

# *International Journal of* **Business, Accounting, and Finance**

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## PREFACE

It is our pleasure to present the *International Journal of Business, Accounting, and Finance (IJBAF)*, Volume 13, Number 1, Spring 2019. *The International Journal of Business, Accounting, and Finance (IJBAF)* is an affiliate of *The International Academy of Business and Public Administration Disciplines*. The purpose of this Academy is to support and encourage teaching, research, and the advancement and exchange of knowledge throughout the world. The *IJBAF* is one of the vehicles for achieving the objectives of this Academy.

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On behalf of *The International Academy of Business and Public Administration Disciplines*, we sincerely thank all of our reviewers for their invaluable assistance in reviewing these articles. We also express our sincere thanks to all authors who submitted their manuscripts for review.

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# **IMPACT OF INTERNAL CONTROL OVER FINANCIAL REPORTING UNDER THE SARBANES-OXLEY ACT ON A FIRM'S STOCK PRICE AND STOCK VOLATILITY**

**Morsheda Hassan**  
**Grambling State University**

**Raja Nassar**  
**Louisiana Tech University**

**Aaron Whitherspoon**  
**Grambling State University**

## ***ABSTRACT***

*This study examines the impact of the first filing of the annual financial report 10-K by public firms after the enactment of the Sarbanes-Oxley (SOX) Act in July 30, 2002 on the stock price and volatility. Form 10-K is an annual report required by the Securities and Exchange Commission (SEC) of public firms after the enactment of the Sarbanes-Oxley Act. It is a comprehensive report on a firm's financial performance with reporting on management internal control and independent auditors' verification of the report. Companies encounter extra cost in meeting the new regulations in reporting and it is of interest to determine if in return there is an accrued benefit to the companies in terms of stock price and stability on the capital market. A random sample of 77 companies was chosen from the list of companies on the New York Stock Exchange (NYSE) that had filed the 10-K form and reported on internal control, with no material deficiencies, which was verified by an independent auditor.*

*Results of the statistical analysis indicated that there was no significant change in volatility between the two periods, before and after the first filing. A time series intervention analysis showed that in 8 companies there was a positive impact of first filing on price. On the other hand, the auto-regression analysis showed that first filing had a positive impact in 6 companies. One company showed a negative impact for both analyses. Based on these results, it seems that reporting on internal control had little effect on stock prices of the companies examined. Only 8-10 percent of the companies showed a positive effect of first filing. The rest of the companies did not show any effect.*

Keywords: Sarbanes-Oxley (SOX), 10-K filing, stock price, price volatility

## **INTRODUCTION**

The Sarbanes-Oxley (SOX) Act was enacted July 30, 2002. It was a reaction to major corporate and accounting scandals. Under the Act, the management of a public company must report on the internal control of its annual financial reporting. Under SOX, a public company is responsible for having an internal control system and for reporting on its effectiveness. Also, management is required to disclose any internal control deficiencies and material weakness. The Sarbanes-Oxley Act gave more independence to the outside auditors and required them to verify the accuracy of the corporate financial reports. SOX requirements are intended to provide transparency in reporting, help companies avoid mistakes in financial reporting, and prevent fraud. At the time it was enacted, Sox was criticized as being costly for public companies to

implement and that it would harm the stock market. At the same time, there was no clear indication of the benefits that may be accrued.

Companies encounter extra cost in meeting the new regulations in reporting and it is of interest to determine if there is compensation in accrued benefits in terms of an increase in stock price and stability. In this empirical study, we analyze a random sample of sound public companies on the New York Exchange in order to determine if there has been a change in stock prices and stock volatilities for these public companies after their first accounting disclosure as required by SOX. The use of first filing after SOX was motivated by the recent study by Gupta, Sami and Zhou (2018). The companies for this study were sound in the sense that management disclosed, in their annual 10-K financial report, effective internal control with no deficiencies or material weaknesses, which was verified by the independent auditors. We employ statistical and time series techniques to analyze the magnitude and direction of change in stock price and price volatility after the first filing of form 10-K with the Securities and Exchange Commission (SEC). Results of this study are of importance to public companies in that they shed light on the effect the SOX 2002 Act has on companies and investors in terms of market returns.

## LITERATURE REVIEW

Gupta et al. (2018) empirically investigated the market effect of management and auditor reporting on effective internal controls over financial reporting by publicly listed companies after the Sarbanes-Oxley Act (SOX). The authors conducted a cross-sectional regression analysis of companies 50 weeks before and after the first time disclosure of management report and audit report according to the Sarbanes-Oxley Act. Results indicated that after the management report on internal control, companies showed a decrease in bid-ask spread and market price volatility and an increase in trade volume. However, no such results were manifested after the report by auditors on the internal control of companies. Time series intervention analysis by company showed that 70% of the companies experienced a reduction in bid-ask spreads due to Section 302 of SOX. Only 30% had such reduction after the implementation of Section 404 of SOX. The conclusion is that reports by management and auditors on internal control would provide useful information for investors about the firm's future prospect which leads to favorable market reactions.

In an earlier study, Gupta and Nayar (2007) reported on the effect of internal control weakness disclosures (under the Sarbanes-Oxley Act) on the stock returns of 90 public companies. The authors used regression analysis on a sample of companies at a point in time when they first disclosed the internal control deficiency within the period November 2003 to July 2004. Results indicated that weakness in internal control disclosures had a negative effect on market price. This negative effect was mitigated if management specified steps that had been implemented in order to correct the deficiencies. Also, the negative effect was diminished for companies using the big-4 auditing firms as outside auditors. However, the negative effect on price was increased for companies with larger liability to asset ratios.

In a similar study Beneish, Billings and Hodder (2008) investigated the effect of weakness disclosure in internal control under Section 302 of the Sarbanes-Oxley Act on market returns and equity cost of capital in a sample of 330 firms. Using descriptive statistics and cross-sectional regression, the authors reported that weakness disclosures under Section 302 of SOX were associated with negative returns of -1.8% and with an increase in equity cost of capital of 88 basis points or 0.88%. On the other hand, Section 404 disclosure had no effect on stock prices.

or firm's cost of capital. Furthermore, auditor quality and early filing diminished the rate of negative returns.

Bartov and Faure (2016) investigated the effect of executive stock option exercise disclosures due to the Sarbanes-Oxley Act on stock returns. Using data over the period January 1, 1997 to October 1, 2011, (which is pre and post the SOX Act of August 2002) and regression analysis, the authors reported that executive disclosures had a negative effect on stock price and a positive effect on trade volume in the post-Sox period (where timely disclosure was required), but not the pre-SOX period, where timely disclosure was not required.

Brochet (2010) studied the effect of timely disclosure of insider sales under Section 403 of SOX on stock returns and trading volumes. Using regression analysis with stock return and volume around filing dates of insider trades as dependent variables, the author found that abnormal stock returns and trading volumes around filing dates of insider trades were significantly greater post-SOX than pre-SOX.

Burks (2011) investigated the effect of accounting restatement announcements after the Sarbanes Oxley Act on investors. At the time of the passage of SOX, concern has been raised by the Treasury Secretary and the Security and Exchange Commission that restatements can unnecessarily cause confusion on the part of the investor that may lead to a negative effect on stock price or trading volume. Using least square regression analysis, the author reported that stock price drift was less negative after SOX than before SOX. This indicated that price stability improved after SOX. Also, it was found that trading volume or share volume was not higher after SOX than before SOX. These results indicated that there was no confusion on the part of the investor because of the accounting restatements.

Hutton, Marcus, and Tehraian (2009) investigated the relationship between financial report transparency before and after the Sarbanes Oxley Act on stock returns. Earning management was used as a measure of transparency or lack of it (opacity). The authors reported that firms that are not transparent in their financial reports (or opaque firms) are more prone to stock price crashes. This relation dissipated after the Sarbanes Oxley Act, indicating more transparency and less earning management after SOX.

The Sarbanes Oxley Act (2002) has been criticized as being costly on firms and could lead to negative market consequences. Zhang (2007) examined stock prices after the passage of SOX and attributed the decline in stock prices as evidence of imposed costs on firms due to SOX. Engel et al. (2007) came to the same conclusion as Zhang by examining firms going private after SOX as a means of avoiding the cost imposed by SOX. Leuz (2007) discussing the findings by Zhang and Engel found no compelling evidence to attribute their findings to SOX and concluded that their results could be attributed to concurrent events and general market trends

Yongtae Kim and Park (2009) examined the impact of the disclosure of internal control deficiencies under the Sarbanes-Oxley Act on the stock market. Their results indicated that for firms with internal deficiency disclosure there was a negative relationship between stock returns and the standard deviation of daily stock returns. This implied that disclosure has the effect of reducing uncertainty in the market, which means a less negative impact on stock prices. Furthermore, this negative relationship is enhanced when internal control deficiency disclosure is voluntary and when financial reporting problems are somewhat known prior to disclosure.

Rezee et al. (2012) examined the impact of internal control filing according to the Sarbanes-Oxley Act section 404 on the stock price for three groups of firms: (a) firms with delayed filing, (b) firms with ineffective internal control, and (c) firms with effective internal

control. Their results based on a multiple regression analysis indicated that stock prices were more negative for group (a) firms than for group (b) firms and were positive for group (c) firms. The dependent variable in the multiple regression equation used for each group was the stock price or return on day  $t$  ( $t = 1, 2, 3 \dots T$ ), where  $T = 241$  days (120 days before and 120 days after the internal control filing). The independent variables were the average return on the Standard and Poor's 500 Index for all firms in a group and a dummy variable set equal to 1 for the three days relative to the filing (day before, day of filing and day after) and zero elsewhere.

Singer and You (2011) examined the impact of SOX Section 404 filing on earning reliability and relevance of public firms. Reliability was measured by the magnitude of absolute abnormal accruals. A reduction in magnitude implies improved reliability. Relevance was measured by how well future earnings and cash flows were predicted by current earnings. The authors reported that firms that were required to comply with Section 404 showed better earning reliability and relevance than the control group of firms which were not required to comply. These results were taken as evidence that Section 404 of SOX has helped investors by providing more accurate and reliable financial reporting.

Kalelkar and Nwaeze (2011) reported on the effect of SOX on investors' confidence by examining its effect on the "valuation weights of discretionary accruals in that this accrual component is viewed to be most vulnerable to manipulation and to be most affected by SOX". The authors reported an increase in the valuation weights after SOX. This was taken as an indication that investors perceived SOX as improving the quality and reliability of financial reporting and providing useful information and disclosures that benefited primarily the unsophisticated investors.

There has been limited studies on the effect of this new regulation concerning financial reporting on the public companies' benefits in terms of market returns and stability. Results are mixed. Furthermore, most of these studies employed regression techniques for time series data. Regression is known to give spurious results because of the autocorrelation encountered in time series data (Granger and Newbold, 1974). In this study, it is of interest to determine (using time series analysis) if there is an impact of internal control and accuracy in financial reporting after SOX on firms' stock prices and stock volatility.

## METHODOLOGY

### Sample and Data Collection

The daily stock price data for each public company before and after the first filing under the new SOX regulations were used. The public companies for this study were obtained as a random sample from the list of firms on the New York Stock Exchange (NYSE). The sample was initially 100 in size. Each of the firms in the sample was searched using Edgar on the Securities and Exchange Commission web site (sec.gov) for the first filing of form 10-K after the Sarbanes-Oxley Act of July 2002. Form 10-K is an annual report required by the Securities and Exchange Commission (SEC) of public firms after the enactment of the Sarbanes-Oxley Act. It is a comprehensive summary of a firm's financial performance with reporting on internal control and independent auditors.

From the 100 companies in the sample, 77 were retained as having a complete filing of the financial report 10-K with management reporting on internal controls and auditor's verification of its accuracy. None of these companies reported any internal control deficiency or

material weakness. Stock daily price data for each company was obtained from the CRSP database in the Wharton Research Data Services (WRDS). The period in days over which the data was gathered was from April 1, 2002 to the end of February 2004. The first reporting of form 10-K occurred for almost all companies in March of 2003. This divided the period approximately equally between pre-SOX and post-SOX first filing.

## Methods

The authors used time series methodology, which included the intervention analysis and the auto-regression analysis, to analyze the data for an effect of the first filing on the stock price. Additionally, we used the mean square errors in regression before and after the first filing in order to determine if there has been a change in this measure. The mean square error measures the variance due to fluctuations around a regression trend in price. It is viewed as the observed volatility in stock price. A paired sample t-test and two alternative nonparametric tests: the sign test and the Wilcoxon signed rank test, have been utilized to determine if the difference in mean squares error between before and after the first 10-K filing was significant.

## Intervention Model

Intervention analysis (Box and Tiao, 1975) is used to study the effect of an intervention on a time series response variable when the time (T) of the intervention is known. The intervention, in this case, is the first time filing date of the financial report 10-K after the signing into law on July 31, 2002 of the Sarbanes-Oxley Act and is entered into the model as a step function (0 before the first filing date and 1 at and after the date). If the response due to the impact is felt b periods after the intervention at time T, the impact of the intervention on the response variable can be specified in general as:

$$wB^b S_t^T, \quad (1)$$

where, B is the backshift operator and w is the impact coefficient and

$$S_t^T = \begin{cases} 0, & t < T \\ 1, & t \geq T. \end{cases}$$

However, if the response due to the impact is gradual, the impact can be specified as:

$$(wB^b / (1-\delta)) S_t^T \quad (2)$$

Where  $\delta$  is between 0 and 1 (Wei, 2006).

The intervention model can be written as

$$y_t = x_t + wB^b S_t^T \quad \text{or} \quad y_t = x_t + (wB^b / (1-\delta)) S_t^T \quad (3)$$

where  $y_t$  is the observed series and  $x_t$  is the series before the intervention.

## Auto-regression Model

Auto-regression is used for time series data where the errors are auto-correlated. The auto-regression model employed takes the form:

$$y_t = a + b_1 t + b_2 S_t^T + n_t, \quad (4)$$

where  $t$  is time in days,  $S_t^T$  is zero before the intervention at time  $T$  (first filing of 10-K) and 1 at or after the intervention, and  $n_t$  is an auto-regressive process of the first order,  $n_t = \theta n_{t-1} + e_t$  ( $|\theta| < 1$ ), where  $e_t$  is random error. The order was determined using the Durbin-Watson statistic.

## RESULTS

### Stock price

Stock price for all firms in the sample showed a trend over time which indicates that the series was not stationary. This was confirmed also from the autocorrelation and partial autocorrelation analysis (Wei, 2006). As shown in Table 1, for most of the firms (57) the trend was negative before the 10-K filing and positive after the filing. Fifteen firms showed positive before and positive after the 10-K filing. Three firms had positive trend before and negative after and only 2 firms had negative trend before and after the 10-K filing. Figures 1 and 2 are representative plots of these trends. The time series analysis requires that the series be stationary. Therefore, the price series was differenced once for stationarity before the intervention analysis. The intervention model that was appropriate in this case was

$$y_t = x_t + wS_t^T \quad (5)$$

where  $S_t^T$  is a dummy 0,1 variable as defined above.

**Table 1**  
**Trends in Stock Price Before and After the First Filing of Form 10-K by A Public Firm**

Number of firms	trend before 10-K filing	trend after 10-K filing
57	negative	positive
15	positive	positive
3	positive	negative
2	negative	negative

Table 2 presents the 10 firms that showed either  $W$  in Equation (5) or  $b_2$  in Equation (4) or both to be significant at the 10% level or less. The intervention model agreed with the auto-regression results for 6 out of the 10 firms. Of the significant intervention ( $W$  or  $b_2$ ), the impact was positive for all firms in Table 2 except for one firm where both estimates were negative. Eight firms showed a positive impact of the intervention under the time series model and 6 under the auto-regression model. It is seen from these results that only 8% to 10% of the firms showed a significant impact of 10-K first filing after the Sarbanes-Oxley Act. The overwhelming

majority of the firms were not affected by the 10-K filing as far as their market stock price was concerned.

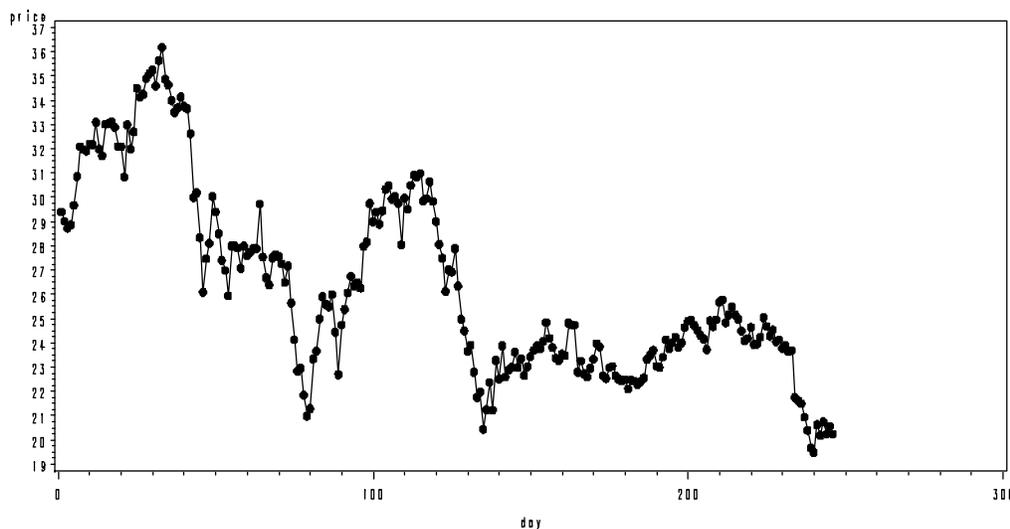
**Table 2**  
**Intervention Effect Due to First Filing of Form 10-K After the Sarbanes-Oxley Act**

Time series model: Intervention coefficient W		Auto-regression model: Intervention coefficient $b_2$	
W	p-value	$b_2$	p-value
1.18	0.10	1.20	0.08
0.18	0.03	0.17	0.04
0.17	0.04	-0.85	0.42
0.94	0.04	1.11	0.01
4.66	0.001	-0.16	0.868
0.35	0.002	-1.15	0.28
3.27	0.14	6.65	0.001
-1.28	0.01	-1.35	0.01
1.00	0.00	0.04	0.09
0.85	0.10	1.03	0.05

### Volatility

As seen in Table 1, there was a negative trend over days before the first filing of 10-K and a positive trend after the first filing. This was for the majority of the firms in the sample. In order to remove the variance due to trend, we fitted a regression of price on days before and after

**Figure 1**  
**Plot of Price Trend over Days Before The First Filing After the Sarbanes Oxley-Act of Form 10-K**



and looked at the mean square error as a measure of volatility since it measured the variance of price fluctuations around the trend line. The analyses of the significance of the mean of the differences between the mean square errors before (MSEB) and after (MSEA) are presented in Tables 3 and 4.

**Figure 2**  
**Plot of price trend over days before the first filing after the Sarbanes Oxley-Act of form 10-K**

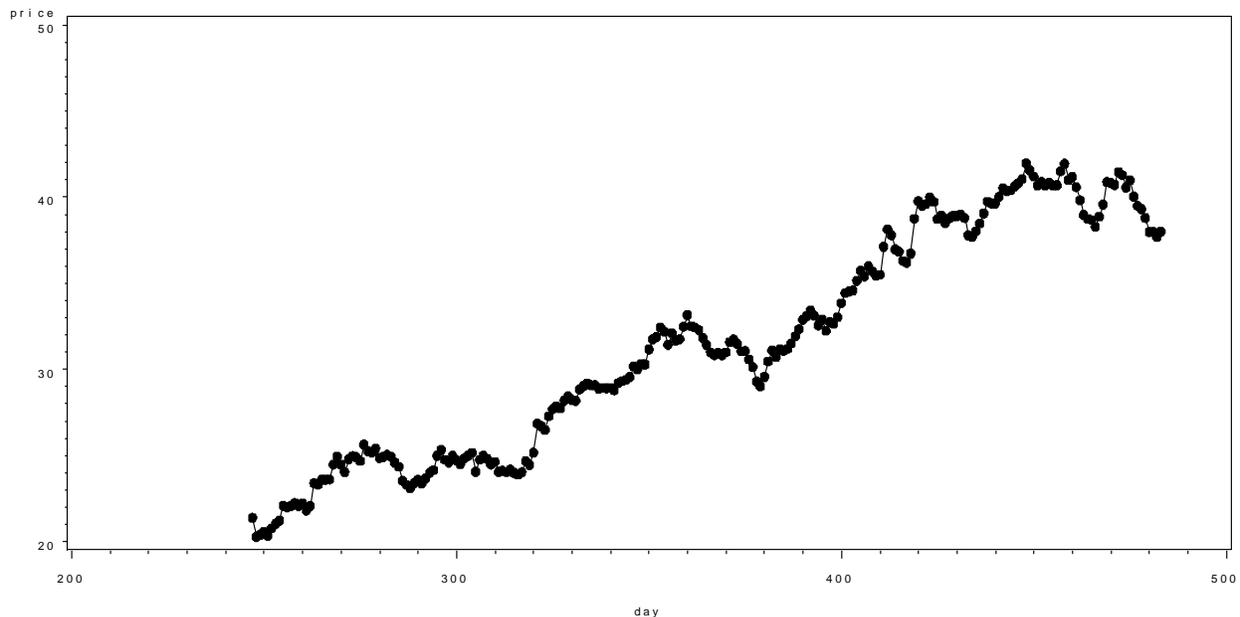


Table 3 shows the test statistics for the difference (MSEB - MSEA) between mean square errors before and after the first filing of the 10-K annual financial report. The test statistics are the paired sample Student's t, the nonparametric Sign test (M) and the nonparametric Wilcoxon Signed Rank (S).

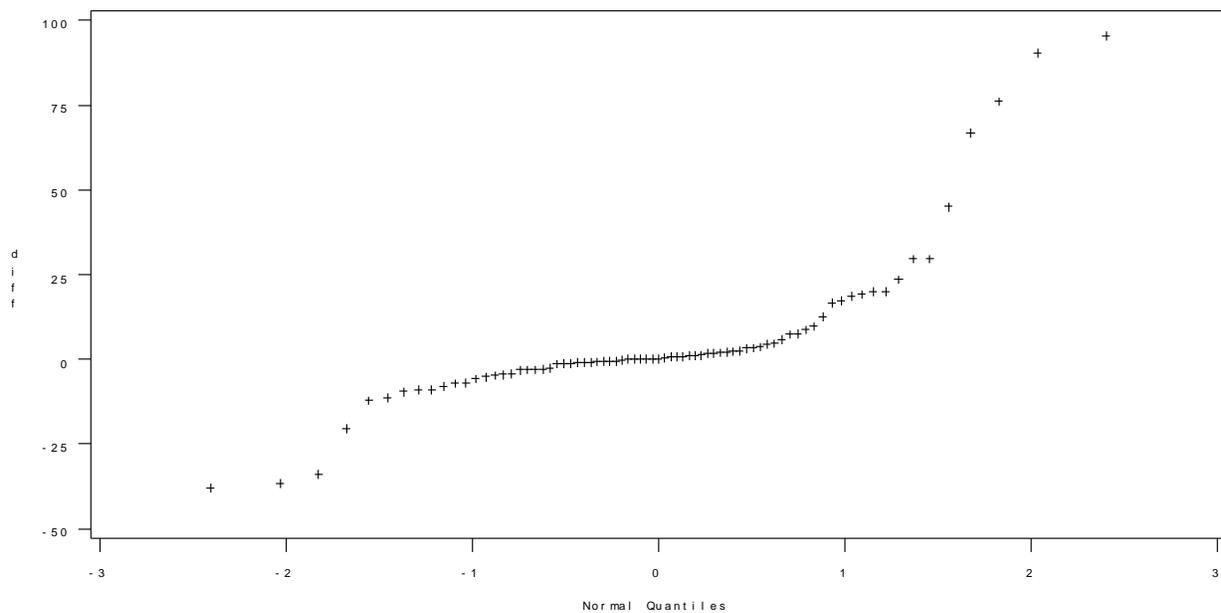
It is seen from Table 3 that the paired sample t-test is significant at the 5% level, but both the nonparametric Sign and Wilcoxon test are not. The paired sample t-test is not appropriate in this case since the sample is not normally distributed as judged by the deviation from linearity in the quantile-quantile plot for a normal distribution (Figure 4). The plot indicates that the distribution is heavily skewed to the right. Also, the tests for normality (Shapiro-Wilk, Kolmogorov-Smirnov, Cramer-von Mises, and Anderson-Darling) were all significant at the 1% level indicating a strong deviation from normality.

The nonparametric tests which are the appropriate alternative tests for this case do not show that there was a difference in MSE before and after the first filing indicating that first filing had no effect on stock price volatility for the firms in the sample. It is interesting to note that the t-test which takes the magnitude of the difference into account may have been influenced by one or two outliers in the data set of differences.

**Table 3**  
**Test statistics for the difference (MSEB - MSEA)**

Test	Statistic	p-Value
Student's t	2.11	Pr >  t  0.0385
Sign M	5.50	Pr >=  M  0.2543
Signed Rank S	264.5	Pr >=  S  0.1810

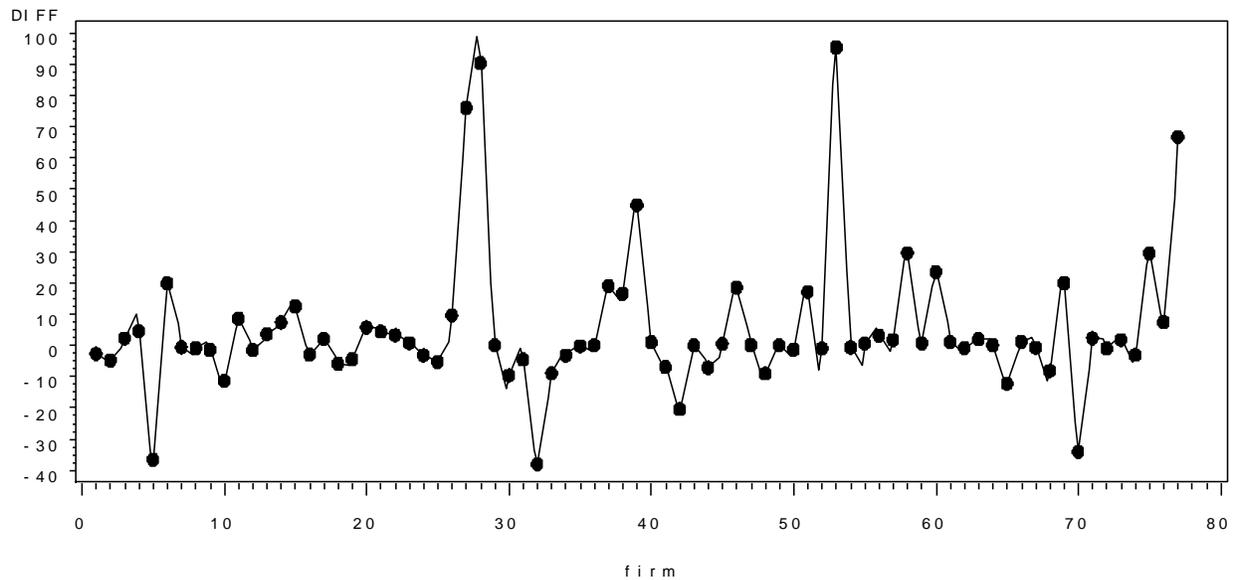
**Figure 4**  
**Quantile-Quantile (Q-Q) Distribution of The Difference MSEB-MSEA**



As seen in Figure 3, there are three large differences out of the range of the other differences. Largest difference occurred for a firm's difference of 95.48. Given the mean difference in the sample of 5.336 and a standard deviation of 22.233, the value of 95.48 is 4.05 standard deviation from the mean. This large deviation from the mean implies that the observed difference can be treated as an outlier. The second outlier occurred for the difference of 90.44 which is 3.83 standard deviation from the mean.

Table 4 shows the results of the analysis when both outliers were deleted. This shows that all three tests are not significant at the 0.10 level. The t-test probability (p-value) went from 0.0385 to 0.0711 when one outlier was deleted and further to 0.1343 when two outliers were deleted, as expected. With the two outliers deleted, the data of differences was still not normal. However, the deviation from normality was less severe than when they were in the data set. The t-test is known to be robust against moderate deviation from normality, a reason why the test was not significant and in agreement with the nonparametric tests which do not require the assumption of normality.

**Figure 3**  
**Difference (MSEB-MSEA) by Firm between Mean Square Error Before (MSRB) and After (MSEA) The First Filing of Form 10-K .**



The Sign test tests the hypothesis that the difference,  $MSEB - MSEA$ , is equally likely to be positive or negative. The fact that the test was not significant, implies that the relative frequency of negative or positive differences was not different from 0.5. There were 33 negative and 44 positive differences in the sample. This translates into 43% negative and 57% positive difference. A binomial test showed that 57% is not significantly different from 50% or a random outcome thus confirming the Sign test results

**Table 4**  
**Test statistics for the difference (MSEB - MSEA)**

Test	Statistic	p-Value
Student's t	1.51	$Pr >  t $ 0.1343
Sign M	4.50	$Pr \geq  M $ 0.3557
Signed Rank S	188	$Pr \geq  S $ 0.3241

## DISCUSSION

The Sarbanes-Oxley Act was a reaction to the major accounting scandals and the lack of transparency in financial reporting. The ACT required more transparency in reporting by requiring management of public companies to report in form 10-K on the adequacy of their internal controls and by giving the outside editors more independence and requiring them to verify management internal control reporting and state whether they agree or disagree. This regulation was viewed by supporters of SOX as of benefit to the investors and companies in that it would improve the stock market returns. Those opposing the ACT sited cost on the companies

with no apparent benefit. It was of interest, therefore, to determine if benefits in terms of stock returns do exist for companies that filed form 10-K for the first time after SOX with internal control and no deficiencies. Results of the time series intervention analysis showed that only 8 to 10 percent of the 77 firms studied showed a positive impact of the intervention on stock price or return. Also, the difference between the mean square errors (measures of volatility) of regression of price on time in days before and after the first 10-K filing was not significantly different from zero.

These results point to no substantial impact of internal control and accuracy in financial reporting after SOX on firms' stock prices and stock volatility. There was a modest improvement in stock returns due to the Sarbanes-Oxley new regulation with regard to internal control and no change as far as stock volatility is concerned. It could be argued that investors do not pay much attention to this aspect of the financial report in making their investment decisions or that those that rely on the financial statement are sophisticated investors that could get the vital information they need from form 10-K before the SOX reporting, and reporting after SOX was of no extra benefit to them.

It should be pointed out that there may be benefits other than financial that may have resulted from SOX. More comprehensive investigations are needed in the future in order to determine the benefits that can be attributed to SOX and which variables in the financial report have an effect on market returns.

## CONCLUSION

In this study, the authors examined the impact of accuracy and transparency in financial filing of form 10-K after the Sarbanes-Oxley Act. Accuracy and transparency was a reflection of the requirement by SOX to report on management internal control and material deficiencies and verification of their accuracy by an independent auditor. The authors analyzed the impact of first filing of the annual financial report 10-K after SOX on the stock price and stock volatility in a random sample of 77 companies on the New York Stock Exchange. Time series intervention analysis and auto-regression were used to analyze the impact of the intervention (defined as 0 before the first reporting of 10-K after SOX and 1 after) on stock price. A small number of firms 6-8 (8%-10%) showed a positive effect of the new required filing on stock price. One firm showed a negative impact. The rest of the 77 firms did not show any significant impact.

Stock price volatility was measured by the mean square error (MSE) from regressing price on time in days for the two periods, before and after the first filing of 10-K annual report as required by the SOX regulations. The mean square error measures the variance of the observed fluctuations in price around a time trend in price. Using a paired sample t-test, the nonparametric Sign test and the nonparametric Wilcoxon signed rank test, results indicated that there was no significant difference between MSE before SOX and MSE after SOX. One can conclude that the new financial reporting after SOX had little effect on stock price and no effect on price volatility.

## REFERENCES

- Bartov, E., & Faure, L. (2016). Sarbanes–Oxley Act and patterns in stock returns around executive stock option exercise disclosures. *Accounting and Finance*, 56, 297–332.
- Beneish, M.D, Billings, M.B., & Hodder, L.D. (2008). Internal control weaknesses and information uncertainty. *The Accounting Review*. 83, 665-703.

- Box, G.E .P., & Tiao, G.C. (1975) Intervention Analysis with Applications to Economic and Environmental Problems. *Journal of the American Statistical Association*, 70, 70-79.
- Brochet, F. (2010). Information Content of Insider Trades before and after the Sarbanes-Oxley Act. *The Accounting Review*, 85, 419–446.
- Burks, J.J. (2011). Are Investors Confused by Restatements after Sarbanes-Oxley?. *The Accounting Review*. 86, 507–539
- Engel,E.,Hayes,R.M.,&Wang,X. (2007).TheSarbanes–Oxley Act and firms’going-private decisions. *Journal of Accounting and Economics*, Retrieved from doi:10.1016/j.jacceco.2006.07.002.
- Granger, C.W.J. and Newbold, P. (1974). Spurious regressions in econometrics. *Journal of Econometrics* 2 (1974) 111-120
- Gupta, P.P., Sami, H., & Zhou, H. (2018). Do companies with effective internal controls over financial reporting benefit from Sarbanes-Oxley Sections 302 and 304? *Journal of Accounting, Auditing & Finance*. 33, 200-227.
- Gupta, P.P, & Nayar. N. (2007). Information content of control deficiency disclosures under the Sarbanes-Oxley Act: An empirical investigation. *International Journal of Disclosure and Governance*, 4, 3-23.
- Hutton, A. P., Marcus, A. J., & Tehranian, H. (2009). Opaque financial reports,  $R^2$ , and crash risk. *Journal of Financial Economics*. 94, 67–86.
- Kalelkar, R., & Nwaeze, E. T. (2011). Sarbanes–Oxley Act and the quality of earnings and accruals: Market-based evidence. *Journal of Accounting and Public Policy*, 30, 275-294.
- Leuz, C. (2007). Was the Sarbanes–Oxley Act of 2002 really this costly? A discussion of evidence from event returns and going-private decisions. *Journal of Accounting and Economics*, 44, 146–165.
- Rezee, Z.L., Espahbodi, R. Espahbodi, P., & Espahbodi, H. (2012). Firm Characteristics and Stock Price Reaction to SOX 404 Compliance. *ABACUS*, 48, 473-501.
- Singer, Z., & You, H. (2011). The effect of Section 404 of the Sarbanes-Oxley Act on earnings quality. *Journal of Accounting, Auditing & Finance*, 26, 556-589.
- Wei, W. S. (2006). Time Series Analysis: Univariate and Multivariate Methods. *Addison-Wesley, New York*.
- Yongtae Kim, Y., & Park, M.S. (2009). Market Uncertainty and Disclosure Of Internal Control Deficiencies Under The Sarbanes–Oxley Act. *J. Account. Public Policy*, 28, 419–445.

Zhang, I. X. (2007). Economic consequences of the Sarbanes–Oxley Act of 2002. *Journal of Accounting and Economics*, Retrieved from doi:10.1016/j.jacceco.2007.02.002.

***About the Authors:***

**Morsheda Hassan** is an Associate Professor of Business Administration, Grambling State University. Her research interests are in statistics, accounting, economics, and management science. Dr. Hassan has authored and co-authored a number of refereed journal articles.

**Raja Nassar** is Professor emeritus, previously endowed professor, in the Department of Mathematics and Statistics, Louisiana Tech University. His research interests are in statistics and its applications in different Disciplines. He has authored and coauthored over 200 articles in refereed journals of different disciplines.

**Aaron Witherspoon** received a BS degree in Management from the University of Baltimore and a Master of Professional Accountancy and the Ph.D. degrees from Jackson State University. Dr. Witherspoon is a Certified Public Accountant and has been an accounting professor with Grambling State University since 1988.

