), the fraud will result in positive

outcomes (P-O), and these outcomes are valued. For example, strong internal controls will reduce the expectation of a profitable outcome.

Equity theory addresses how individuals process information and determine if their pay is fair (Adams, 1963). Individuals balance what they offer their organizations (inputs) to the outcomes they receive (outputs), and then compare their input/output ratio to others' perceived ratio. If after this comparison, an individual concludes that they are undercompensated, the individual is motivated to make adjustments until their compensation is perceived as fair. There are a myriad of strategies to achieve equity (perceived fairness) such as requesting a raise, working harder to get a promotion or even reducing one's effort to justify low pay. According to Cressey (1953), underpaid fraudsters may justify their crimes because they are correcting a compensation injustice, which would be included in rationalization. In addition, low pay may create an economic condition that puts the perpetrator under pressure (incentives or pressures in the triangle) and pushes him to commit fraud.

Risky decision-making explores the circumstances that individuals make risky decisions. Two relevant psychological theories address these phenomena: Risk Propensity and Prospect Theory (Sitkin & Weingart, 1995). Risk propensity theory states that individual vary with respect to their tendency to take risks. Relative to individuals that are more risk adverse, decision makers willing to take more risk establish objectives that are more challenging, evaluate alternatives, and select alternatives with more risk. (Ivanevich et al, 2013).

Kahneman and Tversky (1979) found that individuals prefer gains and tend to avoid losses. Given two equal choices and one choice is a possible gains and the other a possible loss, individuals are more likely to choose the choice associated with gains. Therefore, most people avoid losses whenever possible. This may motivate managers to commit accounting fraud to avoid a potential loss of shareholder value. Ironically, shareholders ultimately lose value as soon as the fraud is covered by the media and is made public.

Groups decision quality increases when the most knowledgeable members are utilized, and if group rather than self-interests are emphasized, (De Dreu, Nijstad, & van Knippenberg, 2008). Groups tend to make risker decisions than individuals (Janis, 1982). Janis (1982) defines groupthink where group members maintain group cohesiveness and harmony at the expense of decision quality. Group members falsely assume that consensus exists because dissent is not voiced, and may not feel personally accountable based on the assumption that fraudulent behavior is the group's fault.

Organizational justice and rewards are "concerned with the ways in which employees determine if they have been treated fairly in their jobs and the ways in which those determinations influence other work-related variables" (Moorman, 1991, p. 845). Distributive, procedural, and interpersonal justice constitute organizational justice (Moorman, 1991). Distributive justice refers to the fair allocation of resources and outcomes (e.g., pay fairness based on merit). Procedural justice is the actual distribution of resources and outcomes, typically by supervisors. Interpersonal justice is the extent that individuals, typically leaders, treat their subordinates fairly. Leaders (e, g, ethical leadership, role modeling) and organizational governance are at the center of organizational justice. Ethical leadership can encourage whistle blowing (Bhal & Dadhich, 2011) and that "employees appear to copy the leader's integrity standards in their daily interaction with one another (Huberts, Kaptein, & Lasthuizen (2007, p. 587). "Man & Wong (2013) found that board independence can increase external monitoring of managerial fraudulent activities such as misappropriation of funds, and that female directors can better develop trust leadership, open communications, and transparency.

Model

We map the concepts from Cressey's fraud triangle to well established psychological theories to give the triangle a more solid psychological theoretical foundation (Table 1).

Summary and Conclusion

The Fraud Triangle maps several well-known psychological theories to the fraud triangle.. These theories help to build a more theoretically sound foundation for the triangle. This will yield several advantages. First, when researchers seek to extend the Triangle they have a path of well researched literature to investigate. Second, any newly posited theories related to fraud need not reinvent the wheel but can add to a stream of inquiries that are well grounded in the literature. Finally, practitioners, expert witnesses and fraud investigators who want to reference the background knowledge supporting the Triangle can do so by referring the map presented in the manuscript.

Futurde Research

The Fraud Triangle (Cressey, 1953) often refers to incentive and pressure as interchangeable. The blurring of the lines between these two concepts maybe fertile ground for future research topics. Incentive and pressure maybe two separate concepts and researchers could investigate to see if the data supports this view. For example, management could perpetrate an incentive-driven fraud if they perceive an opportunity to increase the value of their stock options, which could be overpriced, based on deceptive financial statements. Managers could also perpetrate a pressure-driven fraud because they believe they have a chance to avoid various harmful outcomes. They may manipulate financial information to avoid outcomes such as reporting a loss, missing earnings expectations, violating a debt covenant, and receiving an auditor's going concern opinion.

Additionally, we posit that an individual's moral development stage may moderate the degree that individuals commit fraud. In reference to the Fraud Triangle (Cressey, 1953), moral development stage may moderate the extent that individuals engage in rationalization given both incentives and opportunity. Researchers could investigate if persons with

high moral development may be less likely to commit frauds regardless of the gains or losses. Conversely, researchers could posit that persons with lower moral development (stage 1) may be more likely to commit frauds when confronted with potential losses (prospect theory).

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p5.pdf

Country Culture and National Innovation

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ABSTRACT

Innovation, the implementation of creative ideas, is not only vital to growth but also to survival as companies and nations must innovate to compete in a rapidly changing global economy. Researchers are just beginning to understand the relationship between country culture and innovation. In a number of studies, cultural dimensions have correlated significantly with measures of innovation and creativity. However, it is difficult to compare findings across studies as multiple frameworks have been used to operationalize culture. Likewise, measures of innovation vary widely across studies. This paper proposes using a new index, the Global Innovation Index (GII), and Hofstede's cultural dimensions to explore the relationships between country culture and innovation. We begin

with definitions and a discussion of innovation and national culture. Then, measures of national culture, innovation, and creativity are critically discussed, and followed by a review of existing research on country culture and innovation. Hypotheses are proposed and tested using Hofstede's dimensions and the Global Innovation Index. Our results indicate support for five out of the six hypotheses and suggest that innovative societies are characterized by the following cultural values: individualism, low masculinity, low uncertainty avoidance, pragmatism, and indulgence.

Keywords: innovation, country culture, national culture, creativity, Global Innovation Index, Hofstede's cultural framework

Data Availability: Data used in this study are available from public sources.

Introduction

Innovation has been defined as the "successful implementation of creative ideas" (Amabile, 1996, p. 1). Innovation is not only vital to growth but also to survival as companies must innovate to compete in a rapidly changing global economy (Westwood and Low, 2003). Creativity is not only critical for companies but also for the economic development of societies (Hobday, 1995; Kim and Nelson, 2000). State Westwood and Low in their discussion of the culture, creativity and innovation connection (Westwood and Low, 2003, p. 236):

Given the globalization of business, the increasing interpenetration of businesses across cultures, the international mobility of managers and other forms of labor, and the trend toward the dispersion of innovative activity across national boundaries, it has become increasingly important that there is an informed understanding of the extent to which creativity and innovation processes vary around the world.

Researchers are just beginning to understand the relationship between country culture and innovation. In a number of studies, cultural dimen-

sions have correlated significantly with measures of innovation and creativity. Unfortunately, it is difficult to compare findings across studies as multiple frameworks have been used to operationalize culture. Likewise, measures of innovation vary widely across studies.

This paper proposes using a new index, the Global Innovation Index (GII), and Hofstede's cultural dimensions to better understand the relationships between country culture and innovation. We begin with definitions and a discussion of the following terms: innovation and national culture. Then, measures of national culture, innovation, and creativity are discussed critically, and followed with a review of existing research on country culture and innovation. Finally, hypotheses are proposed and tested.

Prior Literature

Innovation

Innovation has been defined as the "successful implementation of creative ideas" (Amabile, 1996, p. 1), and as a "non-linear, complex, ambidextrous process which includes components of exploration and exploitation" (Rosing et al., 2011). Creativity is part of the innovation process; for innovation to occur, creative ideas that have economic value need to be recognized, validated, and implemented (Williams and McGuire, 2010).

Culture

Culture has been defined as a system of shared meanings, beliefs, and values that have resulted from a group's successful response to problems in the environment (Hofstede, 1980; Schein, 1985), and a set of basic and shared beliefs and values among individuals within a nation (Rossberger and Krause, 2012). Shared values distinguish one cultural group from another (Malinowski, 1961; Morris et al., 2002). "What differentiates one culture from another are its institutions and its ways of dealing with

the variety of universal problems" (Williams and McGuire, 2010, p. 395) and include unique approaches to work behavior, conceptualization of management and leadership, and openness to changes in the status quo (Williams and McGuire, 2010, p. 395).

The Culture, Innovation, and Economic Prosperity Connection

According to Williams and McGuire (2010), a country's culture influences the way its citizens think and behave with respect to risk, opportunities, and rewards. The authors propose a process whereby a culture's response to risk, opportunities, and rewards influences entrepreneurial activity and economic creativity (innovation), and national innovation influences national prosperity. State the authors: "We believe a predisposition to support innovation and make capital and resources available is in itself a reflection of shared cultural values" (p. 396).

National prosperity can be viewed as a by-product of innovation (Williams and McGuire, 2010). "Countries that improve their standards of living are those in which firms are becoming more productive through the development of more sophisticated sources of competitive advantage based on knowledge investment, insight and innovation" (Porter, 1990, p. 17). Innovative solutions have an impact on the revenues of a firm and, in turn, on the prosperity of nations (Porter, 1990; Harrison and Huntington, 2000).

Measures of National Culture

Measures of national culture include Kluckhohn and Strodtbeck (1961), Hofstede (1980), Trompenaars (1994), the GLOBE research consortium model (Javidan and House, 2001), and McGuire et al. (2006). See Williams and McGuire (2010) for a complete discussion of these models, and their relative usefulness. They conclude that Hofstede's model has the most replicable, predictive support and includes the most countries. In addition, Hofstede's dimensions have proven to be stable over time.

Hofstede (1980) is the widest used model in part due to consistent research support that the proposed dimensions are replicable and predictive of economic outcomes, and because Hofstede offers the most complete country coverage (Williams and McGuire, 2010, p. 398). Two major studies reviewed empirical research carried out with Hofstede's variables: Kirkman et al. (2006) reviewed 180 published studies and Sondergaard (1994) reviewed 61 empirical studies. Both found overwhelming confirmation of Hofstede's variables. An expanded model of Hofstede's (1980) cultural dimensions was selected for use in this study as the independent variable (http://geert-hofstede.com/national-culture.html). The expanded model includes a fifth dimension (pragmatic versus normative) based on research by Bond (1991) and Minkov (2010), and a sixth dimension (indulgence versus restraint) based on Minkov's (2010) research. These dimensions are further discussed below and in Appendix A.

Measures of Innovation and Creativity

Researchers have used a variety of methods to operationalize a nation's capacity for innovation. These measures include self-employment rates, royalty and license fees, and trademarks (Williams and McGuire, 2010), patents and per capita income (Shane, 1993), adoption rates for technological products (Lynn and Gelb, 1996). Traditional measures of innovation have included number of PhDs, number of research articles, research centers created, patents issued (patent intensity), and R&D expenditures.

Attempts to capture a nation's economic creativity include number of patents and scientific publications, and R&D spending (Williams and McGuire, 2010; Rossberger and Krause, 2012). Two studies have used innovation indices (Sun, 2009; Rossberger and Krause, 2012). Sun used the National Innovation Capability Index developed by Porter and Stern (2001). Rossberger and Krause used the Global Innovation Index (INSEAD, 2011) that utilizes 80 indicators of national innovation.

The Global Innovation Index project (INSEAD, 2007) was launched to find metrics, measurements and approaches to capture the whole picture

of innovation in society. The GII integrates information from the World Bank, UNESCO, and other sources. The GII consists of two sub-indices: innovation-related inputs and innovation-related outputs.

Each sub-index has separate components called pillars.

Innovation-related inputs (pillars) are as follows:

- Institutions – political, regulatory, business environment
- Human capital and research – education, research and development
- Infrastructure – information and communication technologies, energy supply, and general infrastructure
- Market and business sophistication – credit, investment, trade, competition
- Worker knowledge, innovation linkages, knowledge absorption

Innovation-related outputs (pillars) are as follows:

- Scientific outputs
- Creative outputs

The conceptual and statistical coherence of the GII has been analyzed and validated by the European Commission Joint Research Center (INSEAD, 2011). This analysis reports that the GII is statistically coherent, has balanced structure (i.e., is not dominated by any pillar or sub-pillar), and has offered statistical justification for the use of simple averages at the various levels of aggregation from the sub-pillar's onwards. Country rankings are in most cases fairly robust to methodological assumptions. Rossberger and Krause (2012) investigated whether the three published editions of the GII are stable and reliable measures of innovation, showing internal consistency and correlations over the years. They also analyzed whether they show consistency with a different and unassociated measure of national innovation. For this purpose, they chose the Porter and Stern Index. The correlation between the indices ranged from r =88 to r=95. These findings indicate that the indices can be considered as reliable and consistent measures of national innovation. This research uses the GII as

the dependent variable because the index includes a variety of measures of innovation rather than a single measure (e.g.—number of patents and trademarks) thus capturing a more complete picture of societal innovation, and because previous research indicate the GII can be considered a reliable and consistent measure of national innovation.

Hypotheses

The following sections review the research that examines the relationship between Hofstede's dimensions (power distance, individualism versus collectivism, uncertainty avoidance, masculinity/femininity, and long term versus short term orientation) and various measures of innovation. Six hypotheses are outlined.

Power Distance and Innovation

Power distance is the degree to which a society adheres to formal power and status differences among group members. Individuals in low power distance cultures may be more apt to challenge assumptions, procedures, and authority figures (Williams and McGuire, 2010). Hofstede (1980) suggested that lower power distance societies exhibit a greater tendency to innovate. Shane (1992, 1993) found that power distance was negatively related to patents and trademarks. In low power distance cultures, innovators may be able to more easily manage relations across hierarchical borders, challenge authority, and build independent networks of support (Shane et al., 1995). Other studies that found empirical support for a relationship between low power distance and innovation using various measures of innovation include Van Everdingen and Waarts (2003) and Sun (2009).