# USING PIVOT TABLE TO TEST MARKET ANOMALY

**Ben Branch**  
**William Orland**  
**University of Massachusetts Amherst**

**Aixin Ma**  
**Oklahoma City University**

## **ABSTRACT**

*This study contributes to the field of finance in two folds. First, it extends the test of January anomaly by examining potential paradigm shift. Second, it introduces an intuitive and ease-to-learn tool, pivot table, to students and practitioners in finance so that one can conduct rather comprehensive analysis without having to master computer programing. The result of this study reveals that the January anomaly has all but disappeared in the 21<sup>st</sup> century. The authors do this study in a way that transforms learning the anomaly concept into an experiential one.*

*Keywords: Pivot table, market anomaly, finance, paradigm shift*

## **INTRODUCTION**

The efficient market hypothesis (EMH) has been an essential concept in modern finance (Fama & Malkiel, 1970; Basu, 1977; Brenner, 1979; Losey & Talbott, 1980). There have been exceptions, called anomalies, to the weak form of the EMH. One glaring example is the January Effect. The January Effect states that the month of January historically seems to have generated abnormal rate of return in the stock market. Even though finance professors discuss market anomalies such as the January Effect in almost every investment class, few, if any, require the student to test the anomaly with real data, particularly at the undergraduate level.

The reason for the lack of testing is simple. Using conventional method requires the student to have working knowledge of programing skills, which most undergraduate students do not. Even if the students have the skill, it is still too time consuming for the professor to demonstrate the process in a typical undergraduate class setting. Practitioners face the same dilemma.

An apparent gap exists in the finance field for taking advantage of the power of pivot table. The authors of this study attempt to fill this gap by using pivot table to extend the test of January effect. They propose an easy-to-learn method for the task, pivot table. Pivot table is a tool widely used by marketing professionals for its powerful yet straightforward data-handling capacity.

Using pivot table is no more than a few mouse clicks. Contained in every Microsoft Office Excel program, pivot table is also the most practical tool. The authors conduct analysis of the January effect on possible paradigm shift, while demonstrating how students and practitioners can quickly learn to test market anomaly with pivot table. The process and its four steps (data download, data preparation, generating pivot tables and hypothesis testing) will be described in the testing process section.

## LITERATURE REVIEW

The Efficient Market Hypothesis (EMH) was first formulated in Eugene Fama's Ph.D. dissertation in the 1960s and then appeared in an academic journal in 1970 (Fama & Malkiel, 1970). Since then, the EMH has become one of the cornerstones in modern financial theories. There has been ample evidence to support the weak form of the EMH, which states that security prices fully reflect historical prices at any given time (Fama & Malkiel, 1970; Basu, 1977; Brenner, 1979; Losey & Talbott, 1980).

Studies have shown exceptions to the weak form of the EMH, called market anomalies, and the most widely discussed anomaly is arguably the January Effect. An abundance of literature exists on the January effect. First reported by Sidney Wachtel in 1942 (Wachtel, 1942) and later studied by many (Jones, Pearce, & Wilson, 1987; Thaler, 1987; Jones, Lee, & Apenbrink, 1991; Bhardwaj & Brooks, 1992; Keamer, 1994; Haugen & Jorion, 1996; Haug & Hirschey, 2006), the abnormal return reported in the month of January seems to have been a persistent market anomaly.

The first study on the January Effect was published in 1942, long before the birth of the EMH. Sidney Wachtel (1942) did not specifically use the term "January Effect" in his study, considered by many the original report on the January Effect, but instead described "seasonal movements in security prices" in the December to January period.

Since Fama and Malkiel (1970) officially introduced the concept of the efficient market hypothesis (EMH), literature on market anomalies quickly exploded, becoming one of the dominant themes in finance academic discussions. Notable studies in the *Journal of Finance* alone include Schultz (1985), Jones, Pearce, and Wilson (1987), Seyhun (1988), Ogden (1990), Jones, Lee, and Apenbrink (1991), Bhardwaj and Brooks (1992), Keamer (1994), Starks, Yong, and Zheng (2006), and Haug and Hirschey (2006).

In one of the earlier studies, Schultz (1985) finds a January Effect for the 1918 – 1929 period on small firms' returns. Seyhun (1988) tries to offer two explanations for the January effect, one "...due to price pressure from predictable seasonal changes in the demand for different securities", and the other representing "compensation for the increased risk of trading against informed traders." Ogden (1990) reports that the January Effect is partially due to the varying "stringency of the monetary policy." Bhardwaj and Brooks (1992) reports that the January Effect found in previous studies "is not persistent, and thereby, not likely to be exploitable by typical investors." By utilizing a multifactor model, Keamer (1994) studies the seasonality in macroeconomy and seems to have found a link between the abnormal returns in January and seasonality in macroeconomic factors.

Attempt has been made to link the January effect with tax selling in December and the ensuing rebound in January (Branch, 1977; Jones, Pearce, & Wilson, 1987). Jones, Lee, and Apenbrink (1991) report that January Effect was insignificant prior to 1917, when personal income tax was introduced. The study indirectly confirms that the January Effect was tax related. In one of the most recent studies, Starks, Yong, and Zheng (2006) study closed end funds on municipal bonds and confirm that the tax selling by tax-conscious investors in December was the driving force behind the January Effect. The authors further conclude that tax conseling played a role in these investors' tax selling. In another recent studies, Haug and Hirschey (2006) report that the January Effect was still observed among small-cap US equities and was consistent during the study horizon.

Since the last major studies on January effect was done in 2006 (Haug & Hirschey, 2006; Starks, Yong, & Zheng, 2006), the authors of this study decide to take a new look at the phenomenon because we believe that the information age has made the market more efficient, thus potentially eliminating the anomaly. Even though the January Effect is discussed in every investment textbook, very few finance professors have attempted to demonstrate and test the January Effect with real data in an undergraduate finance class. The reason is simple – it is too time consuming and most undergraduate students do not have the needed programing skills.

There is an excellent tool included in every office productivity suite, pivot table, which finance students can quickly learn and utilize to test market anomaly. Pivot table is a very popular tool among businesses professionals, particularly those in the marketing field. It has also attracted attention from academia's, mostly from non-finance field. Jelen and Alexander's book series on how to use pivot table to crunch data (Jelen & Alexander, 2013) have been cited across academic fields.

Researchers in other business fields have explored ways to take advantage of the power of pivot table. Dierenfeld and Merceron (2012) clearly states the advantage of using pivot table as an analytical tool for not requiring a student to be a computer scientist. Montondon & Marsh (2006) demonstrates how accounting students can use pivot table to develop trial balances almost instantaneously. Palocsay, Markham, & Markham (2010) demonstrates how all business students can use pivot table “for exploratory data analysis.”

## **METHODOLOGY**

### **Sample and Data Collection**

To improve the applicability of the method, the authors only use data from Yahoo Finance because it is publicly available, easy to obtain and contain the data we need. Other free data sources, such as Google Finance, often do not offer adjusted close price, which is critical in our analysis. The monthly returns of the S&P 500 were used to test the phenomenon at the market level.

The analysis horizon is March 1957–February 2018. Data available for download on Yahoo Finance starts from January 1950, but the S&P 500 came to its current form on March 4, 1957 and all prior data were created using back-testing method (Valetkevitch, 2013).

All original data have been used to avoid any potential bias introduced by human error. February 2018 was chosen as the ending point because this is the most recent month with available data. In total there were 732 monthly prices, yielding 731 monthly returns.

### **Data Analysis**

In this analysis, adjusted close is used instead of close price. Close price reflects the actual close on the trading day, which does not adjust for stock splits or dividends. For this reason, close price can be misleading. For example, if a major component stock in the S&P 500 index had a price of \$100 but went through a 2-for-1 split, its close price after the split would indicate a 50% drop, from \$100 to \$50, causing the index to decrease and return incorrectly calculated. But in reality, no real change in the index value happened. The adjusted close deals with the problem by adjusting for such stock splits and dividends.

All returns are calculated as follows:

$$r_t = \frac{P_t - P_{t-1}}{P_{t-1}} \quad (1)$$

$P_t$  and  $P_{t-1}$  are the S&P500 prices at month t and t-1, and  $r_t$  is the S&P500 monthly return for month t.

The authors hypothesize that the January effect stops to exist for the S&P500 in the 21<sup>st</sup> century, possibly because the advent of the information age has made the broad market efficient enough to eliminate the effect. To test this hypothesis, the authors calculate the mean return for each calendar month, both at an aggregate level and at the decade level. We then compare the mean of the month of January vs. that of the other months and test whether the difference is statistically significant. Most of the analyses are done using pivot table with a few mouse clicks, and Figures in this paper are self-explanatory in a way that readers can quickly repeat these steps.

### THE TESTING PROCESS

The whole process involves four steps – 1) data download; 2) data preparation; 3) generating pivot tables; and 4) hypothesis testing.

In step 1, download monthly price of the S&P500 for the study horizon from Yahoo Finance. In step 2, prepare the downloaded data by saving them in an Excel workbook format, calculating monthly returns using Equation 1 and then adding the month, year and decade variables. The default format of downloaded Yahoo data is CSV. One will lose all formula based work and non-active spreadsheets if one's work is saved in this format. Saving data in Excel workbook format is essential in using pivot-table based analysis. The decade variable is added for analysis of potential paradigm shift.

In step 3, generate pivot tables, first using all 731 monthly returns simultaneously and then sorting data into 7 decades (1950s, 1960s, 1970s, 1980s, 1990s, 2000s, and 2010s). This is the step where the power of pivot table shines. Figures and tables in this paper should provide some guidance on how to conduct these pivot table tasks. But the best resource on pivot table is (Jelen & Alexander, 2013). In step 4, perform statistical tests on the observed anomalies. Table 1 illustrates the data table ready for pivot table maneuvers.

**Table 1**  
**Data Ready to Create Pivot Table (partial picture)**

Date	Return	Month	Year	Decade
4/1957	3.695%	4	1957	195X
5/1957	3.695%	5	1957	195X
6/1957	-0.1265%	6	1957	195X
...	...	...	...	...
12/2017	0.983%	12	2017	201X
1/2018	5.618%	1	2018	201X
2/2018	-3.895%	2	2018	201X

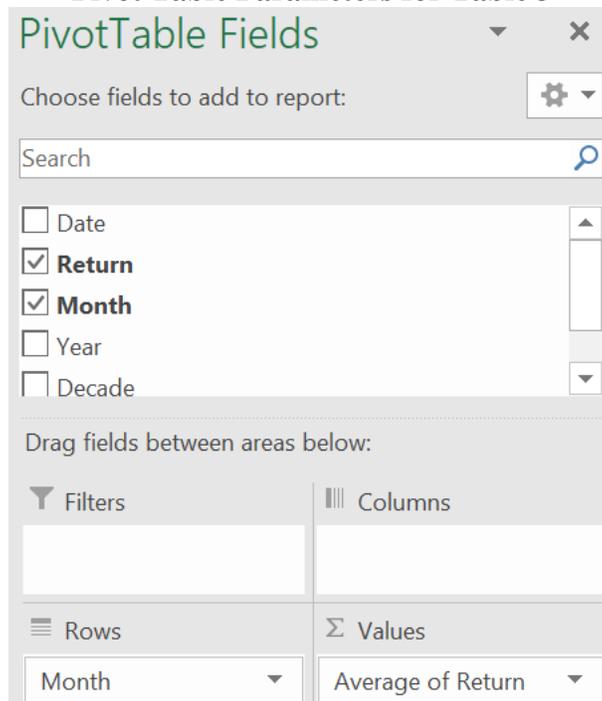
Table 2 reports the descriptive statistics of the whole sample. The 731 monthly returns have a mean of 0.65% and standard deviation of 4.16%. The biggest monthly gain is 16.30% and the biggest monthly loss is 21.76%.

**Table 2**  
**Descriptive Statistics**

#Observation	731
Mean	0.65%
Standard Deviation	4.16%
Min	-21.76%
Max	16.30%

Figure 1 demonstrates the parameters to generate the first pivot table, Table 3. A quick glance of Table 3 seems to confirm that January effect is real – the month has an average return of 1.03%, significantly higher than the mean monthly return of 0.65% for the sample. But Table 3 also reveals that for the study horizon, January only ranks 5<sup>th</sup> in mean return. In fact, if it were not for the unusually high January return of 2018, it would only rank 6<sup>th</sup>. This seems perplexing - why haven't people spent more time discussing the other months with higher returns? A closer examination of the data, however, provides further insight into the phenomenon.

**Figure 1**  
**Pivot Table Parameters for Table 3**



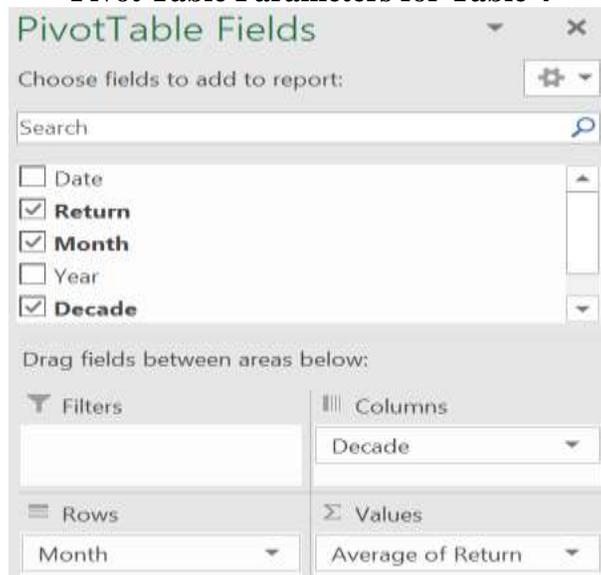
January effect is the most well-known monthly anomaly in the literature and textbooks. Then why the mean return for January only ranks 5<sup>th</sup> among all the calendar months? Our hypothesis is that since there has been such extensive discussion of the phenomenon and with the advent of the information age, the efficiency of the market has caught up and eliminated this mis-pricing. To explore the possibility, we group returns by decade and create the second pivot table.

**Table 3**  
**January Effect: An Overlook**

<b>Month ID</b>	<b>Average of Return</b>	<b>Rank</b>
1	1.027%	5
2	0.095%	9
3	1.181%	4
4	1.454%	2
5	0.288%	8
6	-0.154%	11
7	0.692%	7
8	0.030%	10
9	-0.671%	12
10	1.019%	6
11	1.419%	3
12	1.457%	1
<b>Average</b>	<b>0.653%</b>	

Figure 2 demonstrates the parameters to generate the second pivot table, Table 4. Table 4 clearly indicates that there has been a paradigm shift for the January anomaly. The mean January return for each of the two decades since the start of the twenty-first century is significantly lower than those for prior decades. In fact, if it were not for the usual January return of 2018, the 201X decade would have a mean return of -0.25% for January, making January a negative month for both decades in the 21<sup>st</sup> century. This signals a “demise” of the January effect in the 21<sup>st</sup> century.

**Figure 2**  
**Pivot Table Parameters for Table 4**



**Table 4**  
**January Effect: A Decade-by-Decade Look**

Month	195X	196X	197X	198X	199X	200X	201X	Mean
1	2.355%	0.940%	1.238%	3.380%	1.617%	-1.746%	0.404%	1.027%
2	-1.067%	-0.627%	0.115%	0.584%	1.530%	-2.851%	2.270%	0.095%
3	1.570%	1.033%	1.379%	0.344%	0.790%	1.427%	2.253%	1.181%
4	3.585%	1.779%	-0.061%	1.675%	1.343%	2.257%	1.004%	1.454%
5	2.361%	-1.182%	-1.536%	0.826%	2.406%	1.324%	-0.987%	0.288%
6	0.708%	-1.887%	0.493%	1.556%	0.607%	-1.479%	-0.548%	-0.154%
7	2.980%	0.530%	-0.251%	0.607%	1.257%	-0.508%	2.112%	0.692%
8	-1.977%	0.781%	0.198%	2.484%	-2.177%	0.903%	-1.767%	0.030%
9	-1.973%	-0.393%	-0.787%	-1.255%	0.832%	-2.356%	0.574%	-0.671%
10	0.152%	1.604%	-0.474%	0.408%	1.770%	0.080%	3.480%	1.019%
11	1.723%	1.812%	0.266%	1.761%	2.311%	0.880%	1.386%	1.419%
12	1.273%	0.648%	2.267%	0.906%	2.948%	0.632%	1.385%	1.457%
Mean	0.976%	0.420%	0.237%	1.106%	1.269%	-0.120%	0.971%	0.653%

To test the hypothesis that the January effect is a 20<sup>th</sup> century phenomenon, we create the third pivot table, Table 5, by eliminating all data after December 1999, and then re-rank the monthly means. Parameters to generate Table 5 are similar to those in Figure 2, with data source limited to those from the 20<sup>th</sup> century. Table 5 reveals that the January effect was a much prominent phenomenon in the 20<sup>th</sup> century. For the five decades in the twentieth century, the month of January is by far the best month in mean return, 1.82% vs 0.77% for the whole year. A quick glance over Table 5 also reveals that January has a positive mean return for each of those five decades and is among the best months in terms of mean return.

**Table 5**  
**January Effect: A 20th Century Look**

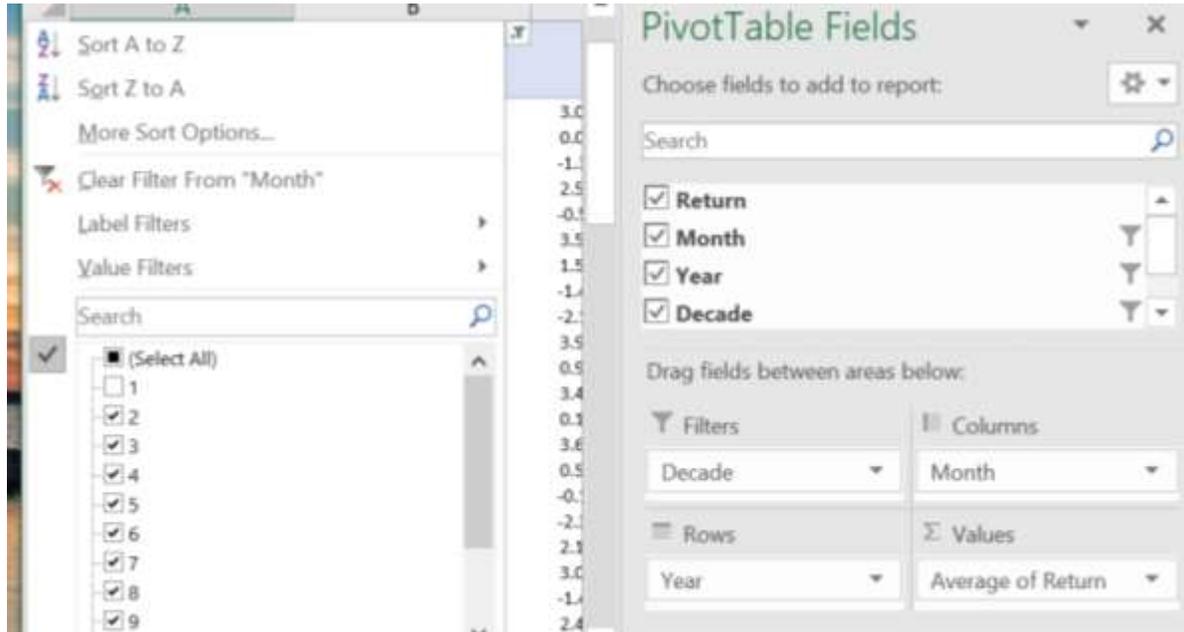
Month	195X	196X	197X	198X	199X	Average	Rank
1	2.355%	0.940%	1.238%	3.380%	1.617%	1.821%	1
2	-1.067%	-0.627%	0.115%	0.584%	1.530%	0.331%	8
3	1.570%	1.033%	1.379%	0.344%	0.789%	0.919%	5
4	3.585%	1.779%	-0.061%	1.675%	1.343%	1.351%	4
5	2.361%	-1.182%	-1.536%	0.826%	2.406%	0.284%	9
6	0.708%	-1.886%	0.493%	1.556%	0.607%	0.228%	10
7	2.980%	0.530%	-0.251%	0.607%	1.257%	0.706%	7
8	-1.977%	0.781%	0.198%	2.484%	-2.177%	0.161%	11
9	-1.973%	-0.393%	-0.787%	-1.255%	0.832%	-0.510%	12
10	0.152%	1.604%	-0.474%	0.408%	1.769%	0.780%	6
11	1.723%	1.812%	0.266%	1.761%	2.311%	1.550%	3
12	1.273%	0.648%	2.267%	0.906%	2.948%	1.663%	2
Mean	<b>0.976%</b>	<b>0.420%</b>	<b>0.237%</b>	<b>1.106%</b>	<b>1.269%</b>	<b>0.772%</b>	

To test whether the above mean return for January is significantly different from that of the rest of the year, we proceed to create two pivot tables side-by-side – one for all the Januarys and one for the mean of other calendar months in the same year. We eliminate year 1957 from the sample because our sample starts from March 1957 and does not have January for the year. This leaves us with a time series of 42 pairs of returns. The results are reported in Table 6. Figure 3 demonstrates the parameters to generate the Feb. to Dec. portion of Table 6 and its associated filter. Parameters for the January portion of Table 6 are similar, with only the 1 box (January) checked in the month filter.

**Table 6**  
**Year-by-Year Comparison of the January Effect**

<b>Year</b>	<b>Mean of the Rest</b>	<b>January</b>	<b>Year</b>	<b>Mean of the Rest</b>	<b>January</b>
1958	2.602%	4.276%	1979	0.775%	3.975%
1959	0.730%	0.435%	1980	1.719%	5.762%
1960	0.447%	-7.146%	1981	-0.443%	-4.574%
1961	1.365%	6.316%	1982	1.565%	-1.754%
1962	-0.630%	-3.788%	1983	1.196%	3.313%
1963	1.179%	4.913%	1984	0.289%	-0.922%
1964	0.877%	2.693%	1985	1.531%	7.409%
1965	0.521%	3.316%	1986	1.359%	0.237%
1966	-1.259%	0.487%	1987	-0.594%	13.177%
1967	1.033%	7.818%	1988	0.744%	4.043%
1968	1.140%	-4.385%	1989	1.630%	7.111%
1969	-0.947%	-0.818%	1990	0.149%	-6.882%
1970	0.875%	-7.647%	1991	1.867%	4.152%
1971	0.642%	4.048%	1992	0.602%	-1.992%
1972	1.179%	1.812%	1993	0.572%	0.705%
1973	-1.476%	-1.711%	1994	-0.389%	3.250%
1974	-2.835%	-1.005%	1995	2.491%	2.428%
1975	1.534%	12.281%	1996	1.442%	3.262%
1976	0.607%	11.831%	1997	2.031%	6.132%
1977	-0.609%	-5.053%	1998	2.281%	1.015%
1978	0.771%	-6.151%	1999	1.332%	4.101%
			<b>Overall Mean</b>	<b>0.712%</b>	<b>1.821%</b>

**Figure 3**  
**Pivot Table Parameters and Filter for Table 6**



The authors use Excel’s built-in data analysis tool to conduct the statistical test. T-test results in Table 7 indicate that for the study horizon between April 1957 and December 1999, the difference between the January return and the mean return for other calendar months in the same year is not statistically significant, even though the magnitude of the difference is quite big. For our study horizon, the January Effect may be just a feeling by investors at the time. However, the lack of statistical power may simply result from lack of sufficient data. After all, the first study of the January Effect was published in 1942 and covered a study horizon starting from 1927 (Wachtel, 1942).

**Table 7**  
**T-test Results on the January and December Effects in the 20<sup>th</sup> Century**

	January Effect		December Effect	
	January	Feb.-Dec.	December	Jan.-Nov.
<b>Mean</b>	1.82%	0.71%	1.80%	0.71%
<b>Variance</b>	0.26%	0.01%	0.11%	0.02%
<b>Observations</b>	42	42	42	42
<b>Hypothesized Mean Difference</b>	0		0	
<b>t Stat</b>	1.37		2.02	
<b>P(T&lt;=t) two-tail</b>	0.18		0.05	

Similar t tests generate other interesting results. Table 7 also reports that for December, the second-best month in mean return, the difference between December's return and the mean return of other calendar months in the same year is significant at the 5% level. The finding confirms the existence of turn-of-the-year anomaly (Jacobs & Levy, 1988; Ogden, 1990). It is worth noting that with the guidance of a finance professor, undergraduate finance students in our classes typically spend twenty minutes to finish all the steps described in this paper.

### IMPLICATION

The decreased prominence of the January Effect in the 21<sup>st</sup> century has important implications. First, in a sense it confirms the validity of the weak form of the efficient market hypothesis. With the arrival of the information age and with the public having quick access to market data, the market has become much more efficient and as a result, the abnormal return in January is being eliminated, most likely because it has been the most discussed and most explored anomaly. Additionally, the diminishing abnormal returns in January probably signals the end of the popular turn-of-the-year trading strategy for practitioners. But as our methodology demonstrates, it is straightforward to use pivot table to study market data and identify similar anomalies, such as the December anomaly or the turn-of-the-month anomaly.

### CONCLUSION

By utilizing pivot table, a standard tool in every office productivity suite, we extend the test of the January effect in several easy-to-follow steps. We find that for the 21<sup>st</sup> century, January is a much less prominent phenomenon for the S&P500 than in the 20<sup>th</sup> century. We believe that this is due to the advent of the information age and widely accessible market data to all investors, which was only available to institutional investors in the past. We also believe that our method has demonstrated the immense potential of the pivot table tool in finance classrooms for its practicality, low hurdle to learning and wide applicability. Due to its low hurdle to learning, practitioners should also find the tool useful in their data mining efforts. We encourage readers to utilize pivot table to expand this study to related topics, such as investigating the December anomaly which was the second-best month in the 20<sup>th</sup> century and the best month in the 21<sup>st</sup> century in mean return.

### REFERENCES

- Basu, S. (June, 1977). Investment Performance of Common Stocks in Relation to Their Price-Earnings Ratios: A Test of the Efficient Market Hypothesis. *Journal of Finance*, 32(3), 663-682.
- Bhardwaj, R. K., & Brooks, L. D. (June, 1992). The January Anomaly: Effects of Low Share Price, Transaction Costs, and Bid-Ask Bias. *Journal of Finance*, 47(2), 553-575.
- Branch, B. (1977). A Tax Loss Trading Rule. *the Journal of Business*, 198-207.
- Brenner, M. (September, 1977). The Sensitivity of the Efficient Market Hypothesis to Alternative Specifications of the Market Model. *Journal of Finance*, 34(4), 915-929.

- Dierenfeld, H., & Merceron, A. (2012). Learning Analytics with Excel Pivot Tables. *1st Moodle Research Conference* (pp. 115-121). Heraklion, Crete-Greece: Moodle.
- Fama, E. F., & Malkiel, B. G. (1970, May). Efficient Capital Markets: A Review of Theory and Empirical Work. *Journal of Finance*, 25(2), 383-417.
- Haug, M., & Hirschey, M. (2006). The January Effect. *Financial Analysts Journal*, 62(5), 78-88.
- Haugen, R. A., & Jorion, P. (Jan. – Feb, 1996). The January Effect: Still There after All These Years. *Financial Analyst Journal*, 52(1), 27-31.
- Jacobs, B. I., & Levy, K. N. (November/December, 1988). Calendar Anomalies: Abnormal Returns at Calendar Turning Points. *Financial Analyst Journal*, 44(6), 28-39.
- Jelen, B., & Alexander, M. (2013). *Excel 2013 Pivot Table Data Crunching*. Que Publishing.
- Jones, C. P., Pearce, D. K., & Wilson, J. W. (June, 1987). Can Tax- Loss Selling Explain the January Effect? A Note. *Journal of Finance*, 42(2), 453-461.
- Jones, S. L., Lee, W., & Apenbrink, R. (December, 1991). New Evidence on The January Effect Before Personal Income Taxes. *Journal of Finance*, 46(5), 1909-1924.
- Keamer, C. (December, 1994). Macroeconomic Seasonality and the January Effect. *Journal of Finance*, 49(5), 1883-1891.
- Losey, R. L., & Talbott, J. C. (September, 1980). Back on the Track with the Efficient Markets Hypothesis. *Journal of Finance*, 35(4), 1039-1043.
- Ogden, J. P. (September, 1990). Turn- of- Month Evaluations of Liquid Profits and Stock Returns: A Common Explanation for the Monthly and January Effects. *Journal of Finance*, 45(4), 1259-1272.
- Schultz, P. (1985). Personal Income Taxes and the January Effect: Small Firm Stock Returns Before the War Revenue Act of 1917: A Note. *Journal of Finance*, 40(1), 333-343.
- Seyhun, H. N. (1988). The January Effect and Aggregate Insider Trading. *Journal of Finance*, 43(1), 129-141.
- Starks, L. T., Yong, L., & Zheng, L. (2006). Tax-Loss Selling and the January Effect: Evidence from Municipal Bond Close-End Funds. *Journal of Finance*, 61(6), 3049-3067.
- Thaler, R. H. (1987). Anomalies: The January Effect. *Journal of Economic Perspectives*, 1(1), 197-201.
- Valetkevitch, C. (March 28, 2013). *Reuters*. Retrieved from Timeline: Key dates and milestones in the S&P 500's history: <http://www.reuters.com/article/us-usa-stocks-sp-timeline-idUSBRE92R11Z20130328>

Wachtel, S. B. (April, 1942). Certain Observations on Seasonal Movements in Stock Prices. *The Journal of Business of the University of Chicago*, 15(2), 184-193.

***About the Authors:***

**Ben Branch** is a professor of finance at the Isenberg School of Management at University of Massachusetts Amherst.

**Aixin Ma** is an associate professor of finance and the Burwell Endowed Chair in Finance at Oklahoma City University's Meinders School of Business.

**William Orland** earned an MS in Energy Management degree from Oklahoma City University's Meinders School of Business in 2017.

# WHICH FIRMS ACQUIRE? DETERMINANTS OF ACQUISITIONS

Vusal Eminli  
University of the Pacific

## ABSTRACT

*This study investigates predictors of being an acquiring firm. Employing several variables deemed to have an impact on the likelihood of becoming an acquirer, such as firm beta, Tobin's Q, leverage, liquidity, size, earnings, sales, cash flows, and R&D expenditures and controlling for fixed-effects, it was found that firm specific risk as measured by beta and Tobin's Q are strong predictors of a firm pursuing an acquisition. These results support the efficiency argument and the agency theory of merger motives.*

*Keywords: Mergers, acquisitions, acquisition determinants*

## INTRODUCTION

Finance and economics literature is very rich in mergers and acquisitions (M&A) related research. A great deal of work has been done on the motives of mergers; the debate on the three hypotheses propagated as driving forces behind M&A's – agency, market power and efficiency hypotheses, has not been unanimously resolved yet despite an abundance of work. Research on wealth effects of mergers and acquisitions has been somewhat more conclusive in the sense that most authors have found significantly positive cumulative abnormal returns to target firm shareholders (Moeller, Schlingemann, & Stulz 2004, 2005), while observing zero or negative cumulative abnormal returns to bidding firm shareholders (Betton, Eckbo, & Thorburn 2008).

However, the characteristics of firms involved in M&A deals have been relatively unexplored. Understanding these traits might provide a deeper and more thorough knowledge of merger motives. Additionally, it might also assist investors in identifying potential acquirers and avoiding possible negative cumulative abnormal returns. This paper analyzes the predictors of the probability of being an acquiring firm – a topic strongly related to both strands of the literature.

To this end, a logit regression function is utilized, employing several variables deemed to have an impact on the likelihood of becoming an acquirer, such as firm beta, Tobin's Q, leverage, liquidity, size, earnings, sales, cash flows, and R&D expenditures. For the purpose of this analysis, financial, stock price, and M&A data from 1985 through 2015 is used and year, firm and industry fixed-effects are controlled.

Consistent with the agency and efficiency hypotheses, the results show that Tobin's Q has a significantly negative impact on the probability of being an acquirer, while firm beta, size, earnings, sales, and cash flows are significantly positively related to the aforementioned probability. The results shed light on some of the characteristics of firms engaging in merger activity, more precisely; it provides additional insight into merger motives and allows identifying potential bidders.

## LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

The past century saw five great merger waves—one at its beginning and the subsequent waves at the ends of the 1920s, 1960s, 1980s and 1990s. After these five merger waves and an abundance of data, the motives behind merger activity are not yet clearly understood. The three primary theoretical perspectives that can be used to explain a firm's ambition to acquire other firms, as identified by Montgomery (1994) are the agency theory, the market power argument and the efficiency view.

From the perspective of the agency theory of mergers, managers pursue their personal interests at the expense of other stakeholders in the firm, primarily the shareholders. One of the primary lines of argument under the agency theory umbrella has been advanced by Jensen (1986). Jensen argues that managers have personal incentives in taking decisions that help grow the firm size beyond optimal as growth increases the managers' power by increasing the resources under their control. Jensen further posits that growth is also linked to increases in manager's compensation, arguing that changes in compensation are positively related to growth in sales.

In support of this, Smith and Watts (1992) find that executives of larger corporations have higher levels of compensation. On the contrary, by analyzing the implications of state antitakeover laws on corporate governance, Bertrand and Mullainathan (2003) observe that the average manager in their sample does not lean towards growth. Instead, the authors characterize this average manager by, what they term, "quiet life" models as opposed to empire-building models. Malmendier and Tate (2008), using CEOs' personal over-investment in their own company and their press portrayal as proxies for CEO overconfidence, attempt to explain merger decisions with high self-confidence of the acquiring firm managers. They posit that overconfident CEOs may overestimate their ability to make profitable investments and generate returns. This leads to overpaying for target companies, and in turn, destroys acquiring firm shareholders' value.

The authors find that the likelihood of acquisition is 65% more likely if the manager is classified as overconfident. Shleifer and Vishny (1989) develop a model of managerial entrenchment that illustrates how managers can make specific investment decisions in order to raise their managerial value to shareholders. Through these investments that require the managers' particular skills, managers can extract higher wages and larger perquisites from stockholders, reduce the chances of being replaced, and gain greater liberties in determining corporate strategy.

Amihud and Lev (1981) promulgate another argument in support of the agency theory. It is a well-supported notion that managers are more risk-averse than the shareholders as the latter can better diversify; that is, significant fractions of managers' wealth are tied up to their performance as managers through salaries, reputation, tenure etc. By observing that manager-controlled firms take on a higher number of conglomerate acquisitions than owner-controlled firms, as well as, that manager-controlled firms have more diversified operations, the authors argue that managers utilize mergers in order to reduce their "employment risk" through reducing firm risk, as they lack the sufficient opportunity to diversify in other ways. In subsequent work,

Amihud et al. (1986) claim that such diversification of manager's risk may not necessarily be to the detriment of shareholders; the latter may also benefit from decreased firm risk as they also bear the cost of uncertainty. Contrary to these results, Lewellen et al. (1989) find

no tendency of reduced firm-specific risk as a result of merger activities. In fact, the findings show the opposite; the majority of their sample includes acquisitions that, in fact, increase post-merger risk.

The other two competing hypotheses, market power and efficiency, rest on the view that managers of the firms act in the best interest of the owners and maximize shareholder wealth. One way to increase shareholder wealth through a merger, which constitutes the first of these hypotheses, would be by the way of increasing market power. As Stigler puts it, “[c]ollusion of firms can take many forms, of which the most comprehensive is outright merger” (Stigler 1964). The way collusion through merger would increase market power is rather simple: A horizontal merger reduces the number of active firms competing in the same market, makes the actions of each producer more visible and improves the chances of detecting the cheaters on the potential cartel. This, in its turn, by lowering the expected gains from cheating, makes the cartel more profitable. Hence, in the short run, there is an increased incentive to form cartels and, through increased market power, the members of these cartels will earn higher profits.

Yet another potential motive for mergers, which forms the basis of the second competing argument, is that of higher productive efficiency after the merger. This hypothesis follows that after the merger is carried out, the “new” firm will be able to pursue a more cost-efficient production/investment policy, which may be achieved by, among others, economies of scale and/or scope, increases in managerial efficiency, redeployment of assets to more profitable uses, utilization of unused corporate tax credits, and avoiding bankruptcy costs.

One of the most influential studies on the topic in the empirical literature, testing the market power and the efficiency hypotheses, is that by Eckbo (1983). The author analyzes the major horizontal competitors of target firms in order to inspect if mergers lead to collusive behavior. Building upon the market power hypothesis outlined above, the author notes that the rivals that are not part of the cartel are also expected to have increased profitability since they are not bearing the costs of restricting output. If there is some sort of collusion present as a result of a merger, then this should induce changes in relative product prices of rivals.

However, assuming efficient markets, Eckbo further posits that any change in firm profitability due to such movements in product prices will be captured by the financial markets and reflected on the firm value. Then it is possible to test for the existence of collusive behavior (or possibly predict any other outcome of the merger) by observing the abnormal stock returns to the horizontal rivals of merging firms. Eckbo observes that rivals in challenged (by government) mergers almost always earn statistically significant positive abnormal returns around the merger announcement date.

On the other hand, around the antitrust complaint date the stock reactions do reverse; however, the negative abnormal returns around the antitrust complaint date are not statistically significant, while the bidders and targets observe significantly negative abnormal returns around this date. Citing the lack of statistically significant reversion, Eckbo (1983) argues that the market power hypothesis does not hold. Instead, the results are consistent with the productive efficiency hypothesis. Under this hypothesis the observed behavior of both the target and bidders, as well as that of rivals can be explained. Positive abnormal returns to targets and bidders around the merger proposal announcement would be due to more cost efficient production/investment policy after the merger. The negative abnormal returns to the merging firms around the antitrust complaint date would be due to lower probability of being able to take advantage of this increased efficiency.

The rivals, on the other hand, earn significant positive abnormal returns around the merger proposal announcement because of the information effect – improved probability that they might also be targets in the future and become integrated into a more efficient unit. Once this increased probability of future merger is made public, there is no reason for reversion in earnings around the complaint date. The news that the current merger is being challenged should reveal very little additional news about the successful merger of the rival firm in the future; but whatever little information it does reveal, one might attribute that to the insignificant negative returns of rivals around the antitrust complaint date.

Another influential study on the topic by Kim and Singal (1993), like Eckbo's (1983), intends to find out if mergers result in increased market power or higher efficiency; more precisely, which one of these forces dominates. However, they take a more direct approach by using product prices instead of stock price data. Kim and Singal scrutinize the fare changes and concentration as affected by mergers in the airline industry during 1985-1988, a period in which antitrust laws for airlines were relaxed and no merger proposal in this industry was overturned.

If a merger induces efficiency gains alone, this translates into lower marginal cost for the new firm, which in effect results in lower prices. On the other hand, if the intent of the merger is greater market power alone, then one should expect this to lead to higher prices. It is more likely that both of these opposing forces will be present in most merger activities. Therefore, one should expect to observe the dominant of these motives in the sign of the change in relative fares.

The results reveal that merging firms increase their fares by about 10% solely as a result of the merger activity when all other industry and economy-wide effects are isolated. That is, the overall outcome of mergers is the exercise of greater market power. Furthermore, relative fares of merged firms go up during the announcement period, as expected per the market power hypothesis. However, the effect of efficiency gains is also strongly pronounced during the completion period with decreased relative fares for normal firms (those that were not financially distressed prior to merging, since failing firms may assume a different set of pricing strategies in order to maximize immediate revenues and not profits and hence avoid bankruptcy costs etc.). This is evidence to the fact that mergers are motivated both by the potential for greater market power *and* by the efficiency gains, as both effects are readily observed in the results. However, as mentioned above, overall, increased exercise of market power dominates the effects of efficiency gains, as evident in higher relative fares.

Moreover, in their test for relationship between relative concentration change and relative fare change, the authors find significant positive relationship between the two both for mergers involving normal firms and those involving failing firms. This buttresses the earlier finding that market power effects dominate any efficiency gains accomplished through these mergers.

Similarly, Gugler et al. (2003) – in the largest cross-national comparison of the effects of mergers, test for the dominant presence of market power effects or efficiency gains in the aftermath of horizontal mergers, among other tests. They use a large international sample of mergers and utilize data on sales, assets and profits for the purpose of their analyses. Aiming to infer the motives of mergers based on sales and profitability, Gugler et al. recognize, as discussed above, that if a merger results in improved market power, then a profit-maximizing firm taking advantage of this increased market power will raise prices, which, in effect, will decrease sales and increase profits.

On the other hand, if a merger results in efficiency gains, and hence, lower marginal cost, a profit maximizing firm will lower its price, which will lead to higher sales volume and profits alike. Comparing actual profits and sales of the merged firm with the sum of the

estimated profits and sales of the two firms had they not merged, the authors find support for the market power theory and against the efficiency theory.

Despite the abundance of empirical work on motives behind merger activity, the true intentions of managers for engaging in these investment projects are still unclear as evidenced by conflicting outcomes of various studies. This results in mixed wealth effects observations in the financial markets. An important and related question that arises aims to answer who gains from mergers. Event studies looking into this issue almost unequivocally find that return to target firm shareholders are significantly positive (Healy, Palepu, & Ruback, 1992; Maquieira, Megginson, & Nail, 1998; Langetieg, 1978; Franks, Harris, & Titman, 1991).

Similarly, studies scrutinizing returns to buying and target firms combined, accounting for size differences, also result in positive returns, with majority of authors finding significantly positive gains (Healy, Palepu, & Ruback, 1992; Malatesta, 1983; Franks, Harris, & Titman, 1991). However, a more interesting and puzzling case is that of the acquiring firm shareholders. For this class, while there are a handful of studies reporting significant positive returns (Asquith, Bruner, & Mullins, 1983; Eckbo, 1983; Akbulut & Matsusaka, 2003; Moeller, Schlingemann, & Stulz, 2004, 2005; Bhagat, Dong, Hirshleifer, & Noah, 2005; Bradley & Sundaram, 2006; Cai, Song, & Walkling, 2011), the consensus is that mergers either preserve value for the acquiring firm shareholders or result in negative returns to them (Dodd, 1980; Asquith, Bruner, & Mullins, 1987; Varaiya & Ferris, 1987; Loderer & Martin, 1990; Kaplan & Weisbach, 1992; Andrade, Mitchel, & Stafford, 2001; Officer, 2003, 2004; Dong, et al., 2006; Betton, Eckbo, & Thorburn, 2008; Hackbarth & Morellec, 2008; Savor & Lu, 2009).

The magnitude of lost value ranges from 1% to 3% for bidding shareholders. Moreover, due to the concerns that the announcement period stock-price reaction may not fully impound in itself the complete information effects of mergers, several long-term abnormal returns studies have been conducted. Although largely criticized due to methodological concerns on the basis of sensitivity of results to the selected market model, Mitchell and Stafford (2000) find significant negative abnormal returns to acquiring firm shareholders in the three years following the merger. Therefore, it is not clear that mergers maximize the wealth of the acquiring firm stockholders.

Likewise, managers themselves have a lot at stake. First of all, the performance of the manager is closely tied to his fate at the firm. Lehn and Zhao (2006) find a significant inverse relation between the likelihood of CEO turnover and the bidding firm returns, which is not associated with governance structure. The authors use a sample of 714 acquisitions and observe that 47% of acquiring firm managers are replaced within five years. Moreover, Fama (1980) underlines that the managerial labor market accrues all the signals pertaining to the performance of the manager while on tenure. Hence, acquisitions with large negative abnormal returns to the bidding firm may result in unpleasant reputation and undermine the bidding manager's future opportunities.

Furthermore, Lambert and Larcker (1987), find that managers that select acquisitions reducing shareholder value lose personal wealth in real terms, while those who engage in shareholder wealth increasing mergers see significant positive real wealth and compensation improvements. Although their study does not account for the effects of the acquisition on the value of managers' stock options, this is likely to bias the results in the opposite direction of which they are already pointing. The fact that employee stocks have become a larger portion of the contemporary manager's compensation plan makes the CEOs more vulnerable to negative changes in stock prices. Hence, their personal wealth may be at risk if the merger is not successful. Finally, Denis et al. (1997), find a negative relationship between diversification and

insider ownership, showing that managers are, in fact, wary of value-destroying acquisitions if they bear enough of the financial consequences.

## HYPOTHESES

The studies referenced above evaluating the wealth effects of mergers and acquisitions report that the majority of the deals do not produce positive returns to bidding shareholders. Regardless of such poor rates of success, which is also common knowledge in the top-level managerial circles, both initially and in long-term, and with so much at stake, merger and acquisition activity is ubiquitous. If managers are acting in the interest of their shareholders, then it can be hypothesized that the acquiring firms are the ones with higher firm-specific risk as it speaks to the risk preferences of their investors. Although it can be argued that investors are well-diversified and do not necessarily care about every investment choice of any given firm, the significant price reactions to mergers dictate the opposite. Then it must be the case that shareholders invested in firms with high firm-specific risk are willing to undertake projects with that firm with respective amounts of risk. This notion suggests that firms with greater firm-specific risk, as measured by beta from the market model, are more likely to acquire other firms.

Furthermore, firms with higher growth opportunities have larger sets of investment projects to choose from. Given the particularly high chances of negative stock returns and a large general risk of failure after an acquisition, one would expect firms with high growth opportunities to shy away from attempting to acquire another firm. For the purpose of this study, Tobin's Q is used as a proxy for high growth opportunities, in the spirit of the literature. This chain of thought leads to the hypothesis that firms with greater growth opportunities as proxied by Tobin's Q are more likely to acquire other firms.

Firm leverage is also expected to be an important indicator of acquisition likelihood; since mergers and acquisitions are large projects that require massive financing and firms with low leverage ratios are less likely to suffer from debt overhang, they are more likely to be able to finance mergers. Likewise, firms with high leverage have less low-risk debt capacity left and might find it difficult to finance a merger deal. Also, for the case of a low-levered firm with unused debt capacity, merger might prove to be an effective method of transferring idle capital from the bidding firm to the target. Therefore, firms with lower leverage are more likely to acquire other firms.

Liquidity is also expected to have an impact on the likelihood of acquiring; firms with higher liquidity have enhanced means of financing big projects, such as acquisitions. Therefore, firms with greater liquidity are more likely to acquire other firms.

Additionally, merger projects are usually thought to be the cup of tea of the larger firms; those have superior financial muscle and better means of creating synergy through economies of scale or scope. Hence, one might expect a positive relationship between the chances of undertaking an acquisition and firm size. Firms with higher earnings, sales and cash flows are also expected to be more likely to acquire other firms; the argument follows in a similar manner to the former one.

## METHODOLOGY

### Sample and Data Collection

The main sample includes the universe of all publicly traded firms in the U.S. as provided by the CRSP/COMPUSTAT merged database. Financial and stock price data come from the CRSP/COMPUSTAT merged database. The entire universe of all firms is searched from January 1, 1985 through December 31, 2015 for inclusion in the sample. In order to be included in the sample, a firm must be publicly traded on a major stock exchange. Furthermore, since utilities and financial services companies are highly regulated, they are excluded from the dataset. All variables are further winsorized at the 1% and 99% levels in order to limit the effect of outliers on results.

The sample of mergers and acquisitions is obtained from the Securities Database Company's (SDC) Mergers and Acquisitions database. The initial sample of events includes all the mergers and acquisitions of U.S. targets by U.S. public acquirers completed during January 1, 1990 through December 31, 2015. Additionally, in order to be included in the event sample, the acquirer must own 100% of the target firm at the completion of the deal. The size of the deal must account for at least 10% of the acquiring firm size in order to ensure that the project at hand is a significant investment for the acquirer.

### Measurement of Variables

*The dependent variable is the probability that the firm will acquire.* This is a dummy variable equal to one if the firm was an acquirer during a given quarter and zero otherwise. The *independent variables* are: firm beta, Tobin's Q, leverage, liquidity, R&D expenditures, natural logarithm of firm size, natural logarithm of earnings, natural logarithm of sales, and natural logarithm of cash flows. The firm-specific risk or beta is calculated using the simple market model regression, defined as:

$$R_{it} = \alpha_i + \beta_i R_{mt} + \epsilon_{it}, \quad (1)$$

where  $R_{it}$  is the monthly return of security  $i$  during month  $t$ ,  $R_{mt}$  is the value-weighted market return over the same month. Alexander and Chervany (1980) show that from the point of view of fitted beta stability, the measurement horizon of 4-6 years using monthly return data is optimal. Hence,  $\alpha_i$  and  $\beta_i$  (for each firm) are estimated over the five-year horizon on a rolling basis.

Tobin's Q is measured as the ratio of assets plus the market value of common equity minus the book value of common equity and deferred taxes to the book value of assets. Leverage is measured as the ratio of total liabilities to its total market value. Liquidity is measured as the ratio of common shares traded to shares outstanding. Earnings are the sum of earnings before extraordinary items, interest expense and deferred taxes, while cash flows is calculated as the sum of earnings before extraordinary items and depreciation and amortization. Firm size is measured as the market value of common stock, book value of preferred stock, and the book value of long-term debt at the end of the year.

It is possible that as firms look to grow, they may attempt to realize it through either internal R&D or the acquisition of another firm. In this sense, a firm's R&D engagement may affect the likelihood of acquiring other firms. R&D endeavors are also known to be inherently

risky. Consequently, firm's R&D expenditures may confound the variables of interest, such as Tobin's Q and beta. Therefore, it is important to control for R&D in the regression analyses. The R&D expenditures variable is entered as the dollar value of the firm's research and development expenditures.

### Data Analysis

To examine the factors that predict the probability of being an acquirer firm, a logit model of the following form is estimated:

$$\text{prob}(\text{being an acquirer}_{i,t} | \mathbf{X}_{i,t-1}) = \frac{e^{\gamma \mathbf{X}_{i,t-1}}}{1 + e^{\gamma \mathbf{X}_{i,t-1}}}, \quad (2)$$

where the left-hand-side is a dummy variable equal to one if the firm was an acquirer during a quarter and zero otherwise, and  $\mathbf{X}_{i,t-1}$  is the vector of independent variables including firm beta, as predicted by equation (1), one quarter prior to the quarter of acquisition announcement, Tobin's Q, leverage, liquidity, R&D expenditures, natural logarithm of earnings, natural logarithm of size, natural logarithm of sales, and natural logarithm of cash flows, all collected at the end of the quarter prior to the quarter of announcement. The firm-specific risk (beta) entered in equation (2) is lagged by one quarter in order to leave a buffer time period between the beta estimation and the announcement date for observations where an acquisition takes place, as to avoid any information leakage effects. All other variables are also lagged by one quarter in order to ensure that all firm financial data reflects the period prior to the acquisition announcement.

## RESULTS

As outlined earlier, among the factors that are expected to predict the probability that a firm will bid for another one are firm beta, Tobin's Q, leverage, liquidity, size, earnings, sales and cash flows. Firm's R&D expenditures are also included as a control variable. While beta, Q, leverage, liquidity, and R&D expenditures are utilized in levels, firm size, earnings, sales, and cash flows are taken in logs. Table 1 reports the logit regression results.

The dependent variable is the probability that the firm will acquire. The choice of log of size, log of earnings, log of sales, or log of cash flows does not seem to strongly affect the magnitude or significance of the other variables.

The first four models in each table alternate among log of size, log of earnings, log of sales, and log of cash flows. The reason for running variations of the model with each one of these variables separately is twofold. First, they provide a test showing that the results are not sensitive to the variable of choice regarding size as all four of these variables can be proxies for size. Second, these separate models aid in addressing the concern of potential inconsistent estimates in a model with all four variables combined (column 5) due to possible multicollinearity. Moreover, the results from the model with all variables combined are also informative as this model provides a robustness check against a possible omitted variables bias affecting other variables of interest such as beta, Tobin's Q, leverage, and liquidity.

In all of the regression specifications, beta enters with a significant coefficient. This shows that companies with high firm-specific risk are more likely to engage in risky acquisition behavior, which is in line with the revealed preferences of these firms' investors. It also might be indicative of the self-serving managerial behavior as executives look to diversify their own

sources of income flows, in line with the argument of Amihud and Lev (1981). In a related manner, this would suggest that firms with more sensitive valuation might be looking to diversify sources of their cash flows, which would be in the interest of the acquiring firms' shareholders.

Tobin's Q enters with significantly negative coefficients in all of the model specifications. This is in accordance with the hypothesis set forth above: Q proxies for growth opportunities (i.e. high Q is indicative of strong growth opportunities) and firms with better growth opportunities opt for safer investment projects that they have the ability to choose from. Low Q firms are those that do not have many growth opportunities and a merger deal might be the best option for growth, hence the higher likelihood of being an acquirer. However, these results contradict empirical results of Lang et al. (1989) and Servaes (1991).

**Table 1**  
**Logit Regression of the Probability that the Firm is an Acquirer**

Variables	(1)	(2)	(3)	(4)	(5)
Beta	0.039*** (0.006)	0.036*** (0.004)	0.035*** (0.000)	0.043*** (0.009)	0.029*** (0.003)
Tobin's Q	-0.169*** (0.000)	-0.147*** (0.005)	-0.129*** (0.002)	-0.159*** (0.001)	-0.217*** (0.000)
Leverage	-0.51** (0.038)	-0.926*** (0.002)	-0.679** (0.011)	-0.835*** (0.005)	-0.931*** (0.005)
Liquidity	0*** (0.000)	0*** (0.000)	0*** (0.000)	0*** (0.000)	0*** (0.000)
R&D Expenditures	0.00003 (0.271)	0.0001* (0.083)	0.0006 (0.166)	0.00002 (0.132)	0.00005 (0.286)
Log of Size	0.186*** (0.000)				0.473*** (0.000)
Log of Earnings		0.216*** (0.000)			0.061 (0.390)
Log of Sales			0.236*** (0.000)		-0.199* (0.069)
Log of Cash Flows				0.131*** (0.000)	-0.0002** (0.061)
Firm FE	No	No	No	No	No
Industry FE	No	No	No	No	No
Year FE	No	No	No	No	No
Observations	83,177	85,628	89,121	85,791	80,164
Pseudo R <sup>2</sup>	0.0922	0.1193	0.0897	0.1154	0.1205
***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively. Robust p-values are in parentheses.					

Using Q as a proxy for managers' ability to locate profitable investment projects, they find a positive relationship between high values of Tobin's Q and bidder returns. It is interesting to note that when viewed from this perspective, the results indicate that those managers who cannot successfully locate profitable projects are more likely to bid for another firm and destroy

shareholder value, which fits within the agency framework. Potentially, these managers might be plagued with a case of hubris.

Possible reasons for conflicting results with those of Lang et al. (1989) and Servaes (1991) are different sample period and different definition of high Q. Both authors devise a dummy variable from Tobin's Q where  $Q > 1$  is classified as a high Q, while  $Q < 1$  is classified as a low Q. Low Q firms are hypothesized to have marginal investments with negative net present value. In this paper, however, Q is included as a continuous variable.

Since multicollinearity is a concern as log of size, log of earnings, log of sales, and log of cash flows may proxy for similar information regarding the firm, it is useful to evaluate the variance inflation factor (VIF) for each predictor in the last model as a diagnostic for multicollinearity. The VIF for beta is 1.02, for Tobin's Q 1.15, for leverage 1.11, for liquidity 1.39, for total assets 5.39, for earnings 1.12, for sales 2.49 and for cash flows 3.36. The estimates for beta, Tobin's Q, leverage, liquidity, and log of earnings do not seem to be significantly affected by multicollinearity. The standard errors for log of size, log of sales, and log of cash flows seem to be inflated due to multicollinearity and therefore, the latter two lose their significance in the model with all variables (column 5).

As a robustness check to these baseline tests, I rerun these analyses with time - , firm - , and industry - fixed effects and report the results in Table 2. Beta and Tobin's Q preserve their respective signs and statistical significance in all the variations of the regressions. Leverage enters with statistically and economically significant negative coefficients in all of the specifications in which the fixed-effects are not controlled for. Once the fixed-effects are added, the relationship turns positive and becomes insignificant under each specification. This might be due to the fact that some industries are highly leveraged and due to certain industry-inherent characteristics there are not many acquirers within these industries. Once these industry effects are controlled for, it becomes clear that leverage does not have a significant impact on the likelihood of a firm being an acquirer.

Furthermore, although liquidity was expected to have a strong impact on the probability of being an acquirer since more liquid firms might be better able to raise capital for M&A projects, the economic impact of this positive relationship is infinitesimal, indicated by lowercase "o" in the regression table. R&D expenditures do not enter significantly in most of the regressions. Log of size, log of earnings, log of sales, and log of cash flows have comparable coefficient magnitudes in respective regressions, and they all enter statistically significant at the 1% level.

Predictions are justified by each of these variables; larger firms, firms with higher earnings, sales, and cash flows are financially more muscular and better prepared to combine businesses, arrange workforce, and create economies of scale and/or scope. This, in turn, implies increased chances of creating value through M&A's and higher probability of being an acquirer. It is worth noting that although this supports the efficiency theory, it does not reject the market power hypothesis. In the last regression with fixed-effects and including all the variables, log of sales, and log of cash flows lose their significance, perhaps due to multicollinearity, while log of earnings is significant.

**Table 2**  
**Logit Regression of the Probability That the Firm Is An Acquirer with Fixed Effects**

	(1)	(2)	(3)	(4)	(5)
Beta	0.054*** (0.008)	0.046*** (0.007)	0.057*** (0.002)	0.065*** (0.004)	0.043*** (0.006)
Tobin's Q	-0.185*** (0.000)	-0.206*** (0.000)	-0.103*** (0.008)	-0.201*** (0.003)	-0.228*** (0.000)
Leverage	0.338 (0.339)	0.293 (0.373)	0.121 (0.605)	-0.144 (0.685)	0.262 (0.497)
Liquidity	0*** (0.000)	0*** (0.000)	0*** (0.000)	0*** (0.000)	0*** (0.000)
R&D Expenditures	0.00001 (0.315)	-0.0008 (0.388)	0.0004** (0.027)	-0.00004 (0.536)	-0.00009 (0.191)
Log of Size	0.344*** (0.000)				0.138*** (0.003)
Log of Earnings		0.374*** (0.000)			0.213** (0.041)
Log of Sales			0.317*** (0.000)		-0.061 (0.419)
Log of Cash Flows				0.342*** (0.000)	-0.0001 (0.869)
Firm FE	Yes	Yes	Yes	Yes	Yes
Industry FE	Yes	Yes	Yes	Yes	Yes
Year FE	Yes	Yes	Yes	Yes	Yes
Observations	81,927	84,376	87,868	84,543	78,891
Pseudo R <sup>2</sup>	0.1491	0.1689	0.1407	0.1611	0.1693
***, **, and * indicate significance at 1%, 5%, and 10% levels, respectively. Robust p-values are in parentheses.					

## CONCLUSION

In summary, the results shed light on certain characteristics of acquiring firms in M&A deals and provide additional insight into merger motives. It should be stated that Beta, Tobin's Q, firm size, earnings, sales, and cash flows are statistically significant predictors of the likelihood of becoming an acquirer. The relationship between the Q and the dependent variable can be attributed to the fact that high Q values proxy for high growth opportunities, and firms with high growth opportunities have a larger set of investment projects to choose from.

Hence, they are able to opt out of investing in M&A's, which are deemed to be highly risky projects in general. On the other hand, larger firms are better able to financially afford large merger deals and manage them in the afterwards in a profitable manner, generating synergy gains. Explanations for the relationship between the probability of being an acquirer and earnings, sales, and cash flows, respectively, follow similarly. Marginal economic impact of above mentioned variables on the dependent variable is moderate. Moreover, the results give some support to efficiency argument, as well as the agency theory, as a merger motive.

## REFERENCES

- Akbulut, M. E., & Matsusaka, J. G. (2010). 50+ years of diversification announcements. *Financial Review*, 45(2), 231-262.
- Alexander, G., & Chervany, N. (1980). On the Estimation and Stability of Beta. *The Journal of Financial and Quantitative Analysis*, 15, 123-137.
- Amihud, Y., Lev, B., (1981). Risk reduction as managerial motive for conglomerate mergers. *Bell Journal of Economics*, 12, 605– 617.
- Amihud, Y., Dodd, P., & Weinstein, M. (1986). Conglomerate mergers, managerial motives and stockholder wealth. *Journal of Banking and Finance*, 10, 401-410.
- Andrade, G., Mitchell, M., & Stafford, E. (2001). New Evidence and Perspectives on Mergers. *Journal of Economic Perspectives*, 15(2), 103-120.
- Asquith, P. Bruner, R., & Mullins, Jr., D. (1983). The Gains to Bidding Firms From Merger. *Journal of Financial Economics*, 11, 121-139.
- Asquith, P. Bruner, R., & Mullins, Jr., D. (1987). Merger Returns and the Form of Financing. *Proceedings of the Seminar on the Analysis of Security Prices*, 34, 115-146.
- Bertrand, M., & Mullainathan, S. (2003). Enjoying the Quiet Life? Corporate Governance and Managerial Preferences. *Journal of Political Economy*, 111, 1043-1075.
- Betton, S., Eckbo, B. E., & Thorburn, K. S. (2008). Corporate takeovers. *Handbook of Corporate Finance: Empirical Corporate Finance*, 2, 291-430.
- Bhagat, S., Dong, M., Hirshleifer, D., & Noah, R. (2005). Do tender offers create value? New methods and evidence. *Journal of Financial Economics*, 76(1), 3-60.
- Bradley, M., & Sundaram, A. K. (2006). Acquisitions and performance: a re-assessment of the evidence. *Working Paper, Duke University*.
- Cai, J., Song, M. H., & Walkling, R. A. (2011). Anticipation, acquisitions, and bidder returns: Industry shocks and the transfer of information across rivals. *The Review of Financial Studies*, 24(7), 2242-2285.
- Denis, D.J., Denis, D.K., & Sarin, A. (1997). Agency problems, equity ownership and corporate diversification. *Journal of Finance*, 52, 135–160.
- Dodd, P. (1980). Merger proposals, management discretion and stockholder wealth. *Journal of Financial Economics*, 8, 105-138.

- Dong, M., Hirshleifer, D., Richardson, S., & Teoh, S. H. (2006). Does investor misvaluation drive the takeover market?. *The Journal of Finance*, 61(2), 725-762.
- Eckbo, B. E. (1983). Horizontal mergers, collusion, and stockholder wealth. *Journal of Financial Economics*, 11, 241-273.
- Fama, E. (1980). Agency problems and the theory of the firm. *Journal of Political Economy*, 88, 288-307.
- Franks, J., R. Harris, R., & Titman, S. (1991). The Postmerger Share-Price Performance of Acquiring Firms. *Journal of Financial Economics*, 29, 81-96.
- Gugler, K., Mueller, D. C., Yurtoglu, B. B., & Zulehner, C. (2003). The effects of mergers: an international comparison. *International Journal of Industrial Organization*, 21, 625-653.
- Hackbarth, D., & Morellec, E. (2008). Stock returns in mergers and acquisitions. *The Journal of Finance*, 63(3), 1213-1252.
- Healy, P., Palepu, K., & Ruback, R. (1992). Does Corporate Performance Improve After Mergers?. *Journal of Financial Economics*, 31, 135-175.
- Jensen, M.C. (1986). Agency costs of free cash flow, corporate finance and takeovers. *American Economic Review*, 76, 323– 329.
- Kaplan, S., & M. Weisbach. (1992). The Success of Acquisitions: Evidence From Divestitures. *Journal of Finance*, 47, 107-138.
- Kim, E. H., & Singal, V. (1993). Mergers and market power: Evidence from the airline industry. *American Economic Review*, 83, 549-570.
- Lambert, R., & Larcker, D. (1987). Executive compensation effects of large corporate acquisition. *Journal of Accounting and Public Policy*, 6, 231-243.
- Lang, L., Stulz, R., & Walkling, R. (1989). Managerial performance, Tobin's Q, and the gains from successful tender offers. *Journal of Financial Economics*, 24, 137-154.
- Langetieg, T. (1978), An Application of a Three-Factor Performance Index to Measure Stockholders Gains from Merger. *Journal of Financial Economics*, 6, 365-384.
- Lehn, K., & Zhao, M. (2006). CEO Turnover after Acquisitions: Are Bad Bidders Fired?. *Journal of Finance*, 61, 1759-1811.
- Loderer, C., & Martin, K. (1990). Corporate acquisitions by listed firms: The experience of a comprehensive sample. *Financial Management*, 17-33.

- Malatesta, P. (1983). The wealth effect of merger activity and the objective functions of merging firms. *Journal of Financial Economics*, 11, 155-181.
- Malmendier, U., & Tate, G. (2008). Who makes acquisitions? CEO overconfidence and the market's reaction. *Journal of Financial Economics*, 89, 20-43.
- Maquieria, C., Megginson, W., & Nail, L. (1998). Wealth Creation versus wealth redistributions in pure stock-for-stock mergers. *Journal of Financial Economics*, 48, 3-33.
- Mitchell, Mark, L., & Erik, S. (2000). Managerial Decisions and Long Term Stock Price Performance. *Journal of Business*, 73, 287-329.
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2004). Firm size and the gains from acquisitions. *Journal of Financial Economics*, 73(2), 201-228.
- Moeller, S. B., Schlingemann, F. P., & Stulz, R. M. (2005). Wealth destruction on a massive scale? A study of acquiring-firm returns in the recent merger wave. *The Journal of Finance*, 60(2), 757-782.
- Montgomery, C.A. (1994). Corporate diversification. *Journal of Economic Perspectives*, 8 (3), 163– 178.
- Officer, M. S. (2003). Termination fees in mergers and acquisitions. *Journal of Financial Economics*, 69(3), 431-467.
- Officer, M. S. (2004). Collars and renegotiation in mergers and acquisitions. *The Journal of Finance*, 59(6), 2719-2743.
- Savor, P. G., & Lu, Q. (2009). Do stock mergers create value for acquirers?. *The Journal of Finance*, 64(3), 1061-1097.
- Servaes, H. (1991). Tobin's Q and the gains from takeovers. *The Journal of Finance*, 46, 409-439.
- Shleifer, A., Vishny, R. (1989). Managerial entrenchment, the case of manager specific investments. *Journal of Financial Economics*, 25, 123– 139.
- Smith, C., & Watts R. (1992). The Investment Opportunity Set and Corporate Financing, Dividend, and Compensation Policies. *Journal of Financial Economics*, 32, 263-292.
- Stigler, G. J. (1964). A theory of oligopoly. *Journal of Political Economy*, 72, 44-61.
- Varaiya, N., & Ferris, K. (1987). Overpaying in Corporate Takeover: The Winner's Curse. *Financial Analysts Journal*, 43, 64-70.

***About the Author:***

**Vusal Eminli** is an Assistant Professor of Finance at the Eberhardt School of Business at the University of the Pacific. He received his Ph.D. and M.S. degrees in Economics with concentrations in Finance and Industrial Organization from Purdue University, and his B.A. degree in Mathematics and Economics from Berea College. Dr. Eminli's primary research interests are in corporate finance, corporate governance, and industrial organization. Most of his work to date has focused on mergers and acquisitions, innovation, and the medical devices industry.

# USERS' PERCEPTIONS OF USEFULNESS AND RELEVANCE OF FINANCIAL STATEMENT NOTE DISCLOSURES AND INFORMATION OVERLOAD

Elsie Henderson  
Mount Saint Vincent University

## ABSTRACT

*The objective of the financial statement note disclosures is to provide relevant and useful information for decision-making (Kieso et al., 2016). However, there are concerns financial statement note disclosures have become so extensive that there is now information overload and users may lose sight of important information (Iannaconi, 2012; Morunga & Bradbury, 2012; Radin, 2007). A qualitative, case study was performed to understand users' perceptions of financial statement note disclosures. This study looked specifically at financial statements prepared under International Financial Reporting Standards (IFRS). During interviews participants (creditors, investors, financial analyst, and accountants) answered questions pertaining to notes and were asked to identify notes that were useful and not useful for decision-making. The study will further inform standard setters as they develop a framework for disclosures and will extend the theory of information overload to financial statements.*

*Keywords: Users perceptions, financial statement note disclosures, relevant and useful information*

## INTRODUCTION

Financial statement note disclosures are required in the preparation of financial statements to provide additional, useful, and relevant information to the users of the financial statements for making decisions. Full disclosure is an element of financial statement note disclosure and is the basis of the Efficient Market Hypothesis which requires all relevant information be available to all parties. As equity and debt markets have continued to become more and more complex more disclosure is required to add clarity to the financial statements (Kieso et al., 2016). The increased disclosure has resulted in other consequences. Morunga and Bradbury (2012) reported a concern there is now information overload in financial reporting, including financial statement note disclosures. Anecdotal evidence suggests that financial statement note disclosures are read by very few: exchange commission, accountants, company's lawyers and preparers (Cascino et al., 2013; Radin, 2017).

An important question is whether the increased disclosure has added value to the decision-making of the users of financial statements (Brown & Tarca, 2012; Morunga & Bradbury, 2012). If the notes are not being read by users, for example, then the information is not being used and is therefore not relevant. Useful information would be read, understood, not too long or complex and relevant. Further information on users' perceptions of financial statement note disclosures will inform standard setters as they work toward a new disclosure framework (Brown & Tarca, 2012; Morunga & Bradbury, 2012).

Related to the question on relevance and usefulness is consideration of whether there is information overload in financial statement note disclosures. Not all researchers believe there is information overload in financial statement note disclosures. Barker et al. (2013) indicated there was no information overload because the markets react positively to increased disclosures. However, Brown and Tarca (2012) and Morunga and Bradbury (2012) reported information

overload concerns and called for empirical studies to support information overload in financial reporting.

This study looked specifically at financial statements prepared under International Financial Reporting Standards (IFRS). Participants (creditors, investors, financial analyst, and accountants) answered questions pertaining to the notes and were asked to identify notes that were useful and not useful for decision-making. This study examined users' perceptions of financial statement note disclosure (i.e., relevance and use in decision-making) in order to further inform standard setters and extend the theory of information overload to financial statement note disclosure.

## LITERATURE REVIEW

There has been an increase in financial statement note disclosure over time (Bloomfield, 2012; Iannaconi, 2012; Radin, 2007), resulting in questions of whether there is a condition of information overload in note disclosures (Morunga & Bradbury, 2012; Radin, 2007). Researchers disagree about whether there is overload (Barker et al., 2013) and how to determine whether disclosure is necessary in the financial statement notes (Bloomfield, 2012; Heffer, 2013). Some researchers indicated overload is an issue and there should be less disclosure (Morunga & Bradbury, 2012; Radin, 2007), while other researchers indicate because markets react positively to increased disclosure there is no information overload (Barker et al., 2013).

Before changes are made to disclosure requirements, there needs to be an understanding of users' perceptions of the disclosures and whether they add value to the user through improved decision-making (Brown & Tarca, 2012; Morunga & Bradbury, 2012). Specifically, information on current disclosures from the perspective of the users is needed. The purpose of this study was to determine financial statement note disclosure users' perceptions about notes (relevance and use in decision-making and differences across users) in order to inform standard setters and extend the theory of information overload to financial statement note disclosure.

### Financial statements and Financial Statement Note Disclosures

Financial statements are used to communicate relevant or useful financial information to users or interested parties (Barker et al., 2013; Kieso et al., 2016). Financial statements include statements of financial position, income, cash flows, changes in equity, and financial statement note disclosures (Kieso et al., 2016). Financial statement note disclosures are an integral part of financial statements that provide additional, relevant information about a company's performance and financial position.

The purpose of this additional information is to increase understandability and transparency of financial statements by providing information considered useful for decision-making (Kieso et al., 2016). However, excessive information may result in information overload, a condition whereby information is not processed and therefore not useful to the user (Holton & Chiyi, 2013; Jackson & Farzaneh, 2012). Although, researchers expressed concerns financial statement note disclosures have become excessive, and there is now information overload in financial statement note disclosures, evidence of information overload in financial statement note disclosures is anecdotal (Cascino et al., 2013; Radin, 2007).