In low power distance cultures, innovators may more easily manage relations across functional and hierarchical boundaries. They may challenge authority, build independent networks of support (Shane et al., 1995), be more likely to minimize the importance of a superior's acquies-

cence, and go outside the immediate hierarchy for support (Adler, 1997). On the other hand, in high power distance cultures, creative people may be expected to work through hierarchical organizational channels (Shane, 1995) with only support for the ideas endorsed at the top (Williams and McGuire, 2010). Thus, one would expect low power distance cultures to be more innovative.

> **H1:** Societies with low power distance will be more innovative than high power distance societies.

Individualism versus Collectivism

Individualistic societies place a higher value on personal goals; collective societies place a higher value on group goals. Creativity is essentially the act of an individual, sometimes in opposition to the prevailing norms of a group (Amabile, 1997). In collective societies, individuals tend to subordinate their self-interests to the interests of the group. Individuals in collective societies may choose not to advance new ideas that challenge members of the group or society and jeopardize relationships (Williams and McGuire, 2010). Shane (1995) found individualistic societies to be more innovative. Lynn and Gelb (1996) found individualistic cultures were more apt to adopt technologically innovative products. Other studies that found a relationship between high individualism and innovation measures include Van EverDingen and Waarts (2003) and Sun (2009).

The types of innovation that are acceptable may differ among individualistic and collectivist cultures. Individualism is associated with a predisposition to accept novelty (Steenkamp et al., 1999). Individualists are more likely to champion new ideas in the face of resistance (Shane, 1995) while collectivists may foster solutions that are acceptable to all stakeholders (Morris et al, 1993), even at the expense of innovation.

> **H2:** Individualistic societies will be more innovative than collectivist societies.

Masculinity/Femininity

Masculine cultures are more achievement oriented and exhibit less gender egalitarianism. Feminine cultures are more relationship oriented and exhibit greater gender egalitarianism. Masculinity combines an emphasis on traditional gender roles with a high material achievement orientation. Traditional gender roles conceptually appear to inhibit both creativity and innovation, if for no other reason than half of a society's population might not be expected to challenge the status quo.

Van Everdingen and Waarts (2003) found a negative relationship between higher degrees of masculinity and adaption of innovations. Their innovation measure was the adoption of innovative enterprise resource planning systems. The authors offered the following explanation: enterprise resource planning systems focus on sharing of information and collaboration, values associated with feminine cultures.

Shane (1993) demonstrated that masculinity has no effect on the number of trademarks per capita. Williams and McGuire (2005) found no significant effect of masculinity on the economic creativity of a country. Nevertheless, there are some possible influences that have to be taken into account. In feminine societies where the focus is on people, a more supportive climate for innovators may occur. While previous research results have been mixed, one might expect feminine societies to provide an environment that allows innovation to flourish. We propose a positive relationship between femininity and innovation.

> **H3:** Feminine societies (low masculinity) will be more innovative than masculine societies.

Uncertainty Avoidance

Uncertainty avoidance differentiates societies on willingness to assume risk. Hofstede (1980) suggested that societies exhibiting weak uncertainty avoidance are more willing to take risks and to accept opinions other than their own, both of which encourage innovation and entrepreneurship. Culture scoring high on uncertainty avoidance are more apt to adapt

rules to minimize ambiguity. In such cultures, innovators may be less likely to violate societal norms even when doing so would increase the likelihood of innovation implementation (Shane, 1995). Rossberger and Krause (2012) found empirical support for a relationship between highly innovation cultures and low uncertainty avoidance. Lynn and Gelb found a relationship between low uncertainty avoidance and higher adoption rates for technological products using Hofstede's dimensions and Readers Digest Euro data (to measure innovation). Other studies that found empirical support for a relationship between low uncertainty avoidance and innovation using various measures of innovation include Van Everdingen and Waarts (2003) and Sun (2009).

In high uncertainty avoidance cultures, innovation champions may be unlikely to violate organizational procedures or societal norms, even when doing so would protect or further their project or new venture (Williams and McGuire, 2005). Cultures scoring low on uncertainty avoidance are more accepting of risk and ambiguity. Thus, one would expect low uncertainty avoidance cultures to be more innovative.

> **H4:** Societies with low uncertainty avoidance will be more innovative than societies with high uncertainty avoidance.

Pragmatic (long-term oriented) versus Normative (short-term oriented)

A fifth dimension was added to Hofstede's framework in 1991 based on research by Michael Harris Bond (Hofstede and Bond, 1988). That dimension (based on Confucian thinking) was called long term/short term orientation. The long-term/short-term orientation dimension represents a range of Confucian-based principles and basically reflects the difference between a dynamic, future-oriented society (positive Confucian dynamism—longer term perspective) versus a more static, tradition-oriented one (negative Confucian dynamism—shorter term perspective). In societies exhibiting a longer term perspective, values such as perseverance, hard work, shame, and savings may predominate. Shorter-

term societies tend to have values indicative of a more present- and past-oriented perspective, including the concepts of "face" and reciprocation, concerns for traditions and fulfilling social obligations (Hofstede, 1994; Hofstede and Bond, 1998). Values associated with the positive (long-term orientation) pole of the Confucian dynamism dimension, including the focus on hard work and perseverance, should be associated with higher levels of innovation (Jones and Davis, 2000). Van Everdingen and Waarts (2003) investigated the effects of national culture on the adoption of innovations using the Hofstede dimensions. They found that higher degrees of long-term orientation were related to increased adoption of innovations.

The long-term/short-term dimension was originally applied to 23 countries. In 2010, Michael Minkov generated two cultural dimensions using the World Values Survey. One of the dimensions is similar to the long-term/short-term orientation dimension: pragmatic versus normative. The utilization of Minkov's research allowed Hofstede's fifth dimension to be extended to 93 countries. Normative societies score low on this dimension and favor time-honored traditions and norms; societal change is viewed with suspicion. Pragmatic societies encourage thrift and efforts in modern education as a way to prepare for the future. People in pragmatic societies believe that truth depends on the situation, context, and time, and tend to have an ability to adapt traditions easily to changing conditions. Pragmatism is related to school math results in international competition. Student achievement in reading, mathematics, and science has been linked to pragmatic societies (Fang, Grant, Xu, Stronge, & Ward, 2013). Thus, one would expect pragmatic societies to be more innovative than normative societies.

> **H5:** Pragmatic societies will be more innovative than normative societies.

Indulgence versus Restraint

In 2010, a sixth dimension was added based on Minkov's analysis of World Values Survey data (Minkov, 2007). This new dimension is called Indulgence versus Restraint and can be defined as the extent to which people try to control their desires and impulses, based on the way they were raised. Indulgent societies are characterized by a desire to gratify basic and natural human drives related to enjoying life and having fun. Restrained societies suppress gratification of needs by means of strict social norms. People in indulgent societies tend to be more optimistic; people in restrained societies tend to be more pessimistic and cynical. A study by Syed et al (2014) found that cultures with low uncertainty avoidance and high indulgence tend to adapt new technology more readily than cultures with high uncertainty avoidance and low indulgence. Indulgent societies may encourage innovation as a way to continually satisfy drives related to having fun and enjoying life.

> **H6:** Indulgent societies will be more innovative than normative societies.

Methodology

Sample

The Global Innovation Index (GII) for 2012 consisted of 176 countries, while Hofstede's cultural dimensions were available for 101 countries. Merging the two lists along with data from the World Bank reduced the sample to 96 countries. However, missing values for the control variables and the new Hofstede dimensions further reduced the sample and we were left with 77 usable data points for this study. The variables for the study are discussed next.

Dependent variable

The Global Innovation index (GII) from 2012 was used as the dependent variable for this study. The GII is published by Cornell, INSEAD and the

World Intellectual Property Organization (a unit of the United Nations) and ranks countries of the world on their innovation capabilities. The scores for the countries in our sample ranged from 22.2 to 68.2. We used the 2012 index because data from the World Bank was not available for more recent years.

Independent variables

The independent variables for this are Hofstede's cultural dimensions. We used the scores for each of the six dimensions in the model. Power Distance (PD) measures the inequality in power between the members of society and how the inequality is accepted. High scores for PD signify the acceptance of power differences and inequality. Individualism (ID) is the next dimension and a high score signifies a society where the focus is only on the individual and their immediate family. Lower scores signify a focus on groups and decision are based on group welfare. High scores on Masculinity (MAS) represent a society that is focused on achievement, competition and assertiveness, while lower scores suggest a cooperative society focused on relationships and quality of life. Uncertainty Avoidance (UA) captures how a society feels about uncertainty and ambiguity. Higher scores represent an aversion to uncertainty. Pragmatic (PRA) societies take a long-term approach and focus on the future. They focus on modern education and less on time honored traditions to prepare for the future. Indulgence (IDG) represents a society that allows free fulfillment of human needs, enjoying life and having fun. Lower scores represent a society governed by strict norms that believes in suppressing gratification.

Hofstede provides scores for each of these dimensions and these scores range from 0 to 100. We used the reported scores for each country in our sample to capture the overall national culture of a country. By including all the variables in a single model we hope to capture the true effect of national culture.

Control variables

Research has shown that foreign direct investment (FDI) leads to spillover learning and innovation. Therefore, we use FDI as a control variable. The FDI variable was taken from the World Bank database (http://data.worldbank.org/indicator/NY.GNP.PCAP.CD). We calculated the average FDI from year 2004 to 2011 and then took the log of the variable (FDILog) to scale it. The second control variable was the average GDP growth rate (GDPGrowth) for the period 2004 to 2011 also based on the World Bank database. Growing GDP shows positive economic activity that might create slack resources for organizations to invest in R&D and innovation related activities.

Analysis

The descriptive statistics and correlations for the sample variables are given in Table 1 and Table 2 respectively. We analyzed the data using a linear regression. Since innovations take time after investments have been made, we used lagged values for the control variables in the model. We also used average values for the control variables to capture the long-term trends rather than just a one-time short-term effect. Since the value for the cultural dimensions is unchanged over extended period of time, and Hofstede has only provided singular values we used these values for the cultural dimensions.

Results

The correlation table shows that both the control variables are significantly correlated with the dependent variable. While the correlation for FDI was in the expected direction, the correlation for GDPGrowth was negative, which is the opposite of the expected direction. It seems prior positive GDPGrowth actually hinders the innovation capabilities of a country. This result might be explained by a lack of coherent strategy beyond the increased financial resources to further innovation. The

regression analysis was carried out in two steps. In the first step only the control variables were included. The regression model was significant and both control variables were significant. However, the coefficient from GDPGrowth was negative, which was the opposite of the expected relationship. The control variable model had an Adjusted Rsq of 56.6%.

The independent variables were added to the regression model in the second step. The model was again significant and the coefficients for all the independent variables with the exception of Power Distance were significant. The coefficients for each significant variable were in the expected direction and provided support for the hypotheses. The adjusted RSq for the complete model was 72.2%. The regression results are presented in Table 3. Since some of the independent variables were correlated we checked the Variance Inflation Factors (VIF) for each variable and all the VIF values are well below 10, with the maximum being 2.686; thus, there is no multi-collinearity problem and we can assume that the coefficients in the regression are showing the correct relationship.

The results for the hypotheses are summarized in Table 4. All the hypotheses were supported with the exception of Hypothesis 1. Even though the coefficient for the Power Distance had the correct sign it was not significant. Power Distance was negatively correlated and significant (Table 2) as was predicted but did not come out significant when it was included with all the other variables in the regression model.

The coefficient for individualism was 0.105 and significant. This supports hypothesis 2 that more individualistic societies will have greater innovation. Hypothesis 3 posited a negative relationship between Masculinity and the dependent variable and the regression coefficient was -0.099 and significant. This provides support to our notion that cultures high on Masculinity will score lower for innovation. We also found support for a negative relationship (-0.122 regression coefficient) between Uncertainty avoidance and the dependent variable. Cultures that are uncomfortable with ambiguity and uncertainty score lower for innovation and this supports Hypothesis 4.

Societies that favor traditions and are uncomfortable with change would be expected to be less innovative. The coefficient for PRA is 0.141 and supports hypothesis 5. The coefficient for Indulgence is positive, supporting Hypothesis 6. Indulgent societies that allow free gratification of human needs will pursue more innovation to fulfill those needs.

Since the Power Distance variable was not significant we decided to perform a supplemental analysis. For this analysis we performed a stepwise regression. This allowed us to see which variables would make it into the final model. The final model from the stepwise regression is included in the last column of Table 3. This model did not include Power Distance but included all the other Hofstede's cultural dimensions. This confirms the results of our original model where Power Distance was not significant. Power Distance and Individualism are negatively correlated with each other and Individualism also has a stronger correlation with the dependent variable. Therefore, it is possible that the presence of Individualism is influencing the model.

Discussion

The results provide support for five out of the six hypotheses. The results suggest that cultural dimensions do influence the decisions that affect the innovation capabilities of a country. It is clear that all dimensions are not equally important with respect to innovation. Power Distance which deals with inequality between members of society was not significant in the model, while the coefficients for the other dimensions are significant at different levels. As previously mentioned, the strong negative correlation between Power Distance and Individualism may be responsible. Our results suggest that innovative societies are characterized by the following cultural values: individualism, low masculinity, low uncertainty avoidance, pragmatism, and indulgence. Societies with these five cultural characteristics may be more apt to have environments where creativity and innovation can flourish.

The negative correlation between Power Distance and Individualism suggests that as societies develop economically and develop a growing middle class, power distance may decrease and the climate for innovation may increase. Individual employees in corporations may be more apt to challenge the status quo, establishing a climate for creativity and innovation. National cultural tendencies may also be overcome through education and the right kind of investment. Pragmatic societies tend to encourage education and achievement. Government policy that focuses on investment in education may result in a more pragmatic culture where innovation and creativity can flourish. Countries with cultures that have some or all of the dimensions negatively related to innovation (collectivism, masculinity, high uncertainty avoidance, normative tendencies, and restraint) may be predisposed to fail in innovation. Governments in these countries may need to adopt policies that go against cultural norms if innovation is to occur. If governments wish to increase innovation then government policy may need to recognize cultural tendencies that inhibit innovation.

Limitations and Future Research

This research is limited by a small sample size due to missing values for some countries on some of the new Hofstede dimensions. Future research is needed to further explore whether some dimensions work against each other (for example, the strong correlation between Power Distance and Individualism). In addition, there may be clusters of countries with similar cultural tendencies—further research is needed to address this question. While this research utilizes Hofstede's framework, further research might examine the relationship between the GII and other measures of culture like the Globe and Trompenaar frameworks. Are the results similar or different when other measurements of culture are employed?

Conclusion

This research extends prior research by examining the relationship between Hofstede's framework (including two new dimensions) and a more robust measure of innovation (Global Innovation Index). Previous research used less reliable measures of culture or less robust measures of innovation. Previous research using Hofstede's framework has not included the two new variables: Pragmatic/normative and Indulgence/restraint. Our results indicate support for five out of the six hypotheses and suggest that innovative societies are characterized by the following cultural values: individualism, low masculinity, low uncertainty avoidance, pragmatism, and indulgence.

This research has implications for government policy; governments may want to develop policies that overcome cultural tendencies that inhibit innovation. Without a change in government policy, countries with cultures negatively predisposed to innovation may not be able to grow economically and compete effectively with more innovative societies. Our results may also have implications for foreign direct investment; companies may wish to consider country culture when considering where to invest. Additionally, the relationship between culture and innovation may have implications for organizational culture. An organizational environment where innovation can flourish may be characterized by the following:

- Challenging the status quo (high individualism)
- Encouragement of risk-taking and tolerance for failure (low uncertainty avoidance)
- Sharing of information and the promotion of collaboration (low masculinity)
- Encouragement of achievement and long-term thinking (pragmatism)
- Creating new technology as a way to improve life (indulgence)

Companies with goals of becoming more innovative may want to develop policies that encourage the above cultural dimensions.

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Web Appendix

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Integrating Scaffolding Learning in an Online Course

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Abstract

Accounting professionals and educators have been discussing improving the learning and critical thinking abilities of students. Scaffolding learning presents a way to do both by using modeling by the instructor and collaborative interaction among students. The premise of scaffolding is based on the notion that the instructor gradually hands over responsibility for learning to the student as the student is able to do more. Student learning is enhanced through advice and modeling by the instructor, working collaboratively with other student learners, helping other student learners, and working individually by experimenting with new ideas in a self-directed way. This paper discusses the integration of scaffolding in an online graduate seminar in non-profit governmental accounting. A pedagogical model is presented that ties the curriculum and activities of the course to scaffolding concepts. This paper adds to the literature by describing the integration of scaffolding in an online course and providing an example of a pedagogical approach to enhance learning and facilitate the development of the group-based skills critical to accounting students.

Introduction

Accounting professionals and educators have been discussing improving the learning and critical thinking abilities of students. Scaffolding learning presents a way to do both by using modeling by the instructor and collaborative interaction among students. This paper discusses the integration of scaffolding in an online graduate seminar in non-profit governmental accounting. First, we review the literature on scaffolding. Then, we describe the integration of scaffolding in the course by outlining the course curriculum and tying it to scaffolding

concepts. We conclude by discussing limitations of the paper and ideas for future research.

Literature Review

The Zone of Proximal Development (ZPD) is the precursor to scaffolding and was one of the learning theory tenets of the Russian educator, psychologist, and philosopher Lev Semyonovich Vygotsky. The ZPD is defined as:

> ... the distance between the actual developmental level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers (Vygostsy, 1978, p.86).

His rigorous experimental studies indicate that ZPD-based testing was a better predictor of success than the traditional individual tests used by many educators. Solitary work commonly used in classroom paper and pencil tests are incompatible with Vygotsky's conception of pedagogy. According to him nothing is ever learned if the interactional dimension is taken out of the learning equation. His ideas did not have much impact on education in the United States until the 1980s, when interest in cooperative learning increased (Smith, 1997, 2004). Cooperative learning is an instructional method where students work in teams to solve a problem, complete a project, or other instructional goals, while the teacher acts as a guide or facilitator (Coffey, 2016). Cooperative learning adds the peer interaction and collaborative dimension to learning that is prescribed by ZBT.

Scaffolding is closely related to ZPD. Working in the ZPD means that the learner is assisted by others to achieve more than what the learner could have achieved all alone. The original idea of scaffolding can be attributed to the work of Jerome Bruner (1983) who defines the term as follows:

> A process of "setting up" the situation to make the child's entry easy and successful and then gradually pulling back and handing the role to the child as he becomes skilled enough to manage it (p. 60).

Bruner's (1983) notion of scaffolding was developed in the 1970s, in the context of infants. This concept has evolved into other applications. Scaffolding in the pedagogical context, refers to aspects of a construction site: the supportive structure (generally stable, assembled, and reassembled) and the collaborative construction work that is done. The scaffolding structure and the scaffolding process are distinct.

> As used in the context of education, scaffolding can be thought of as occurring at three related levels (scales). Walqui (2006, p.164) represents the scales as follows:
>
> Scaffolding 1: Planned curriculum over time (for example, the course syllabus outlines tasks over time that provide a support structure to help students accomplish certain activities and develop certain skills)
>
> Scaffolding 2: The procedures used in a particular activity (students carry out certain activities like research for a project, etc.)
>
> Scaffolding 3: The collaborative process of interaction (the process of achieving Scaffolding 2 assistance is provided by interactions from moment-to-moment to complete the project)

This sequence moves from planned to improvised and from structure to process (Gibbons, 2003; Van Lier, 1996). The premise of scaffolding is based on the notion that the teacher hands over and the student takes over the learning as the student is able to do more with the student becoming more in charge of his/her own learning. The scaffolds may be changed, transformed and restructured as this process progresses. The teacher assists "just enough" and "just in time" to facilitate this progression in learning.

Scaffolding can be considered from the vantage of a more knowledgeable person like a teacher interacting with a less knowledgeable person like a student. In the work of Gibbons (2002) the idea of scaffolding was expanded to include a group of learners with equal level of knowledge; for example, a group of students working on a common project. Such collaboration can be called "collective scaffolding" and can produce results that would be far better than any one in the group could produce by working alone.

Other benefits of scaffolding include students working with individuals with a lower level of knowledge and by helping these individuals. By helping individuals with lower level knowledge, their own knowledge of the subject matter is clarified and extended.. As, students learn to rely on their own resources, the following scaffolding resources may be available (Van Lier, 2004):

1. Receiving guidance, advice and modeling from an expert like the instructor or teacher
2. Working with other student learners, when group work is needed
3. A student helping a lower level learning student, providing both students with opportunities to learn
4. Working by oneself by experimenting with new ideas in a self directed way.

Scaffolding in an Online Accounting Course

Sharma & Hannifin (2004) used the concepts of scaffolding in an online course to enhance critical thinking. This paper expands on their exploratory study by combining the scaffolding concepts used by Sharma & Hannifin and applying them to a web-based graduate seminar in non-profit governmental accounting.

Course activities are divided into various modules and students are divided up into three groups. Each group is responsible for "teaching" two modules out of the eight used in the course. Enrollment in the course

is between 12 and 18 students. The course software randomly assigns students to groups. The course modules, curriculum and activities, and associated scaffolding concepts are depicted in Figure 1.

The entire course material is "chunked" into modules. Both group and individual activities are involved in each module. Group activities in each module consist of (1) posting an executive summary of the chapter/s in the module, (2) posting a summary of the discussions of the subject in each module, and (3) analyzing the cases assigned in each module. Individual assignments include (1) asking well thought out questions about the contents of the chapter/s in the module resulting in a string of discussions and (2) completing homework from chapter material.

In an online discussion forum, each student is required to post four to five original questions or responses to other questions already asked. Evaluation criteria can be found in Appendix A. Each posting is graded by the instructor and suggestions are made for improvement. Questions can come from the assigned chapters and/or related material from the Wall Street Journal, Journal of Accountancy, CPA Journal, etc.

Module 1

The instructor does the initial module summary to provide some guidance to summarizing chapters, and posts the initial discussion questions, thereby modeling future tasks for the students. After the deadline for the discussions to end is reached, the instructor summarizes the Q&A in the first module. The syllabus of the course provides Scaffolding 1 structure with the instructor provide the expert modeling discussed by Walqui (2006).

Modules 2-7

The rest of the modules are divided among the three groups with each group performing the same tasks modeled by the instructor's Module 1 work. Every module has a chat room for the team members to socialize and interact with one another about the work assignments. When they

log on to the course, each student introduces his or herself to the class and provides some personal information. These initial interactions establish a socializing environment and structure for the course (scaffolding 1) facilitating student to student and student to instructor interactions. Each module has a question area as well as links to a mail box for the course. The team activities introduce the students to scaffolding 3 learning in which students learn by collectively interacting with one another. To scaffold critical thinking postings for discussion, several criteria are established for each discussion post as depicted in Exhibit 1 in Appendix A.

Scaffolding Learning

Scaffolding is provided by students studying the instructor's work in the first module and emulating it as they prepare the modules assigned to their groups. The more capable students in each group lead the less capable ones with scaffolding occurring at the group level. As the course progresses, students read and respond to other students' discussions and the questions become more comprehensive and thoughtful. The scores for the questions improve significantly as the module progresses in the semester. This anecdotal evidence suggests that students are learning from both the instructor and others while improving their critical thinking skills.

All discussion forum information is available to the students throughout the semester, enabling learning from other students and the instructor. As the course progresses, the instructor takes a much less active role in instructing the students on how to carry out their assignments. Instead, the students learn from one another by posting questions to the discussion forums in each module. As the semester nears an end, most of the lower performing students have caught up with the better performing students. Scaffolding is evident as students become independent learners. Summaries and discussions become more sophisticated as the semester progresses; quality of the case analyses also improves.

Team Project

Writing experiences and interpersonal skills are also developed through the completion of a project assigned to each group. The project requires comparing the Published Comprehensive Annual Financial Reports (CAFRs) of two unlike governments and discussing the differences in the scope of the accounts, reports of each of the governments, audit reports, etc. The project involves understanding the scope and size of the government revenues, scope of the services provided to the citizens, etc. When the project is completed, every student should have a basic understanding of these government type accounts and their roles in government borrowing.

All modeling and other help to scaffold the task is provided in the instructions for the project. Scaffolding is also afforded by using the text book assignment on CAFRs that each group works on throughout the course. The students receive a group grade for the project. An individual evaluation of group member contributions is submitted by each group member. Group members do not evaluate themselves in order to avoid any bias in the process. This individual group member evaluation is factored into the individual grade of each group member. The peer evaluation process takes care of any moral hazard for the instructor and shirking by team members. Further details are in Exhibit 2 in Appendix A.

Final Exam

An assessment of the understanding of course material is done in the final examination. This is an individual student effort and the exam questions cover the topics covered in the course. While the exam is an individual activity, students' performance may be enhanced by the questions and answers provided in the module discussion forums.

Conclusion

The course uses all three scaffolding levels suggested by earlier researchers. Anecdotal feedback from students suggests that they like

the scaffolding techniques used in the course as well as their learning outcomes. They also like the online course format. The format allows many students with full time jobs and other commitments to learn at their own pace and convenience. They do not have to be in a face to face situation to experience the classroom social and learning interactions with peers and instructor. The chat rooms and other modes of communication enable class interaction to take place entirely online. Thus, the course is yet another example of a pedagogical approach to enhance learning and facilitate developing group based skills critical to accounting students.

Limitations of the study are the anecdotal nature of the evidence for the benefits of scaffolding applied to an online course. Evidence is provided by only one course with a small student enrollment. Future research might involve several different courses with similar activities. Additionally, it might be interesting to compare the performance of two sections of the same course: one in which scaffolding methods are used and a section with a more traditional format. Is learning enhanced by the presence of instructor modeling and students helping one another using an online discussion forum? Formal metrics of learning by using a measurement instrument may indicate enhancement of critical thinking in the use of scaffolding. More research is needed to provide more than anecdotal evidence that scaffolding enhances learning and critical thinking among students in online courses and more traditional "brick and mortar" classes.

This paper adds to the scaffolding literature by providing a detailed description of the curriculum and activities used in an online accounting course. A pedagogical model is provided that ties course curriculum into the relevant scaffolding concepts. Appendices provide ideas for discussion forum questions and rubrics as well as a team project that might be used in similar courses. The course activities make a contribution to educational pedagogy by providing practitioners with concrete methods for facilitating student to student and student to instructor interaction in an online course. These interactions that occur naturally in "face-

to-face" classes (and form the basis for scaffolding) are often lacking in online courses.

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Web Appendix

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Time Management Styles and Food Consumption: A Pilot Study of American and Chinese College Students

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Abstract

This research investigates the relationship between time management styles and food consumption among college students in the U.S. and China. Prior research in consumer psychology suggests that time scarcity is a barrier to healthy food consumption. Thus, we hypothesize that individuals who exercise greater control over their time should be able to make healthier food decisions. We also proposed and found that culture moderates the positive effect of time management on food choices. One hundred and twenty one students participated in this study by completing an online survey. Our findings show that American and Chinese participants differ in both their time management styles and eating motives. Americans engaged more in short-range planning, reported greater time attitude, and greater preference for organized time than Chinese. Food choices among Americans are driven by liking, habits, convenience, and sociability factors whereas those among Chinese are driven by social norm and social image. Further analysis shows that as hypothesized, individuals with greater preference for organized time also selected healthier food choices. This positive effect of time management on food consumption is stronger among Chinese than Americans. The findings offer several implications for food and beverage marketing practitioners as well as consumers.