## **Information Overload**

Although standard setters assumed information overload, there is no empirical evidence of information overload in financial statement note disclosures (Barker et al., 2013). Using 170 firms listed on the New Zealand stock exchange, Morunga and Bradbury (2012) found annual reports had increased by 29% (primarily in financial statement note disclosures) under IFRS thus resulting in increased load for users and more likelihood of information overload. Other researchers focused on increased length in annual reports, which include financial statement note disclosures, in terms of information overload (Iannaconi, 2012; ICAS, NZICA 2011) or disclosure of immaterial information (Barker et al., 2013; Bloomfield, 2012). In 2007, Radin shared anecdotal evidence financial statement notes are not being read, which would indicate possible information overload. Based on the lack of empirical information to support information overload in financial statement note disclosures, this paper will expand the theory of information overload to financial statement note disclosure.

## **Information Overload or Efficient Market Hypothesis**

Regulators for capital markets and standard setters for financial statements have long purported full disclosure of all relevant information to all users to ensure all relevant information is available for decision-making (Cascino et al., 2013). Capital markets evolved through the concept of requiring transparency and disclosure of all relevant information under the efficient market hypothesis. The efficient market hypothesis stands in contrast to information overload and is based on the premise all parties have access to all information, so there is information symmetry in capital markets (Kieso et al., 2016; Kitson, 2012). Indeed, Barker et al. (2013) indicated markets do react positively to increased disclosure. Although regulators and standard setters required disclosure of all relevant information, there are now concerns there are excessive financial statement note disclosures under IFRS, which may result in information overload for users of the information (Morunga & Bradbury, 2012).

Information overload and the efficient market hypothesis may have conflicting perspectives if information becomes excessive. The efficient market hypothesis promotes the use of full disclosure (Cascino et al., 2013), whereas the theory of information overload suggests users may not be able to process information if it is overly excessive (Blummer & Kenton, 2014; Jackson & Farzaneh, 2012). Under current disclosure practices used in financial statements, there are questions on whether there is information overload in financial statement note disclosures under IFRS (Morunga & Bradbury, 2012; Radin, 2007). However, there is a requirement for full disclosure of all relevant information under both the efficient market hypothesis and under IFRS (Kieso, 2016; Kitson 2012). Regulators and standard setters are ultimately responsible for disclosure requirements and information is needed about the current state of financial statement note disclosures.

## **Financial Reporting**

There are many studies related to financial reporting and information overload based out of the United States and other countries but no studies out of Canada. Most of the studies on financial reporting relate to areas of financial reporting such as 10-k filings or annual reports. For example, Cheng, Liao, and Zhang (2013) and Carbone and Seem (2014) discussed excessive

disclosures in United States SEC filings. Other research in the United States discussed excessive disclosure requirements in annual reports (i.e. Heffer, 2013; KPMG, 2011; Lawrence, 2013; Pounder, 2012). There is research from Europe on overall financial reporting disclosures (Avgouleas, 2013; ICAS & ICAZ, 2013). Other research has focused on a framework for disclosure: i.e. the United States- Holzmann and Ramnath (2013) and Lawrence (2013), and Europe - Barker et al. (2013). There is very little research that focuses exclusively on financial statement note disclosures; Radin (2007) and Iannaconi (2012).

There has been a significant increase in financial statement note disclosure over time (Bloomfield, 2012; Iannaconi, 2012; Radin, 2007), which has resulted in questions of information overload in these note disclosures (Morunga & Bradbury, 2012; Radin, 2007). A study based on the conversion to International Financial Reporting Standards (IFRS) in New Zealand showed a 29% increase in the length of annual reports which includes financial statements (Morunga & Bradbury, 2012). Radin (2007) demonstrated statements (10-K reports) in the U.S. could be as large as 200 pages.

## RESEARCH QUESTIONS

This study examines users' perceptions of financial statement note disclosure (i.e., relevance and use in decision-making) in order to further inform standard setters and extend the theory of information overload to financial statement note disclosures. For this research individual users use financial statements in the role of creditor, financial analysts, investor or accountant. When discussing all individuals in one role the term user group (i.e. creditors) is used. This research is part of a larger study. The following research questions were addressed in this paper:

*Question 1. What are users' perceptions of the relevance and usefulness of financial statement note disclosure in decision-making?*

*Question 2. How do financial statement note disclosure user groups (creditors, financial analysts, investors, and accountants) differ in their perceptions of relevance and usefulness of the notes in decision-making?*

## METHODOLOGY

Three financial analysts, three accountants, four creditors, and five investors were interviewed for this qualitative, case study. Two additional investors and one additional creditor were interviewed to ensure the breadth of each group was included. These participants were from Eastern Canada and were selected from public directories and the researcher's network. It was anticipated interviews with three participants from each group would lead to saturation; however, more interviews were required for investors and creditors. Interviews for each group stopped when saturation was reached.

Purposive sampling and screening questions were used to ensure participants met the predetermined inclusion criteria (Cozby & Rawn, 2012). Participants were required to have had at least one course in accounting to ensure they had some knowledge of financial statements. Another inclusion criterion was each participant had to have reviewed at least one financial statement to ensure meaningful information was provided. Additional inclusion criteria included

a professional accounting designation for accountants and financial certifications such as certified financial analyst for the financial analysts. Inclusion criteria for creditors was holding responsibility for authorizing credit. The use of these inclusion criteria resulted in some homogeneity of the sample (within each user group); however, it was important to note that the overall sample was heterogeneous (across all user groups) to allow for a broad and diverse range of perceptions (Cozby & Rawn, 2012) and to ensure any common themes established from analysis of the interview data could be more widely generalized in relation to the phenomena (Robinson, 2013).

## **Materials and Instrumentation**

Data were collected via face-to-face or Skype interviews. An interview guide was used to facilitate data collection in the interviews. The use of an interview guide established consistency in the process and enhanced analysis and comparability (Yin, 2014). The same interview guide, with minimum modifications for appropriate terminology for each group, was used for all four different groups of participants. The researcher took notes during the interview process and requested permission to also audio record each interview. All interview responses were transcribed.

### **Interview guide**

To ensure consistency among interviews, a researcher-developed 8 question interview guide was used (see Appendix 1). Questions were open-ended to encourage interviewees to make open responses. The interview questions were based on the objective of financial statement note disclosures which is to provide users with additional relevant information useful for decision-making (Kieso et al., 2013) and were developed to address the study research questions. Specifically, the questions had been formulated to gather question responses related to the information usefulness of financial statement note disclosures as called for in research by Brown and Tara (2012); Lawrence (2013); and Morunga and Bradbury (2012). To establish validity, a field test was performed.

The field test allowed for the identification of questions lacking clarity and needing modification. The interview guide was divided into three sections. The first section included a question designed to gather demographic information about each participant, including education, designations, and occupation as well as the participant's reason for reviewing financial statements. The second section included questions soliciting responses on the participant's perception of the usefulness and relevance of the financial statement note disclosures (research question one). Finally, the third section included a sample list of financial statement mandatory note disclosures and participants were asked to comment on the usefulness and relevance of each note. In addition to providing additional information, section three added credibility to the data collected related to research question one providing some verification of responses.

### **Data collection, Processing, and Analysis**

At the start of each interview, a letter of informed consent was presented to each interviewee. The informed consent letter explained the purpose of the study, provided information on the researcher, contact information and ethics approval, the time commitment

required for the study and informed consent for the study. Once the interviewee had signed the informed consent letter, the interview proceeded as scheduled.

The researcher took reflective notes during and after each interview as well as audio recorded the session with permission of the participant. Interview responses were transcribed from the audio recording as soon after the interview as possible. A transcriber, who had signed a confidentiality agreement, was hired to transcribe the interviews. The researcher compared the transcriptions to the original recordings. Each participant's perception of financial statement note disclosure was coded and analyzed individually. Analysis was performed on each subunit to identify common themes and relationships emerging as well as across subunits. From this patterns were analyzed for financial statement note disclosure users as a whole, for each subunit of users, between each subunit, and across subunits. A qualitative data analysis (QDA) program, MAXQDA 12, was used to facilitate the data analysis.

## **RESULTS**

The primary unit of analysis for this study was users' perceptions of financial statement note disclosures. The unit of analysis was further broken out into subunits by each group of user: accountants, financial analysts, creditors, and investors. The sample was comprised of 15 individuals.

### **Participant demographic information**

Table 1 shows participant demographic information collected for gender, education, career position, industry, and experience. The sample was mostly male (80%), and most participants (86.7%) had more than 10 years of experience. All participants had a higher education with 46.7% having a Bachelor's degree, 33.3% having a Master's degree, and 6.7% having a Doctoral degree. Almost half of the participants, seven or 46.7%, held a Chartered Professional Accountant (CPA) designation and three or 20.0% held a Chartered Financial Analyst (CFA) designation.

The sample represented a diversity of career positions and work industries. Participants in the accounting group held a CPA designation and worked in a role including financial statement note preparation of publicly traded companies. Other designated accountants in the study were working in roles as creditors (20%), analysts (6.67%), or investors (6.67%) and were not preparing financial statements but used financial statements for decision-making. These other accountants were selected for their positions of creditors, analysts, and investors and not because of the accounting credential.

### **Research Questions**

A total of 801 text segments were coded during analysis for the whole study and used to identify themes in the data. The codes included a code for each of the 8 interview questions which enabled the researcher to pull all responses to each research question. There were 70 codes developed as a result of researcher interpretations of the data within MAXQDA12. Themes were identified from coding and analysis of transcriptions for research question one (see Table 2). Research question two asked how financial statement note disclosure user groups (creditors, financial analysts, investors, and accountants) differ in their perceptions of relevance

and usefulness of the notes in decision-making. Themes and sub-themes identified in the analysis of research question one were compared and further analyzed by group to answer research question two.

**Table 1**  
**Participant Demographic Information (n=15)**

<b>Demographic Information</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Gender</b>		
Male	12	80
Female	3	20
<b>Education</b>		
Bachelor	8	53.3
Masters	6	40.0
PhD	1	6.7
<b>Designation</b>		
CPA	7	46.7
CFA	3	20.0
<b>Career Position</b>		
CFO, Controller	3	20.0
Credit Approver	4	27.7
Investment Analysts	2	13.3
Investment Broker	2	13.3
Professor	2	13.3
Mergers, acquisitions	2	13.3
<b>Years of Experience</b>		
1 to 5 years	2	13.3
5 to 10 years	0	0
Greater 10 years	13	86.7
<b>Work Industry</b>		
Airline	1	6.7
Education	2	13.3
Financial Services	4	27.7
Investment Analyst	2	13.3
Investment Broker	2	13.3
Media	1	6.7
Oil and Gas	1	6.7
Real Estate	2	13.3

## **Research Question One**

Research question one asked what are financial statement note disclosure users' perceptions of the relevance and usefulness of the notes in decision-making. Interview guide questions 3a, 3d, 5, 6, and 7 were designed to identify whether participants' perceptions were financial statement note disclosures were relevant and useful to decision-making. There were 466 occurrences of codes included in the data analysis related to the usefulness and relevance of financial statement note disclosures. The most common codes were read, useful, decision-useful, not useful, too detailed, transparency, specific items, and thorough. Four common themes emerged from findings related to financial statement note disclosure users' perceptions of the relevance and usefulness of the notes in decision-making. First, participants believe financial statement note disclosures are an integral part of the financial statements. Second, there were mixed views on whether the amount of financial statement note disclosures reduce usefulness. Third, participants perceived some financial statement note disclosures are useful for decision-making while fourth, participants perceived some financial statement note disclosures are not useful for decision-making.

### **Theme 1.1: An integral part of financial statements**

All participants, either through indicating financial statement note disclosures were part of their review or by explicitly stating financial statements without note disclosures would not be useful, agreed financial statement note disclosures were an integral part of financial statements. Question 3a asked whether the participant read financial statement note disclosures. Two of the five participants from the investor group (13.3% of total participants) did not read financial statement note disclosures because they accessed required information from secondary data such as analysts' reports and relied on financial analysts to review the note disclosures, yet, both participants indicated financial statements would not be useful without the financial statement note disclosures. Just one participant, a creditor, indicated he read all financial statement note disclosures. The remaining 12 participants (80.0%) indicated they read specific notes providing information related to decisions being made.

Question 3d asked participants who should read financial statement note disclosures. Although most participants only read specific areas of the notes, many had views certain groups should be reading financial statement note disclosures. Four participants did not provide a response to this question. Eight of the 11 participants (72.7%) who responded indicated investors (including investment brokers), should read the financial statement note disclosures. One participant, an individual investor relied on the investment broker to read financial statement note disclosures. Other participants (36%) stated analysts should read the financial statement note disclosures. Three participants, (27%) suggested creditors should read financial statement note disclosures and three participants suggested management should read these disclosures. Auditors and regulators were identified as classes that should read financial statement note disclosures.

### **Theme 1.2: Mixed Views Amount of Financial Statement Note Disclosures Reduces Usefulness**

The most cited reasons for not reading the financial statement note disclosures related to time, the amount of detail, and lack of understanding. These are all indicators and support that there is information overload in financial statement note disclosures. There were 46 occurrences

of codes related to the amount of financial statement note disclosures. The 13 participants who read the financial statement note disclosures were asked for thoughts related to financial statement note disclosures (question 5).

**Table 2**  
**Themes and Sub-themes from Research Question 1**

Research Question	Themes	Sub-themes
RQ1: What are financial statement note disclosure users' perceptions of the relevance and usefulness of the notes in decision-making?	<ul style="list-style-type: none"> <li>• An integral part of financial statements</li> <li>• Amount of disclosure</li> <li>• Useful</li> <li>• Not useful</li> </ul>	<ul style="list-style-type: none"> <li>• Read specific items</li> <li>• Too much detail</li> <li>• Too much work</li> <li>• Not enough time</li> <li>• Transparency</li> <li>• Generic</li> <li>• Material</li> <li>• Thorough</li> <li>• Extensive</li> <li>• Not enough information</li> <li>• Quality</li> <li>• Relevance</li> <li>• Secondary data</li> <li>• More useful</li> <li>• Became familiar</li> <li>• More succinct</li> <li>• MD&amp;A</li> </ul>

Three participants expressed concern about too much detail and a lot to work through which reduced usefulness. However, one was reluctant to say too much detail because transparency is necessary and indicated if he were to read all note disclosures there would need to be less disclosures. Another participant made reference to “overkill” in regards to the amount of disclosure, but when asked to clarify whether this meant excessive, the response was “not excessive but thorough.” Further, two participants stated sometimes specific items did not have enough information.

There were other participants who liked the depth and volume of information or the amount of valuable information from which they could select what was needed for their purposes but would never read all the disclosures provided. Others indicated the need to be fairly educated or an accountant to understand some financial statement note disclosures, while one stated the skill to discern needed information in the financial statement note disclosures had been learned over time. Two participants stated the management discussion and analysis (MD&A) was often used because the information was perceived to be better laid out and easier to read in the MD&A.

### Theme 1.3: Note disclosures useful for decision making.

There were 288 occurrences of codes related to useful notes which included useful, decision-useful, material, and specific items. Three participants (accountants) all indicated materiality was used when determining whether an item was useful for decision-making and included in financial statement note disclosure. Question six asked the remaining 10 participants to describe any items in the financial statement note disclosures useful to their decision-making. Capital asset disclosures and debt disclosures were the most identified. Table 3 provides the details of the results.

**Table 3**  
**Items of Financial Statement Note Disclosure Perceived as Useful**

<b>Participant</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>	<b>12</b>	<b>13</b>	<b>14</b>
Debt	x		x		x		x	x	x
Capital Assets			x	x				x	x
Segmented Reporting							x		x
Contingent Liabilities	x		x	x					
Subsequent Events	x								x
Tax							x		
Executive Compensation			x						
Asset Retirement Obligation			x						
Depreciation Policy			x						
Receivables					x				
Payables					x				

### Theme 1.4: Items of Financial Statement note Disclosures Perceived as Not Useful

Similarly, the 13 participants who read some or all of the financial statement note disclosures were asked whether there were any note disclosures not useful for decision-making (interview question 7). There were 167 occurrences of codes including not useful, not enough detail, too much detail, and generic. Table 4 shows that accounting policies notes, financial instruments notes, subsidiaries and controlling interest notes, and other comprehensive income notes were identified most as not being useful. Three participants indicated most notes were not useful for decision-making while two participants indicated all notes were useful and did not identify any specific financial statement note disclosure not useful for decision-making.

Overall, the low rate at which financial statement note disclosures are being read, the indications of too much detail, complexity, difficulty in understanding, and choosing alternative sources of information are support there is information overload in financial statement note disclosures. Notes on accounting policies, financial instruments, subsidiaries and controlling interests, and other comprehensive income were identified most as not being useful.

**Table 4**  
**Financial Statement Note Disclosures Not Useful for Decision-Making**

Note disclosure	Participants													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>General</b>														
All notes useful									x	x				
Most notes not useful				x		x								x
<b>Specific notes</b>														
Accounting Policies	x		x		x					x	x		x	x
Financial Instruments	x		x			x				x		x	x	
Subsidiaries and Controlling Interest	x					x	x				x		x	
Other Comprehensive Income	x										x	x	x	x
Defined Benefit	x									x		x		
Contingent Liabilities							x			x				x
Share-based plans							x			x		x		
Tax	x						x							x
Employee Benefits	x									x				x
Earnings per Share	x						x	x						
Deferred Tax												x		x
Investment Property	x													
Intangible Assets														
Goodwill and Impairment														

### Research Question Two

Research question two asked how financial statement note disclosure user groups (creditors, financial analysts, investors, and accountants) differ in their perceptions of relevance and usefulness of the notes in decision-making. To answer this question the results of research question one related to notes not useful for decision making were analyzed and compared by user groups: creditors, financial analysts, investor, and accountants. Participant responses had been coded in MAXQDA by user group to facilitate this analysis.

There was consensus that financial statement note disclosures were an integral part of financial statements. However, two investors indicated they did not read the notes but relied on other secondary data for information. Group perceptions were mixed on financial statement note disclosures that were not useful. No specific note disclosure was identified as being not useful predominately by one group. The results were more consistent across groups than not. There were no accountants or financial analysts who indicated financial statement note disclosures were not useful for decision-making; however, one investor and two creditors indicated most notes were not useful for decision-making. Accounting policies, financial instruments and other comprehensive income were problematic, particularly for accountants and financial analysts as shown in Table 5.

**Table 5**  
**Financial Statement Note Disclosures Not Useful for Decision-Making**

Note disclosure	Participants			
	Accountants	Financial Analysts	Creditors	Investors
<b>General</b>				
All notes useful		1	1	
Most Notes not useful			2	1
<b>Specific</b>				
Accounting Policies	3	3	1	1
Financial Instruments	3	3	1	
Subsidiaries and Controlling Interest	2	1	1	1
Other Comprehensive Income	2	2	2	

### DISCUSSION

Research question one asked what are financial statement note disclosure users' perceptions of the relevance and usefulness of the notes in decision-making. Overall the answer to the question was users perceive financial statement note disclosures to be an integral or essential part of the financial statements, however, many notes are not read by users and therefore, not all notes are relevant or useful for their decision-making. Just one of the fifteen participants indicated he read all the notes. This should be somewhat disturbing considering some past business failures did have adequate disclosures but the notes were not read (i.e. Enron).

Even though financial statement note disclosures are perceived as being an integral part of the financial statements, there are concerns about the amount of detail in financial statement note disclosures. Many users skim the notes for information that is relevant and useful for their decisions which may result in missed information. If there was not information overload, perhaps more individuals would read the notes. Thus there is support for information overload in financial statement note disclosures. More succinct writing and more tabular or graphic presentation should be explored.

Some users are willing to accept the amount of financial statement note disclosures, perceiving more information results in more transparency. Overall, only specific financial statement note disclosures are read by most users and there are some financial statement note disclosures viewed as not useful. The most identified useful notes were capital asset disclosures and debt disclosures followed by segmented reporting disclosures and contingent liability disclosures. Why are these notes read? Is it because they are more relevant to the current and future operations of the business? In terms of not useful disclosures, several users indicated most financial statement note disclosures were not useful. The most commonly identified notes as not being useful included accounting policies disclosures, financial instrument disclosures, subsidiaries and controlling interests disclosures, and other comprehensive income disclosures. Why are these notes not read? These notes are sometimes more generic or more complex than notes identified as being useful. Even some accountants might have difficulty with some of these notes. Also, these notes may be considered less relevant to the current and future operations.

There should be detailed reviews of what is being included in these notes as a means of exploring changes that would result in these notes being more useful.

There were views of who should read the notes to the financial statements. Participants perceived that other groups should be reading the notes, yet, none were. This is a problem since important information may not be recognized. Or are the notes not meeting the intended objective of adding relevant and useful information?

When comparing user groups' perspectives' of notes that were not useful, there were similarities between groups, particularly accountants and financial analyst who identified most of the items. Although there were investors and creditors who felt the notes were not useful as a whole, others groups identified the accounting policy notes, financial instrument notes, and other comprehensive income notes as not being useful. Most of these were from accountants and financial analysts. Is this because many creditors and investors do not pay any attention to them because of the complexity? There were no accountants or financial analysts who believed financial statement notes were not useful as a whole.

Users' perceptions of financial statement note disclosures do support there is information overload in the notes. Generally, users did not read the notes because they were too long or had too much detail. This supports a condition of information overload and a need to conduct further research to investigate the amount and detail being provided in the notes.

## CONCLUSION

This study examined users' perceptions of the relevance and usefulness of financial statement note disclosures and information overload in the financial statement notes. Although, the general consensus is the notes are an integral part of the financial statements, there was a strong indication much of the information was not read because of the amount or complexity. Thus there is support for the condition of information overload in the financial statement note disclosures. Never the less, users were reluctant to suggest information to be removed. Consideration should be given to more succinct writing, tables and graphic presentation and whether certain boilerplate disclosure is adding value to the financial statements. In particular, accounting policy notes, financial instruments notes, and other comprehensive income were identified as not being useful. .

The study included the perspectives of accountants, investors, creditors, and financial analysts. This study was a qualitative study with just 15 participants. However, it does provide the foundation for performing the study on a much larger scale using a survey instrument. This would provide more in depth information on users' perception of financial statement note disclosures. Such information would further inform standard setters as they develop a framework for disclosures.

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## REFERENCES

- Avgouleas, E. (2009). The global financial crisis and the disclosure paradigm in European financial regulation: The case for reform. *European Company and Financial Law Review*, 6(4), 440-475. Retrieved from doi: 10.1515/ECFR 2009.440
- Barker, R., Barone, E., Birt, J., Gaeremynck, A. McGeachin, A. Marrton, J., & Moldovan, R. (2013). Response to the EAA FRSC to the EFRAG/ANC/FRC discussion paper: Towards a disclosure framework for the notes. *Accounting in Europe*, 10(2), 1-26. Retrieved from doi: 10.1080/17449480.2013.772715
- Bloomfield, R. (2012). A pragmatic approach to more efficient corporate disclosure. *Accounting Horizons*, 26 (2), 357-370. Retrieved from doi: 10.2308/acch-10261
- Blummer, B., & Kenton, J. (2014). Reducing patron information overload in academic libraries. *College & Undergraduate Libraries*, 21, 115-135. Retrieved from doi: 10.1080/10691316.2014.906786
- Brown, T., & Tarca, A. (2012). Ten years of IFRS: Practitioners' comments and suggestions for research. *Australian Accounting Review*, 63(22), 319-330. Retrieved from doi: 10.1111/j.1835-2561.2012.00198.x
- Carbone, D., & Seem, A. (2014). SEC's disclosure reform: less is more. *International Financial Law Review*, 33(6), 112.
- Cascino, S., Clatworthy, M., Osma, B., Gassen, J., Imam, S., & Jeanjean, T. (2013). The use of information by capital providers. Academic literature review. *EFRAG European Financial Reporting Advisory Group*, December, 1-84
- Cheng, L., Liao, S., & Zhang, H. (2013). The commitment effect versus information effect of disclosure – evidence from smaller reporting companies. *The Accounting Review*, 88(4), 1239-1263. Retrieved from doi: 10.2308/accr-50416
- Cozby, P., & Rawn, C. (2012). *Methods in behavioral research Canadian ed.* Whitby, On: McGraw Hill Ryerson.
- Holton, A. E., & Chyi, H. I. (2012). News and the overloaded consumer: Factors influencing information overload among news consumers. *Cyber Psychology, Behavior, and Social Networking*, 15(11), 619-624. Retrieved from doi:10.1089/cyber.2011.0610
- Holzmann, O. & Ramnath, R. (2013). FASB's disclosure framework project. *Wiley Online Library*. Retrieved from doi: 10.1002/jcaf.21833
- Iannaconi, T. (2012). Disclosure overload. *Financial Executives*, March, 28-31. Retrieved from <http://www.financialexecutives.org>

- ICAS, NZICA (2011). Losing the excess baggage – reducing disclosures in financial statements to what is important. *The Institute of Chartered Accountants of Scotland (ICAS) and the New Zealand Institute of Chartered Accountants (NZICA)*. Retrieved from <http://www.nzica.com/reducingdisclosures>
- Jackson, T., & Farzaneh. P (2012). Theory-based model of factors affecting information overload. *International Journal of Information Management*, 32, 523-532. Retrieved from doi: 10.1016/j.ijinfomgt-2012.04.006
- Kieso, D., Weygandt, J., Warfield, T., Young, N., Wiecek, I. & McConomy, B. (2013). *Intermediate Accounting, 10<sup>th</sup> Canadian ed.* Mississauga, Ontario: John Wiley & Sons Canada, Ltd.
- Kitson, M. A. (2012). Controversial Orthodoxy: The efficient capital market hypothesis and loss causation. *Fordham Journal of Corporate & Financial Law*, 18(1), 191-231.
- Lawrence, A. (2013). Individual investors and financial disclosure. *Journal of Accounting and Economics*, 56, 130-147. doi: 10.1016/j.jacceco.2013.05.001
- Morunga, M. & Bradbury, M. (2012). The Impact of IFRS on Annual Report Length. *Australasian Accounting, Business and Finance Journal (AABFJ)* 6 (5), 47 – 64. Retrieved from <http://ro.uow.edu.au/aabfj/vol6/iss5/>
- Pounder, B. (2012). Full disclosure vs. effective disclosure. *Strategic Finance*, August, 17-18. Retrieved from <http://www.imanet.org/resources-publications/strategic-finance-magazine/issues/August%202012>
- Radin, A. (2007). Have we created financial statement disclosure overload? *The CPA Journal*, 6, 8-9. Retrieved from <http://www.cpajournal.com/>
- Robinson, O. (2013). Sampling in interview-based qualitative research: A theoretical and practical guide. *Qualitative Research in Psychology*, 11, 25-41. Retrieved from doi: 10.1080/14780887.2013.801543

### ***About the Author:***

**Elsie Henderson** is a faculty member in accounting at the Department of Business & Tourism, Mount Saint Vincent University where she teaches Intermediate Accounting, Auditing and Advanced Accounting. Dr. Henderson is a professional accountant, CPA CA, and is motivated to assist students pursuing a career in accounting. She earned her PhD in 2016. Her areas of research interest are ethics, particularly in accounting, and financial statement note disclosures.

## **Appendix 1**

### **Interview Guide**

1. Please tell me about yourself. Please include education and occupation. Why do you review financial statements?
2. Think back to a recent financial statement that you have reviewed. Do not disclose the name on the company financial statements or any names of individuals. Would you describe the company?
3. Were the financial statement note disclosures part of the review?
  - a. If no, why were the financial statement note disclosures not part of your review?
  - b. Who do you think should review financial statement note disclosures?
  - c. How would you feel if there were no financial statement note disclosures?
4. Describe types of decisions you make based on the financial statements in general?
5. Think back to a recent financial statement that you have reviewed. Would you describe to me your thoughts related to the financial statement notes in particular?
6. Describe items in the notes that you found were useful to your decision-making.
7. Describe items in the notes that you found were not useful to your decision-making.
8. Using the attached list of mandatory disclosures required by IFRS, circle any you would not use. Comment on any that you think do not add usefulness to your decision-making. A recent financial statement with note disclosure is provide for your reference if required.

# IS ECONOMIC VALUE ADDED SUPERIOR TO EARNINGS AND CASH FLOWS IN EXPLAINING MARKET VALUE ADDED? AN EMPIRICAL STUDY

Ahmad N. Obaidat  
Tafila Technical University

## ABSTRACT

*This study investigates if Economic Value Added (EVA) is superior to Net Operating Profit after Tax (NOPAT) and Net Cash Flow (NCF) in explaining the change in the Market Value Added (MVA) of the non-financial firms listed on Amman Stock Exchange (ASE) for the year 2016. The results indicated that NCF has the strongest power in explaining the change in MVA, followed by EVA. The results also indicated that the NOPAT does not add any additional significant explanatory power to NCF and EVA in explaining the change in MVA. Finally, this study recommends the use of EVA as an enhancement tool to the existing traditional accounting performance measures, not as a substitute to them.*

*Keywords: Economic value added, earnings, cash flow, market value added*

## INTRODUCTION

Due to the changes in the business environment, business community is looking for more powerful performance measures that overcome the problems associated with the traditional accounting measures, in terms of emphasizing shareholders value maximization, which has become the obsession for managers and capital providers. The traditional accounting measures have been criticized because they failed to represent faithfully: the factors that drive shareholder value (Chari, 2009), profitability (Al-Mamun & Abu-Mansor, 2012), and the financial situation of the firms (Bluszcz, Kijewska & Sojda, 2015).

In recent years, firms have been focusing on creating value for their shareholders (Sirbu, 2012), and the value maximization has become a well accepted objective among them (Bhasin, 2013), so the attention should be paid to the elements of shareholders value creation (Ganea, 2015). In this regard, new performance measures have been introduced (Abdeen & Haight, 2002; Chari, 2009), such as Economic Value Added (EVA), Market Value Added (MVA), Cash Flow Return on Investment (CFROI), Total Shareholder Return (TSR), Shareholder Value Added (SVA), and Value Added Management (VAM).

EVA, which is considered one of the most popular value indicator measure, is a trade mark developed in the early 1990s by Stern Stewart & Co., a New York based consulting firm that claimed that EVA is superior to traditional accounting measures in measuring shareholder value. The idea behind EVA is that the firm adds value to shareholders if it earns more than the cost of capital employed, where the cost of capital includes the total costs of borrowed capital and equity capital. In other words, EVA is the profit earned by the firm minus the cost of capital. If EVA is positive, the firm is creating value for its shareholders, and if it is negative, the firm is destroying value. So, EVA differs in that it considers the cost of all capital employed, and not just the cost of borrowed capital as the traditional accounting measures do.

Many researchers considered EVA helpful in: indicating how successful a firm is in creating value for shareholders (Epstein & Young, 1998), making financial decision, (Goldberg,

1999), analyzing capital budget and securities (Kramer & Peters, 2001), valuing investments (Sparling & Turve, 2003), enhancing business environment (Tsuji, 2006), measuring performance (Sharma & Kumar, 2012), identifying investment opportunities (Bhasin, 2013) and determining remuneration policy (Ganea, 2015).

Some other researchers doubted that EVA is a new discovery. Kyriazis and Anastassis (2007), Bhasin (2013), and Nagarajan (2015) argued that a similar concept had been contemplated by economists such as Alfred Marshall for many years before that, particularly in 1890, who spoke about the economic profit, in terms of the real profit that firms make when it covers the cost of its invested capital. Also the Finnish academics and financial press discussed this concept in the early 1970s. In the same context, Goldberg (1999), Keys, Azamhuzjaev & Mackey (2001), De Wet (2005), and Nagarajan (2015) asserted that EVA is a relatively recent variant of residual income, an older financial measure that did not get wide publicity and was abandoned by firms years ago, whereas the difference between EVA and residual income lies in the various adjustments in the financial statements suggested by Stern Stewart & Co.

These adjustments aimed to remove the distortions in the accounting profit caused by accounting rules (Machuga, Pfeiffer, & Verma, 2002), and because Stern Stewart & Co. suggested more than 160 adjustments, many researchers criticized EVA. Goldberg (1999) argued that the cost of EVA may exceed its benefits. Keys, Azamhuzjaev & Mackey (2001) argued that EVA calculation is very complex and too difficult to understand, especially the calculation of the cost of capital. Bhasin (2013) argued that the complex calculation of EVA may lead to calculation errors that lead to misleading results.

Regardless of these criticisms for EVA, Large well known firms including Coca-Cola, Polaroid, Sprint Corporation, AT&T, CSX, DuPont, Eli Lilly, Quaker Oats, Briggs & Stratton, and Toys 'R Us have utilized EVA in investment decisions, capital reallocation, and the performance evaluation (Kramer & Pushner, 1997; Tortella & Brusco, 2003; Al-Mamun & Abu-Mansor, 2012). Recently, Stancu et al. (2017) have asserted that "EVA is the most widely used indicator by firms and financial advisors to measure the company's performance".

While EVA is considered an internal single-period measure of firm performance, MVA is a more forward looking measure (Kramer & Pushner, 1997). MVA is considered a cumulative measure of the value created by the firm (Kramer & Peters, 2001), which is the difference between the market value and the book value of capital (Sparling & Turve, 2003), and from investors' point of view, MVA is the best external measure of a firm's performance (De Wet, 2005).

There is a general belief that, in order to maximize shareholders value, firms should maximize MVA, and the best way to do so is by maximizing EVA (De Wet & Hall, 2004) because MVA is the sum of all future EVAs (Poornima, Narayan, & Reddy, 2015). In this regard, Khan, Aleemi, and Qureshi (2016) argued that the debate is still on about the superiority of EVA over the traditional accounting measures.

Whereas the previous empirical studies revealed controversial results regarding which is superior in explaining MVA; is it EVA or the traditional accounting measures? (Altaf, 2016).

This study investigates if Economic Value Added (EVA) is superior to Net Operating Profit after Tax (NOPAT) and Net Cash Flow (NCF) in explaining the change in the Market Value Added (MVA) of the non-financial firms listed on Amman Stock Exchange (ASE) for the year 2016. The results indicated that NCF has the strongest power in explaining the change in MVA, followed by EVA. The results also indicated that the NOPAT does not add additional significant explanatory power to NCF and EVA in explaining the change in MVA.

## LITERATURE REVIEW

After the introduction of EVA as a performance measure used in assessing firm's ability to create value for shareholders, studies have revealed controversial results regarding the superiority of EVA over the traditional accounting measures. The most related previous studies supporting the superiority of EVA are presented next, followed by the most related previous studies that do not support the superiority of EVA.

Machuga, Pfeiffer, and Verma (2002) examined the effectiveness of EVA and EPS in predicting future earnings. The results indicate that EVA contains more incremental information than EPS in predicting future earnings. Prakash et al. (2003) investigated the impact of adoption of EVA on the key financial ratios as a proxy of firm's performance. The results indicated that most of the financial ratios were significantly improved after the adoption of EVA. Worthington and West (2004) examined whether EVA is more associated with stock returns than traditional accounting measures such as earnings and net cash flow for 110 Australian companies over the period 1992–1998. Results indicated that EVA is more closely related to stock returns than traditional accounting measures.

Kim, Jae-Hyeon, and Yun (2004) investigated the significance of EVA, after controlling firm stage (contraction period vs. expansion period) and sector (manufacturing vs. non-manufacturing). In addition, they investigated if stock prices follow EVA or the traditional accounting measure such as EPS. The results indicated a positive correlation between EVA and MVA during the contraction period and indicated that the market response to EVA and traditional accounting measure differed between manufacturing and nonmanufacturing sectors. Sharma and Kumar (2012) examined if EVA can be used as a tool of performance measures and if it is considered better than the traditional accounting measures in Indian market. The results indicated that investors should use EVA along with the traditional accounting measures for decision making.

Al-Sheikh (2012) measured the relationship between EVA and the market value of stock prices. The results indicated that there is a relationship between the EVA and the market price per share and this relationship is stronger than the traditional accounting measures. Abu-Wadi and Saqfalhait (2016) analyzed the effect of traditional accounting measures represented by the rate of return on equity and EVA on MVA for Jordanian commercial banks. The results indicated that the both indicators have a significant positive effect on MVA with superiority for EVA.