Introduction

Time is a salient component of life that everyone has the pleasure of encountering in some way, shape or form. Time is also a limited resource so time management became crucial to control to produce desired outcomes. Time management is often significant in reference to mismanaging it or misusing it (Britton and Tesser 1991). Topics related to time management are a prevalent area of research because it affects a multitude of factors in our everyday lives such as attitude, food consumption, academic performance, and stress level (Adam, and Jex 1999; Kaufman-Scarborough and Lindquist 1999; Misra and McKean

2000; Trueman and Hartley 1996). In the scholarly literature, researchers have paid attention to time management among college students but this is not a surprise given that 4 out of 5 college students in the U.S. work at least part-time while they are pursuing their higher education (Kingkade 2013). Navigating through studying, meeting paper deadlines and participating in extracurricular activities in addition to earning for their livings requires effective time management. Generally researchers agree that time management is positively related to academic achievement (Hoff Macan and Shahani 1990, Britton and Tesser 1991). However, the topic which has received little attention from researchers is how time management among college students affect other dimensions of their lives such as their food consumption and ability to maintain healthy lifestyle?

Only a handful of research has been conducted on the effects of time management and time perception on food consumption. Jabs and Devine (2009) presented an overview of time issues (e.g. time scarcity) related to food choices and consumption patterns. They also elaborated more on socioeconomic and economic effects on the food choices of individuals. Time styles was also found to influence meal preparation (Jabs et al. 2007) and time pressure prevents healthy eating and physical activities (Welch et al. 2008). To further advance our knowledge about the interplay between time and food, this study examines how time management styles among college students affects their food consumption. Specifically, we examined the impact of four time management styles (short-range planning, long-range planning, time attitude, and preference for organized time) on food choices and eating motives. We found that preference for organized time is positively related to healthier food choices and culture (American vs. Chinese) moderates the effect (i.e. the positive effect is stronger among Chinese students than American students). The research also reveals differences in time management styles and eating motives between American vs. Chinese students. Our findings provide theoretical contributions as well as implications for food and beverage manufacturers, consumers, and policy makers.

Hypothesis Development

Studies in the U.S. have shown that people have increasingly perceived time scarcity (Zuzanek, becker, Peters 1998; Godbey, Lifset, and Robinson 1998). The feeling of not having enough time has been associated with increased employed parents (Daly 1996), working long hours (Godbey et al. 1998), and the fact that most adults have multiple roles such as being parents and employees at the same time (Celnik, Gillspie, and Lean 2012). As people experience greater time scarcity, research in food and health domains revealed an increase in overweight and obesity in adults and children (Cawley 2004; Jeffery and French 1998), an increase in fast food and snack consumption (Gillis and Bar-Or 2003; Jeffery and French 1998), and a decrease of food preparation time (Sayer 2001, Shelton 1992). More than a third of parents in the U.S. reported that they consume takeout food regularly and one-fifth of meals are consumed in a car (Gardyn 2002). The lack of time is reported as a significant barrier to live healthy lifestyle (Furst, Connors, Bisogni, Sobal and Falk 1996).

Based on prior research, this present research proposes that given that time scarcity is a barrier to healthy food choices, individuals who engage in effective time management should be able to have better control over their time and be able to make healthier food decisions than those who cannot manage their time effectively. Our research focuses on college students as they are in an early stage of developing their time management to allow them to handle multiple classes, homework, assignments, part-time jobs, extracurricular activities, and social events. Prior research (Britton and Tesser 1991) has studied time management styles among college students by examining short-range vs. long-range planning, and time attitudes (the feeling of spending their time constructively) and found that those who reported greater control of their time also reported greater work and life satisfaction, and greater evaluation of their performance. In the consumer behavior literature, prior research (Usunier and Valette-Florence, 1994) has constructed a similar instrument to measure preference for organized time (e.g. need to establish and

follow schedule). Thus, based on the above research findings, this present research hypothesizes that:

> H1: Individuals who engage in greater time management (short-range, long-range planning, time attitude, and preference for organized time) are more likely to choose healthier food choices than those who do not exercise much control over their time.

Furthermore, cross-cultural psychology literature suggests that time perception is a multidimensional construct and it can be influenced by culture. In the U.S., people tend to subscribe to a belief that time is money and because time is a scarce resource, time should be spent wisely. Therefore, norm in the American culture is to be very strict when it comes to time schedules, appointments, and precise setting of duration of an event (Usunier and Valette-Florence, 1994). Prior research (Hall 1983 and Bluedorn 1998) classified this time style that focuses on schedules and finishing one task at a time as *monochronic time* (M time). In contrast, the time style that is more lenient and focuses more on people and events than the time itself is called *polychronic time* (P time). People who operate in P time feel more comfortable engaging in multitasking and/or engaging in conversation with multiple people at the same time. M time is common in American culture while P time is found more frequently in Middle East, Latin American, and Asian cultures (Usunier and Valette-Florence, 1994).

Since culture may determine the time style adopted by individuals, we believe that culture will moderate the effect of time management on food choices. Individuals in Asian cultures tend to use P time and are more willing to adjust their time styles to fit various tasks that they have to accomplish. Since they are quite multitasking, they may be able to simultaneously pursue multiple goals (e.g. healthy goal, career goal, academic goal) in their daily lives without relying on a particular time management style. Thus, we believe that the relationship between time management styles and food choices among Asian college students will be weaker than that among American college students. In other words, we

propose that American students are in greater need to have a structured time management in order to maintain their healthy lifestyle.

> H2: The positive effect of time management styles (short-range, long-range planning,
>
> time attitude, and preference for organized time) on healthy food choices is more pronounced among American than Asian cultures.

Method

Eighty two American students in the U.S. and thirty-two students in China participated in this study for extra credits. Participants completed an online survey containing questions related to their time management and food consumption. To measure their food choices, the first section of the survey involves a food shopping task in which participants were shown a series of fourteen food and beverage items. For each item, they were asked to decide whether they would purchase it for their own consumption or not (Yes vs. No). Out of the fourteen items, seven were vice and the other seven were virtue foods/beverages. The vice and virtue classification and the food and beverage items were adopted from Thomas, Desai, and Seenivasan (2012). Consumption of vice food and beverages results in immediate gratification (taste good) but does not provide any long-term health benefits whereas consumption of virtue food does not result in immediate gratification but provides long-term health benefits. Vice items are for example donut, cake, hot dog, and frozen meals and virtue items are for example salads, yogurt, apple, and whole wheat bread. This food shopping task was given to participants as the first task to prevent any potential biases caused by time management and eating motive measures.

In the next section of the survey, participants evaluated their time attitudes, short-range vs. long-range time management (measures adopted from Britton and Tesser, 1991), and their preference for organized time (measures adopted from Usunier and Valette-Florence, 1994). Next, to

deepen our understand of the reasons of their food choices, we measure eating motives by asking participants to complete the Testing of Eating Motivation Survey (TEMS) which was adopted from Renner, Sproesser, Strohbach, and Shupp (2012). The TEMS measures eating motives on multiple dimensions such as liking, habits, hunger, health, price, affect regulation, visual appeal, and weight control. Examples of measures of liking motive are "I eat what I eat because I like it," and "I eat what I eat because I have an appetite for it." After reporting their eating motives, participants was asked "Do you believe 'what you eat' and 'how you manage your time' are related? (1 = not related at all to 7 = highly related). Lastly they reported their weight, height, GPA, number of sleep hours, exercise behavior, and other demographic information.

Results

Participants Profile: About 57% of participants are female. The average age is 20 years old and majority of them are in their senior year in college.

Belief about time management and food consumption: The analysis shows that American participants hold a stronger belief that their time and food consumption are related than Chinese participants ($M_{Americans}$ = 5.07 vs. $M_{Chinese}$ = 3.72, p <.01).

Shopping Basket: To test H1, we examine whether the time management styles influences any food choices in the shopping basket. We first established a ratio of virtue items, which is the number of virtue items selected by participants divided by the number of total items selected. That is the greater the virtue ratio, the healthier food choices are. Although the dependent variable is percentage from count data, given our small sample size, the percentage data follow a normal distribution (majority of data fall between 20%-80%) and therefore data transformation (e.g. arcsine or log) is not required (Horsley, 2015).

Then several General Linear Model Analyses (Proc GLM in SAS) were run using country, each time management style, and the interaction term

as independent variables; and the virtue ratio as dependent variable. We found that out of four time management styles, only the model testing *preference for organized time* shows significant effects on our virtue food ratio. The analysis reveals a significant main effects of country, and a significant effect of preference for organized time (p values <.05). The interaction effect approaches a significant level ($F(1,83)$ = 3.00 and p =.08). The direction of the interaction effect (Figure 1) shows that the preference for organized time is positively associated with greater virtue ratio and the effect is stronger among Chinese participants than Americans. As a result, H1, which states that time management styles are positively related to healthier food choices, is supported only for preference for organized time. H2, which states that the effect is weaker among Chinese, is not supported as the finding shows that the effect is even stronger among Chinese students. Ironically, the effect is even stronger among Chinese participants, who in fact reported weaker belief about the relationship between time and food consumption.

Relationship between preference for organized time and eating motives: To further investigate underlying mechanism of the effect of preference for organized time, General Linear Model Analyses (Proc GLM in SAS) were run using country, preference for organized time and the interaction term as independent variables; and each food motive as dependent variable. The analyses shows significant effects only on two eating motives: health and habit motives.

First, the analysis on the health motive shows only a significant main effect of preference for organized time (p<.05) while the main effect of country and the interaction effect are not significant. In other words, this suggests that both participants who reported greater preference for organized time also reported stronger motive to choose food based on how healthy the food is, regardless of their culture (see Figure 2). This finding is consistent with the hypothesis that individuals who exercise greater control over their time will make healthier food decision.

Next, the analysis on the habit motive shows that the main effect of preference for organized time is significant (p <.05), the main effect of country is also significant (p <.05) but the main effects are qualified by a significant interaction effect ($F(1,83)$ = 7.15 and p <.01). The interaction graph (Figure 3) shows that participants with greater preference for organized time reported greater motivation to select food based on habit reasons than participants with lower preference for organized time

To deepen our understanding of the differences between the two cultures on eating motives and time management, we ran additional analyses as follows:

Comparison of eating motives across cultures: We first ran t tests to compare the eating motives between American and Chinese participants. Despite small sample size of Chinese participants, the analyses revealed some significant differences as shown in Figure 4. Compared to Chinese, American's food consumption appears to be more motivated by liking, habits, convenience, and sociability factors. On the other hand, Chinese's food consumption seems to be more driven by social norm and social image.

Comparison of time management across cultures: Significant differences between countries are also found on all four time management styles. Specifically, Americans engaged more in short-range planning ($M_{Americans}$ = 4.47 vs. $M_{Chinese}$ = 3.73, p <.05) whereas Chinese engaged more in long-range planning ($M_{Americans}$ = 3.98 vs. $M_{Chinese}$ = 2.28, p <.05). Americans also reported greater time attitude, which is the extent to which they feel that they spend their time constructively ($M_{Americans}$ = 4.23 vs. $M_{Chinese}$ = 3.89, p <.05) and also greater preference for organized time and following schedule than Chinese participants ($M_{Americans}$ = 4.06 vs. $M_{Chinese}$ = 4.72, p <.05).

General Discussion

This research examines the relationship of time management styles, eating motives, and food choices among American and Chinese college students. Specifically, we found that eating motives between participants in the U.S. and China are significantly different in multiple aspects. Food choices among Chinese are driven more by social norm, social image whereas food choices among Americans are driven more by food preference (liking), habits, convenience, and sociability. Although obesity has been a critical problem in the U.S. for years and the U.S. government has launched public policy campaigns (e.g. Let's Move campaign developed by Michelle Obama) to address the obesity issue, American participants did not report a significantly greater motivation to buy food based on weight control reason than Chinese participants. Still, Americans reported stronger liking motive (i.e. I eat what I eat because I like it). However, this could possibly be due to the fact that our participants are college students who still have little or no concern on their weight.

Our key finding is the positive effect of preference for organized time on the ratio of healthy food choices selected. Prior research (Welch et al 2008) has found that time pressure is a constraint to healthy food consumption. However, our finding may shed light on how consumers may have solved this problem. Time scarcity may have led people to establish and follow an organized schedule. Those who have such schedule are able to exercise better control over their time and in turn allow them to prioritize various goals (e.g. health goal, academic goal) and make better decision on food choices. Our findings also suggest that people who follow structured schedule reported greater motivation to buy food based on health and habit motives. That is they choose food that is healthy and would allow them to stick with their daily schedule rather than focusing on taste or liking motives which usually lead to greater consumption of unhealthy but tasty food. Please note that we found no

significant effect of preference for organized time on exercise behavior, sleep hours, and GPA across the two groups of participants.

The research offers theoretical contribution to consumer behavior literature and provides practical implications to food marketing practitioners. First, the research provides a much needed linkage between time management and food choices. Although American consumers hold strong belief that time management and food consumption are related but not much research has uncovered the pattern of their relationship. Our finding uncovered the potential benefit of establishing an organized time schedule on food choices. This presents an opportunity for future research to further investigate the underlying mechanism that drives the relationship between time management and healthier food decision.

Second, our comparison of eating motives in China and the U.S. provides direct implication for food and beverages companies that wish to offer products internationally. Advertising strategies targeted Chinese consumers should emphasize the potential "social image" associated with the food/beverage product whereas the strategies for American consumers can emphasize the taste aspect. Lastly, our finding also provides evidence that better time management should be developed among college students as it allows students to not only be more productive academically but could potentially have positive effect on their healthy lifestyle.

Limitations and Direction for Future Research

This research could not be completed without any limitations. First, our small sample size could cause insufficient statistical power to test the hypotheses reliably. We are not able to detect any effect of time management on other dimensions of healthy lifestyle (e.g. sleep, and exercise). Second, we measured food choices in the experiment itself which is a one-time measure and participants were given only fourteen choices which are not realistic. Future research can ask participants to record their food diary for a certain period of time (e.g. a few weeks) to measure their

actual food choices longitudinally. Third, the time management styles are self-reported hence the social desirability bias cannot be eliminated. Future research that manipulates the time management styles and later observe the food choices will help eliminate the problems of social desirability bias as well as the reverse causality (e.g. time variable affects food variables or vice versa). Future research is also encouraged to test the hypotheses using a non-student sample to increase the generalizability of the findings.

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p11.pdf

The Business Cycle and Profitability of Trading Strategies

Yuxing Yan and Shaojun Zhang

Abstract

Recent studies show that investor participation in stock market rises during economic expansion and drops in economic recession. When investor participation is high, investors' cognitive and behavioral biases are likely to have a stronger influence on stock prices than when investor participation is low. We consider four trading strategies that are based on well-known market anomalies and examine their profitability under different economic conditions. For all four strategies, the hedge portfolios that are formed in the months when the economy is expanding obtain significant profits, whereas the hedge portfolios formed in recession months are not profitable.

JEL classification: G11, G17, G12

Keywords: business cycle, investor's preference, January effect, lottery-type stock, trading strategy

1 Introduction

Recent studies show that the level of investor participation in stock market rises during economic expansions and drops during recessions. Nas et al. (2011) analyze the data set that includes monthly ownership of all investors in all Norwegian companies listed on the Oslo Stock Exchange, and find that when the economy worsens, some investors shift their stock portfolios into larger and more liquid stocks, and others leave the stock market altogether. Weber et al. (2013) report that, at the height of the internet boom in 2000, 6.2 million people in Germany directly held individual stocks in their portfolios, whereas this number dropped to only 3.5 million at the end of 2008 in the midst of financial crisis. In a study of 2.3 million 401(k) plan participants at the Vanguard Group, Mitchell and Utkus (2003) find that participants who enrolled near the peak of the bull market in 1999 allocated approximately 70 percent of new contributions to equities, while participants who enrolled during the first six months of 2003 allocated only 48 percent of new contributions to equities.

There is considerable evidence in the finance literature that investors' cognitive or behavioral biases have significant cross-sectional effects on stock returns. We conjecture that when investor participation in stock market is high, their cognitive or behavioral biases have a strong impact on stock returns and hence the profitability of trading strategies that capitalize on such biases will be high. On the other hand, when investor participation is low, the profitability of these trading strategies will be low. In this paper, we test our conjecture by examining the profitability of four trading strategies at different stages of the business cycle. The four strategies are based on the individual stock momentum phenomenon, first documented in Jegadeesh and Titman (1993), the industry momentum in Moskowitz and Grinblatt (1999), the effect of the 52-week high price in George and Hwang (2004), and the effect of the maximum daily return in a month in Bali et al. (2011).

Many studies offer behavioral explanations of the stock return anomalies underlying these four strategies. The theoretical models in Barberis,

Shleifer, and Vishny (1998) and Hong and Stein (1999) show that momentum occurs because traders underreact to new information. The model in Daniel, Hirshleifer, and Subrahmanyam (1998) demonstrates that momentum occurs if traders overact to prior information when new information confirms it. Grinblatt and Han (2005) propose that the disposition effect plays a role in explaining momentum. Moskowitz and Grinblatt (1999) find that the profits to individual stock momentum strategy is largely attributable to momentum in industry factors. Grundy and Martin (2001) and Chordia and Shivakumar (2002) show that individual stock momentum and industry momentum are distinct and separate phenomena.

George and Hwang (2004) form portfolios by sorting stocks based on the ratio of a stock's current price to its 52-week high price and examine the portfolio returns in subsequent months over the period July 1963 - December 2001. The portfolio comprised of the top 30% stocks outperforms the portfolio of the bottom 30% stocks by an average monthly return of 1.23%. They also find that nearness to the 52-week high is a better predictor of future returns than are past returns. They argue that the effect of the 52-week high is consistent with the anchoring bias documented in Kahneman, Slovic, and Tversky (1982). Traders may use the 52-week high as an anchor. When good news arrives that pushes prices above the anchor price, the price change is smaller than the news' full impact on fundamental value because the anchored traders' demand is lower than what it would be in a rational market. The price will increase further to converge to fundamental value, resulting in momentum.

Bali et al. (2011) construct portfolios by sorting stocks by their maximum daily return in a month and examine the portfolio returns in subsequent months over the period July 1962 - December 2005. For value-weighted decile portfolios, the average monthly return difference between the portfolios with the highest and lowest maximum daily returns is -1.03%. They argue that the effect of the maximum daily return in a month on future stock return is due to the investor preference for lottery-

type stocks. Kumar (2009) documents evidence that certain groups of individual investors prefer lottery-type stocks, which he defines as low-priced stocks with high idiosyncratic volatility and high idiosyncratic skewness. Such investors tend to pay more for stocks that exhibit extreme positive returns, and thus, these stocks exhibit lower returns in the future.

We expect that, when the economy is booming, the trading strategies that exploit the above return anomalies are more profitable because more retail investors who have strong cognitive and behavioral biases participate in stock market and have great influence on share price. We classify each month to be either a recession month or an expansion month and compare the returns to hedge portfolios formed in recession months with those in expansion months. We use two methods to classify recession and expansion months. One is based on the peaks and troughs of business activities that have been identified by the NBER, and the other is based on the stock market index.

We find that for all four strategies, the hedge portfolios that are formed in expansion months obtain significant profits, whereas the hedge portfolios formed in recession months are not profitable. This finding is robust to different ways of classifying recession and expansion months.

The paper is organized as follows. Section 2 explains data sources and our method of classifying recession and expansion months. Section 3 presents the empirical results on the profitability of trading strategies over the course of the business cycle. Section 4 includes the results from our robustness study. The last section concludes the paper.

2 Data sources and classification of recession and expansion months

We study the profitability of the four trading strategies based on the individual stock momentum phenomenon, the industry momentum, the effect of the 52-week high price, and the effect of the maximum daily return in a month. We use both the CRSP daily return database and the

CRSP monthly return database. The daily data is used to calculate the 52-week high price and the maximum daily return in a month, while the monthly data is used to calculate the value-weighted portfolio returns.

We obtain the business cycle series from the National Bureau of Economic Research (NBER) Center. The series identifies the months in which economic activities in the U.S. reached a peak or a trough according to the NBER definition. The series dates back to as early as June 1854. Since the CRSP stock return data starts in 1926, our analysis makes use of the business cycle data from 1923 onward. Table 1 shows all the peaks and troughs since May 1923, and the duration in months of each business cycle. There are a total of 16 pairs of peaks and troughs. The average duration of economic contraction from peak to trough is 13.3 months, and the average duration of economic expansion from trough to peak is 52.6 months.

The NBER series includes only the months when the economy reaches a peak or a trough. We define a variable called CYCLE and use it to classify each calendar month to be either a recession or an expansion month. The variable CYCLE takes the value of 1 in the peak month, and the value of -1 in the trough month. We obtain the value of CYCLE in any month between a peak and its adjacent trough through linear interpolation. Figure 1 illustrates how the value of CYCLE is computed for each month during the contraction period from the peak in July 1953 to the trough in May 1954. The value of CYCLE is low in months near a trough and high in months near a peak. We use a cut-off value to classify recession and expansion months; for example, if the cut-off value is -0.6, all months in which the value of CYCLE is less than -0.6 are labeled as the recession months and the other months are the expansion months.

Separating recession months from expansion months is essential for us to study the profitability of trading strategies under different economic conditions. This method of classifying recession and expansion months, however, appears to be *ad hoc* because the value of CYCLE is mechanically determined by simple linear interpolation and the choice of the cut-off

value is arbitrary. To check the robustness of our empirical results, we use different cut-off values for the recession months. In addition, we use a second method to classify recession and expansion months and report the results in Section 4.

3 Profitability of trading strategies

In this section, we examine the profitability of four trading strategies under different economic conditions. We implement the strategies by following Jegadeesh and Titman (1993) for the individual momentum strategy, Moskowitz and Grinblatt (1999) for the industry momentum strategy, George and Hwang (2004) for the 52-week-high strategy, and Bali et al. (2001) for the maximum daily return strategy. Take the momentum strategy for illustration. We follow Jegadeesh and Titman (1993) to implement the strategy with 6 months in both the estimation and holding periods. For any given month, we sort all stocks by their cumulative total return in the immediate past 6 months into 10 equal-size groups. The stocks in the highest return decile are called winners, and the stocks in the lowest return decile are losers. A hedge portfolio is constructed by taking long positions in winners and short positions in losers with zero dollar investment. We examine the returns to this hedge portfolio in the subsequent 6 months.

What's new in our analysis is to check the economic condition at the time when hedge portfolios are formed. We choose a cut-off value for the CYCLE variable in order to classify recession and expansion months. For example, if the chosen cut-off value is -0.6, October 2001 is a recession month because the value of CYCLE in this month is -0.75, whereas July 1926 is an expansion month because the value of CYCLE is 0.78. We compare returns to the hedge portfolios formed in recession months with returns to the hedge portfolios formed in expansion months. During a difficult time such as October 2001, investor participation is low and the influence of investors' cognitive or behavioral biases on share price is likely to be small, thus the momentum strategy that aims to profit from

mispricing will not work. In other words, the hedge portfolios formed in recession months would not be profitable.

3.1 The maximum daily return strategy

We present the results on the maximum daily return strategy first as it is the most recent anomaly and a close examination of its performance under different economic conditions is new to the literature. Bali et al. (2011) construct portfolios by sorting stocks by their maximum daily return in a month and examine the portfolio returns in subsequent months over the period from July 1962 to December 2005. For value-weighted decile portfolios, the average monthly return to the hedge portfolio that long in stocks with the largest maximum daily returns and short in stocks with the smallest maximum daily returns is -1.03%.

We repeat the analysis in Bali et al. (2011) with the CRSP data over the time period from July 1926 to December 2005. Generally speaking, we have a qualitatively similar result. Table 2 shows the results for the raw value-weighted portfolio. For an easy comparison, the results shown in Bali et al. (2011, Table 2) is presented in the second column. For the time-series average of the monthly returns on the hedge portfolios, Bali et al. (2011) report -1.05% with a t-statistic value of -2.83, while we have -0.62% with a t-statistic value of -1.80.

Column 3 shows the results for all 954 months between July 1962 and December 2005, while Column 4 show the results after removing the recession months in which the value of the CYCLE variable is less than -0.6. The absolute difference between the lowest and highest portfolios increases and so does its t-statistic value. This means after removing the recession months, the maximum daily return strategy is a lot more profitable. On the other hand, based on the recession months, we could not find a significant return on the hedge portfolios. Bali et al. (2001) argues that investors' preference for lottery-type stocks explains the returns to the hedge portfolio. Our results suggest that investors' preference for lottery-type stocks does not have a significant impact on stock price in

recession months. We repeat our analysis with different cut-off values, and the findings remain the same.

Next, we conduct the analysis after removing all January returns. The difference between the lowest and the highest deciles jumps from -0.62 to -0.95, and the corresponding t-statistic increases (in terms of absolute value) from -1.80 to -2.69. Now, the difference between the returns of two extreme decile portfolios, the lowest minus the highest, is significant at the 1% level. In contrast, for the hedge portfolio returns in January only, the sign of the difference is reversed and the difference is significant at the 1% level. This means that January returns have a big impact on the results.

Panel B in Table 3 reports our results based on equal-weighted portfolios. The impact of the January Effect is more striking. If we use all months to estimate, the difference between the highest and the lowest MAX portfolios is a mere -0.13, which is not statistically significant. However, after the January months are removed, the difference is -0.87, and statistically significant at the 1% level. The difference between the two extreme portfolios is much bigger for January returns only. Compared with a value-weighted scheme, an equal-weighed one would give small firms more weights. This is consistent with the literature that January returns have a substantial impact on the profitability of the maximum daily return strategy, and the impact is stronger in small-size firms than in large-size firms.

Moreover, we repeat our analysis by removing both the returns to the hedge portfolio formed in recession months and the returns in January. The evidence for the lottery-seeking behavior is much stronger. After removing returns in January and months in recession with a cut-off point of -0.6, the difference, between the lowest and highest deciles, jumps from 0.62% to 1.08% and its T-value jumps from 1.80 to 2.98, shown in Table 4. Those results provide additional support that the investor's preference for lottery-type stocks is stronger when the economy is expanding.

3.2 The individual stock momentum strategy

We follow Jegadeesh and Titman (1993) to implement the individual stock momentum trading strategy. Table 5 reports the results for the same time period as Jegadeesh and Titman (1993), i.e., from 1965 to 1989. The second column in the table shows the statistics on the returns to the hedge portfolios formed in all months. The average returns are positive and statistically significant. We report the returns to the hedge portfolio formed in expansion months and recession months in the third and fourth columns, respectively. The hedge portfolios formed in expansion months have positive and statistically significant returns, while those formed in recession months have negative and insignificant returns. The individual momentum trading strategy is not profitable during recession months under other different cut-off points.

3.3 The industry momentum strategy

Moskowtz and Grinblatt (1999) argue that the industry momentum strategy dominate the individual stock's momentum strategy. Moskowitz and Grinblatt (1999) classify all stocks into 20 industries based on their historical SIC codes. The time period used in this test is from July 1963 through December 2001. The CRSP stocks are used. First, according to Table 1 (p1254) in Moskowitz and Grinblatt (1999), we group stocks into 20 industries. The value-weighted method is used to calculate industry return. Based on the past 6-month total return, the top (bottom) 30% would be labeled as winners (loser). We first sort 20 industries into 10 portfolios, then combine the first three decile portfolios (lowest total returns) into Portfolio 1 and combine the last three decile portfolios into Portfolio 10. The hedge portfolio is long in Portfolio 10 and short in Portfolio 1. When choosing 6 months as both the evaluation period and holding period, the portfolio return difference between winner industries and loser industries, is 0.43% per month with a T-value of 4.24, (Table III, p1271). We follow their methodology to implement the trading strategy and examine the returns to hedge portfolios formed in expansion months and recession months separately. The cut-off value

we used is -0.6, i.e., if the value of CYCLE for a specific month is below such a cut-off value, we treat it as a recession month. The result is similar to the result for the individual stock momentum strategy: the industry momentum is strong during economic expansion but is not profitable during economic downturn.