Contrary to the previous studies; Kramer and Pushner (1997) tested the relationship between EVA and MVA. The results did not support the arguments that EVA is the best measure of corporate success in adding value to shareholder. Turve and Lake (2000) examined the relationship between EVA and the stock market performance in the Canadian food processing sector. The results provided little support that high-EVA firms lead to high shareholders value. Kramer and Peters (2001) tested if EVA could be considered as a proxy for MVA across 53 industries. The results indicated that there is no marginal benefit from using EVA as a proxy for MVA instead of the traditional accounting measure like net operating profit after tax.

Sparling and Turve (2003) assessed the strength of the relationship between EVA as a tool for valuing investments and shareholder return. The results indicated a weak correlation between them. De Wet (2005) analyzed the relationship between some traditional accounting measures (e.g., cash flow from operations and earning per share) and EVA with MVA as a proxy for shareholder value in South Africa market. The results did not indicate the superiority of

EVA, and indicated that the stronger relationships exist between MVA and cash flow from operations.

Kyriazis and Anastassis (2007) investigated the explanatory power of EVA and traditional accounting measures with respect to stock returns and firms' market value in Athens Stock Exchange. The results indicated that EVA does not have a stronger correlation with firms' MVA than the traditional accounting measures. Visaltanachoti, Luo, and Yi Yi (2008) compared EVA with traditional accounting measures (e.g., cash flow from operations, earnings before income tax, and residual income) in terms of its relationship with sector returns. The results indicated that the association between sector returns and the traditional accounting measures is higher than that with EVA. Bhasin (2013) analyzed the effectiveness of EVA over the traditional accounting measures. The results indicated that there is no strong evidence to support the superiority of EVA over the traditional accounting measures in its association with MVA.

Khan, Aleemi and Qureshi (2016) examined if EVA have superiority over the traditional accounting measures (e.g., return on equity, return on assets, operating cash flows and earning per share) in explaining stock price of non-financial firms listed on Karachi Stock Exchange for the period 2009-2012. The results indicated that the traditional accounting measures outperformed EVA in explaining the behavior of stock prices. Altaf (2016) tested if EVA is a better indicator than traditional accounting measures in explaining MVA for manufacturing and service firms in India. The results indicated that the operating income has the strongest relationship with MVA in both sectors, while EVA showed a weak positive relationship with MVA.

## HYPOTHESES

The aim of this study is to investigate if Economic Value Added (EVA) is superior to Net Operating Profit after Tax (NOPAT) and Net Cash Flows (NCF) in explaining the change in Market Value Added (MVA) of the non-financial firms listed on Amman Stock Exchange (ASE) for the year 2016. Based on the stated aim, the following null hypotheses were developed and tested:

*H<sub>1</sub>: Net Operating Profit after Tax (NOPAT) is superior to Economic Value Added (EVA) in explaining the change in Market Value Added (MVA).*

*H<sub>2</sub>: Net Cash Flow (NCF) is superior to Economic Value Added (EVA) in explaining the change in Market Value Added (MVA).*

## CALCULATION OF EVA, WACC AND MVA

### EVA CALCULATION

Abdeen & Haight (2002) stated that "In its simplest terms, EVA measures how much economic value in dollars the company is creating, taking into account the cost of debt and equity capital". In other words, EVA represents the return that the firm must generate to satisfy the capital providers (Chari, 2009).

$$EVA = Net\ Operating\ Profit\ After\ Tax - Cost\ of\ Capital \quad (1)$$

As mentioned previously, to calculate EVA, Stern Stewart & Co. suggested more than 160 adjustments to eliminate distortions in firm NOPAT and capital in an attempt to refine the accounting income to be closer to economic income. The most common adjustments include (Abate, Grant, & Stewart, 2004; Alihodžić, 2013): capitalized R&D, goodwill amortization, LIFO reserve, operating lease, pension expense, provisions for doubtful receivables, one-off cost of restructuring. Sirbu (2012) argued that only five to seven key adjustments are made in practice. Nagarajan (2015) justified this, when he concluded that EVA calculation will be more complicated if all of these adjustments are made.

Accordingly, the final version of EVA equation could be represented as follows:

$$EVA_{it} = NOPAT_{it}^{adj} - (IC_{it-1}^{adj} \times WACC_{it}) \quad (2)$$

Where:

$NOPAT_{it}^{adj}$ : Adjusted net operating profit after tax,

$IC_{it-1}^{adj}$ : Adjusted invested capital,

$WACC_{it}$ : Weighted average cost of capital.

The firm is creating value (wealth) for its shareholders if EVA is positive, and is destroying value if EVA is negative.

## WACC CALCULATION

The WACC represents an average rate of return that a firm must pay to its shareholders and creditors (Alihodžić, 2013), and is calculated by calculating the cost of each source of capital, and then the weights of each source are assigned on the basis of proportion of each source to the total capital employed. The weights can be assigned on book value basis or market value basis, but Stern Stewart & Co. recommended the market value basis (Madhavi & Prasad, 2015).

$$WACC_{it} = C_E \times \frac{M_E}{M_E + M_D} + C_D \times \frac{M_D}{M_E + M_D} \times (1 - T) \quad (3)$$

Where:

$C_E$ : Cost of equity capital, which is calculated according to Dividends Capitalization Model, which is equal to: (dividends per share for the next year ÷ current market share price) + dividends growth rate,

$C_D$ : Cost of debt capital (weighted average cost of borrowed capital),

$M_E$ : Market value of equity capital,

$M_D$ : Market value of debt capital,

$T$ : Tax rate.

Although Stern Stewart & Co. recommended the use of market value basis to calculate the WACC, the book value basis was used in this study because the data of market value of debt is not available in ASE.

## MVA CALCULATION

The MVA is a measure of the wealth a firm has created for its shareholders. It is the difference between the total market value of the firm and the total capital invested in the firm (Kim, Jae-Hyeon, & Yun, 2004). The total market value of the firm is the sum of the market value of its equity and the market value of its debt (De Wet, 2005).

$$MVA_{it} = FMV_{it} - IC_{it} \quad (4)$$

Where:

$FMV_{it}$  : Firm market value,

$IC_{it}$  : Invested capital.

In the absence of information about the market value debt capital, MVA could be calculated from the perspective of common shareholders, and it equals the excess of the market value of equity capital over the book value of equity capital (Thenmozhi, 2000; Abu-Wadi & Saqfalhait, 2016).

$$MVA_{it} = M_E - B_E \quad (5)$$

Where:

$M_E$  : Market value of equity capital,

$B_E$  : Book value of equity capital,

As with EVA, the firm is creating value for its shareholders if MVA is positive, and is destroying value if MVA is negative.

## RESEARCH METHODS

### Sample and data Collection

The study initial sample consisted of (97) firms, representing all the non-financial firms listed on ASE for the year 2016, (26) firms with insufficient information to compute the study variables were excluded, leaving (71) firms that were examined, representing approximately 73% of the population.

Data were collected from firms' annual reports and ASE online database. For each sample firm, the data of net operating profit before tax (NOPBT), net cash flow (NCF), equity capital, borrowed capital, interest rates and the information required to make Stern Stewart & Co. suggested adjustments were obtained from firms' annual reports. The data of firm market value, stock market price, dividends, and dividends growth percentages were obtained from ASE online database.

## Measurement of Variables

Net operating profit after tax (NOPAT), net cash flow (NCF), and economic value added (EVA) represent the independent variables in this study. NOPAT is calculated as the net operating profit before tax (after adjustments suggested by Stern Stewart & Co.) minus the applicable income tax, taking into account that the tax rates levied on the non-financial firms listed on ASE range between (14%-24%), depending on the nature of industry or service. NCF is obtained directly from the cash flow statement. EVA is calculated using equation (2) above.

Taking into account the most common adjustments suggested by Stern Stewart & Co., the only adjustments that were made on NOPAT and invested capital were: Goodwill amortization, capitalized R&D, one-time restructuring charges, operating lease, and pension expense. The other common adjustment could not be performed due to the insufficient disclosures in firms' financial reports.

The change in Market Value Added ( $\Delta MVA$ ) represents the dependent variable in this study and is calculated as the difference between the MVA at the end and beginning of the period. Where the MVA is calculated using equation (5) above. According to Kramer and Pushner (1997) and De Wet (2005), the MVA is calculated at a specific moment and in order to assess whether the value has been created or destroyed, the change in MVA from one date to another should be used.

## RESULTS AND DISCUSSION

Table 1 presents summary statistics of NOPAT, NCF, EVA, MVA at the beginning and at the end of the study period, and the change in MVA during the study period for the sample firms. As shown, NOPAT and EVA are positive on average, while NCF is negative. EVA shows a lower average than NOPAT, indicating the influence of the cost of capital on operating profit. Although NOPAT and EVA show a positive average, the change in MVA shows a negative average. This provides an initial indication that the NCF, which has a negative average, may have the highest effect on the change in MVA.

**Table 1**  
**Summary Statistics \***

	<b>NOPAT</b>	<b>NCF</b>	<b>EVA</b>	$MVA_{t-1}$	$MVA_t$	$\Delta MVA$
Mean	3,908	(3,320)	453	42,321	32,601	(9,720)
Max.	49,839	82,117	41,852	1,207,730	1,040,151	424,068
Min.	(61,483)	(105,290)	(65,712)	(559,148)	(763,097)	(540,773)
S.D.	12,024	20,998	11,081	196,177	196,061	88,168

\* Numbers in Thousand US Dollars

Table 2 presents Pearson correlation matrix among the study variable. As shown, the correlation coefficients indicate the non-existence of multicollinearity. MVA is significantly positively correlated with all the independent variables, where the NCF shows the strongest correlation followed by EVA and then by NOPAT. The results also indicated a positive significant correlation between EVA and NOPAT, while there is no significant correlation between NCF and NOPAT.

**Table 2**  
**Pearson Correlations Matrix**

Variable	NOPAT	NCF	EVA	ΔMVA
NOPAT	1.000			
NCF	0.074	1.000		
EVA	0.792 **	0.271 *	1.000	
ΔMVA	0.250 *	0.633 **	0.462 **	1.000
* Significant at p < 0.05 level				
** Significant at p < 0.01 level				

To test the study hypotheses a univariate and multivariate regression analysis were performed. The univariate regression aimed to find out the superior independent variable that explains the change in MVA, while the multivariate regression aimed to find out the best set of independent variables that explain the change in MVA. The regression models that were performed and tested are:

$$\Delta MVA_i = \beta_0 + \beta_1 NOPAT_i + \varepsilon_i \quad (6)$$

$$\Delta MVA_i = \beta_0 + \beta_1 NCF_i + \varepsilon_i \quad (7)$$

$$\Delta MVA_i = \beta_0 + \beta_1 EVA_i + \varepsilon_i \quad (8)$$

$$\Delta MVA_i = \beta_0 + \beta_1 NOPAT_i + \beta_2 NCF_i + \beta_3 EVA_i + \varepsilon_i \quad (9)$$

**Table 3**  
**Univariate Linear Regression Results**

	Unstandardized Coefficients		Beta	t	Sig.	R Square	Adjusted R Square	ANOVA	
	B	Std. Error						F	Sig.
<i>Panel A: Model (6)</i>									
Constant *	(16,886)	10,737		-1.573	.120	.063	.049	4.602	.035
NOPAT	1.834	.855	.250	2.145	.035				
<i>Panel B: Model (7)</i>									
Constant *	(899)	8,264		-.109	.914	.400	.392	46.063	.000
NCF	2.657	.391	.633	6.787	.000				
<i>Panel C: Model (8)</i>									
Constant *	(11,383)	9,356		-1.217	.228	.213	.202	18.710	.000
EVA	3.675	.850	.462	4.325	.000				

\* Unstandardized Coefficients values for constant are in Thousand US Dollars.

Panels A, B, and C of Table 3 present the results of univariate regression of NOPAT, NCF, and EVA (respectively) on the change of MVA. As shown, all of these independent variables are statistically significant in explaining the change in MVA (p<.05), but they differ in their explanatory power. The adjusted R square results indicated that NCF has the strongest explanatory power, as it explains (39.2%) of the variance in ΔMVA, followed by EVA with (20.2%) explanatory power, and finally by NOPAT with (4.9%) explanatory power. Also, the Beta results confirm that NCF have the strongest contribution in explaining the dependent

variable outcomes, followed by EVA then by NOPAT. These results provide additional support to the initially revealed results concerning the strong power of NCF in explaining the change in MVA.

The results also show that the regression coefficients for all the independent variables are positive, confirming the Person correlation results regarding the positive relationship between MVA and the independent variables.

Table 4 presents the results of Stepwise Multiple Regression. The method of Stepwise was used to find out the best combination of independent variables that best explain the change in the dependent variable, and to eliminate the independent variables that do not have significant contribution in the explanatory power. As shown, after performing this regression, the independent variable of NOPAT was dropped from the regression model, indicating that NOPAT does not add additional significant explanatory power to the other independent variables. The resulting model that includes the variables of NCF and EVA is significant ( $p < .05$ ) and have explanatory power of (47.6%).

**Table 4**  
**Stepwise Multiple Regression Results**

	Unstandardized Coefficients		Beta	t	Sig.	R Square	Adjusted R Square	ANOVA	
	B	Std. Error						F	Sig.
<i>Model (9)**</i>									
Constant *	(899)	8,264		-.109	.914	.400	.392	46.063	.000
NCF	2.657	.391	.633	6.787	.000				
<i>Model (9)***</i>									
Constant *	(3,212)	7,697		-.417	.678	.491	.476	32.824	.000
NCF	2.300	.377	.548	6.094	.000				
EVA	2.492	.715	.313	3.485	.001				

\* Unstandardized Coefficients values for constant are in Thousand US Dollars.  
 \*\* Predictors: Constant, NCF.  
 \*\*\* Predictors: Constant, NCF, EVA.

The previous findings provide support for rejecting the first null hypothesis which proposed that “Net Operating Profit after Tax (NOPAT) is superior to Economic Value Added (EVA) in explaining the change in Market Value Added (MVA)”, and accepting the second null hypothesis which proposed that “Net Cash Flow (NCF) is superior to Economic Value Added (EVA) in explaining the change in Market Value Added (MVA)”.

On the one hand, the result concerning the superiority of EVA over NOPAT in explaining MVA is consistent with the results of the previous studies of (Kramer & Pushner, 1997; Kim, Jae-Hyeon & Yun, 2004; Abu-Wadi & Saqfalhait, 2016) that revealed that EVA is superior to the traditional profitability measures in explaining MVA. On the other hand, the result concerning the superiority of NCF over EVA in explaining MVA is consistent with the results of the previous studies of (De Wet, 2005; Visaltanachoti, Luo & Yi Yi, 2008; Khan, Aleemi & Qureshi, 2016) that revealed that the traditional cash flow measure are superior to EVA in explaining MVA.

## CONCLUDING REMARKS

Motivated by the continuous debate about the superiority of Economic Value Added (EVA) over the traditional accounting performance measures in explaining the Market Value Added (MVA), as a proxy for shareholder value, this study investigated if EVA is superior to Net Operating Profit after Tax (NOPAT) and Net Cash Flow (NCF) in explaining the change in Market Value Added (MVA). A sample of (71) non-financial firms listed on Amman Stock Exchange (ASE) for the year 2016 were analyzed. Univariate and multivariate regression analyses were performed in order to empirically test the study hypotheses.

The univariate regression results indicated that NCF have the strongest explanatory power in explaining the change in MVA, followed by EVA and finally by NOPAT. This was confirmed by the stepwise multivariate regression, which was performed to find out the best set of independent variables that explain the change in MVA, where the final significant regression model includes only the NCF and EVA, while the NOPAT was dropped because it does not add additional significant explanatory power to NCF and EVA in explaining the change in MVA.

In light of the results of this study and previous studies, it could be argued that the debate about the superiority of EVA over the traditional accounting measures will continue. Two possible justifications to the mixed and controversial results could be taken into consideration: First, MVA is the appreciation of the firm market value over the book value of its invested capital. Where, the firm market value is the sum of the market values of its equity and debt. So, the MVA is affected by firm stock market price, which in turn could be affected by other factors (e.g., economic variable, investors' behaviors, supply and demand) that differ across countries. So, the empirical results concerning the superiority of EVA over the traditional accounting measures will differ. In this regard, Kramer & Pushner (1997) stated that "much of the determination of MVA remains unexplained".

Second, the developer of EVA (Stern Stewart & Co.) suggested more than 160 adjustments to eliminate the distortions in the accounting profit. These adjustments made the calculation of EVA very complex, as stated by Keys, Azamhuzjaev & Mackey (2001) and Nagarajan (2015), which in turn was reflected on the few numbers of adjustments that were made in practice, as concluded by Sirbu (2012), and because the firms do not disclose all information that is necessary to make these adjustments, the previous studies varied in the degree of considering these adjustments, accordingly they revealed controversial results.

Finally, this study recommends the use of EVA along with the traditional accounting measures because they are not substitutes for each other. Instead, EVA should be seen as an enhancement to the traditional accounting measures, which if used properly with them, will provide a more powerful tool to evaluate the performance. Sharma & Kumar (2012) asserted this when they indicated that the investors should use EVA along with the traditional accounting measures for decision making.

## REFERENCES

- Abate, J. A., Grant, J. L., & Stewart, B. (2004). The EVA Style of Investing: Emphasizing the Fundamental of Wealth Creation. *The Journal of Portfolio Management*, 30 (4), 61-72.
- Abdeen, A. M., & Haight, T. (2002). A Fresh Look at Economic Value Added: Empirical Study of the Fortune Five-Hundred Companies. *Journal of Applied Business Research*, 18 (2), 27-35.
- Abu-Wadi, R., & Saqfalhait, N. (2016). Economic Added Value as Complementary Tool to Evaluate the Performance of the Jordanian Commercial Banks. *An-Najah University Journal for Research: Humanities*, 30 (12), 2493-2520.
- Alihodžić, A. (2013). Possibility of Applying Economic Value Added in the Capital Market of the Republic of Srpska. *Singidunum Journal*, 10 (2), 7-18.
- Al-Mamun, A. & Abu-Mansor, S. (2012). EVA as Superior Performance Measurement Tool. *Modern Economy*, 3 (3), 310-318.
- Al-Sheikh, E. Y. (2012). Comparative Study on the Effect of Using Traditional Measures of Performance and the Measure of Economic Value Added on the Stock Price. *Arab Journal of Administrative Sciences*, 19 (2), 207-238.
- Altaf, N. (2016). Economic value added or earnings: What explains market value in Indian firms?. *Future Business Journal*, 2 (2), 152–166.
- Bhasin, M. L. (2013). Economic Value Added and Shareholders' Wealth Creation: Evidence from a Developing Country. *International Journal of Finance and Accounting*, 2 (4), 185-198.
- Bluszcz, A., Kijewska, A., & Sojda, A. (2015). Economic Value Added in Metallurgy and Mining Sector in Poland. *Metalurgija* 54, 2, 437-440.
- Chari, L. (2009). Measuring Value Enhancement Through Economic Value Added: Evidence from Literature. *IUP Journal of Applied Finance*, 15 (9), 46-62.
- De Wet , J. H., (2005). EVA versus traditional accounting measures of performance as drivers of shareholder value – A comparative analysis. *Meditari Accountancy Research*, 13 (2), 1-16.
- De Wet , J. H., & Hall, J.H. (2004) The relationship between EVA, MVA and leverage. *Meditari Accountancy Research*, 12 (1), 39-59.
- Epstein, M. J., & Young, S. D. (1998). Improving Corporate Environmental Performance through Economic Value Added. *Environmental Quality Management*, 7 (4), 1-7.

- Ganea, M. (2015). Determinant Factors of the Economic Value Added in the Case of Romanian Companies Listed on the Bucharest Stock Exchange. *Audit Financiar*, 13 (121), 100-107.
- Goldberg, S. R. (1999). Economic value added: A better measure for performance and compensation?. *Journal of Corporate Accounting & Finance*, 11 (1), 55-67.
- Keys, D. E., Azamhuzjaev, M., & Mackey, J. (2001). Economic Value Added ® : A critical analysis. *Journal of Corporate Accounting & Finance (Wiley)*, 12 (2), 65-71.
- Khan, U. A., Aleemi, A. R., & Qureshi, M. A. (2016). Is Economic Value Added More Associated with Stock Price than Accounting Earnings?: Evidence from Pakistan. *City University Research Journal*, 6 (2), 204-216.
- Kim, J. J., Jae-Hyeon, A., & Yun, J. K. (2004). Economic Value Added (EVA) as a Proxy for Market Value Added (MVA) and Accounting Earnings: Empirical Evidence from the Business Cycle. *Journal of Accounting & Finance Research*, 12 (1), 40-48.
- Kramer, J. K., & Pushner, G. (1997). An Empirical Analysis of Economic Value Added as a Proxy for Market Value Added. *Financial Practice & Education*, 7 (1), 41-49.
- Kramer, J. K., & Peters, J. R. (2001). An Interindustry Analysis of Economic Value Added as a Proxy for market Value Added. *Journal of Applied Finance*, 11 (1), 41-49.
- Kyriazis, D., & Anastassis, C. (2007). The Validity of the Economic Value Added Approach: an Empirical Application. *European Financial Management*, 13 (1), 71–100.
- Machuga, S. M., Pfeiffer J. R. J., & Verma, K. (2002). Economic Value Added, Future Accounting Earnings and Financial Analysts' Earnings Per Share Forecasts. *Review of Quantitative Finance & Accounting*, 18 (1), 59-73.
- Madhavi, E., & Prasad, M. S. V. (2015). An Empirical Study on Economic Value-Added and Market Value-Added of Selected Indian FMCG Companies. *IUP Journal of Accounting Research & Audit Practices*, 14 (3), 49-65.
- Nagarajan, K. (2015). Economic Value added (EVA): A Performance Measure of Strategic Finance. *International Journal of Research in Commerce & Management*, 6 (11), 89-91.
- Prakash, A. J., Chun-Hao, C., Davidson, L., & Chih-Chen, L. (2003). Adoption of Economic Value Added and Financial Ratios. *International Journal of Finance*, 5 (2), 2574-2592.
- Poornima B. G., Narayan, P., & Reddy, Y. V. (2015). Economic Value-Added as an Emerging Tool of Performance Measurement: Evidence from Indian Companies. *IUP Journal of Accounting Research & Audit Practices*, 14 (3), 38-48.
- Sharma, A. K., & Kumar, S. (2012). EVA Versus Conventional Performance Measures – Empirical Evidence from India. *Proceeding of ASBBS*, 19 (1), 804-815.

- Sirbu, A. (2012). Economic Value Added (EVA) Approach in Russia. Concepts. Approaches. Instruments. *Review of International Comparative Management*, 13 (2), 305-312.
- Sparling, D., & Turve, C. G. (2003). Further Thoughts on the Relationship between Economic Value Added and Stock Market Performance. *Agribusiness*, 19 (2), 255-267.
- Stancu, I., Obrejabrasoveanu, L., Ciobanu, A., & Stancu, A. T. (2017). Are Company Valuation Models the Same?-A Comparative analysis Between the Discounted Cash Flows (DCF), the Adjusted Net Assets, Value and Price Multiples, the Market Value Added (MVA) and the Residual Income (RI) Models. *Economic Computation & Economic Cybernetics Studies & Research*, 51 (3), 5-20.
- Thenmozhi, M. (2000). Market Value Added and Share Price Behaviour: an Empirical Study of Best Sensex Companies. *Delhi Business Review*, 1 (1).
- Tortella, B. D., & Brusco, S. (2003). The Economic Value Added (EVA): an Analysis of Market Reaction. *Advances in Accounting*, 20, 265-290.
- Tsuji, C. (2006). Does EVA beat earnings and cash flow in Japan?. *Applied Financial Economics*, 16 (16), 1199-1216.
- Turve, C. G., & Lake, L. (2000). The Relationship between Economic Value Added and the Stock Market Performance of Agribusiness Firms. *Agribusiness*, 16 (4), 399-416.
- Visaltanachoti, N., Luo, R., & Yi Yi. (2008). Economic Value Added (EVA) and Sector Return. *Asian Academy of Management Journal of Accounting & Finance*, 4 (2), 21-41.
- Worthington, A. C., & West, T. (2004). Australian Evidence Concerning the Information Content of Economic Value-Added. *Australian Journal of Management*, 29 (2), 201-223.

***About the Author:***

**Ahmad N. Obaidat** is Associate Professor of Accounting at Tafila Technical University, Jordan. Dr. Obaidat has twelve years teaching experience and his main research interests are in the areas of market related studies.

# THE IMPACT OF DEDICATED INTERNAL AUDIT FUNCTIONS ON STATE GOVERNMENTAL COMPLIANCE AUDIT FINDINGS

Frank Nation  
Quentin Kuntzman  
Mark Buxton  
University of Illinois Springfield

## ABSTRACT

*This paper continues a stream of research focused upon the effectiveness of compliance audits of state governmental agencies. Compliance audits hold state entities accountable for their operational effectiveness and their compliance with laws and regulations. This study extends prior research by examining additional, possibly influential variables related to number of compliance audit finding. Specifically, this study examines the presence of a dedicated internal audit function in a state governmental entity, and its relationship to the number of compliance audit findings reported.*

*The study also includes the auditor type as an independent variable based on previous literature. Additional covariate independent variables controlled for the effect of entity size and complexity on the audit. This study applied backward stepwise regression methodology to examine the relationships of the variable of interest and covariates. The results of the analysis indicate that the presence of an internal audit function in a state agency was significantly related to the number of compliance audit findings. Surprisingly, the study results indicated that the type of auditor was not significantly related to the number of compliance audit findings. This represents a departure from the results of previous studies of this relationship, indicating a significant relationship.*

*Keywords: Compliance audit findings, government audit, internal audit function*

## INTRODUCTION

Illinois' government is structured much like the federal government with an executive, legislative, and judicial branch. These branches are subdivided into multiple entities: agencies, departments, boards, commissions, state universities among others. Such entities exist to serve the public needs and provide for their well-being, they in turn are accountable for their operations. The performance of regular compliance audits of state government entities is one way to monitor agencies' compliance with the applicable laws, rules, regulations, and use of funds.

Governmental audits exist to ensure efficient and effective achievement of the objectives assigned to an agency by the enabling legislation. Furthermore, such audits substantiate that governmental entities are acting in such a way that no laws, rules, regulations or contracts are violated; and that citizens, employees, stakeholders and the public are not negatively impacted by the agency's practices. Audit procedures can positively influence the efficiency and effectiveness of an entity's policies and processes. Auditing of state entities provides reassurance to legislators, citizens, agency officials, and other parties that the agency is properly fulfilling its obligation by following applicable rules and regulations.

According to the Illinois Auditing Act (30 ILCS 5) the Auditor General must conduct an appropriate financial audit or compliance examination of every State agency at least once every

two years (Illinois Office of the Auditor General, 2017) (Illinois General Assembly (30 ILCS 5/), 2017). The audit report discloses the ‘findings,’ or items of significant noncompliance. Each audit report lists the total findings, repeated findings (findings from the previous audit that have not been corrected), and prior findings not repeated. All current year findings include observations made by the auditor during the audit, the criteria governing the item, and recommendations for correcting the noted findings. In addition to identifying and disclosing such deficiencies, the Office of the Auditor General (OAG) audit reports offer corrective recommendations for discovered deficiencies to allow the entity to resume operational conformity within the applicable regulatory parameters. The audit report publishes all material noncompliance findings, along with the respective recommendations. The OAG functions as the State’s external governmental auditor; as a result, all audit reports for audits performed in conjunction with the Illinois State Auditing Act are publicly available on the OAG’s website. The OAG releases audit reports to the public through its website (Illinois Office of the Auditor General, 2016).

In addition to regular compliance audits performed by external auditors, the Illinois Fiscal Control and Internal Auditing Act (30 ILCS 10/) names specific state agencies, defined as “designated State agencies,” to maintain a full-time program of internal auditing (Illinois General Assembly (30 ILCS 10/), 2017). Thus, only “designated State agencies” are required to have an internal audit function. Internal audits performed by internal audit function of the “designated State agency” differ from ‘external’ compliance audits performed by the OAG in several ways. First, internal audit reports typically are not released to the public. Furthermore, internal auditors performing the “designated State agency” audits are employed by that agency (State Internal Audit Advisory Board, 2011).

Hence, this study focuses on two types of state agencies. One type of agency is required to deploy their own agency-dedicated internal audit function. This means that the agency employs people to serve as internal auditors for that agency alone. The second type of state agency is not required to deploy its own dedicated internal audit function. These agencies depend on the OAG to provide audit services. Previous research has identified that the type of auditor influences the number of reported audit findings. However, there has not been an attempt to differentiate between agencies with dedicated internal auditors and those without. Thus, the question motivating this study is:

*Is there a significant difference in the number of compliance audit findings between state agencies that deploy dedicated internal auditors and those agencies that do not?*

To examine this question we must look at the issue from several different points of view. Broadly, we can simply measure the difference for agencies with an internal audit function, as defined above, and those without. However, previous research indicates there are other variables that have a significant effect on the analysis of this question, such as auditor type (Branson, Decker, & Green, 2011), agency size and complexity (Branson, Nation, & Clark, 2016), time devoted to the audit (Branson, Nation, & Stephens, 2016), and appropriation level (Branson, Nation, & Rothe, 2018). Thus, researchers must account for the effects of control variables significant to the number of compliance audit findings.

## LITERATURE REVIEW

A high-level measure utilized to assess the effectiveness of both government audits and entity operations is the number of compliance audit findings. Compliance audit findings represent operational weaknesses and significant deficiencies discovered, as well as identified instances of noncompliance with applicable policies, laws, rules, and regulations. This measure has been used in previous studies on government audit effectiveness. Jakubowski (2008) examined 27 local government audit reports in the state of Michigan utilizing the number of compliance audit findings as a dependent variable. This study found that audits completed by state governmental auditors produced significantly more audit findings than audits subcontracted to CPA firms (Jakubowski, 2008). A handful of further studies analyze other factors affecting the number of compliance audit findings reported for Illinois state government audits.

The foundational study on government compliance audits performed in the state of Illinois applied the model used by Jakubowski (2008). Branson, Decker and Green (2011) analyzed compliance audits performed on 24 agencies audited between the years 2000 and 2009 by both OAG staff auditors and CPA firm or Special Assistant Auditors (SAA). The study found that OAG staff auditors discovered and reported an average of 5.56 audit findings, which is significantly higher than the average 2.36 audit finding discovered and reported by SAAs (Branson, Decker, & Green, 2011).

Branson, Nation, and Clark (2016) replicated the study performed by Branson, Decker, and Green (2011), but incorporated control variables based on auditee size and complexity to account for the scope of the audit. The number of employees measured the size of the auditee. The number of mandates, which are the state laws and requirements applicable to each entity, served as a measure of complexity. The study examined 163 audits performed on 48 state entities between the fiscal years 2005 and 2012. Using regression analysis and ANOVA statistical techniques, the study found that the level of complexity and size of an entity had a significant positive relationship with the number of compliance audit findings reports. In addition, this study replicated the finding that OAG staff auditors reported significantly higher levels of compliance findings than the SAA auditors. OAG staff engagements reported a mean of 18.9 audit findings, while contracted SAA engagements reported a mean of 9.02 audit findings (Branson, Nation, & Clark, 2016).

Branson, Nation, and Stephens (2016) extended the study performed by Branson, Nation, and Clark (2016) to examine additional variables, specifically time spent on the audit, affecting the number of findings reported. This study included time spent on the audit as a potential explanation for the gap in the number of findings reported by OAG staff auditors and those reported by SAAs. Suhayti (2012) found that the competitive bidding process, along with time and budget constraints, resulted in decreased audit quality. The results suggest that the SAAs' profitability directly relates to the audit's budget and the contract amount awarded. Therefore, SAA's confront an incentive to tighten time budgets. However, restricting the time spent on the audit process forfeits audit quality to assure profitability (Suhayati, 2012). Branson, Nation, and Stephens (2016) found that the number of employees, actual audit hours, auditor type, and the number of prior year audit findings were all significant to audit findings. These independent variables accounted for 75.9% of the variability observed in the number of compliance audit findings (Branson, Nation, & Stephens, 2016).

Branson, Nation, and Rothe, (2018), replicated the study performed by Branson, Nation, and Stephens, (2016). This study replaced a financial complexity variable found to be insignificant to the number of compliance audit findings reported, entity expenditures, with

entity appropriation levels. Appropriation levels represent the amount of money designated for each entity's specific use. This study utilized regression and ANOVA analysis and examined all state entities audited from fiscal years 2010 to 2015. The study found that appropriation levels, number of audit hours spent on the engagement, and the type of auditor, were all significant to the number of compliance audit findings reported (Branson, Nation, & Rothe, 2018).

According to prior research, the variables related to auditee size and complexity, such as number of employees, number of mandates, level of appropriation, and audit hours are related to audit fees, audit reporting lag, and audit budgets. Auditee size and complexity are factors in determining and explaining variability in audit fees, or the cost of performing the audit (Gist, 1992) (Nikkinen & Sahlstrom, 2005). The number of entity employees and the number of entity mandates have consistently been used as measures of size and complexity, respectively, since the second stream of literature on determinants of compliance audit findings in state government (Branson, Nation, & Clark, 2016) (Branson, Nation, & Stephens, 2016) (Branson, Nation, & Rothe, 2018). Further, the level of entity appropriations is inherently both a size and complexity measure by nature and definition. Utilizing a regression model, Bamber, Bamber, and Schoderbek, (1993) find that client size and audit complexity are significantly related to the length of time it takes to complete an audit (Bamber, Bamber, & Schoderbek, 1993). Similarly, a previous study on audit time budget variances finds that client size, risk, and complexity are significantly related to the difference between audit hours reported and budgeted hours (Gist & Davidson, 1999). Thus, time and effort spent on conducting audits all appear to be a function of the number of employees, mandates, and appropriations.

Survey-based research techniques have assessed and measured audit quality and effectiveness. Vijayakumar and Nagaraja (2012) found that sufficient knowledge of the auditee's operations; professional relationships between the auditor and auditee executive management; clearly defined authority granted to the internal audit function; and regular communication of audit findings and recommendations to management provide for increased audit effectiveness. The study concluded that effective internal audits improve organizational internal control and risk management by strengthening the preventative and detective controls (Vijayakumar & Nagaraja, 2012). A survey by Ma'ayan and Carmeli (2016) found top management support, auditor proficiency, fair professional behavior toward auditees, and auditor resources contribute to internal audit effectiveness through organizational improvements in operational effectiveness, efficiency, and ethical behavior (Ma'ayan & Carmeli, 2016). Coetzee and Erasmus (2017) found CAE leadership; internal audit function (IAF) independence; IAF functionality, which includes size, resources, and adherence to IIA Standards; IAF status, its reputation and support from audit committees and executives; internal audit competence; and IAF services are influential independent variables of internal audit effectiveness (Coetzee & Erasmus, 2017).

Data collected through surveys and questionnaires are vulnerable to subjectivity. However, the consensus of these studies suggests that top management support, independence, and competence are factors that affect effectiveness of internal audits and the bottom line results (Cohen & Sayag, 2010; Ma'ayan & Carmeli, 2016; Coetzee & Erasmus, 2017). Additional studies of internal auditing, have examined its effectiveness by looking at the performance of auditees. Aspects of performance measured include financial performance, operational performance, encompassing internal controls and achievement of objectives, and risk of misconduct by executives and other personnel (Aikins, 2011; Ege, 2015; Eden & Moriah, 1996). Aikins (2011) found that internal audits were statistically significant in improving the financial

performance, internal controls, and operational effectiveness of governments. Ege (2015) found that IAF quality and IAF competence were negatively associated with the likelihood of management and accounting misconduct. Eden and Moriah (1996) found that audited entities performed better than the non-audited entities, both financial and behaviorally. The results of these studies suggest that internal auditing satisfies its ultimate purpose to improve organizational performance, leading to better achievement of its organizational objectives.

## THEORY AND HYPOTHESIS

The purpose of this study is to further extend the studies of Branson, Decker, and Green (2011); Branson, Nation, and Clark (2016); Branson, Nation, and Stephens (2016); and Branson, Nation, and Rothe (2018) on the examination of variables that may influence the number of compliance audit findings reported by state government external auditors. Prior research provides evidence of the effectiveness of internal audit at improving an entity's operational efficiency and effectiveness provides the basis for examining this variable. The current study contributes to the previous literature by including the presence of an internal audit function as an additional independent variable. This study incorporates auditor type as a second independent variable, given its significant relationship with the number of compliance audit findings in the past studies of compliance audits in state government. Additional control variables forming the covariate include the number of audit hours, number of mandates, number of employees, and number of prior audit findings, representing entity size and complexity.