3.4 The 52-week high strategy

George and Hwang (2004) show that it is a profitable trading strategy based on the 52-week high. They sort all stocks into 10 decile portfolios based on the ratio of today's price over its 52-week high. The top (bottom) 30% are called winners (losers). They find that the difference between the winner and loser portfolios is 0.45% per month. We follow their methodology to implement the trading strategy and examine the returns to hedge portfolios formed in expansion months and recession months separately. The results in Table 7 show that when the cut-off point is -0.6, the hedge portfolios formed in recession months have on average a negative return, though the return is not statistically different from zero. By contrast, the hedge portfolios formed in expansion months have an average monthly return of 0.46%, which is statistically significant at the 5% level.

In summary, the empirical results in this section show that for all four strategies, the hedge portfolios formed in expansion months obtain significant profits, whereas the hedge portfolios formed in recession months are not profitable. This is consistent with our conjecture that during economic expansion, more investors participate in stock market and their cognitive or behavioral biases have a greater influence on stock prices, which increases the profitability of the trading strategies that exploit market mispricing.

5 Conclusions

We consider four trading strategies that are based on well-known market anomalies, namely, the individual stock momentum phenomenon, first documented in Jegadeesh and Titman (1993), the industry momentum in Moskowitz and Grinblatt (1999), the effect of the 52-week high price in George and Hwang (2004), and the effect of the maximum daily return in a month in Bali et al. (2011). We examine their profitability under different economic conditions. We classify each month to be either a recession month or an expansion month and compare the returns to hedge portfolios formed in recession months with those in expansion months. For all four strategies, the hedge portfolios that are formed in the months when the economy is expanding obtain significant profits, whereas the hedge portfolios formed in recession months are not profitable. Our findings are robust to different ways of classifying recession and expansion months.

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Web Appendix

A web appendix for this paper is available at:

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Development of a Table of Elements for Accounting, Version 3

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ABSTRACT

Since 1869 physics has been developing a periodic table of our world's natural elements. This paper describes the development of a periodic (and point in time) Table of Elements for Accounting, Version 3 (TEA3). TEA3 a visual model of accounting's version of its elements promulgated by the FASB in Statement of Financial Accounting Concepts No. 6 Elements of Financial Statements. The table shows the contents, structure and interrelationships of the elements contained in a one-page handout for use by accounting students. Here is shown the sequence of steps used

to present the financial statement elements to junior level accounting majors in the first intermediate accounting course.

INTRODUCTION

The Table of Elements for Accounting Version 3 (TEA3) is a periodic (and point in time) tabular arrangement of accounting's financial statement elements. In a one-page summary it shows the contents, structure and interrelationships of the financial statement elements. It can be used as handout for students in the intermediate accounting courses to provide a useful framework for analyzing accounting transactions and events for their effect on the elements of the financial statements.

Like any good periodic table its structure is comprised of columns, rows and groups. The columns represent the beginning statement of financial position, all of the various changes in equity during the period and the ending statement of financial position. The rows indicate the elements with positive and negative changes in equity during the period. The TEA3 indicates the different groups of elements for owner's activities, comprehensive income, net income with its operating and nonoperating items and other comprehensive income. At the bottom of the TEA3 is a section indicating which elements are included in the various financial statements.

Why develop a table of elements for accounting? Why not? Chemistry has had their "periodic table of chemical elements" since 1869 when Dmitri Mendeleev published the first widely recognized periodic table of elements. Since then several "periodic tables" have been created - both the more serious type (Table 1) and the less serious type (Table 2).

So, why should not accounting have a table of elements? Financial statement elements have existed for over a third of a century (FASB, 1980). A subsequent revision followed soon after (FASB, 1985). The time has come for a periodic table of our own.

LITERATURE REVIEW

Ever since Mann (1984) proposed a worksheet for demonstrating the articulation of financial statements, several authors have proposed their version of a rows and columns model to help students visualize how financial statements are interrelated and interact.

An engineer by training, Mobley (1989) describes how he developed the "Mobley Matrix" over a twenty-seven year period starting in 1956 to train executives at the IBM Executive School at Sand's Point, NY. This model is a one-page worksheet with five columns used to classify the changes in the balance sheet accounts from the beginning to the end of the accounting period (Figure 1).

Ittelson (2009), trained as bio-chemist, not an accountant, developed his model during his business development consulting in order to teach entrepreneurs how to use financial statements in their businesses. The model (Figure 2) uses a three column design to explain the interrelated effect of individual transactions or events on the accounts and activities of one, two or three financial statements. The columns are labeled prior, transaction and sum, where balances in the prior column plus transactions equal the balances in the sum column. This demonstrates the balances of the items included in each row before, during and after a transaction.

Sellman (n.d.) created a Financial Fence® Model (Figure 3), which in his slides entitled "A Systematic Framework for the Creation of Wealth" on his web site (Sellman, n.d.), purports to combat the lack of financial literacy and to help one achieve financial freedom, step by step. Sellman proposes in a screencast entitled "The Financial Fence Way of Thinking" (Sellman, n.d.) using a post and rail fence model whereby the left post represents "Where I am", the rails represent "A plan to get there" and the right post represents "Where I want to be". He describes the fences as made of two parts - posts that anchor the fence into the ground at a point and rails that carry the fence over a distance. Fences incorporate milestones (i.e., posts) and activity (i.e., rails) in the same

analogy. Milestones represent the balance sheet and activity represents the "Profit and Loss Account & Cash Flow Statement." This model also utilizes a color-coding scheme where sky blue represents Income (i.e., "The Sky is the limit"), orange represents Expenses (i.e., "Proceed with caution"), green represents Capital (i.e., "The Garden where I grow things"), red represents Debt (i.e., "Danger, use with extreme caution") and dark blue represents Equity (i.e., "Accumulated wealth").

Accounting students come to the intermediate accounting courses with all combinations of the four sensory modalities - Visual, Aural/ Auditory, Read/write, and Kinesthetic (VARK). The TEA3 is aimed at those students whose stand out mode is visual.

PROJECT DESIGN

History

Since 2008, the TEA3 has progressed through three versions. The original black and white version (Figure 4), entitled the Accounting Table of Elements, consists of two rows of t-accounts for the assets, liabilities and equity elements and their contra elements (faded text) on the balance sheet and two columns of t-accounts for the changes in equity of owner's activities, income statement and other comprehensive income. The only grouped elements are the income statement accounts that are periodically closed to the retained earnings account. Subsequent revisions incorporate the use of colors, a key and net versus gross flow labels. Blue is used to highlight the element symbols and where they appear in the element names. Green and red are used on the up and down arrows to indicate which side of the t-account, debit or credit, increased or decreased the element. Also, the key is expanded to provide additional details about other comprehensive income items.

In version 2 (Figure 5), the name was changed to Table of Elements for Accounting. The table was also pivoted to better indicate the passage of time from left to right for the performance (period-of-time) elements. A

second statement of financial position (i.e., status elements) was added. The table now contains two statements of financial position, one beginning and one ending, to show how the period-of-time elements constitute the changes between them. Groupings, in the form of surrounding rectangles, were added to separate the operating and nonoperating items of net income/loss (i.e., earnings).

At the bottom of the table, a section was added with horizontal spans to indicate the names and aliases of the various financial statements and the elements contained within them.

In version 3 (Figure 6), element design is changed from t-accounts to color-coded element boxes with a green or red debit or credit symbols to replace the up or down red or green arrows. The element symbols are revised to unique pairs of letters. The border of the element box is either solid-lined or dotted-lined to indicate a positive or negative impact of the element. Numbers for the rows and columns are added to provide coordinates for help in making reference to an element.

Additional groupings are added using color-coded rectangles. Solid-lined rectangles group the assets (green - rgb#008000), liabilities (red - rgb#ff0000) and equity (gold - rgb#ffd700). Dotted-lined rectangles group the equity changes of all equity, (gold - rgb#ffd700), owner activities (red - rgb#ff0000), comprehensive income (orange - rgb#ffa500), net income (green - rgb#008000) and other comprehensive income items (blue - rgb#0000ff).

Color-coding is added to the financial statement spans in the section at the bottom of the table and matched to the corresponding terminology spans above the elements.

And, lastly, the Key (top-center) is modified to explain the changes in TEA3.

Structure

The current version of the TEA3 is a table of six rows and seven columns. The six rows include the three elements of the statement of financial position and their contra account counterparts. Even though contra accounts are considered "valuation accounts" (i.e., reductions of the related asset or liability) and are part of the related asset (or liability) and not assets (or liabilities) in their own right (FASB, 1980), a symbol is included in the TEA3 to represent their role in the preparation of financial statements. The seven columns include the status elements for the statement of financial position at the beginning and ending points in time and the performance elements that contain the ten possible changes in equity during the period. Row five of the performance elements represent the increases in equity during the period, while row six represent the decreases.

Each element box contains a solid-lined or dotted-lined border, a background color, two debit and credit indicators, the element symbol and the element name. An element with a solid-lined border has a positive effect on its group, while an element with a dotted-lined border has a negative effect on its group. The background color indicates the group in which it is included.

The elements in the table are positioned into several groups. The status elements include groups for Assets (green - rgb#008000), Liabilities (red - rgb#ff0000), and Equity (gold - rgb#ffd700) for both the beginning and ending points in time. The performance elements include groups for Owner Activities (lightest yellow - rgb#fffc99) and Comprehensive Income (lighter yellow - rgb#fffb66). Comprehensive Income contains subgroups for Net Income and Other Comprehensive Income Items. Net Income contains further subgroups for Operating Items (yellow - rgb#fff900) and Nonoperating Items (light yellow - rgb#fffa33). The performance groups are labeled above the elements with the use of downward angled and color-coded lines. The financial statements upon which the elements appear (Statement of Net Income, Statement of Other

Comprehensive Income, Combined Statement of Comprehensive Income, Statement of Stockholders' Equity, Statements of Financial Position) are labeled beneath the table with the use of upward angled and color-coded lines.

The two debit and credit indicators are used to show the effect of debits and credits on the element. A combination of a green debit and a red credit is used for normal debit balance accounts. A combination of a red debit and a green credit is used for normal credit balance accounts.

The element symbol consists of a two letter combination with first letter in upper case and the second letter in lower case. The second letter is used to further clarify the elements position in the table (Ab represents the asset symbol in the beginning status elements group and Ae represents the asset symbol in the ending status elements group.) Parentheses around the symbol are used to indicate groups with contra balance accounts. The name of the element is spelled out underneath the element symbol.

TEACHING METHOD

The TEA3 is intended for use in the first intermediate accounting course, an undergraduate accounting theory course or a graduate-level financial accounting course. This would include undergraduate accounting majors for certain and probably both undergraduate finance majors and MBA students. The TEA3 would be introduced to students after covering the chapter on the conceptual framework that includes the elements of the financial statements, the accounting information system and the basic financial statements (usually within the first five chapters of most intermediate accounting textbooks). The TEA3 would be introduced to students by distributing an in-class blank handout and completing it piece by piece. A portable document file (PDF) file where each page shows step by step the changes in the model. This file would be created from a sequence of worksheets created in MS Excel.

USES

The TEA3 can be used as tool by students in the intermediate accounting courses as a framework for analyzing accounting transactions and events to determine their effect on the various elements and various intermediate components of the financial statements. The arrangement of the elements is intended to give students a big-picture view of how these elements are organized and interrelate.

LIMITATIONS

It is difficult to include statement of cash flows into the TEA3 until standard setting bodies define additional elements of financial statements for statement of cash flows. The FASB in its discussion of other possible elements of financial statements (FASB,1985), describes the elements of "a statement showing funds flows or cash flows during a period". But, the board defers inclusion of cash flow elements by stating, "Other projects may define additional elements of financial statements as needed." The IASB (IASB, 2013) has stated that "It may be helpful for the Conceptual Framework to define elements for each primary financial statement." In its basis for conclusion (IASB, 2015) regarding the inclusion of other possible elements, the board "concluded that the disadvantages of defining elements for the statement of changes in equity and the statement of cash flows outweigh the advantages and, hence, proposes no such definitions".

FUTURE VERSIONS

In a future version, it might help demonstrate to students how transactions affect each element by shifting the performance elements down to rows seven and eight. Also, detailed listing of accounts that are included in each element is planned to aid students to better understand each element. Lastly, elements for the statement of cash flows may be proposed by the author to incorporate the fourth of the basic financial statements

into the TEA3. Such elements would be placed at the top of the table and might simply be titled operating cash flows, investing cash flows and financing cash flows with variations for inflows and outflows.

Additional Materials

Supporting tables, figures, and sources are available from the author upon request.

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Employing Project Management Software as a Learning Tool in the Business Classroom

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Introduction

At St. Bonaventure University, the Management Department is responsible for teaching the undergraduate and graduate capstone strategy courses for the School of Business. The capstones are interdisciplinary courses requiring students to bring together all their learning from management, marketing, finance, economics, accounting, statistics, law, ethics and the liberal arts core.

The courses are case-based and students are grouped by various majors to facilitate heterogeneous expertise and interdependency of group members. Also, students present case analyses to help them develop presentation skills. This is a typical curriculum model that exists across

peer institutions nationally. At SBU however, most students in the MBA program, are millennials as many decide to stay a fifth year to complete their masters. Students enjoy real life cases and working together, so much so that if pedagogy does not focus on that, they seem to do it on their own.

A committee of faculty and graduate assistants in the Management Department have implemented new teaching strategies to better meet the needs of millennials in the business capstones. An overriding goal was to strengthen strategies for AACSB assessment criteria.

The committee identified these questions for the capstone pedagogical strategy development:

1. How do we get millennials more engaged?
2. How do we get millennials to more proactively plan and organize capstone projects?
3. How do we invite millennials to read, care about and apply the news?

For each question, strategies and technologies were identified and piloted during the fall 2015 semester.

STRATEGIES FOR TEACHING MILLENNIALS IN THE CLASSROOM

As the world changes and technology begins to develop, people are becoming more ingrained and connected than ever before. The advances in technology have begun to change the way people live their lives on a daily basis. Technology now allows a person in the United States to communicate with someone who is half way across the world very easily. With technology making the lives of everyone easier, a significant problem that has arisen is how to teach to students or millennials. Millennials are individuals who have reached young adulthood by the year 2000. Various forms of technology, including computers, smartphones, tablets, and

other technological devices, are available to millennials. These students have grown up in an age where technology has become an everyday part of their lives, resulting in new methods and strategies to teach these students. Professors and teachers at different academic levels have found it a struggle to teach millennials because their brains are wired differently. Millennials experiences contrast greatly compared to adults who are 35 years and older where technology is just an "add-on" to life (Nikirk, 2012, p. 41). This contrast has resulted in new strategies being developed to help teachers and professors get millennials engaged and advance their learning in the classroom.

One way of getting millennials interested in the topic that the professor or teacher is instructing is to use graphs, videos, and charts in their instruction. Research shows that tech savvy millennials feel more comfortable about interpreting charts, graphs, graphics, and videos (Nikirk, 2012, p. 41). Professors and teachers should start off with either a chart, diagram, or video when they first start their lesson because millennials will be able to relate and feel more engaged with the lesson. Another important strategy is to begin with the end in mind and to inform millennial students of what the result of the lesson should be when they are done for the day. Millennial students have a tendency to lose focus and forget the main concept of the lesson. By making the goal of the lesson clear at the beginning, it will allow the students to see the direction the lesson is going (Nikirk, M., 2012, p. 42). The SBU Committee wanted to use pedagogy and technologies that would create a productive learning environment for the millennials.

Flipped Classroom

After an "All Bonaventure Reads" and in-service presentations on using the "Flipped Classroom", the Management Department began using suggested strategies to engage millennials.

Flipped Learning is a pedagogical approach in which direct instruction moves

from the group learning space to the individual learning space, and the resulting

group space is transformed into a dynamic, interactive learning environment

where the educator guides students as they apply concepts and engage creatively

in the subject matter. (Flipped Learning Network, 2014)

The Four Pillars of F-L-I-P

Curriculum development was based on the four pillars including:

1. Flexible Environment – millennials like spaces that can allow them to work in various group sizes, facing each other and being able to see the instructor and teaching technologies.
2. Learning Culture – based on student-centered discovery focused rather than professor lecturing pedagogy.
3. Intentional Content – faculty design content goals and strategies and adjust as necessary.
4. Professional Educator – while they may be less visible and not the center of attention, faculty reflect on student learning successes and challenges and are very engaged while teaching students in real time as students complete learning activities. (Flipped Learning Network, 2014)

The first pillar was easy to implement as students worked on this analysis in the new, state-of-the-art Swan Business Center, which includes classrooms with movable tables and chairs so students got into groups facing each other for their work. The other pillars were addressed by selecting an attractive (craft beer) industry to study and by using innovative technologies to help students work together more productively.

Craft Beer Industry

Students in the capstone courses are of legal drinking age and many enjoy gathering at a nearby craft brewery and restaurant, which is toured as part of the capstone courses. Students have enjoyed studying the industry and especially applying Michael Porter's generic strategies to the overall beer industry including the craft beer segment. The Committee decided to use the beer industry for the pilot study.

PROJECT MANAGEMENT SAVY

The Committee reviewed tools that students could use to help them collaborate more effectively on project management. Software was evaluated based on its ability to help students work in groups, set goals, break tasks into sub-tasks, organize information and hold each other accountable. Trello (free) software was selected and implemented. An example of a Trello screen showing various teamwork on a PESTEL analysis (described in detail on page 6) is included in Figure 1.

"Trello is the free, flexible, and visual way to organize anything with anyone. Drop the lengthy email threads, out-of-date spreadsheets, no-longer-so-sticky notes, and clunky software for managing your projects. Trello lets you see everything about your project in a single glance." (Trello.com)

MILLENNIAL GENERATION NEWS SAVY

Millennials are often times criticized for not reading the news. The chart below depicts present research conducted by the Associated Press-NORC Center for Public Affairs Research found that was not necessarily the case as can be depicted from this chart:

While it is clear from this research that millennials are reading the news, what is unclear is how well they are understanding and applying the business news in classes and the world. Therefore a small group

activity was planned for students to research the news using Trello as a way to organize their work.

Trello was used to facilitate an activity known as PESTEL. PESTEL is a tool that is used for business analysis to help companies determine external factors that can affect their operations. This tool analyzes the political, environmental, social, technological, economic and legal factors in an industry. In groups, students were asked to perform a PESTEL analysis on the craft brewing industry using Trello. Students discussed best news sources such as the *Wall Street Journal* and beer industry association websites. Each student found articles on the various aspects of the six different PESTEL factors that can have an effect on craft brewing. Trello enabled the students to work together online in one place and review other students' findings and summarize their research. The activity also served the purpose to encouraging students to gather information quickly and efficiently on one platform, and from that find the information that is most relevant to the industry. One of the ground rules was that students had to find and post new articles so students were very attentive to reading those that were posted. A sample checklist included in Trello is included in Figure 2.

Results

50 students participated in the first pilot in two sections during the fall 2015 semester. During the last class students got into groups and provided information on the success of using Trello for the PESTEL activity and they made suggestions to improve the activity. Additionally they all completed class evaluations independently.

Many students found Trello useful for work groups as an organizational platform that encouraged communication between members. Trello enabled the students to collaborate on the PESTEL activity while continually seeing the progress they have made and tasks that have been accomplished. Because they were not to duplicate articles, they stayed

on task and paid attention to the work done by others. All information is localized onto one database, which helped students to complete tasks more efficiently and to easily refer to previous work.

While Trello proved to be very successful in the classroom setting, students recommended future changes that should be considered. Some groups found that consistently adding boards to a task created confusion if not communicated properly. Currently, completed tasks cannot be deleted from boards, they can only be archived. Students concluded that it would be useful to remove any unnecessary cards or lists from their boards that can potentially create confusion and chaos. Future research will include class evaluations and comparison of exam scores with previous classes and those not involved in the pilot curriculum.

Conclusion

Working with millennial students presents challenges and opportunities. At St. Bonaventure University, a pilot study of business capstone courses consisted of creating strategies for a flipped, more interactive classroom environment. Using TRELLO, a free project management software, and other technologies for students to work collaboratively, they create a PESTEL analysis for the popular craft beer industry. Students found the strategy effective to help them work together, capture and share news and summarize findings. They reported minor technology issues, which can be minimized in future initiatives.

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Web Appendix

A web appendix for this paper is available at:

http://www.businessresearchconsortium.org/pro/brcpro2016p20.pdf

Auditor Concentration: Impact of Second-Tier Auditors

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Abstract

Policy makers and regulators are interested in increasing auditor choice. A common problem faced by large firms is that one auditor is for external audit, a second for internal audit, a third for tax, a fourth for consulting (Cox, 2005; GAO, 2008, p. 22). A possible option for alleviating this auditor choice problem is to have the second-tier auditors as an acceptable alternative to the Big 4. The second-tier auditors include BDO, Grant Thorton, Crowe, and McGladrey. According to a 2003 U.S. General Accounting Office (GAO, 2003) survey of large public firms, the major consideration in auditor choice is audit quality. We examine audit quality of each of the second-tier auditors to determine if auditor choice is being increased while maintaining audit quality. We use two

common measures of audit quality, earnings response coefficient and abnormal accrual, during the 2000 to 2010 period. We find no statistical difference in audit quality between any one second-tier auditor and the remainder of the second-tier auditors. The results should be comforting to policy makers and regulators, who are interested in increasing auditor choice.

Keywords: auditor concentration, second-tier auditors, auditor choice

Data Availability: Data used in this study are available from public sources.

Auditor Concentration: Impact of Second-Tier Auditors

The strength of the second-tier auditors is important to the audit industry since it alleviates auditor concentration and increases auditor choice. High auditor concentration, a small number of firms such as the Big 4 having majority audit market share, is a concern to regulators since it reduces competition. Competition in the audit market influences audit fees and auditor choice. Since audits are required and regulated but the audit fees are not, regulators are interested in reducing auditor concentration. One effective way of reducing auditor concentration is to increase the market share of non-Big 4 auditors. The firms closest to the Big 4 in terms of size include BDO, Grant Thornton, Crowe, and McGladery. These firms have been identified by regulators as alternatives to the Big 4. These four firms are commonly referred to as the second-tier or medium size auditors. The Government Accountability Office (GAO) published a report that examined the concentration in audit market since the demise of Arthur Andersen, from 2002 to 2006 (GAO-08-163, 2008). The purpose of our paper is to extend the period of evaluation for another four years and offer explanation for why the trend found and expected to continue instead stagnated since 2007.

From the period 2002 to 2006, it appeared that the second-tier auditors were making progress in increasing market share for larger clients

(GAO, 2008). However, several key events have occurred that warrant our examination of the trend that GAO (2008) found. Factors that have influenced auditor choice since 2002 include, demise of Arthur Andersen, passage of Sarbanes-Oxley Act of 2002 (SOX), effective date of SOX Section 404 which resulted in audit capacity constraints of Big 4 and movement of clients to second-tier, expiration of non-compete agreements by 2007 for advisory arms that were sold for three of the four Big 4, the financial crisis of 2008, the growth and influence of the Public Company Accounting Oversight Board (PCAOB), public firms going private, and other economic factors. It is also important to note that the PCAOB is continuing to evaluate mandatory auditor rotation which will also influence auditor choice especially since auditors are hired for tax and advisory work. Several changes in the industry have impacted auditor choice decisions and justified our continued examination of auditor concentration.

Auditor concentration, the number of auditors available to conduct a public audit, influences auditor choice. As auditor concentration decreases, clients will have more auditors to choose from. Since SOX limits the amount of advisory work that the primary auditor can do, clients generally have a different public accounting firm for audit, another for tax, and yet another for advisory. Thus, for a large client, there is no choice when choosing a new auditor. Having a choice of auditors outside the Big 4 will help clients dealing with constrained auditor choice.

Auditor choice will increase as the number of substitute auditors' increase which also translates to a reduction in auditor concentration. In the GAO (2008) report, the GAO noted that auditor concentration was decreasing in certain revenue size clients such as those below $500 million; however, growth for publicly traded audit clients for the second-tier auditors was constrained for several reasons. The following reasons were noted: name recognition and reputation need for large clients, lack adequate staff and geographic coverage to audit large public companies, resources needed to develop technical capability, and lack some industry specialization. However, they also noted that some of the non-Big 4

firms were not interested in serving as auditor for additional large public companies. Reasons cited for this include beneficial additional revenue from non-audit services and possibility of being sued is a disincentive because of the failure of one large client could jeopardize the audit firm. Since SOX prohibits auditors from providing non-audit services if they are the primary auditor, non-Big 4 firms have steadily moved into this area.

Thus, we examine auditor concentration since 2002, in order to contribute to our understanding of the strength and ability of the second-tier auditors. We use two data sources, Public Accounting Report and Audit Analytics. From the annual survey data of the top 100 accounting firms in the United States as published by Public Accounting Report, we examine changes in second-tier revenue from 2002 to 2012. From Audit Analytics, we obtain auditor client data. To be consistent with the GAO (2008) report, our charts and tables are for every four years, 2002 to 2006 to 2010; however, our analysis includes 2012, the most recent year of data available at the time of this publication. Our data sources are consistent with GAO (2008); however, please note that auditor client data becomes more complete as time passes due to late filings, restatements and other reasons.

Due to size and resources available to the second-tier auditors, we recognize that client size may influence some of their client choices. Thus, we first segregate the data by client size. We define client size/category by the following four client revenue levels: <$100 million, $100 to $500 million, >$500 million to $1 billion, and >$1 billion. For each client category, we examine the change in market share for the second-tier in total and individually, the change in auditor concentration, and the trends in each client category from 2002 to 2012. We delve further into the analysis by examining the industries that the second-tier focus on and have successfully increased auditor choice.

Client Category by Revenue Size

<$100 million

Clients with revenue below $100 million require resources that most of the small, second-tier, and Big 4 auditors have; therefore, competition should be the greatest in this revenue group. Market share in this client category has transformed the most since SOX, gains for small auditors and losses for the Big 4. The small auditor's market share has increased significantly from approximately 42 percent in 2002 to 60 percent in 2006 and holding steady at 61 percent by 2010. We also examined recent market share data to evaluate trends for 2011 and 2012 but did not include in our charts since databases are generally not complete for recent years due to late filings and other constraints. However, we felt the information was valuable to provide a sense of general trends. By 2012, the small auditors market share of the <$100 million revenue clients had increased to approximately 68 percent. For the second-tier auditors, the market share in this category did not change significantly. It was approximately 10 percent in 2002, 11 percent in 2006, 12 percent in 2010 and 10 percent in 2012. For the Big 4, the market share has decreased significantly. Big 4 market share was approximately 47 percent in 2002, 29 percent in 2006, 27 percent in 2010 and 21 percent in 2012. Overall, for the smaller sized publicly traded clients, it appears that a significant market share has shifted for the Big 4 and the small auditors, while the second-tier has maintained a steady state.

A traditional method of measuring auditor concentration is the Herfindahl-Hirschman Index (HHI). The U.S. Department of Justice uses this measure to prevent enhanced market power in a merger. The HHI is calculated by squaring the market share of each firm competing in the market and then summing the resulting numbers. HHIs are categorized in the following manner: HHI below 1000 is unconcentrated, HHI above 1000 to 1800 is moderately concentrated, and HHI above 1800 is highly concentrated. Even though DOJ redefined the HHI scale in late 2010, we maintain the prior definition since it is consistent with our data

period. In the <$100 million client category, the auditor concentration moves from moderately concentrated in 2002 to unconcentrated in 2006 and continues to remain in the unconcentrated category in 2010 and to 2012. Thus, it appears the shift in clients from the Big 4 to several small auditors has changed the auditor concentration in this client category, creating a more competitive market.