Research identifies internal audit effectiveness results from a number of factors. Common measures of the of audit effectiveness amongst prior studies include top management support, level of independence, and auditor competence (Cohen & Sayag, 2010; Ma'ayan & Carmeli, 2016; Coetzee & Erasmus, 2017). Illinois utilizes minimum requirements and ethical guidelines to ensure state government internal auditors have adequate knowledge, skills and experience to perform their job duties effectively (Illinois General Assembly (30 ILCS 5/), 2017) (State Internal Audit Advisory Board, 2011). Research also indicates that effective internal audit functions lead to improved organizational performance (Aikins, 2011; Ege, 2015; Eden & Moriah, 1996). Further, studies within Illinois state government have identified numerous predictors of compliance audit findings reported by external government auditors (Branson, Decker, & Green, 2011; Branson, Nation, & Clark, 2016; Branson, Nation, & Stephens, 2016; Branson, Nation, & Rothe, 2018). Thus, the literature suggests that the number of reported compliance audit findings represents an empirical measurement of internal audit effectiveness. The literature also suggests that internal audits are significantly related to the financial performance of a company.

Entities that have a full-time internal audit function are more likely to have more improved operations based on prior studies of internal audit effectiveness (Aikins, 2011; Ege, 2015; Eden & Moriah, 1996). Further, full-time internal audit functions improve the implementation of audit findings and issues (Knighton, 1973; Aikins, 2012). Thus, the presence or absence of an internal audit function should be a determinant of 'external' audit effectiveness, and influential on the number of compliance audit findings. Hence, this study hypothesizes:

*H1: The existence of a full-time internal audit function at the state entity level will have a significant relationship with the number of compliance audit findings reported by external auditors.*

## METHODOLOGY

### Sample and Data Collection

This study examines all Illinois State entities for which a compliance audit was performed during the six-year period from Fiscal Year 2011 through Fiscal Year 2016. After accounting for exclusions, the study tested 402 individual compliance examinations completed for 110 different state entities. Rather than selecting a sample of state entities, all applicable entities for which a compliance audit was performed were chosen for testing to thoroughly analyze the relationships between the variables across a range of differing entities. The Illinois State Auditing Act (30 ILCS 5/) requires a compliance examination be performed by the Auditor General at least once every biennium (Illinois General Assembly (30 ILCS 5/), 2017). While agency audits are required to be performed every two years, some are audited annually. Of the 110 agencies examined in this study, 24 of them were audited annually, which accounts for 144 of the 402 audits for which data was collected. The remaining 86 entities were audited on a biannual basis, and account for 258 audits for which data was collected.

During the data collection process, 117 state agency entities were originally identified as having compliance audits performed during Fiscal Years 2011 through 2016 using the Auditor General's Agency Audit History Reports. Agency Audit History reports are maintained by the OAG and they collect data on every engagement project performed by the OAG staff auditors or the contracted SAAs. Incomplete or incompatible data excluded seven entities from testing, reducing the sample to 402 compliance audits.

Data collected for this study was compiled from the Illinois Office of the Auditor General's website and internally developed OAG office reports. This study includes one primary independent variable of interest as well as several control variables suggested by the literature. Data was collected for auditor type (SAA or OAG), full-time internal audit function (present or absent), and the number of actual audit hours. The audit report supplied the data for the dependent variable, the number of total compliance audit findings, as well.

### Measurement of Variables

The dependent variable of this study is the number of compliance audit findings reported on the agency's Agency Audit History Reports. All four previous studies of compliance audit findings in Illinois state government have found that the auditor type is significantly related to the number of compliance audit findings reported (Branson, Decker, & Green, 2011; Branson, Nation, & Clark, 2016; Branson, Nation, & Stephens, 2016; Branson, Nation, & Rothe, 2018). To provide for replication, this variable is again included in the analysis. The Agency Audit History Reports identify whether OAG staff auditors or contracted SAAs performed the audit.

The Agency Audit History Reports also include information on the number of hours spent to complete each audit. Based on previous research and findings from Suhayati (2012), Branson, Nation, and Stephens (2016) examined time spent on the audit as a factor in the number of audit findings reported in Illinois state entity compliance examinations. The study found that the actual number of audit hours was statistically significant in its relationship to the number of compliance audit findings. Branson, Nation, and Rothe (2018) found further support for this in their expanded study on compliance audit findings in Illinois government. number of audit hours was statistically significant in its relationship to the number of compliance audit findings.

Branson, Nation, and Rothe (2018) found further support for this in their expanded study on compliance audit findings in Illinois government.

Additional research has found that auditee size and complexity is significantly related to the amount of time taken to complete an audit (Gist, 1992; Bamber, Bamber, & Schoderbek, 1993) (Gist & Davidson, 1999; Nikkinen & Sahlstrom, 2005). Variables of size, the number of employees, number of mandates, and dollar value of appropriations all have, at one time or another, have been found significant in their relationships to the number of compliance audit findings. Additionally, the amount of time (and therefore, effort required or audit complexity) spent conducting audits appears to be a function of these variables. This study includes control variables representing agency size and audit complexity, actual audit hours, as well as the number of agency mandates. Auditor type and audit hours are included in this analysis because each has been statistically significant in at least one of the previous studies examining determinants of compliance audit findings reported by Illinois state external auditors.

The variable of interest for this study is the presence of a full-time IAF at the state entity level and its relationship to the number of compliance audit findings reported by external auditors. The Fiscal Control and Internal Auditing Act (30 ILCS 10/) identifies certain state entities, identified as “designated state entities” that are required to maintain a full-time IAF (Illinois General Assembly (30 ILCS 10/), 2017). Further, the State Internal Audit Advisory Board’s website (SIAAB) provides a list of State Internal Audit Managers identified by entity (State Internal Audit Advisory Board, 2011). The researchers identified entities with an IAF from these lists. However, during data collection the researchers discovered that some of the “designated state entities” failed to maintain a full-time IAF as required. Internal audit function presence was ultimately determined by examining each audit report available on the Auditor General’s website. The researchers considered reports that identified a chief internal auditor represented agencies employing a full-time internal audit function. *Vice versa*, the researchers presumed that agencies where the report did not identify a chief internal auditor, lacked a full-time IAF. Of the 402 individual compliance audit reports included as study observations, 210 reported the presence of a full-time IAF during the examination period and the remaining 192 did not.

## Statistical Techniques

The primary statistical technique used in this study is backward stepwise regression. Backward stepwise regression (BSR) is a process used to construct a model by successively removing variables from the model based on the significance of the *t*-statistic of their estimated coefficients. The researchers then examine whether the model’s predictive ability ( $R^2$ ) improves with the exclusion of the independent variable. BSR also improves the statistical power over ordinary multiple regression (Nau, 2018). The SPSS statistical package was used to perform the statistical analysis.

Previous research suggested the inclusion of additional independent variables such as actual audit hours as well as the number of prior year findings, the number of employees, the number of mandates, and the auditor type. Including these variables allows the researchers to control for the effects of variables previously found to influence the number of audit findings for agency characteristics such as size and complexity. Inclusion of these variables also enhances the internal validity of this study. The first independent variable is the variable of interest to this study, presence of an IAF (*Internal\_Audit\_Function*) at a given agency. A significant finding for this variable would provide evidence that the existence of an IAF at a state agency is a

significant predictor of the number of audit findings. Other control variables included in the model-building process include, *Actual\_Audit\_Hours*, which was significant to the number of compliance audit findings. Additionally, the same study found the *Number\_of\_Prior\_Year\_Findings* significant as well (Branson, Nation, & Stephens 2016). This variable quantifies the number of findings the auditor produced in the previous audit cycle. Another significant variable to the number of audit findings is the *Number\_Of\_Employees* (Branson Nation & Clark 2016). This variable measures the size of the agency as well as the complexity of the audit. Another variable included in the regression was *Number\_of\_Mandates*. This variable was a significant measure of audit complexity (Branson, Nation, & Clark 2016). Finally, *Auditor\_Type* is another significant variable from previous research. This variable differentiates those audits performed by Special Assistant Auditors from those audits performed by state employees from the Office of the Auditor General of the State of Illinois (Branson Decker, & Green, 2011).

## RESULTS

The proposed regression model included variables representing the variable of interest, the internal audit function, the actual audit hours, the number of employees, type, and the number of prior year findings. Auditor type is a dummy variable in the model. A value of zero (0) represents a subcontracted auditor and a value of one (1) signifies an OAG auditor (state employee). The researchers specified the regression model as follows:

$$Y = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5 + b_6X_6 + \varepsilon$$

Where  $Y$  = number of audit findings  
 $X_1$  = (*Internal\_Audit\_Function*)  
 $X_2$  = (*Actual\_Hours*)  
 $X_3$  = (*No\_Employees*)  
 $X_4$  = (*Auditor\_Type*)  
 $X_5$  = (*Prior\_Yr.\_Findings*)  
 $X_6$  = (*Number\_of\_Mandates*)

Significance tests for coefficients rely on the data's adherence to four main assumptions: linearity, independence, homogeneity of variance and normally distributed error terms in the regression function (Nau, 2018). Furthermore, the researchers were careful to remain aware of the possible shortcomings of BSR. First, it is possible for excessive multi-collinearity (highly correlated independent variables) to interfere with the automated process. Second, it is possible for a large number of variables relative to the number of observations to interfere with the automated model-building process of BSR in the statistical package (Nau, 2018). Reviewing the variance inflation factors (VIF) of the regression variables tests for multicollinearity problems in the data. A widely accepted rule of thumb is that a VIF of four or more requires further attention. The variables retained in model four of the results, revealed that the VIF of all the variables was less than three. Table 1 shows the review of the models generated by BSR indicated that multi-collinearity was not excessive. Furthermore, if the number of variables included at the beginning of the analysis is large compared to the number of observations in the data (Nau (2018) suggests one variable for every ten observations constitutes a probable

threshold for a large number of variables compared to the number of observations) BSR analysis may retain insignificant variables. The number of variables selected for input into the model was not large compared the number of observations (see the model specification above, six independent variables for 402 observations does not approach Nau’s (2018) threshold). The researchers were careful to include theoretically motivated, previously studied variables.

Moreover, there are four principal assumptions about linear regression that must be satisfied before its use will yield valid results. The first assumption is that the dependent and independent variables constitute a linear relationship. The P-P plot of regression standardized residuals (expected *versus* observed, un-tabulated) revealed that the data departed only slightly from linearity. Another assumption of regression analysis is normal distribution of the residuals. Testing this assumption involves evaluating a histogram plot of the residuals of the regression line (un-tabulated). The shape of the histogram should produce an approximately normal curve. Review of the histogram plot of the regression-standardized residuals (un-tabulated) indicated a distribution that closely adhered to a normal distribution. The final assumption is of statistical independence of the residuals. The Durbin-Watson test examines the data for autocorrelation, a sign of a ‘lack of statistical independence’. The Durbin-Watson statistic can assume values between zero and four. Durbin-Watson statistic values around two indicate there is no significant autocorrelation in the data. The regression analysis of model four produced a Durbin-Watson statistic of 1.833 (un-tabulated) indicating that there is no significant ‘lack of statistical independence’ in the data. Finally, the data must conform to the homogeneity of variance assumption. A plot of residuals *versus* predicted values is diagnostic for this assumption. Review of a plot of residuals *versus* predicted values (un-tabulated) revealed that these data conform to the assumption of homogeneity of variance (Nau, 2018).

**Table 1**  
**Collinearity Statistics<sup>a</sup>**

	<b>VIF</b>	<b>VIF</b>
<b>Model</b>	<b>3</b>	<b>4</b>
Internal Audit	1.872	1.567
Auditor Type	1.397	
Prior Year Findings	2.085	2.085
Actual Hours	2.851	2.835

a. Dependent Variable: Total Findings

Backward stepwise regression analysis begins with all of the specified variables included in the model. Stepwise iterations of regression analysis remove insignificant variables from the model. The first iteration of the procedure removed the variable *Number\_of\_Mandates*. The second iteration of BSR removed the variable *Number\_of\_Employees*. Model number three, the model remaining after two iterations, retained the independent variables *Auditor\_Type*, *Prior\_Yr\_Findings*, *Internal\_Audit\_Function* and *Actual\_Hours* (Table#1). The third iteration of the model, surprisingly, eliminated the *Auditor\_Type* independent variable as non-significant (t (1.401), p = .162). This left three significant variables remaining, *Internal\_Audit*, *Prior\_Year\_Findings* and *Actual\_Hours*.

**Table 2**  
**Model Summary<sup>c</sup>**

<b>Model</b>	<b>R</b>	<b>R<sup>2</sup></b>	<b>Adjusted R<sup>2</sup></b>
3 <sup>a</sup>	.948	.899	.898
4 <sup>b</sup>	.948	.898	.898

a. Predictors: (Constant), Auditor Type, Internal Audit, Prior Year Findings, Actual Hours

b. Predictors: (Constant), Internal Audit, Prior Year Findings, Actual Hours

Dependent Variable: Total Findings

There is no significant collinearity evident in model three or four as presented in Table 1. The summary of VIF factor statistics summarized in Table 1 points out that all of the variables retained in model four are below the threshold of four. This indicates that none of the variables requires remedial action. Table 2 reveals that model four explains approximately 89.8 percent of the variability in the dependent variable. Table 3 shows the results of the ANOVA indicate that model four is a significant predictor of the number of compliance audit findings.

With respect to the study hypothesis, this research found that the independent variable, the variable of interest in this study, *Internal\_Audit* is a significant predictor variable in this relationship ( $\beta = .821$ ,  $t(2.885)$ ,  $p = .004$ ). This supports the hypotheses that the presence of an internal audit function will directly correlate with the number of current year findings. Additionally, the regression analysis indicated that the remaining independent variables, *Prior\_Year\_Findings* ( $\beta = 1.218$ ,  $t = 35.018$ ,  $p < .001$ ) and *Actual\_Hours* ( $\beta = .000$ ,  $t = 5.709$ ,  $p < .001$ ), were also individually significant to the number of compliance audit findings at the significance level of  $\alpha = .05$  (Table 4).

**Table 3**  
**ANOVA<sup>a</sup>**

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
4 <sup>b</sup>	Regression	18227.104	3	6075.701	1172.767	.000
	Residual	2061.901	398	5.191		
	Total	20289.005	401			

a. Dependent variable: Total Findings

b. Predictors: Internal Audit, Prior Year Findings, Actual Hours

**Table 4**  
**Coefficients**

<b>Model 4</b>	<b>Unstandardized Coefficients</b>		<b>Standardized Coefficients</b>	<b>t</b>	<b>Sig.</b>
	<b>B</b>	<b>Std. Error</b>	<b>Beta</b>		
(Constant)	.363	.173		2.100	.036
Internal Audit	.821	.285	.058	2.885	.004
Prior Year Findings	1.218	.035	.808	35.018	.000
Actual Hours	.000	.000	.154	5.709	.000

## DISCUSSION

This study examined the relationship of the presence of an internal audit function within a state agency with the number of compliance audit findings produced in a compliance audit of the agency. Using regression methodology, the researchers specified a regression equation suggested by *extant* literature. This regression equation included the variables representing internal audit presence, the number of audit hours required, the auditor type, the number of employees, the number of agency mandates, as well as the number of prior year findings. These variables were analyzed with backward stepwise regression to examine their significance and specify a model predictive of the number of compliance audit findings. This research replicates and extends previous studies' examination of factors affecting the number of compliance audit findings reported for state government agencies.

The results of the analysis indicated that the variable of interest, the presence of an internal audit function was highly significant to the number of compliance audit findings. Additionally, prior year findings and actual hours spent auditing were also highly significant. The final model produced by BSR accounted for approximately 89.8 percent (adjusted  $R^2$ ) of the variability observed in the dependent variable. This result marks a significant contribution to the previous research on this topic.

Branson, Nation and Rothe (2018), examined a similarly specified regression including variables for the number of mandates, the number of employees the amount of appropriation received from the state the length of the examination period the auditor type and the number of audit hours. Their regression study found that their model accounted for approximately 59.3 percent (adjusted  $R^2$ ) of the variability in audit findings. The final model produced three significant variables, auditor type, number of audit hours, and level of appropriation for the agency. Branson, Nation, and Stephens (2016) performed another similar study using variables for the number of audit hours the amount of funds expended, the number of employees, the days required to complete the audit, the *a priori* estimated hours for the audit the auditor type and the number of prior year findings. The final model produced by BSR included the following significant variables, number of employees, the number of audit hours, the auditor type, and the number of prior year findings. The model accounted for approximately 77.2 percent (adjusted  $R^2$ ) of the variability of the dependent variable the number of audit findings.

Auditor type is one factor, rigorously examined in past studies so this study replicates prior research using the auditor type variable to enhance the internal validity of the study. Surprisingly, the results of the regression analysis do not support auditor type as a significant influence on the number of audit findings. Prior studies have consistently found auditor type to be a repeatable predictive factor for the number of compliance audit findings. One reason for this occurrence may be the difference in the data sets between studies supporting this finding and the current research.

The current study included all state agencies for which a compliance audit was conducted during the six-year period from 2011 through 2016, regardless of size. Previous studies in this literature have winnowed their samples to include only the largest state agencies. For example, Branson, Nation, and Stephens, (2016) included the 25 state agencies with the largest General Revenue Fund appropriations to minimize issues facing small state agencies that could skew the analysis (Branson, Nation, & Stephens, 2016). Branson, Decker, and Green (2011) included 24 agencies, each of which was audited by both OAG and SAA auditors in different periods throughout the period of the research (Branson, Decker, & Green, 2011). The authors of the

current study conclude from the results that indeed, including the smaller agencies in the data set affects the analysis in some way. However, variables representing size such as agency appropriated funds, or agency expenditures were not significant factors to this study. This finding leads the researchers to infer that the size of the agency influences the audit in a way that is not related to the level of appropriation the agency receives. This finding supports prior researchers' contention that agencies with smaller appropriations face issues (such as understaffing or mismatches between the scope of their mission and their funding) that skew the results. This incongruity merits additional study.

This study also used audit hours as a summarized, comprehensive control variable, supported by previous research, to proxy entity size and complexity. Audit hours were found to be a highly significant factor influencing the number of compliance audit findings reported. Studies have identified client size, complexity, and risk when determining cost and time necessary to effectively conduct an audit (Gist, 1992; Bamber, Bamber, & Schoderbek, 1993; Gist & Davidson, 1999; Nikkinen & Sahlstrom, 2005). Additionally, the number of repeated findings was found to be a significant influence on the dependent variable, the number of compliance audit findings, in this research.

This study found that the presence of an internal audit function is statistically significant to the number of compliance audit findings. The BSR technique used in this study begins with all candidate variables included in the model and then removes variables based on significance until removing another variable would result in significant deterioration in the explanatory power of the model. In this study, the researchers were careful to test that the assumptions were met. In addition, the researchers were careful to select previously studied variables in addition to the additional variable of interest. This provided replication of previous work, supporting the validity of the study

Thus, the current study found support for the research hypothesis. The results indicate that the presence of an internal audit function at a given Illinois state agency is significantly related to the number of audit findings. This is consistent with previous survey-based research on the effectiveness of internal audit (Coetzee & Erasmus, 2017; Ma'ayan & Carmeli, 2016) (Vijayakumur & Nagaraja, 2012). The current research provides empirical data supporting the survey-based data in the referenced studies. The variable of interest in the current study, the presence of an internal audit function exclusively dedicated to serving that agency, was highly significant to the number of compliance audit findings.

The research went on to consider the other variable found to be significant in earlier research efforts, audit hours. Branson, Nation, & Stephens (2016) studied the effect of the time spent auditing on audit effectiveness, measured by the number of compliance audit findings. Their research found that the actual number of audit hours required to complete the compliance audit was significant to the number of findings. The current study methodology once again retained that variable, in spite of a different data set. This result reinforces that the actual time spent auditing is a significant predictor of audit effectiveness. Additionally, this provides additional empirical evidence reinforcing Suhayati's (2012) finding that time budget pressure does influence audit effectiveness.

## **LIMITATIONS**

This study employs empirical research, which is subject to limitations. One limitation of this study is that it is limited in scope. The researchers examined internal audit functions in the Illinois state government. The study data came in part from information only available to

employees of the OAG. OAG employees have access to OAG databases of audit-related information allowing for straightforward determination of a given agency's number of mandates. That is not to say that one cannot find that information publicly, only that it would require increased time spent collecting this data from public records in Illinois as well as the possibility of reduced accuracy determining the number of mandates. An additional limitation of the study is that states are not required to perform their various administrative functions in a uniform manner so there is almost certainly substantial variability in their operations. Thus, readers should beware of using the results of this research to transport generalizations across state lines for inference purposes. Hence, future researchers should examine internal audit function effectiveness in governmental agencies across various states, as operating and auditing practices may vary. This expanded scope would allow the possibility of classifying various state governmental compliance audit regimes, and comparing the effectiveness of different state government operational hierarchies to provide evidence of the best practices affecting state government compliance auditing.

Another key limitation of this study is the high-level measurement of a full-time internal audit function. Given the limitations of data accessibility, the researchers presumed that full-time internal audit functions existed if an entity's audit report identified a chief internal auditor. The authors presumed that internal audit functions possessed adequate levels of competence, knowledge, and independence based on the strict statutory requirements imposed by the State Internal Audit Advisory Board, which governs and trains internal auditors in Illinois. Further studies should expand internal audit effectiveness and the measurement of an internal audit function by attempting to examine additional objectively measurable qualities of internal audit functions. Such measures may include size of the internal audit function respective to the entity, internal audit staff tenure with the entity, cumulative years of experience, number of staff with certifications, types of certification, etc. In addition, further research may examine the causes and explanations for interactions of auditor type and internal audit function on the number total and repeated compliance audit findings reported by state external auditors. Future researchers could also consider whether the degree of auditor reliance on the auditees internal audit function by auditor type has any effect on audit effectiveness.

## CONCLUSION

This empirical study is based on previous studies and existing literature, which support the proposed hypothesis. The purpose of this study was to draw an inference on the effectiveness of full-time internal audit functions at the state entity level by extending previous research on public sector compliance audits. This study examined the effect of Audit Hours, Auditor Type and, the variable of interest, Internal Audit Function presence on the number of reported compliance audit findings by external auditors. Current results conditionally support previous research, finding agency size and complexity, measured by audit hours, and the number of prior year findings, are statistically significant to the number of compliance audit findings. The study found a surprising result as well. The study results indicated that auditor type, a previously significant variable studied several times before, was not significant in this research setting.

Tests of the primary independent variable, Internal Audit, find a positive statistically significant relationship between the presence of internal audit functions and compliance audit findings reported. The analysis provides support for the research hypothesis that IAF presence

significantly influences the number of compliance audit findings. Additionally, the number of audit hours required for the audit, and the number of prior-year findings support previous research conducted with internal audit professionals. Upon controlling for these factors representing complexity, as the variable Audit Hours, previous research suggests the nature and existence of an internal audit function should lead to more efficient and effective operations and achievement of goals.

## REFERENCES

- Aikins, S. K. (2011). An Examination of Governmental Internal Audits' Role in Improving Financial Performance. *Public Finance and Management*, 306-337.
- Aikins, S. K. (2012). Determinants of Auditee Adoption of Audit Recommendations: Local Government Auditors Perspectives. *Journal of Public Budgeting, Accounting & Financial Management.*, 195-220.
- Bamber, E. M., Bamber, L. S., & Schoderbek, M. P. (1993). Audit Structure and Other Determinants of Audit Report Lag: An Empirical Analysis. *Auditing: A Journal of Practice and Theory*, 1-23.
- Branson, L., Decker, J. L., & Green, M. (2011). To Find or Not to Find: Public Accounting Auditors versus Governmental Auditors. *Review of Business Information Systems*, 5-10.
- Branson, L., Nation, F., & Clark, D. (2016). An Analysis of Compliance Audits in State Government. *International Journal of Business, Accounting, & Finance*, 1-11.
- Branson, L., Nation, F., & Rothe, M. (2018). An Empirical Study of Factors Effecting Governmental Compliance Audit Findings. *The International Journal of Business, Accounting, and Finance*, 17-28.
- Branson, L., Nation, F., & Stephens, J. (2016). Compliance Audits: A Study of the Relation Between Audit Findings and Audit Hours. *International Journal of Business, Accounting and Finance*.
- Coetzee, P., & Erasmus, L. (2017). What Drives and Measures Public Sector Internal Audit Effectiveness? Dependent and Independent Variables. *International Journal of Auditing*, 237-248.
- Cohen, A., & Sayag, G. (2010). The Effectiveness of Internal Auditing: An Empirical Examination of its determinants in Israeli Organizations. *Australian Accounting Review*, 296-307.
- Eden, D., & Moriah, L. (1996). Impact of Internal Auditing on Branch Bank Performance: A Field Experiment. *Organizational Behavior and Human Decision Processes*, 262-271.
- Ege, M. (2015). Does Internal Audit Function Quality Deter Management Misconduct? *The Accounting REview*, 495-527.

- Gist, W. E. (1992). Explaining Variability in External Audit Fees. *Accounting and Business Research*, 79-84.
- Gist, W. E., & Davidson, R. A. (1999). An Exploratory Study of the Influence of Client Factors on Audit Time Variances. *Auditing: A Journal of Practice and Theory*, 101-116.
- Illinois General Assembly (30 ILCS 10/). (2017). *Fiscal Control and Internal Auditing Act (30 ILCS 10/)*. Retrieved October 8, 2017, from Illinois General Assembly: <http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=467&ChapterID=7>
- Illinois General Assembly (30 ILCS 5/). (2017). *Illinois State Auditing Act (30 ILCS 5/)*. Retrieved October 8, 2017, from Illinois General Assembly: <http://www.ilga.gov/legislation/ilcs/ilcs5.asp?ActID=466&ChapterID=7>
- Illinois Office of the Auditor General. (February 19, 2016). *Illinois Office of the Auditor General, About the Office*. Retrieved from Illinois Office of the Auditor General: <http://www.auditor.illinois.gov/About/description.asp>
- Illinois Office of the Auditor General. (January 12, 2017). *Illinois Office of the Auditor General, Audit Reports*. Retrieved from Illinois Auditor General: <http://www.auditor.illinois.gov/Audit-Reports/description.asp>
- Jakubowski, S. T. (2008). Local Governmental Audits: A Look at Audit Findings and Differences Related to the Type of Auditor. *Municipal Finance Journal*, 77-89.
- Knighton, L. (1973). Internal Auditing in State Government. In I. Institute of Internal Auditors, *Internal Auditing in State Government*. Washington DC: Institute of Internal Auditors, Inc.
- Ma'ayan, Y., & Carmeli, A. (2016). Internal Audits as as Source of Ethical Behavior, Efficiency, and Effectiveness in Work Units. *Journal of Business Ethics*, 347-363.
- Nau, R. (2018). *Linear Regression Models*. Retrieved from Statistical Forecasting: Notes on Regression and Time Series Analysis: <http://people.duke.edu/~rnau/testing.htm>
- Nikkinen, J., & Sahlstrom, P. (2005). Risk in Audit Pricing: The Role of Firm-Specific Dimensions of Risk. *Advances in International Accounting*, 141-151.
- State Internal Audit Advisory Board. (2011). Retrieved October 8, 2017, from State of Illinois State Internal Audit Advisory Board: <https://siaab.audits.uillinois.edu/home/>
- Suhayati, E. (2012). The Influence of Audit Fee, Audit Time Budget Pressure and Public Accountant Attitude on the Public Accountant Dysfunctional Behavior and its Implications on Audit Quality Survey on "Small" Scale Public Accounting Firms in Java. *Journal of Global Management*, 1-24.

Vijayakumur, A. N., & Nagaraja, N. (2012). Internal Control Systems: Effectiveness of Internal Audit in Risk Management at Public Sector Enterprises. *BVIMR Management Edge*, 1-8.

***About the Authors:***

**Frank Nation** is currently an Assistant Professor in the Department of Accounting at the University of Illinois Springfield. His research interests include governmental agency internal audits, and deception detection as it relates to auditing.

**Quentin Kuntzman**, MSA, is a December 2017 graduate of the Master of Accountancy program at the University of Illinois Springfield. Mr. Kuntzman is currently an employee of the Illinois Office of the Auditor General of the State of Illinois.

**Mark Buxton** is Associate Professor and Chairman of the Department of Accounting at the University of Illinois Springfield. His research interests are broad and include internal control and internal auditing issues.

# DO INVESTORS TAKE DIRECTORS' AGE, TENURE, AND THEIR HOMOGENEITY INTO ACCOUNT?

Sylvie Berthelot  
Michel Coulmont  
Anne Marie Gosselin  
University of Sherbrooke

## ABSTRACT

*Parallel to studies on directors' independence, the representation of women and CEO/Chairman duality, this study is intended to examine whether investors take directors' age and tenure and age and tenure homogeneity into account.*

*Utilizing a sample of Canadian firms listed on the Toronto Stock Exchange for fiscal years 2012 to 2015 inclusively, the result of this study show that investors take directors' tenure and tenure homogeneity into account, viewing tenure as a positive element, in contrast to tenure heterogeneity, which they perceive as negative. They do not seem to consider directors' age and age heterogeneity to be relevant. In addition, our results point up the importance of further study to understand the influence of directors' tenure on firms' financial performance and governance practices before introducing any regulation to limit tenure terms.*

*Keywords: Corporate governance, director age, director tenure, value relevance, firm's market value*

## INTRODUCTION

Parallel to studies on directors' independence, the representation of women, and CEO/Chairman duality, this study is intended to examine whether investors take directors' age and tenure and age and tenure homogeneity into account. For some time now, directors' age and tenure have been a focus of attention since a majority of directors at firms with annual elections are elected with at least 90% of the vote. However, there are still many directors dissatisfied with their board's composition (Cloyd, 2013). According to a PWC study (2015) of 783 public company directors, nearly 40% of those directors interviewed felt that some member of their board should be replaced. The main reasons for this dissatisfaction range from diminished performance due to aging to unpreparedness for meetings and lack of expertise (PWC, 2015). Thus, the question of whether directors' age and the number of terms they serve should be capped appears to be a valid one.

It is from this perspective that this study examined whether investors take account of directors' age and tenure and the homogeneity of their age and tenure, using an empirical version of the Ohlson model (1995) and a sample of Canadian firms listed on the Toronto Stock Exchange (for fiscal years 2012 to 2015 inclusively). The findings tend to show that investors do not take age and age homogeneity into account. Conversely, they attach importance to tenure and tenure homogeneity. These results can contribute to discussions on regulating the information organisations are required to disclose about their directors' age, tenure and term of tenure. To our knowledge, few countries have set limits on the age or term of directors of listed firms, although debate on this issue has become increasingly common. In Canada, the Canadian Securities Administrators of seven provinces (out of 10) and two territories (out of three) require organisations that solicit a proxy from a security holder or the issuer for the purpose of electing directors to disclose in its documentation:

“...whether or not the issuer has adopted term limits for the directors on its board or other mechanisms of board renewal and, if so, include a description of those director term limits or other mechanisms of board renewal. If the issuer has not adopted director term limits or other mechanisms of board renewal, disclose why it has not done so (Regulation 58-101 Respecting disclosure of corporate governance practices).”

Our study findings support this regulatory initiative requiring the board to disclose whether or not the firm has adopted term limits for directors. Moreover, they confirm that investors attach less value to firms whose directors' terms are shorter than average and firms where directors' tenure is more heterogeneous. In other words, they attach greater value to the shares of firms whose directors have longer than average terms of tenure. Organisations interested in increasing their market value should thus consider these results when nominating and electing their directors.

This article is broken down into four sections. The first presents the relevant literature, followed by sections on the research design and the study's sample and data collection. A third section discusses the study results, while the final section sums up the article, addresses the study's limitations and presents potential avenues for future research.

## **THEORETICAL BACKGROUND**

Corporate governance issues came to light with the separation of ownership and control noted by Berle and Means in their studies in 1932 (Berle & Means, 1932). In fact, it was the growing size of organisations that triggered this separation. Because the thousands and even hundreds of thousands of investors who own shares in public companies cannot collectively make the day-to-day decisions needed to operate a business (Kim, Nofsinger, & Mohr, 2010), they hire managers. However, since managers and shareholders do not necessarily share the same goals, agency problems may arise.

For example, managers may seek self-serving gratification in the form of perks, power, and/or fame (Kim, Nofsinger, & Mohr, 2010). To prevent these potential abuses, relations between investors and managers are governed by contracts (Jensen & Meckling, 1976), which may however sometimes be flawed (Shleifer & Vishny, 1997). Since managers' actions cannot always be monitored, moral hazard problems may occur (Scott, 2015). As well, managers have more information about a firm's current realities and future prospects than investors, leading to a problem of adverse selection that may favour the former (Scott, 2015). Several studies have documented the prevalence of managerial behaviour that does not serve investors' interests (Shleifer & Vishny, 1997). Others have addressed mechanisms for mitigating agency problems, such as executive compensation contracts, legal rules, large investors, creditors, rating agencies, accountants and auditors. In fact, a major portion of corporate governance research targets these mechanisms.

Corporate boards of directors are another mechanism that can mitigate agency problems between investors and managers. Past studies attribute the following four roles to boards of directors: monitoring, service, strategy and resource provision (Daily, Dalton, & Cannella, 2003; Zahra & Pearce, 1989; Ong & Wan, 2008). The first entails directors monitoring managers as fiduciaries of stakeholders. In this role, their responsibilities include hiring and firing the CEO and other senior executives, determining executive pay, and otherwise overseeing managers to ensure they do not expropriate stockholders' interests (Johnson, Daily, & Ellstrand, 1996). The

next two, service and strategy, are often combined. They include the advisory services that directors must provide to senior executives, as well as support for strategic planning and the implementation of corporate strategic plans (Johnson, Daily, & Ellstrand, 1996). Lastly, resource provision refers to the directors' ability to bring resources, such as legitimacy, experience, relationships with important stakeholders and access to capital, to the firm (Ong & Wan, 2008).

A number of studies have examined whether the characteristics of boards and/or directors affect boards' efficiency and firms' financial performance. Outside directors have been one of the characteristics most frequently studied. In theory, they are supposed to monitor managerial opportunism, while bringing a diversity of perspectives and expertise to support strategy formulation and implementation (Johnson, Daily, & Ellstrand, 1996). An outside director is also seen as a director who can bring resources to the firm (Johnson, Daily, & Ellstrand, 1996). However, meta-analyses seeking to establish a link between structural and compositional characteristics of boards, for instance, board size, CEO/Chairman duality, ratio of outside/inside directors and financial performance (Johnson, Daily, & Ellstrand, 1996; Dalton et al., 1999; Hermalin & Weisbach, 1991; Dalton & Dalton, 2011) have proven to be inconclusive (McNulty, 2014). According to McNulty (2014), these results confirm the need to study other variables and processes that could explain a board's performance and impact at the firm level (Daily, Dalton, & Cannella, 2003; Finkelstein, Hambrick, & Cannella, 2009; Pugliese et al., 2009).

Directors' age and tenure and age and tenure heterogeneity are other characteristics that can influence their performance even though previous studies have considered these attributes less important.

### **Average Age of Board Members**

According to Nguyen, Hagendorff, and Eshraghi (2015), the age of the appointees could impact their decision-making capability, risk-taking behaviour, career concerns and economic incentives. These authors found that older appointees have more decision-making experience, less career uncertainty and fewer incentives to improve their job security. As a result, they are less likely to engage in excessively risky activities. Younger directors have more energy, drive and ideas, are quicker at learning new technologies and likely to favour innovative decisions (Nguyen, Hagendorff, & Eshraghi, 2015). A few studies have in fact found that the age of senior executives and board members seems to influence various firm variables. Wiersema and Bantel (1992), for example, found that members of the top management of firms most likely to change their corporate strategy have lower average and shorter organisational tenure. From this perspective, a younger board would likely more rapidly respond to change and develop better strategies, which should translate into greater future cash flows and higher share prices. However, Bantel and Jackson (1989) observed no relationship between the average age and age heterogeneity of top management and innovation.

Focusing more specifically on directors' age and using a broader measure of performance, Wang, Lu, and Lin (2012) found no correlation between directors' age and the performance of bank holding companies. Tompkins and Hendershott (2012) noted a highly positive and significant correlation between the average age of a board of directors and the probability of takeover. In their view, older directors are less prone to agency problems and more willing to make decisions that could result in the loss of their board seat. They also found that takeover offers create a conflict of interest between shareholders and directors and that, although mergers generally create value for shareholders, they often lead to directors losing their seats. Core, Holthausen, and Larcker (1999) observed a positive correlation between CEO compensation and

outside directors over age 69. They believe this finding to be due to greater laxity on the part of older directors. Larker, Richardson, and Tuna (2007) found no evidence of a link between directors' age and financial performance measured by return on assets (ROA) or future stock returns. However, they noted a negative correlation with the absolute value of abnormal accruals. Accordingly, older directors would appear to be associated with less earnings management.

Similarly to Larcker, Richardson, and Tuna (2007), McIntyre, Murphy, and Mitchell (2007) did not find any significant correlation between the average age of the board and the increase in Tobin's Q, the economic value added and the return on assets. Lastly, Grove, et al. (2011) observed a negative and significant relationship between the average director age and excess return, but only for one year even though their study covered three years. To date, the findings of studies on directors' age are less than conclusive and could moreover be explained by the research methodology used. Given that directors' age could theoretically influence their decision-making capability, risk-taking behaviour, career concerns and economic incentives, this variable is likely to impact future cash flows. We suggest applying a different methodology to test this relationship and put forward the following hypothesis:

*H<sub>1</sub> There is a significant negative relationship between firm's market value and the average age of the board directors.*

The diversity of age on a firm's board may lead to diverging opinions and a wide variety of ideas since the different age groups have different characteristics. According to Sitthipongpanich and Polsiri (2013), older directors may provide greater steadiness and experiential acumen to board discussions, while younger directors may be more dynamic and less conservative. Sitthipongpanich and Polsiri (2013) also found that older directors tend to be more psychologically committed to the firm, whereas younger directors are better at grasping new ideas and learning new things (Koufopoulos, et al., 2008). Thus, an age-diverse board would make better strategic decisions because of the input of different points of view. These decisions would then translate into better financial performance. Sitthipongpanich and Polsiri (2013) showed a marginally significant correlation between the heterogeneity of the age of directors and firm value (measured by the market to book ratio). Working with a sample of Canadian firms, McIntyre, Murphy, and Mitchell (2007) noted similar results. However, their results were not significant when financial performance was measured by return on assets (ROA) and economic value added (EVA). In light of these mixed results, we put forward the following hypothesis:

*H<sub>2</sub> There is a significant positive relationship between firm's market value and the age homogeneity of the board directors.*

## **Tenure**

Directors' tenure is another interesting variable that has seldom been explored in prior research. Baran and Forst (2015) maintain that longer board tenure may benefit a firm because long-serving directors have the time to acquire specific knowledge about the organisation and may thus be able to provide better advice. However, they may neglect their supervisory role since they are more likely to form friendships with management over time (Vafeas, 2003). Furthermore, Barroso, Villegas, and Pérez-Carlos (2011) found that long-tenure directors can also develop decision-making routines and be influenced by their own beliefs and schemes when it comes to facing key decisions such as internationalisation strategy or strategic changes. This

would thus negatively impact performance because the firm's growth could stagnate. McIntyre, Murphy, and Mitchell (2007) observed that directors' tenure was positively related to a firm's return on assets and economic value added (EVA), although this relationship is somewhat concave. Directors contributions tend to diminish with longer terms of tenure. Deschênes, Rojas, and Morris (2013) found that investors attach value to directors' tenure and that an experienced board will create more value for shareholders. Apart from Deschênes, Rojas, and Morris (2013), few researchers have examined whether investors take directors' tenure into account. Given the diverging positions on the contribution of tenure to financial performance and the few empirical observations available, we put forward the following hypothesis:

*H<sub>3</sub> There is a significant negative relationship between firm's market value and the directors' tenure.*

In addition to the issue of tenure itself, tenure heterogeneity is also an interesting variable for analysis. Tenure heterogeneity may be beneficial for firms because it contributes cognitive diversity that can stimulate discussion. However, it can also interfere with the communication process and spark dysfunctional conflict (Bantel & Jackson, 1989). McIntyre, Murphy, and Mitchell (2007) noted that tenure heterogeneity was positively linked to Tobin's Q, but not to economic value added (EVA) or return on assets (ROA). In light of the scarcity of studies on this issue, we propose the following hypothesis:

*H<sub>4</sub> There is a significant positive relationship between firm's market value and the tenure homogeneity of the board directors.*

## METHODOLOGY

### Research design

To examine how investors value directors' age and tenure and age and tenure heterogeneity, we drew on an empirical version of Ohlson's model (1995), similar to those used by Collins, Maydew, and Weiss (1997), Xu, Magnan, and Andre (2007), Venter, Emanuel, and Cahan (2014) and Coulmont and Berthelot (2015). This accounting-based valuation model relates a firm's market value (price of common shares four months after the year-end \* number of common shares outstanding) to the book value of its equity and earnings. The model is expressed as follows:

$$MV_{it+4} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EARN_{it} + \alpha_3 EARN_{it} * NEG_{it} + \alpha_4 INDP_{it} + \alpha_5 WOMEN_{it} + \alpha_6 DUALITY_{it} + \alpha_{7,9} YEARS_{it} + \varepsilon_{it} \quad (1)$$

Where,

$MV_{it+4}$  is the market value four months after the year-end;  $BV_{it}$  is the book value of common equity;  $EARN_{it}$  is the net earnings;  $NEG_{it}$  is a dummy variable equal to 1 if the firm's net earnings are negative in year t and 0 otherwise;  $INDP_{it}$  is the percentage of independent board members (percentage of the board members who meet the definition of independence of the firm according to the Canadian Securities Administrators);  $WOMEN_{it}$  is the percentage of women directors; and  $DUALITY_{it}$  is a dummy variable equal to 1 if the CEO is also Chairman of the board and 0 otherwise. The latter are control variables of elements noted in previous studies

that could influence the findings.  $YEARS12_{it}$ ,  $YEARS13_{it}$  and  $YEARS14_{it}$  are dummy variables associated with fiscal years 2012, 2013 and 2014 respectively (equal to 1 if the observation is for the year and 0 otherwise). They are used to control for the potential influence of the observations' year on the results. If, for reasons not addressed in this study, there are differences in the market value of firms operating in these years, they will be captured by these control variables.  $\varepsilon_{it}$  is the error term.

We then examined the incremental value assigned to the directors' age and tenure and age and tenure homogeneity by adding the variables studied to the equation.  $AGE_{it}$  is the average age of board members;  $SDAGE_{it}$  is the age heterogeneity of the directors measured by the standard deviation of the age of the board members;  $TENURE_{it}$  is the average number of years of tenure of the board members; and  $SDTENURE_{it}$  represents the tenure heterogeneity measured by the standard deviation of the tenure of the board members. Equation (1) thus becomes:

$$MV_{it+4} = \alpha_0 + \alpha_1 BV_{it} + \alpha_2 EARN_{it} + \alpha_3 EARN_{it} * NEG_{it} + \alpha_4 INDP_{it} + \alpha_5 WOMEN_{it} + \alpha_6 DUALITY_{it} + \alpha_7-9 YEARS_{it} + \alpha_{10} AGE_{it} + \alpha_{11} SDAGE_{it} + \alpha_{12} TENURE_{it} + \alpha_{13} SDTENURE_{it} + \varepsilon_{it} \quad (2)$$

Market value was estimated from financial data corresponding to four months after the end of the fiscal year from which the accounting data was taken in order to ensure that information about the characteristics of the board was available to investors and that they could have integrated it into their valuation of the firm. Like Xu, Magnan, and Andre (2007), we expected the coefficients associated with the book value of common equity ( $\alpha_1$ ) and net earnings of the firm ( $\alpha_2$ ) to be positive and significant, and the coefficient associated with an interaction variable that is the product of net earnings and the dummy variable  $NEG$  ( $\alpha_3$ ) to be negative and significant. This interaction term is included to take account of the different coefficients associated with positive and negative net earnings. The variables  $AGE_{it}$  and  $SDAGE_{it}$ , representing the average age and the standard deviation of the directors' age respectively, are intended to test hypotheses  $H_1$  and  $H_2$ . If investors take directors' age and their age heterogeneity into account, coefficient  $\alpha_{10}$  should be negative and significant, while coefficient  $\alpha_{11}$  should be positive and significant. The  $TENURE_{it}$  and  $SDTENURE_{it}$  variables, representing the average tenure and tenure heterogeneity, are intended to test hypotheses  $H_3$  and  $H_4$ . If investors take these variables into account,  $\alpha_{12}$  and  $\alpha_{13}$  should also be negative and positive respectively and significant.

## Sample and Data Collection

Firms in the sample are drawn from the Toronto Stock Exchange S&P/TSX composite index. The goal was to obtain a sizeable sample of firms that provide data about the characteristics of their board of directors, being well aware that information about directors' age and tenure is not always available. After examining just under half the firms listed on the Toronto Stock Exchange S&P/TSX composite index that disclose the age and tenure of their directors, we collected data for four fiscal years (2012 to 2015). Of the 461 observations from which all the data was collected, 118 apply to 2012, 119 to 2013, 117 to 2014 and 107 to 2015. Table 1 presents the distribution of firms by sector. The energy (27%) and materials sector (21%) account for half the firms in the sample, followed by the financial (14%) and industrial sectors (12%).

**Table 1**  
**Descriptive Sectors**

<b>Sector</b>	<b>Number</b>	<b>% of sample</b>
Consumer Discretionary	38	8.24%
Consumer Staples	25	5.42%
Energy	126	27.33%
Financial	63	13.67%
Industrials	55	11.93%
Information Technology	19	4.12%
Materials	97	21.04%
Telecommunication Services	10	2.17%
Utilities	28	6.07%
Total	461	100.00%

The financial and accounting data needed to perform the statistical analysis, i.e., market value ( $MV_{it+4}$ ), the book value of common equity ( $BV_{it}$ ) and the net earnings ( $EARN_{it}$ ), was extracted from the Compustat Research Insight database. Information about board members (age, tenure, independence, gender) was retrieved manually from proxy circulars available on SEDAR.com. This site is an official site providing access to most public securities documents filed by firm issuers with the 13 Canadian provincial and territorial securities regulatory authorities.

## RESULTS

### Descriptive Statistics

The descriptive statistics of the firms included in the sample are presented in Table 2. These firms are relatively large, with an average market value of CAD\$9.3 billion (median = 3.4 billion). The average book value of their common equity is CAD\$5.3 billion (median = 2.1 billion) and the average net earnings is CAD\$369 million (median = 130.1 million).

**Table 2**  
**Descriptive Statistics (N=461)**

Variables	Mean	SD	Median	Minimum	Maximum
MV <sub>it+4</sub>	9,288.945	14,398.789	3,427.208	27.060	100,733.610
BV <sub>it</sub>	5,325.412	8,547.959	2,068.000	11.160	62,718.000
EARN <sub>it</sub>	369.132	1,493.670	130.100	-10,678.700	7,912.000
INDP <sub>it</sub>	0.788	0.123	0.818	0.330	1.000
WOMEN <sub>it</sub>	0.147	0.112	0.143	0.000	0.550
AGE <sub>it</sub>	62.390	3.240	62.430	51.000	74.000
SDAGE <sub>it</sub>	7.459	2.011	7.181	3.310	14.170
TENURE <sub>it</sub>	8.160	3.145	8.080	1.000	21.000
SDTENURE <sub>it</sub>	6.225	3.423	5.916	0.000	16.220

Financial figures are presented in millions of Canadian dollars.

MV<sub>it+4</sub> is the market value of the firm's common shares outstanding four months after the fiscal year-end t; BV<sub>it</sub> is the book value of the firm's common equity at the fiscal year-end t; EARN<sub>it</sub> is the net earnings of fiscal year t available for common shareholders of firm i; INDP<sub>it</sub> is the percentage of independent board members of firm i at the end of year t; WOMEN<sub>it</sub> is the percentage of women on the board for firm i during year t; AGE<sub>it</sub> is the average age of the board members of firm i at the end of year t; SDAGE<sub>it</sub> is the board age heterogeneity measured by the standard deviation of the age of the board members of firm i at the end of year t; TENURE<sub>it</sub> is the average number of years of tenure of the board members of firm i for year t; and SDTENURE<sub>it</sub> is the tenure heterogeneity measured by the standard deviation of the tenure of the board members of firm i at the end of year t.

**Table 3**  
**Correlation Coefficients (Value model) (N=461)**

Variables	MV <sub>it+4</sub>	BV <sub>it</sub>	EARN <sub>it</sub>	INDP <sub>it</sub>	WOMEN <sub>it</sub>	AGE <sub>it</sub>	SDAGE <sub>it</sub>	TENURE <sub>it</sub>	SDTENURE <sub>it</sub>
	1	2	3	4	5	6	7	8	9
1	-								
2	.815**	-							
3	.666**	.565**	-						
4	.238**	.157**	.222**	-					
5	.283**	.270**	.233**	.257**	-				
6	.172**	.197**	.052	.225**	.098*	-			
7	-.061	.000	-.071	-.230**	-.055	.198**	-		
8	.027	.049	.015	-.285**	.049	.381**	.281**	-	
9	.032	.092*	.034	-.227**	.163**	.435**	.405**	.805**	-

\*\* p ≤ 0.05; \* p ≤ 0.1.

Table 3 presents the correlation coefficients for the variables included in equations 1 and 2. As expected, the correlation coefficients for these variables are high between the market value (MV<sub>it+4</sub>) and the book value (BV<sub>it</sub>) and net earnings (EARN<sub>it</sub>) of the firms. The correlation coefficients of the control variables INDP<sub>it</sub> and WOMEN<sub>it</sub>, representing the percentage of

independent directors and the percentage of women directors respectively, are weakly but significantly and positively correlated with the financial variables ( $MV_{it+4}$ ,  $BV_{it}$  and  $EARN_{it}$ ). As concerns the correlation coefficients of the variables associated with age ( $AGE_{it}$  and  $SDAGE_{it}$ ) and tenure ( $TENURE_{it}$  and  $SDTENURE_{it}$ ), only those between the average age of directors ( $AGE_{it}$ ) and the firms' market value ( $MV_{it+4}$ ) and book value ( $BV_{it}$ ) are positive and significant.

The latter are however relatively low (0.172 and 0.197). The correlation coefficient between the tenure heterogeneity ( $SDTENURE_{it}$ ) and the book value of the firm ( $BV_{it}$ ) is also positive, but marginally significant. Overall, Table 3 does not show sufficiently high correlations to potentially cause problems of multicollinearity in the regression analyses.

## Analyses

Table 4 presents the results of the regression analysis for Models 1 and 2, plus two other complementary analyses. We ran least squares regressions. As expected with the correlation analyses, the multicollinearity between the independent variables is not seen as problematic. In fact, the variance inflation factor (VIF) obtained by the collinearity diagnostic for all independent variables is under 5. These values are within the prescribed threshold of [1, 10] proposed by Hair, et al. (2009). In addition, we ran the Durbin Watson statistic for autocorrelation problems. The Durbin Watson obtained for all models was close to 2 meaning that autocorrelation does not seem to be problematic.

The first model (M1) of our analysis shows that, as expected, coefficients associated with the book value of common equity ( $BV_{it}$ ) and net earnings ( $EARN_{it}$ ) are positive and highly significant. The coefficient associated with the interaction variable resulting from the product of the net earnings and the dummy variable  $NEG_{it}$  (1 if the firm had negative earnings and 0 otherwise), i.e.  $EARN_{it} * NEG_{it}$  is negative and highly significant. The coefficient associated with the percentage of independent board members ( $INDP_{it}$ ) is positive and marginally significant, while those associated with the percentage of women on the board ( $WOMEN_{it}$ ) and CEO/Chairman duality ( $DUALITY_{it}$ ) are not significant. The coefficients associated with the variables ( $YEAR12_{it}$ ,  $YEAR13_{it}$ ,  $YEAR14_{it}$ ) used to control for the potential influence of the observations' year on the results are generally not significant. Together, these nine dependent variables and the constant explain 80.7% of the variance of the firms' market value (adjusted  $R^2$ ). In terms of this variance explanation, this first model is very similar to the findings of Collins, Maydew, and Weiss (1997), Xu, Magnan, and Andre (2007), Venter, Emanuel, and Cahan (2014) and Coulmont and Berthelot (2014).

The second model (M2) examines the level of significance provided by adding new variables to the equation. The coefficient of the variable representing the average age of directors ( $AGE_{it}$ ) and that associated with age heterogeneity ( $SDAGE_{it}$ ) are not significant. The findings do not therefore appear to support Hypotheses  $H_1$  and  $H_2$ . Furthermore, the coefficient associated with tenure ( $TENURE_{it}$ ) is positive and marginally significant, contrary to hypothesis  $H_3$ . The analyses results tend instead to indicate that investors positively perceive the higher average tenure of directors. As for tenure heterogeneity measured by the standard deviation of the tenure of the board members ( $SDTENURE_{it}$ ), the coefficient associated with this variable is negative and significant contrary to our predictions. This result does not support hypothesis  $H_4$ . There is a slightly significant increase in the percentage of the explained variance in market value (adjusted  $R^2$ ), now at 80.9%, with the addition of these variables. The difference between the adjusted  $R^2$  statistics is marginally significant (F-test improved fit = 1.965).

**Table 4**  
**Results of the Regression Analysis; Dependent Variable:  $MV_{it+4}$ .**

Independents variables	M1		M2		M3		M4	
$BV_{it}$	0.536	***	0.527	***	0.535	***	0.535	***
$EARN_{it}$	7.608	***	7.631	***	7.610	***	7.610	***
$EARN_{it} * NEG_{it}$	-8.793	***	-8.794	***	-8.847	***	-8.847	***
$INDP_{it}$	4,207.752	*	2,175.171		3,881.568		3,881.568	
$WOMEN_{it}$	-1,026.209		630.087		198.558		198.558	
$DUALITY_{it}$	-75.155		186.801		80.307		80.307	
$YEAR12_{it}$	-1,442.122	*	-1,232.601		-1,451.617	*	-1,451.617	*
$YEAR13_{it}$	197.527		281.487		164.419		164.419	
$YEAR14_{it}$	-725.737		-627.155		-709.674		-709.674	
$AGE_{it}$			185.819					
$SDAGE_{it}$			-106.940					
$TENURE_{it}$			265.089	*				
$SDTENURE_{it}$			-358.425	**	-272.179	**	-272.179	**
$PT50TENURE_{it}$					-1,907.114	**		
$PT50to100TENURE_{it}$							1,907.114	**
Intercept	-590.753		-10,072.586		2,119.952		212.839	
R	0.901		0.902		0.902		0.902	
$R^2$	0.811		0.814		0.814		0.814	
Adjusted $R^2$	0.807		0.809		0.810		0.810	
F-value	215.270	***	150.913	***	178.820	***	178.820	***
Incremental adjusted $R^2$			0.003		0.003		0.003	
F-test improved fit			1.965	*	3.605	**	3.605	**
Durbin-Watson	1.931		1.901		1.903		1.903	
No Observation	461		461		461		461	

\*\*\*  $p \leq 0.001$ ; \*\*  $p \leq 0.05$ ; \*  $p \leq 0.1$  (two-tail).

$DUALITY_{it}$  is a dummy variable equal to the value of 1 if the CEO is also Chairman of the board and 0 otherwise;  $YEAR12_{it}$  is a dummy variable controlling the fiscal year 2012;  $YEAR13_{it}$  is a dummy variable controlling with fiscal year 2013;  $YEAR14_{it}$  is a dummy variable controlling the fiscal year 2014;  $SRTENURE_{it}$  is the square root of the average number of years of tenure of the board of directors of firm  $i$  for year  $t$ ;  $PT50TENURE_{it}$  is a dummy variable equal to 1 if the average tenure is lower than the median of the average tenure for all firms in the year  $t$  and 0 otherwise; and  $PT50to100TENURE_{it}$  is a dummy variable equal to 1 if the average tenure is greater than the median of the average tenure for all firms in the year  $t$  and 0 otherwise.

The results in the second model (M2) signal that investors negatively perceive tenure heterogeneity measured by the standard deviation of the tenure of the board members ( $SDTENURE_{it}$ ), but positively view the average number of years of tenure of the board ( $TENURE_{it}$ ). The analyses therefore indicate that investors have a negative perception of significant discrepancies in board members' tenure, while, at the same time attaching value to tenure. These findings thus seem to support the possibility that investors value directors who are more knowledgeable about the firm because they have been there longer. Shareholders appear to attach more value to the directors' role as strategic advisor than as oversight advisor. It is also

interesting to note that tenure and tenure heterogeneity appear to be reflected in share value. In fact, these findings suggest that these board characteristics are value relevant for investors.

Lastly, the hypotheses respecting directors' age and age heterogeneity are not supported by the analyses results, which are consistent with those of McIntyre, Murphy, and Mitchell (2007) and Larker, Richardson, and Tuna (2007), who found that financial performance does not seem to be linked to directors' age. Thus, if ties exist, they are not significant enough to be reflected in share value.

The third (M3) and fourth (M4) models provide interesting insight into the link between a firm's market value and the average number of years of tenure ( $TENURE_{it}$ ). In model 3, the ( $TENURE_{it}$ ) variable was a dummy variable ( $PT50TENURE_{it}$ ) equal to 1 if the average number of years of tenure of the board members is lower than the median of the average number of years of tenure of the directors of all the boards included in the sample and 0 otherwise. This variable thus represents the average number of years of tenure of directors who have fewer years of tenure than the median tenure of the directors in the sample as a whole. As the findings presented in column 4 of Table 4 illustrate, the coefficient associated with the less senior directors ( $PT50TENURE_{it}$ ) is negative and significant ( $p < 0.05$ ). In other words, according to these results, share value is lower when the average tenure is less than the median of 8.08 years. However, share value is considered higher when the average tenure is greater than the median, as illustrated in model 4 where the ( $TENURE_{it}$ ) value was a dummy variable ( $PT50to100TENURE_{it}$ ) equal to 1 if the average number of years of tenure is higher than the median and 0 otherwise (i.e., the opposite of the  $PT50TENURE_{it}$  variable in the model (M3)). It thus seems that investors attach some importance to directors' tenure and that their perception of its value increases as the number of years of tenure increases. The relationship noted is therefore more complex than first supposed.

## CONCLUSION

The aim of this study was to examine whether investors attach importance to certain directors' characteristics, specifically age and tenure and age and tenure heterogeneity. Our findings indicate that investors take only tenure and tenure heterogeneity into account. The relationship between market value and average tenure is not linear but forms a curve. In fact, our results show a negative relationship between the market value and the short-tenure of directors and the reverse (positive relationship) for periods of seniority greater than the median of the sample (more than 8.08 years according to our analyses). Therefore, there seems to be a point where investors perception of tenure changes. Furthermore, investors negatively perceive a high degree of tenure heterogeneity. Lastly, investors do not appear to take directors' age or their age heterogeneity into account.

This study contributes new observations that underscore the importance of directors' tenure to investors. The relationships noted may reflect directors' broader knowledge of the firm and increased support of senior management from a strategic perspective. In recent years, the oversight role of the board of directors has received considerable attention, particularly from regulatory authorities. Our analyses results tend to support the notion that directors' tenure, as well as their independence, may be a significant factor in ensuring an organisation's success and long-term survival. Our results point up the importance of further study to understand the influence of directors' tenure on firms' financial performance and governance practices before introducing any regulation to limit tenure terms.

This study has certain limitations. Owing to the lack of information available on directors' age and tenure, the sample was made up of 119 firms. As well, since the analyses are limited to a sample of Canadian firms, the findings cannot be representative of the results that could be obtained from other firms or in other legislative or cultural contexts.

It could be worthwhile examining whether investors take other directors' characteristics, such as their area of expertise and education, into account. Previous studies (Bantel & Jackson, 1989) show that certain characteristics are associated with significant actions or events. For instance, Bantel and Jackson (1989) noted that directors' level of education and the diversity of their functional areas of expertise are associated with innovation. To date, few studies have explored the potential impact of directors' characteristics on the various roles they have to play.

## REFERENCES

- Bantel, K.A., & Jackson, S.E. (1989). Top management and innovations in banking: Does the composition of the top team make a difference? *Strategic Management Journal*, 10(S1), 107-124.
- Baran, L., & Forst, A. (2015). Disproportionate insider control and board of director characteristics. *Journal of Corporate Finance*, 35, 62-80.
- Barroso, C., Villegas, M.M., & Pérez-Calero, L. (2011). Board influence on a firm's internationalization. *Corporate Governance: An International Review*, 19(4), 351-367.
- Berle, A.A., & Means, G.C. (1932). *The modern corporation and property*. NY: The McMillan Company.
- Cloyd, M.A. (2013). *Taking a fresh look at board composition, Harvard Law School Forum on corporate governance and financial regulation*. Retrieved November 1, 2016 from <https://corpgov.law.harvard.edu/2013/09/09/taking-a-fresh-look-at-board-composition/>.
- Collins, D.W., Maydew, E.D., & Weiss, U.S. (1997). Changes in the value-relevance of earnings and book values over the past forty years. *Journal of Accounting and Economics*, 24, 39-67.
- Core, J.E., Holthausen, W., & Larcker, D.F. (1999). Corporate governance, chief executive officer compensation, and firm performance. *Journal of Financial Economics*, 51, 371-406.
- Coulmont, M., & Berthelot, S. (2015). The financial benefits of a firm's affiliation with the UN Global Compact. *Business Ethics: A European Review*, 24(2), 144-157.
- Daily, C., Dalton, D., & Cannella, A. (2003). Corporate governance: decades of dialogue and data. *Academy of Management Review*, 28(3), 371-382.

- Dalton, D.R., & Dalton, C.M. (2011). Integration of micro and macro studies in governance research: CEO duality, board composition, and financial performance. *Journal of Management*, 37(2), 404-411.
- Dalton, D.R., Daily, C.M., Johnson, J.L., & Ellstrand, A.E. (1999). Number of directors and financial performance: A meta-analysis. *Academy of Management Journal*, 42(6), 674-686.
- Deschênes, S., Rojas, M., & Morris, T. (2013). Is information on boards useful for investors' appraisal of a firm's value? *International Journal of Disclosure and Governance*, 10(4), 363-377.
- Finkelstein, S., Hambrick, D.C., & Cannella, A. A. (2009). *Strategic leadership: Theory and research on executives, top management teams, and boards*. Oxford University Press, USA.
- Grove, H., Patelli, L., Victoravich, L. M., & Xu, P.T. (2011). Corporate governance and performance in the wake of the financial crisis: Evidence from US commercial banks. *Corporate Governance: An International Review*, 19(5), 418-436.
- Hair, J. F., Black, W.C., Babin, B.J., & Anderson, R.E. (2009). *Multivariate data analysis*. 7th edition. Upper Saddle River, NJ: Prentice-Hall.
- Hermalin, B. E., & Weisbach, M. S. (1991). The effects of board composition and direct incentives on firm performance. *Financial Management*, 20(4), 101-112.
- Jensen, M. C., & Meckling, W.H. (1976). Theory of the firm: Managerial behavior, agency costs and ownership structure. *Journal of Financial Economics*, 3(4), 305-360.
- Johnson, J. L., Daily, C.M., & Ellstrand, A.E. (1996). Boards of directors: A review and research agenda. *Journal of Management*, 22(3), 409-438.
- Kim, K.A., Nofsinger, J.R., & Mohr, D.J. (2010). *Corporate governance*. (3rd ed), New Jersey: Pearson Education Inc.
- Koufopoulos, D., Zoumbos, V., Argyropoulou, M., & Motwani, J. (2008). Top management team and corporate performance: a study of Greek firms. *Team Performance Management: An International Journal*, 14(7/8), 340-363.
- Larcker, D. F., Richardson, S. A., & Tuna, I. (2007). Corporate governance, accounting outcomes, and organizational performance. *The Accounting Review*, 82(4), 963-1008.
- McIntyre, M. L., Murphy, S. A., & Mitchell, P. (2007). The top team: Examining board composition and firm performance. *Corporate Governance: The International Journal of Business in Society*, 7(5), 547-561.

- McNulty, T. (2014). Process matters, understanding board behavior and effectiveness. In Wright, M., Siegel, D.S., Keasey, K., & Filatotchev, I. (Eds.). *The Oxford Handbook of Corporate Governance* (pp. 163-176). Oxford University Press.
- Nguyen, D.D., Hagedorff, J., & Eshraghi, A. (2015). Which executive characteristics create value in banking? Evidence from appointment announcements. *Corporate Governance: An International Review*, 23(2), 112-128.
- Ohlson, J.A. (1995). Earnings, book values, and dividends in equity valuation. *Contemporary Accounting Research*, 11(2), 661-687.
- Ong, C.H., & Wan, D. (2008). Three conceptual models of board role performance. *Corporate Governance*, 8(3), 317-329.
- PricewaterhouseCoopers (PWC). (2015). *Governing for the long term: looking down the road with an eye on the rear-view mirror*. Retrieved November 1, 2016 from <http://progresomicrofinanzas.org/wp-content/uploads/2016/02/pwc-2015-annual-corporate-directors-survey.pdf>.
- Pugliese, A., Bezemer, P. J., Zattoni, A., Huse, M., Van den Bosch, F.A., & Volberda, H.W. (2009). Boards of directors' contribution to strategy: A literature review and research agenda. *Corporate Governance: An International Review*, 17(3), 292-306.
- Scott, W.R. (2015). *Financial accounting theory*. 7th Edition, Toronto, Pearson Canada inc.
- Shleifer, A., & Vishny, W. (1997). A survey of corporate governance. *The Journal of Finance*, LII(2), 737-783.
- Sitthipongpanich, T., & Polsiri, P. (2013). Who's on board? Influence of diversity and network of Thai boards of directors on firm value. *The Journal of Applied Business Research*, 29(6), 1763-1780.
- Tompkins, J., & Hendershott, R. (2012). Outside director-shareholder agency conflicts: evidence from bank consolidation. *Corporate Governance*, 12(3), 378-391.
- Vafeas, N. (2003). Length of board tenure and outside director independence. *Journal of Business Finance & Accounting*, 30(7-8), 1043-1064.
- Venter, E.R., Emanuel, D., & Cahan, S.F. (2014). The Value relevance of mandatory non-GAAP earnings. *ABACUS*, 50(1), 1-26.
- Wang, W., Lu, W., & Lin, Y. (2012). Does corporate governance play an important role in the BHC performance? Evidence from U.S. *Economic Modelling*, 29, 751-760.
- Wiersema, M. F., & Bantel, K.A. (1992). Top management team demography and corporate strategic change. *Academy of Management journal*, 35(1), 91-121.

Xu, B., Magnan, M. L., & Andre, P.E. (2007). The stock market valuation of R&D information in biotech firms. *Contemporary Accounting Research*, 24(4), 1291-1318.

Zahra, S., & Pearce, J. (1989). Boards of directors and corporate financial performance: A review and integrative model. *Journal of Management*, 15(2), 291-334.

***About the Authors:***

**Sylvie Berthelot** is Accounting Professor at the Université de Sherbrooke. She has written several articles and made more than 100 presentations at numerous academic conferences. She is a Fellow of the Chartered Professional Accountant of Canada and a member of the Ordre des comptables professionnels agréés du Québec. She is also director of the Research group on corporate social responsibility (G2RSO). Her research interests focus mainly on fields related to sustainable development, corporation governance and accounting standards.

**Michel Coulmont** is Accounting Professor at the Université de Sherbrooke. He has written several articles and made numerous presentations at academic conferences. He is also a member of the Research group on corporate social responsibility (G2RSO). His research interests focus on corporation governance and sustainability disclosures.

**Anne Marie Gosselin** is a DBA Student at the Université de Sherbrooke. Her research doctorate focus mainly on fields related to corporate social responsibility.

# SHOULD THE LEGAL AND JUDICIAL SYSTEM OF PALESTINE KEEP, AMEND OR ABOLISH INCOME TAX?

Zahran "Mohammad Ali" Daraghma  
Arab American University-Palestine

## ABSTRACT

*This study investigates the satisfaction degree of income tax paid by the average Palestinian taxpayer based on the tax law in Palestine, a Law by Decree No. (8), of 2011 imposed on income. This study also exposes the degrees of satisfaction on income tax that relates to (income tax brackets and rates, income tax exemptions, and income tax deductions). As a result, the allocated objectives have met the following findings that show that income tax revenues in Palestine are less than the operating expenses of the income tax department. Further, the Palestinian individuals are dissatisfied with the current income tax brackets and rates, income tax deductions and income tax exemptions that are in the prevailing Palestinian income tax law.*

*Taxpayers of high income are also dissatisfied with tax rates and brackets being greater than the taxpayers of low income. The findings then show that there is a consensus by all of the respondents that tax exemptions are unfair. This study recommends the related parties at the Palestinian Ministry of Finance and the legislative council to abolish and cut income tax paid by the taxpayers. Instead, it emphasized keeping the income tax paid by legal taxpayers and valid entities. It also recommends that the lawmakers in Palestine should incorporate the income taxes into indirect taxes.*

*Keywords: Tax accounting, income tax brackets and rates, income tax deductions, income tax exemptions*

## INTRODUCTION

The income tax law is considered globally as one of the main references for accountants due to the reality that tax rates and brackets determine the income tax expenses. Tax deductions and exemptions influence the financial statements figures. At this point, it has been proved worldwide that the accounting research assists the lawmakers to keep or amend or abolish income tax. Various authors state that the accounting profession is based on true and fair view. A lack of true and fair of tax system increases taxpayers' dissatisfaction which also leads to tax evasion (Al-Omoor, 2007; Yonas, 2016).

Howell (2005) study implemented by the International Monetary Fund (IMF), comes out with a motivated thought that help to convert both the flat Personal Income Tax (PIT) and the flat Corporate Income Tax (CIT) into consumption taxes with a single common rate by the member countries of the Organization for Economic Co-operation and Development (OECD). This motivation hence helps in increasing the taxpayer satisfaction.

Similarly, it is worth mentioning that the lawmakers should follow the following Smith (2007) canons on taxation: (1) canon of equity which means that the tax must be levied on the populace on the basis of equality. (2) Canon of certainty which means that the tax should be certain to the tax payer (tax amount, to whom, and the time the tax is to be paid). (3) Canon of convenience or ease means a good taxation policy must be convenient for the taxpayer. (4) Canon of the economy, this principle means the tax revenues must be greater than the cost of collection.

In Palestine, Yadak (2006) shows that there is a lack of social justice in respect with the Palestinian income tax law No. 17, of 2004. In 2011, Palestine issued a new version of the income tax law (income tax law No. 8, of 2011). The study of Mahani's (2010) shows that law makers in Palestine should reduce tax rates. Similarly, the paper shows that the current income tax brackets and rates, exemptions, and deductions lead to tax evasion. Further, Vadde and Gundarapu (2012) show that tax in emerging economics is a difficult issue and has concerned increasing consideration in the last two decades. Many troubles observed such as weak administration, failing to gather enough tax revenues, tax structures where tax horizontal and vertical equity considerations are not integrated, lack of government and economic stability.

Martins and Gomes (2014) show that taxpayer compliance and behavior (tax morale) is influenced by a multidisciplinary set of factors, namely political, economic, psychological and behavioral factors. Al-Ttaffi and Abdul-Jabbar (2016) show that the level of tax non-compliance and lack of taxpayer satisfaction in developing countries is found much more than that in the developed countries. Thus, this manuscript evaluates the satisfaction degree of the Palestinian natural taxpayer with the current income tax law No. 8, of 2011. This means that this paper also comes with actual evidence examined through the reality of the Palestinian taxpayer's reaction towards this issue. Consequently, this paper comes to explore this issue through the opinions of the natural person taxpayers in Palestine because Palestine suffers from a lack of empirical efforts in this regard.