We also examined each of the second-tier auditors to determine if individually there was any change in this client category. From 2002 to 20012, market share for each of the second-tier remained consistent. Grant Thorton was approximately 4 percent, BDO was 3 percent, Crowe was 2 percent in 2002, and McGladrey was 2 percent.

Although the market share remained consistent for the second-tier, the portfolio of clients changed. Specifically, Grant Thornton increased the number of clients in one industry (Professional, Scientific, and Technical Services) while decreasing the number of clients in three industries (Finance and Insurance, Manufacturing , and Wholesale Trade). For BDO, there was also a decrease in the number of clients in Manufacturing and Wholesale trade but instability in Finance and Insurance as well as Professional, Scientific, and Technical Services. For Crowe, there is a noticeable decrease in the Finance and Insurance industry. For McGladrey, there is an increase in manufacturing clients but a decrease in Finance and Insurance clients. Overall for the <$100 million client category, the second-tier auditors are decreasing the number of Finance and Insurance clients and increasing clients in other industries.

Overall, we conclude that market share has not changed significantly for the second-tier firms in the <$100 million revenue clients; however, auditor concentration has decreased since small auditors are effectively competing in this market. In about ten years, the Big 4 market share has decreased from approximately 50 to 25 percent.

$100 to $500 million

The $100 to $500 million client revenue category has also experienced significant market share shift as in the <$100 million client category but in different ways. For small auditors, market share has increased from approximately 2 percent in 2002 to 11 percent in 2006 to 13 percent in 2010 and continue to increase to 14 percent in 2011 and 17 percent in 2012. For the second-tier auditors, market share increased from approximately 6 percent in 2002 to 16 percent in 2006 to 18 percent in 2010 and continue to increase to 18 percent in 2011 and 20 percent in 2012. For the Big 4, market share has decreased from approximately 92 percent in 2002 to 73 percent in 2006 to 69 percent in 2010, and continues to decrease to 66 percent in 2011 and 62 percent in 2012.

The HHI for this client category has shifted to reflect the change in market share. HHI in 2002 was highly concentrated and decreased to moderately concentrated in 2006 and continues to remain in the upper range of moderately concentrated in 2010 to 2012. Therefore, in the past ten years, the number of auditors available to clients in this category has increased.

The market share for each of the second-tier members also changes during this time period. Grant Thornton's market share steadily increased from approximately 2 percent in 2002, to 7 percent in 2006, to 8 percent in 2010, to 8 percent in 2011 and to 11 percent in 2012. BDO market share was approximately 2 percent in 2002, 4 percent in 2006, and remaining steady at 5 percent in 2010, 2011 and 2012. Crowe market share was approximately less than 1 percent in 2002, 1 percent in 2006, 2 percent in 2010, 2 percent in 2011 and 3 percent in 2012. McGladery's market share remained constant at approximately 1 percent from 2002 to 2012. In this client category, GT and BDO are having more success in gaining market share while there is little growth for Crowe and McGladery in this client category.

Market share increased for all of the second-tier auditors in various industries with no significant decreases in any industry. Specifically, Grant

Thornton increased the number of clients in six industries (Accommodation and Food Services, Professional, Scientific, and Technical Services, Finance and Insurance, Information, Manufacturing, and Mining, Quarrying, and Oil and Gas Extraction. For BDO, there was also an increase in the number of clients in five industries (Accommodation and Food Services, Professional, Scientific, and Technical Services, Finance and Insurance, Information, and Manufacturing). For Crowe, there is an increase in the number of clients in the Finance and Insurance industry. For McGladrey, there is an increase in the number of clients in three industries (Professional, Scientific, and Technical Services, Finance and Insurance, and Manufacturing. Overall for the $100 to $500 million client category, the second-tier auditors are increasing the number of clients in several industries; however, GT and BDO have increased their client base in this category more aggressively than Crowe and McGladrey.

The $100 million to $500 million revenue client category also experienced change but in different ways than the <$100 million client category. The Big 4 lost market share in this client category to both the second-tier and small auditors; however, the larger gain in market share was for the second-tier auditors, especially Grant Thornton. The Big 4 market share started higher than the first client category and was above 90 percent in 2002 but decreased to less than 70 percent ten years later. Auditor choice in this client category also changed as demonstrated by the decrease in HHI from 2002 to 2012; concentration decreased from highly concentrated to moderately concentrated.

>$500 million to $1 billion

Clients with revenue greater than $500 million to $1 billion experienced some changes since SOX. Clients of this size appear to be slowly, very slowly, moving to the non-Big 4. The small auditor's market share was less than 1 percent in 2002, less than 1 percent in 2006, 3 percent in 2010, 4 percent in 2011 and 6 percent in 2012. Second-tier auditor's market share was approximately 2 percent in 2002, 6 percent in 2006, 6 percent in 2010, 9 percent in 2011 and 7 percent in 2012. Big 4 market share

was approximately 97 percent in 2002, 93 percent in 2006, 91 percent in 2010, 86 percent for both 2011 and 2012. From 2002 to 2012 in this client category, the Big 4 has lost approximately 10 percent market share, about evenly to the small auditors and the second-tier auditors.

The HHI for clients with revenue greater than $500 million to $1 billon, the choice of auditors is limited but improving. This client category remains at the highly concentrated classification, the maximum classification; however, the HHI number has decreased steadily from approximately 2400 to 2100.

Market share within the second-tier has changed, especially for Grant Thornton. Grant Thornton market share was approximately 1 percent in 2002, 3 percent in 2006, 3 percent in 2010, 5 percent in 2011 and 2012. BDO market share has slowly increased from approximately 1 percent to 2 percent. Crowe and McGladrey have had market share of less than one percent for most of the 2002 to 2012 time period.

Industry share by each of the second-tier. GT had a modest entry in a few of the industries for clients of this revenue size, and had the most success with Manufacturing clients. It was a similar story for BDO. Crowe and McGladrey had a modest client or two growth in some industries with clients of this size. At the >$500 million to $1 billion client revenue range, the Manufacturing industry proved to be the most successful for the second-tier to penetrate.

Overall effect of the second-tier in this category. The non-Big 4 have been successful in obtaining 10 percent of the greater than $500 million to $1 billion client category from the Big 4 from 2002 to 2012. Approximately half of that market share is with the small auditors and the remainder with the second-tier auditors. Within the second-tier auditors, Grant Thornton gained most of the market share followed by BDO but with little change for both Crowe and McGladrey. Auditor choice for this size client is still difficult but slowly improving.

>$1 billion

Market share in the client category of client revenue greater than $1 billion has remained relatively static from 2002 to 2012. Small auditors market share has remained at less than one percent. Second-tier auditors have had modest growth in this client category from less than one percent in 2002 to 1 percent in 2006 to 2 percent in 2010, and remaining steady at 2 percent for 2011 and 2012. Big 4 market share was 99 percent in 2002, 98 percent in 2006, 98 percent in 2011 and 96 percent in 2012.

Auditor choice for clients where revenue exceeds $1 billion dollars experience the most difficulty when faced with auditor choice. This is reflected in the highest HHI score for this client category where the concentration level is classified as highly concentrated.

Market share within the second-tier has shifted little. Grant Thornton has steadily increased from less than one percent market share in 2002 to one percent in 2012 as has BDO. However, both Crowe and McGladrey have less than one percent for this category.

Industry share by each of the second-tier. With the largest size clients, the second-tier are in very few industries; however, GT and BDO have had some success while Crowe and McGladrey have very few clients in this category. Although GT and BDO have one to two clients in a few industries, GT experienced the most success in the Mining, Quarrying and Oil and Gas Extraction industry, while BDO succeeded in increasing client base in the Retail Trade industry.

Overall effect of the second tier in this category. Client auditor choice is constrained to the Big 4 when a clients revenue exceeds $1 billion. Over 96 percent of the market is controlled by the Big 4 while Grant Thorton and BDO have had limited success in penetrating this market. Factors that influence the highly concentrated include expertise, international access, staff to man these engagements, and others found in the 2008 GAO survey probably still hold true.

Summary and Conclusion of our findings

In our examination of auditor market share and auditor concentration, we find that the change in auditor market share differs by client size, specifically four client categories by client revenue. When clients are smaller, in terms of client revenues, non-Big 4 auditors have been successful in gaining market share. The small auditors have been more successful with the two smaller client categories, while the second-tier auditors have been more successful with the middle two categories. However, there is a difference within the second-tier. Grant Thornton and BDO participate more actively in the higher revenue categories then do either Crowe or McGladrey.

Auditor concentration has steadily improved for small clients but that improvement drastically decreases for larger clients. Previously of the four client categories, one was moderately concentrated while the other three were highly concentrated. In recent years, the smaller client category is now unconcentrated, the next size is moderately concentrated, and the next size is still highly concentrated but the HHI has been decreasingly steadily. However, concentration in the last client category is still highly concentrated with little change over the period of our study.

Web Appendix

A web appendix for this paper is available at:

Is Google Worth It? A Comparison of Google Search Versus Facebook in Prospecting

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Abstract

The marketing literature distinguishes between goal-directed and exploratory mindsets regarding uses and gratifications of social media. This paper posits that although Google Adwords focuses on goal-directed and Facebook advertising leverages an exploratory mindset in driving advertising response, digital convergence—the strategic use of social logins and the ubiquitous embedding of social plugins across website assets and social networks—increases the potential of social media for goal-directed prospecting. This possibility is tested in a real-world field advertising experiment using Google Adwords and Facebook.

Introduction

The distinction between goal-directed and exploratory mindsets is well established in the literature (Hoffman and Novak, 1996; Dholakia and Bagozzi, 2001; Richardson, 2006;2007). According to this conceptualization, highly involved and motivated consumers will actively search for advertising cues in the marketplace to solve pressing issues regarding purchase. Google Adwords is a form of advertising that appeals to this type of consumer mindset because it relies on small text ads that appear based on visitor search. The advertiser creates campaigns by strategically matching keywords with headlines and descriptions that will appear based on keywords entered into the search box by consumers.

Facebook advertising, on the other hand, is more suited for consumers engaged in an exploratory mindset because such advertising typically appears in Facebook newsfeeds or Facebook webpages or posts. Facebook advertising generally relies on images; text is restricted to encompass no more than 20% of image space. Advertisers develop campaigns using demographic and psychographic profiles.

The distinction between various forms of digital media are blurring. For example, Facebook now offers a variety of campaigns for more goal-directed behaviors such as for events and promotions. Google now incorporates social advertising in its AdWords campaigns whereby social influence is leveraged with AdWords. This technique was pioneered by Facebook (Tucker, 2012).

Corporations are also leveraging and embedding social media within and across their web and mobile assets. For example, Facebook and Twitter feeds are often embedded on the home page of websites. Many companies also encourage social logins whereby consumers use Facebook or other social media credentials to login to corporate websites. Gmail accounts from Google and also growing in importance as a social login. Google also actively promotes remarketing campaigns whereby text or

image ads are distributed according to what websites consumers visit (Richardson et al., 2016)

In short, advertisers may increasingly use either Google or Facebook to reach consumer prospects in a goal-directed or exploratory mindset because of digital convergence. This paper provides an exploratory test of how Google and Facebook compare in a prospecting campaign to develop a list of potential purchasers of a product.

Method

The authors conducted a consulting project with a publisher of technical research. The publisher wished to develop leads for a new research report that dealt with military issues in East Asia. The authors created several AdWords campaigns based on relevant keywords and directed clicks to a dedicated landing page at which prospects completed a form to download a sample of the report. Concurrently, the authors created relevant image ads at Facebook and targeted the ads towards Facebook profiles that best fit the research report.

Upon building these campaigns, the authors noted that whereas Google offered a high cost-per-lead, low reach platform, Facebook offered a low cost-per-lead, high reach potential. However, what mattered to the publisher was the number of leads generated overall.

Results

Based on the experiment period, the Google campaign resulted in 227 visitors to the landing page and 19 conversions (form completions) for a conversion rate of 8.37%. The cost-per-lead was $47.79. The Facebook campaign resulted in 2442 visitors and 18 conversions for a conversion rate of .74%. The cost-per-lead was $43.07. Hence, the cost-per-lead for Google was 11% higher than that for Facebook.

Discussion and Limitations

This exploratory experiment suggests that Facebook can be used to generate leads and that the cost-per-lead is less than that offered by Google. However, this study could not measure lead quality—one would guess that the lead quality of Google is better given the goal-directed motivational state, which may explain the price premium. However, if there is a branding effect of the landing page that the publisher regards as valuable, the fact that Facebook attracted ten times the number of visitors may be a consideration when allocating budgets in the future.

This study could not address media effects systematically such as the quality of the AdWords or Facebook campaigns. However, one the authors has much experience creating large-scale campaigns of this nature and it can be said that there was not bias in the quality of the campaigns between the two mediums: both campaigns were executed according to best practices as recommended by the mediums.

Is Google worth it? The answer to this is question depends upon the value of the branding of the landing page in the absence of conversion and the quality of the qualified prospect. This study suggests that, in some cases, social media such as Facebook may provide a lower cost-per-lead and better value overall especially when branding effects of the landing page are important.

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Abstract

This case allows accounting students to analyze an accountant's ethical responsibilities. A former client of Starbridge Associates, LLP is running for Congress and has published his tax returns from the past five years. Starbridge was his tax return preparer for some of these years, but the published returns do not agree with the returns that Starbridge prepared and filed electronically. They appear to have been scrubbed of anything that might be politically damaging. Income from Cayman Islands accounts is shown on the published returns as interest on U. S. Treasury Bonds. Gambling income has been recast as honoraria, and the itemized deduction for gambling losses has been replaced by a deduction for charitable contributions. Students are asked to determine what the accountants must and what they may do in this situation.