The outcomes of this manuscript are expected to be used as a concrete proof that unveil the justice of the income tax law that currently applied in Palestine, and to show the satisfaction of taxpayers as well. In addition, this paper comes to explain the satisfaction of taxpayers on the following three issues:-Firstly: The satisfaction degree of the Palestinian natural taxpayer with the income tax brackets and rates based on the income tax law No. 8, of 2011. Secondly: The satisfaction degree of the Palestinian natural taxpayer with the income tax exemptions based on the income tax law No. 8, of 2011. Thirdly: The satisfaction degree of the Palestinian natural taxpayer with the income tax deductions based on the income tax law No. 8, of 2011.

The findings of this study enable the policymakers and decision-takers to redeem the shortcomings. They will also help lawmakers to take the right decision to keep the law or amend it or abolish it. What's more, the methodology of this paper relies on prior studies such as (Abadi, Abadi, & Jafari, 2017; Awaluddin & Tamburaka, 2017; Al-Ttaffi, and Abdul-Jabbar, 2016; Puthur, Mahadevan, & Mahadevan, 2016; Shikhaliyev, 2016; Yonas, 2016; Gupta, 2015; La'lawi, 2015; Hastuti, 2014; Hidayat et al., 2014; Lamberton, Neve, & Norton, 2014; Martins & Gomes, 2014; Meswadi & Khawaldi, 2014; Rajeswari & Mary, 2014; Chawla et al., 2013; Vadde & Gundarapu, 2012).

This study consists of the following successive seven sections: - section one: an introduction, section two: addresses the theoretical background, section three: describes previous literatures, section four: describes the hypotheses, section five: addresses methodology, section six: presents the results and section seven reports the conclusion.

## **THEORETICAL BACKGROUND**

This part of the study displays the theoretical issues that related to the income tax based on the latest version of the income tax law No. 8, of 2011. It also provides theoretical framework linked to the topic of this paper.

## **Income Tax Concepts in Palestine**

In Palestine, there are many written income tax concepts that relate to the income tax law No. 8, of 2011. This paper uses many terminologies and concepts based on the sources of the income tax. The following is an explanation of these concepts. The income tax law No. 8, of 2011 (ITL8-2011) defines the person as a natural or legal person. The taxpayer is defined as "each person obliged to pay, withhold, or transfer the tax according to the provisions based on the income tax law No. 8, of 2011. The (ITL8-2011) sets a distinction between the natural taxpayer and legal taxpayer as follows: Firstly, Natural Person: Individual taxpayer or any sole proprietorship or partner in a joint-liability company or simple limited partnership or others specified by law. Secondly, Legal Person: each organization or corporation which enjoys the legal form by the law, such as associations, public shareholding corporations or limited liability corporations, partnerships limited by stocks and foreign firms.

In fact, the income tax law No. 8, of 2011 distinguishes between income tax deductions and income tax exemptions as follows: Firstly, deductions: the costs and expenses that are spent or incurred in order to produce income during the tax period. Secondly, exemptions: Amounts excluded from net income. However, tax compliance is determined by five issues: (1) Deterrence. (2) Norms (both personal and social). (3) Fairness and trust (in the tax administration). (4) Complexity of the tax system. (5) The role of government and the broader economic environment (Walsh, 2012).

## **The Feasibility on Income Taxes in Palestine**

The feasibility of imposing the income tax in any country relies on two factors, (Tanzi & Zee, 2001; Awaluddin & Tamburaka, 2017; Al-Taffi, & Abdul-Jabbar, 2016; Puthur, Mahadevan, & Mahadevan, 2016; Shikhaliyev, 2016). These factors are: Firstly: Taxpayer's satisfaction. Secondly: the income tax revenues should be greater than the costs of collection and managing. The income tax revenues represent around 7% of total tax revenues in Palestine. In effect, the income tax revenues do not cover the costs of managing and collecting the income taxes (Ministry of Finance-Palestine, the website, 2016).

This fact encourages taking a decision to abolish the income tax or its incorporation into indirect taxes. Also, this study provides real evidence from Palestine regarding the natural taxpayer satisfaction with the current income tax. Various authors show that the existence of a lack of taxpayer satisfaction leads to tax evasion (Hidayat et al., 2014; Al-Taffi & Abdul-Jabbar, 2016).

The income tax department in Palestine refers to and subject to the ministry of finance. Thus, the financial data that's published by the ministry of finance during the period of 2004 - 2016 shows that the income tax revenues are less than the costs. This fact proves having an infeasibility regarding the income taxes in Palestine.

## **Tax Rates and Practices in Palestine**

It's worth mentioning that since the tax law No. 8, of 2011 has been put into action till now, 2018, and according to the latest version of the income tax law No. 8, of 2011, the tax rates and practices that used for computing income taxes on the natural taxpayer's income are:

- 1 The first interval is from 1 to 75,000 New Israel Shekel (NIS) and the tax rate is 5%.
2. The second interval is from 75,001 to 150,000 NIS and the tax rate is 10%.
3. The third interval is greater than 150,000 NIS and the tax rate is 15%.
4. The latest version of the income tax law in Palestine shows that an annual exemption is 36,000 NIS on the income of the natural resident person. The law shows that a rate of 15% shall be levied on the taxable income of any legal person.

### **Income Tax Exemptions in Palestine for the Average Resident**

In order to compute the value of income tax, the average individual shall be granted the following exemptions (Income Tax Law No. 8, Article 12, 2011):

1. An annual exemption of 36,000 NIS for average resident person.
2. The real total paid for fixed transportation to the workers by the government,
3. Value paid for transportation or 10% of the gross yearly salary, whichever is lower, for the workers of the private sector.
4. High education exemption of 6000 Shekel per year. The exemption applies to a maximum of two students in each year.
5. A once exemption of 30,000 Shekel for buying or constructing a home, or an exemption from the amount of actual interest paid on a loan from a lending institution that has been spent on a house, with a maximum of 4,000 Shekel yearly, for a time not to exceed ten years.
6. The contributions of workers to savings and retirement funds, health insurance, social security and any other funds approved by the minister of finance.

### **LITERATURES REVIEW**

Worldwide, there are various comprehensive literatures that discuss the satisfaction degree of the taxpayers with the current income tax laws. For instance, in relation to the Organization for Economic Cooperation and Development (OECD) member countries, Howell's (2005) study implemented by the International Monetary Fund (IMF) provides a largely nontechnical survey of concepts and issues related to the process of reforming the personal income tax, covering both base and rate aspects of the tax, and fundamental reform options as well. It also covers recent developments in selected (OECD) member countries. This study motivates the countries to convert both the PIT and the CIT into consumption taxes with a single common rate.

In India, Puthur, Mahadevan, and Mahadevan's (2016) paper shows that the electronic filing of taxation leads to higher tax payer satisfaction. Further, Rajeswari and Mary's (2014) paper shows that applying electronic taxation system leads to the high satisfaction level of

salaried employees in India. Chawla et al., (2013) study reveals that the existing users are satisfied with the taxation law in Moradabad city. Then, the authors show that the e-filing of taxation leads to high taxpayer satisfaction in India. In Ethiopia, Yonas's (2016) study shows that taxpayers recognize that they are paying income taxes just because their residency and they feel that they are paying fair taxes. Similarly, Vadde and Gundarapu's (2012) study shows that the taxation equity is not matched.

In Algeria, La'lawi's (2015) study shows that the taxation system in Algeria do not match the canons of taxation, resulting that this law is unfair. In Jordan, Meswadi and Khawaldi's (2014) study finds that the exemptions and incentives did not assist in reducing the tax evasion; and concludes that the penalties and fines, and the tax rates played a role in limiting tax evasion in Jordan. In New Zealand, Gupta (2015) proposes that the growth of tax practitioner's skills to gaining their clients' satisfaction could improve the overall quality of tax practitioners' services and enhance taxpayer compliance.

In Indonesia, Hidayat et al.'s (2014) paper shows that the strongest indicator for tax service quality is responsiveness, while the strongest indicator for regional tax regulations is an explication of the regulations. The strongest indicator for taxpayer satisfaction level is hope, sanctions for taxpayer behavior and tax reporting for taxpayer obedience. Also, Awaluddin and Tamburaka's (2017) study shows that tax compliance by taxpayers relies on two variables which are: a) service quality. b) Taxpayer satisfaction.

In addition, Hastuti's (2014) study shows that there is a lack of education and tax culture among taxpayers in Indonesia. In Iran, Abadi, Abadi, and Jafari's (2017) study explains that factors that lead to information transparency and more participatory are when users have a positive effect on innovation acceptance and the satisfaction of taxpayers.

In the United States, Lamberton, Neve, and Norton's (2014) study shows that when the taxpayer agency allows installment of tax payments. This action will reduce general anti-tax sentiment, and holds satisfaction with tax payment stable despite increased compliance with tax dues. In Portugal, Martins and Gomes's (2014) study shows that tax morale represents the person's willingness and the moral obligation to pay taxes or their belief in contributing to the society by paying taxes. The finding of this study demonstrates that the political democratic system, individual satisfaction and proud of being a Portuguese citizen positively affect the tax morale.

In Yemen, Al-Ttaffi, and Abdul-Jabbar's (2016) study investigates the impact of tax service quality on taxpayer behavior from the viewpoint of Yemeni small and medium firms (SME). The analysis shows that tax compliance in Yemen can be considered low among SME. The findings show that SME owners seem to be not satisfied with the quality of services received from the tax authority. In the Republic of Azerbaijan, Shikhaliyev's (2016) study shows that the taxpayer is satisfied regarding the applied income tax regulations in the Republic of Azerbaijan. The government in Azerbaijan uses the taxpayer survey to measure taxpayer satisfaction.

In Ireland, Walsh's (2012) study shows that deterrence, the more conventional instrument of tax organization, is significant, but not enough to clarify the level of tax compliance in society. Other factors are shown to be significant, mainly the impact of individual norms and the degree of trust in the tax administration. Awareness of the existing social norms is also important factors of compliance but appear to exert less impact on taxpayers than social norms.

The aforementioned analysis of the previous studies, on the first hand, proves that there is a lack of taxpayer's satisfaction in the developing countries compared to the developed ones. On

the other hand, the previous studies show that the income tax model is not feasible in the developing countries.

## **THE HYPOTHESES**

This study aims at testing the degree of satisfaction or dissatisfaction of the Palestinian natural taxpayer regarding the income tax law No. 8, of 2011. Presented below are the four null hypotheses of this paper:

*H<sub>1</sub>: The Palestinian natural taxpayer is neither satisfied nor dissatisfied regarding the income tax brackets and rates based on the income tax law No. 8, of 2011.*

*H<sub>2</sub>: The Palestinian natural taxpayer is neither satisfied nor dissatisfied regarding the income tax exemptions based on the income tax law No. 8, of 2011.*

*H<sub>3</sub>: The Palestinian natural taxpayer is neither satisfied nor dissatisfied regarding the income tax deductions based on the income tax law No. 8, of 2011.*

*H<sub>4</sub>: There are no statistically significant differences among monthly income of the taxpayer with regard to the degree of satisfaction of the Palestinian natural taxpayer regarding the income tax law No. 8, of 2011.*

## **METHODOLOGY**

### **Survey Questionnaire**

The survey instrument utilized in this study is presented in Appendix 1. The survey consisted of 15 items: (1) Five items to measure the perception of the satisfaction or dissatisfaction of the Palestinian-average taxpayer regarding tax brackets and rates based on the income tax law No. 8, of 2011, (2) Five items to measure the perception of the satisfaction or dissatisfaction of the Palestinian-average taxpayer regarding tax exemptions based on the income tax law No. 8, of 2011, and (3) Five items to measure the satisfaction or dissatisfaction of the Palestinian-average taxpayer regarding tax deductions based on the income tax law No. 8, of 2011. The Likert scale was used (very satisfied =5, somewhat satisfied =4, neither satisfied nor dissatisfied= 3, somewhat dissatisfied= 2, and very dissatisfied =1). The internal scale validity is presented in Table 2.

### **Sample and Data Collection**

The sample of this study consisted of 350 from the Palestinian-average taxpayers (employees, owners of sole proprietorships, and owners of partnerships) in West Bank, Palestine. However, the following conditions are taken into account to select the sample utilized in this study. First, the respondent should be one of the three mentioned categories of the population. Second, the respondents should have sources of income. Out of the 350 survey forms distributed to participants, 206 complete and usable forms were returned.

## RESULTS

### Descriptive Statistics

Table 1 shows the distribution of the study sample according to the gender, academic rank, the source of income, and the amount of monthly income. Table 1 illustrates that 74.8% of the respondents are males, while 25.2% are females. The survey reveals that 29.1% of the respondents are diploma holders, 58.3% hold a bachelor's degree, and 12.6% hold a master's degree. Table 1 also shows that regarding the sources of respondent's income: 32.5% of the respondents get income from career, 36.9% get income from a sole proprietorship, 19.9% get income from ownership in partnership, and 10.7% get income from different sources.

Moreover, the outcomes show that 35% of the respondents achieve monthly income from 0 to 3000 NIS, 38.8% achieve monthly income from 3001 to 6250 NIS, 10.7% achieve monthly income from 6251 to 12500 NIS, and 15.5% of the respondents achieve monthly income greater than 12500 NIS. This finding proves that the selected sample is relevant to generalize the results of this paper.

**Table 1**  
**Descriptive Statistics of Respondents Characteristics**

Variable Name	Variable Dimensions	Number of Observations	%
Gender	Male	154	74.8
	Female	52	25.2
	Total	206	100
Academic Rank	Diploma or less	60	29.1
	Bachelor	120	58.3
	Master or above	26	12.6
	Total	206	100
Your Source of Income	Career.	67	32.5
	Sole proprietorship.	76	36.9
	Owner in partnership.	41	19.9
	Many sources.	22	10.7
	Total	206	100
Monthly Income	From 0 to 3000 NIS.	72	35.0
	From 3001 to 6250 NIS.	80	38.8
	From 6251 to 12500 NIS.	22	10.7
	Greater than 12500 NIS.	32	15.5
	Total	206	100

To test the internal reliability of the measurement scales, this study used Cronbach's Alpha. Table 2 shows that the Cronbach's Alpha is sufficiently high to ensure reliable results.

### Hypotheses Tests

Table 3 includes 5 statements that rate the level of taxpayer satisfaction regarding income tax brackets and rates based on the income tax law No. 8, of 2011. What's more, the calculated T value of one sample T test is equal -13.1 and Sig., is less than 0.05. This result proves that the Palestinian natural taxpayer is not satisfied regarding the income tax brackets and rates based on

the income tax law No. 8, of 2011. This leads to the rejection of the first hypothesis. The taxpayer's opinions regarding the income tax in Palestine [income tax brackets and rates] are: (1) Tax brackets and rates are considered unfair. (2) The number of tax brackets and rates is inappropriate. (3) The first proportion of tax bracket and rates at 0.05 is inappropriate. (4) The value of the taxable income in each tax bracket and rates is inappropriate.

**Table 2**  
**The Outcomes of Cronbach's Alpha Test**

Variable Name	Number of Items	Cronbach's Alpha
The Palestinian-average taxpayer satisfaction regarding tax brackets and rates based on the income tax law No. 8, of 2011.	5	0.78
The Palestinian average taxpayer satisfaction regarding tax exemptions based on the income tax law No. 8, of 2011.	5	0.81
The Palestinian average taxpayer satisfaction regarding tax deductions based on the income tax law No. 8, of 2011.	5	0.86

**Table 3**  
**Palestinian Taxpayer Satisfaction Regarding Tax Rates and Brackets**

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Mean	T Value	Sig.	Result
1	Tax brackets and rates are considered fair.	5 2.4%	41 19.9%	11 5.3%	82 39.8%	67 32.5%	2.20	-9.87	0.00	LBR
2	The number of tax brackets and rates is appropriate.	5 2.4%	37 18%	26 12.6%	71 34.5%	67 32.5%	2.23	-9.51	0.00	LBR
3	The first proportion of tax bracket and rates at 0.05 is appropriate.	15 7.3%	41 19.9%	15 7.3%	76 36.9%	59 28.6%	2.40	-6.66	0.00	LBR
4	The value of the taxable income in each tax bracket and rates is appropriate.	20 9.7%	41 19.9%	15 7.3%	72 35%	58 28.2%	2.48	-5.55	0.00	LBR
5	The last proportion of tax bracket and rates at 0.15 is appropriate.	21 10.2%	26 12.6%	20 9.7%	67 32.5%	72 35%	2.31	-7.46	0.00	LBR
<b>Average satisfaction regarding tax brackets and rates.</b>		<b>13 6.3%</b>	<b>38 18.4%</b>	<b>17 8.3%</b>	<b>74 35.9%</b>	<b>64 31%</b>	<b>2.33</b>	<b>-13.1</b>	<b>0.00</b>	<b>LBR</b>

The test value of the One-Sample T test is 3.0. Ho: M=3.0, Ha: M≠ 3.0. If Sig. > 0.05, Ho must be accepted. This means there is a lack of taxpayer satisfaction regarding tax brackets and rates. The negative value of T when Sig. < 0.05 means a lack of taxpayer satisfaction regarding tax brackets and rates. The positive value of T when Sig.< 0.05 means taxpayer satisfaction regarding tax brackets and rates. Where: LBR = lack of taxpayer satisfaction regarding tax brackets and rates, SBR = taxpayer satisfaction regarding tax brackets and rates.

(5) The last proportion of tax bracket and rates at 0.15 is inappropriate. Thus, the outcomes of table 3 reveal that the employees, the owner of a sole proprietorship and owner of partnership agree that the income tax rates and brackets are not fair.

**Table 4**  
**Taxpayer Satisfaction Regarding Tax Exemptions**

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Mean	T Value	Sig.	Result
1	Tax exemptions are sufficient.	0 0.0%	31 15%	25 12.1%	72 35%	78 37.9%	2.40	-13.1	0.00	LE
2	Tax exemptions are fair compared to neighboring countries.	0 0.0%	31 15%	36 17.5%	36 17.5%	103 50%	1.98	-13.0	0.00	LE
3	The annual exemption of the natural resident of 36,000 NIS is fair.	21 10.2%	38 18.4%	26 12.6%	71 34.5%	50 24.3%	2.56	-4.80	0.00	LE
4	A university students' tax exemption of 6000 NIS per year is fair.	26 12.6%	25 12.1%	16 7.8%	67 32.5%	72 35%	2.35	-6.70	0.00	LE
5	A one-time exemption of 30,000 NIS for purchasing or building a house is fair.	36 17.5%	30 14.6%	17 8.3%	47 22.8%	76 36.9%	2.53	-4.42	0.00	LE
<b>Average satisfaction degree regarding tax exemptions.</b>		<b>17 8%</b>	<b>31 15%</b>	<b>24 12%</b>	<b>59 28%</b>	<b>76 37%</b>	<b>2.29</b>	<b>-16.2</b>	<b>0.00</b>	<b>LE</b>

The test value of the One-Sample T test is 3.0. Ho: M=3.0, Ha: M≠ 3.0. If Sig. > 0.05, Ho must be accepted. This means there is a lack of taxpayer satisfaction regarding tax exemptions. The negative value of T when Sig. < 0.05 means a lack of taxpayer satisfaction regarding tax exemptions. The positive value of T when Sig. < 0.05 means taxpayer satisfaction regarding tax exemptions. Where: LE = lack of taxpayer satisfaction regarding tax exemptions, SE = taxpayer satisfaction regarding tax exemptions.

Table 4 includes 5 statements that rate the degree of taxpayer satisfaction regarding the income tax exemptions based on the income tax law No. 8, of 2011. The calculated T value of one sample T test is equal -16.2 and Sig., is less than 0.05. These findings prove the Palestinian natural taxpayer is not satisfied with the income tax exemptions based on the income tax law No. 8, of 2011. This leads to the rejection of the second hypothesis above. The Palestinian income taxpayer's opinions regarding the [income tax exemptions] are explained as follows: (1) Tax exemptions are insufficient. (2) Tax exemptions are unfair compared to neighboring countries. (3) The annual exemption of the natural resident of 36,000 NIS is unfair. (4) A university students' tax exemption of 6000 NIS per year is unfair. (5) A one-time exemption of 30,000 NIS for purchasing or building a house is unfair.

Thus, the outcomes of table 4 reveal that the employees, the owner of a sole proprietorship and owner of partnership agree that the income tax exemptions are unfair.

Table 5 includes 5 statements that rate the degree of taxpayer's satisfaction with the current income tax deductions based on the income tax law No. 8, 2011. The calculated T value of one sample T test is equal -12.2 and Sig., is less than 0.05. This result proves the Palestinian natural taxpayer is not satisfied with the income tax deductions based on the income tax law No. 8, of 2011. This result leads to the rejection of the third hypothesis. The Palestinian income taxpayer's opinions regarding the [income tax deductions] are: (1) Tax deductions are not enough. (2) Expenses recognized within the tax law are considered unfair. (3) Insurance and healthcare deductions based on the tax law are considered unfair. (4) Tax deductions are not fair compared to neighboring countries. (5) Tax deductions of business income are insufficient. Thus,

the outcomes of table 5 reveal that the employees, the owner of a sole proprietorship and owner of partnership agree that the income tax deductions are unfair.

**Table 5**  
**Taxpayer Satisfaction Regarding Tax Deductions**

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied	Mean	T Value	Sig.	Result
1	Tax deductions on career income are enough.	10 4.9%	30 14.6%	30 14.6%	78 37.9%	58 28.2%	2.30	-8.56	0.00	LD
2	Expenses recognized within the tax law are considered fair.	16 7.8%	25 12.1%	36 17.5%	67 32.5%	62 30.1%	2.35	-7.51	0.00	LD
3	Insurance and healthcare deductions recognized within the tax law are considered fair.	21 10.2%	25 12%	5 2.4%	31 15%	124 60.2%	1.97	-10.4	0.00	LD
4	Tax deductions are fair compared to neighboring countries.	16 7.8%	31 15%	32 15.5%	81 39.3%	46 22.3%	2.47	-6.32	0.00	LD
5	Tax deductions on business income are sufficient.	11 5.3%	31 15%	36 17.5%	61 29.6%	67 32.5%	2.31	-8.09	0.00	LD
<b>Average satisfaction regarding tax deduction.</b>		<b>15</b> <b>7%</b>	<b>28</b> <b>14%</b>	<b>28</b> <b>14%</b>	<b>64</b> <b>31%</b>	<b>71</b> <b>35%</b>	<b>2.28</b>	<b>-12.2</b>	<b>0.00</b>	<b>LD</b>

The test value of the One-Sample T test is 3.0. Ho: M=3.0, Ha: M≠ 3.0. If Sig. > 0.05, Ho must be accepted. This means there is a lack of taxpayer satisfaction regarding tax deduction. The negative value of T when Sig. < 0.05 means a lack of taxpayer satisfaction regarding tax deduction. The positive value of T when Sig. < 0.05 means taxpayer satisfaction regarding tax deduction. Where: LD = lack of taxpayer satisfaction regarding tax deduction, SD = taxpayer satisfaction regarding tax deduction.

In order to examine the fourth hypothesis, the Kruskal-Wallis test is used. Tables 6, 7, and 8 illustrate the outcomes of Kruskal-Wallis test.

Table 6 displays the outcomes of Kruskal-Wallis test for examining the differences in respect to the taxpayer satisfaction with tax rates and brackets that refers to the monthly income of the taxpayer. Further, the calculated Chi-Square value of Kruskal-Wallis test is equal 7.46 and Significant ( $p < 0.05$ ).

This result proves that there are statistically significant differences in income with regard to the degree of satisfaction of the Palestinian natural taxpayer regarding tax rates and brackets. The high income taxpayers are highly unsatisfied because they are paying high rates of taxes.

Similarly, table 7 displays the outcomes of Kruskal-Wallis test for examining the differences in taxpayer satisfaction regarding tax exemptions that refers to the monthly income of the taxpayer. The calculated Chi-Square value of Kruskal-Wallis test is equal 2.435 and Sig., is equal 0.49 ( $p > 0.05$ ).

This result proves that there are no statistically significant differences in the satisfaction of the Palestinian natural taxpayer regarding tax exemptions that refer to the monthly income of the taxpayer. This result also proves that all respondents agree that the tax exemptions are unfair.

Table 8 displays the outcomes of Kruskal-Wallis test for examining the differences in respect with the taxpayer satisfaction regarding tax deductions that refer to the monthly income of the taxpayer. The calculated Chi-Square value of Kruskal-Wallis test is equal 8.477 and Sig., is less than 0.05. This result proves that there are statistically significant differences in the satisfaction of the Palestinian natural taxpayer regarding tax deductions that refer to the monthly income of the taxpayer; where higher income taxpayers are highly unsatisfied because they are paying higher taxes and have unfair deductions.

**Table 6**  
**The Differences in Monthly Income with Regard to the Taxpayer Degree of Satisfaction**  
**Concerning Tax Rates and Brackets**

Question	Ranks			Mean	Kruskal-Wallis		
	Monthly Income	N	Mean Rank		Chi-Square	Degree of Freedom	Sig.
Tax brackets and rates are considered fair.	From 0 to 3000 NIS	72	111.02	2.20	29.43	3	0.00
	From 3001 to 6250 NIS	80	118.50				
	From 6251 to 12500 NIS	22	50.93				
	Greater than 12500 NIS	32	85.22				
The number of tax brackets and rates is appropriate.	From 0 to 3000 NIS	72	119.40	2.23	17.50	3	0.00
	From 3001 to 6250 NIS	80	90.16				
	From 6251 to 12500 NIS	22	76.39				
	Greater than 12500 NIS	32	119.72				
The first proportion of tax bracket and rates at 0.05 is appropriate.	From 0 to 3000 NIS	72	121.72	2.40	51.95	3	0.00
	From 3001 to 6250 NIS	80	119.47				
	From 6251 to 12500 NIS	22	60.68				
	Greater than 12500 NIS	32	52.03				
The value of the taxable income in each tax bracket and rates is appropriate.	From 0 to 3000 NIS	72	109.07	2.48	7.46	3	0.00
	From 3001 to 6250 NIS	80	109.44				
	From 6251 to 12500 NIS	22	75.30				
	Greater than 12500 NIS	32	95.52				
The last proportion of tax bracket and rates at 0.15 is appropriate.	From 0 to 3000 NIS	72	127.01	2.31	19.51	3	0.00
	From 3001 to 6250 NIS	80	90.78				
	From 6251 to 12500 NIS	22	99.27				
	Greater than 12500 NIS	32	85.31				
Average satisfaction degree regarding tax brackets and rates	<b>From 0 - 3000 NIS</b>	<b>72</b>	<b>133.90</b>	2.23	41.96	3	0.00
	<b>From 3001 - 6250 NIS</b>	<b>80</b>	<b>101.63</b>				
	<b>From 6251 - 12500 NIS</b>	<b>22</b>	<b>56.50</b>				
	<b>Greater than 12500 NIS</b>	<b>32</b>	<b>72.09</b>				

**Table 7**  
**The Outcomes of Kruskal-Wallis Test for Examining the Differences in Income with Regard to**  
**Taxpayer Degree of Satisfaction Concerning Tax Exemptions**

Question	Ranks			Mean	Kruskal-Wallis		
	Monthly Income	N	Mean Rank		Chi-Square	Degree of Freedom	Sig.
Tax exemptions are sufficient.	From 0 to 3000 NIS	72	102.31	2.40	0.158	3	0.98
	From 3001 to 6250 NIS	80	105.03				
	From 6251 to 12500 NIS	22	105.07				
	Greater than 12500 NIS	32	101.27				
Tax exemptions are fair compared to neighboring countries.	From 0 to 3000 NIS	72	112.99	1.98	3.447	3	0.33
	From 3001 to 6250 NIS	80	100.09				
	From 6251 to 12500 NIS	22	96.57				
	Greater than 12500 NIS	32	95.44				
The annual exemption of the natural resident of 36,000 NIS is fair.	From 0 to 3000 NIS	72	102.20	2.56	11.08	3	0.01
	From 3001 to 6250 NIS	80	91.88				
	From 6251 to 12500 NIS	22	137.95				
	Greater than 12500 NIS	32	111.8				
A university students' tax exemption of 6000 NIS per year is fair.	From 0 to 3000 NIS	72	99.05	2.35	5.624	3	0.13
	From 3001 to 6250 NIS	80	96.88				
	From 6251 to 12500 NIS	22	120.09				
	Greater than 12500 NIS	32	118.67				
A one-time exemption of 30,000 NIS for	From 0 to 3000 NIS	72	110.88	2.54	8.395	3	0.04

purchasing or building a house is fair.	From 3001 to 6250 NIS	80	96.56				
	From 6251 to 12500 NIS	22	80.77				
	Greater than 12500 NIS	32	119.88				
Average satisfaction regarding tax exemptions	From 0 to 3000 NIS	72	110.08	2.29	2.435	3	0.49
	From 3001 to 6250 NIS	80	97.84				
	From 6251 to 12500 NIS	22	111.86				
	Greater than 12500 NIS	32	97.09				

**Table 8**  
**The Outcomes of Kruskal-Wallis Test for Examining the Differences in Income with Regard to Taxpayer Degree of Satisfaction Concerning Tax Deductions.**

Question	Ranks			Mean	Kruskal-Wallis		
	Monthly Income	N	Mean Rank		Chi-Square	Degree of Freedom	Sig.
Tax deductions on career income are enough.	From 0 to 3000 NIS	72	138.33	2.30	44.73	3	0.00
	From 3001 to 6250 NIS	80	92.38				
	From 6251 to 12500 NIS	22	72.68				
	Greater than 12500 NIS	32	74.13				
Expenses recognized within the tax law are considered fair.	From 0 to 3000 NIS	72	100.02	2.35	2.261	3	0.52
	From 3001 to 6250 NIS	80	108.56				
	From 6251 to 12500 NIS	22	90.11				
	Greater than 12500 NIS	32	107.88				
Insurance and healthcare deductions recognized within the tax law are considered fair.	From 0 to 3000 NIS	72	96.67	1.97	4.274	3	0.23
	From 3001 to 6250 NIS	80	112.06				
	From 6251 to 12500 NIS	22	92.84				
	Greater than 12500 NIS	32	104.80				
Tax deductions are fair compared to neighboring countries.	From 0 to 3000 NIS	72	107.18	2.47	12.024	3	0.01
	From 3001 to 6250 NIS	80	90.66				
	From 6251 to 12500 NIS	22	97.93				
	Greater than 12500 NIS	32	131.16				
Tax deductions on business income are sufficient.	From 0 to 3000 NIS	72	119.74	2.31	15.481	3	0.00
	From 3001 to 6250 NIS	80	101.34				
	From 6251 to 12500 NIS	22	66.00				
	Greater than 12500 NIS	32	98.13				
Average satisfaction regarding tax deduction	<b>From 0 to 3000 NIS</b>	<b>72</b>	<b>116.48</b>	2.28	8.477	3	0.04
	<b>From 3001 to 6250 NIS</b>	<b>80</b>	<b>99.50</b>				
	<b>From 6251 to 12500 NIS</b>	<b>22</b>	<b>76.20</b>				
	<b>Greater than 12500 NIS</b>	<b>32</b>	<b>103.06</b>				

## CONCLUDING REMARKS

This study aims at exploring the feasibility of imposing income taxes in Palestine. It also examines the satisfaction degree of the Palestinian natural person taxpayer regarding the current imposed income tax law No. 8, of 2011. The satisfaction degree of the taxpayer regarding the income tax is evaluated considering the following items: (income tax brackets and rates, income tax deductions, and income tax exemptions).

The study findings show that the income tax revenues in Palestine do not cover the costs of managing and collecting them. Thus, this fact comes as a trigger that encourages taking the right decision to abolish the income tax or its incorporation into indirect taxes. What's more, the outcomes reveal that the Palestinian natural taxpayer is not satisfied with the income tax brackets and rates, income tax exemptions, and income tax deductions based on the Palestinian income tax law No. 8, of 2011. Then, the outcomes also reveal that there are statistically significant differences in the dissatisfaction of the Palestinian natural taxpayer regarding tax rates and brackets that refer to the monthly income of the taxpayer.

As a result, the high income taxpayers are highly unsatisfied because they are paying high rates of taxes. Further, the findings prove that there are no statistically significant differences in relation to the dissatisfaction degree of the Palestinian natural taxpayer regarding tax exemptions that refer to the monthly income of the taxpayer. These conclusions and findings altogether prove that all of the respondents agree that the tax exemptions are unfair. Likewise, the results prove that there are statistically significant differences in the dissatisfaction of the Palestinian natural taxpayer regarding the income tax deductions that refer to the monthly income of the taxpayer. This shows that higher income taxpayers are highly unsatisfied because they are paying higher taxes and have unfair deductions.

Finally yet importantly, this study emphasis on adopting the following recommendations for the public benefit: Firstly, it recommends the Palestinian tax legislators and other related parties in the Ministry of Finance to abolish the income tax on the natural taxpayer's income, instead keeping the income tax on the legal taxpayer's income. It then recommends the lawmakers in Palestine to incorporate the income taxes into indirect taxes.

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## REFERENCES

- Abadi, A., Abadi, A., & Jafari, A. (2017). Innovation Acceptance and Customer Satisfaction. A Survey on Tax Information Systems. *Administer*, 30, 149-171.
- Al-Omoor, S. (2007). Phenomena of the Income Tax Evasion in Gaza Strip: Empirical Study. *Unpublished Master Thesis. Department of Accounting. College of Business. Islamic University in Gaza Strip.*
- Al-Ttaffi, L., & Abdul-Jabbar, H. (2016). Service Quality and Income Tax Non-Compliance among Small and Medium Enterprises in Yemen. *Journal of Advanced Research in Business and Management Studies*, 4 (1), 12-21.
- Awaluddin, I., & Tamburaka, S. (2017). The Effect of Service Quality and Taxpayer Satisfaction on Compliance Payment Tax Motor Vehicles at Office One Roof System in Kendari. *The International Journal of Engineering and Science (IJES)*, 6 (11), 25-34.
- Chawla1, C., Jain, V., Joshi, A., & Gupta, V. (2013). A Study of Satisfaction Level and Awareness of Taxpayers Towards E-Filing of Income Tax Return – with Reference to Moradabad City. *International Monthly Refereed Journal of Research In Management and Technology*, 2 (13), 60-66.
- Gupta, R. (2015). Relational Impact of Tax Practitioners' Behavioral Interaction and Service Satisfaction: Evidence from New Zealand. *E-Journal of Tax Research*, 13 (1), 76-107.
- Hastuti, R. (2014). Tax Awareness and Tax Education: A Perception of Potential Taxpayers. *International Journal of Business, Economics and Law*, 5 (1), 83-91.
- Hidayat, N., Darminto, S., Handayani, S., & Otok, B. (2014). Measurement Model of Service Quality, Regional Tax Regulations, Taxpayer Satisfaction Level, Behavior and Compliance Using Confirmatory Factor Analysis. *World Applied Sciences Journal*, 29,(1), 56-6.
- Howell, Z. (2005). Personal Income Tax Reform: Concepts, Issues, and Comparative Country Developments. *IMF Working Paper. International Monetary Fund*, April 2005.
- La'lawi, M. (2015). Taxation Canons Establishment and Tax Collection in Algeria: Empirical Study. *Unpublished PhD Thesis. College of Economics. Mohamed Khider University.*
- Lamberton, C., Neve, J., & Norton, M. (2014). Eliciting Taxpayer Preferences Increases Tax Compliance. *Working Paper. Harvard Business School*, 1 – 27.
- Mahani, M. (2010). The Impact of Tax Incentives that Mentioned in the Palestinian Income Tax Law on Income Tax Revenue: Empirical Study .*Unpublished Master Thesis. Department of Accounting. College of Business. Islamic University in Gaza Strip.*

- Martins, C., & Gomes C. (2014). Tax Morale, Occupation and Income Level: An Analysis of Portuguese Taxpayers. *Journal of Economics, Business and Management*, 2 (2), 112-116.
- Meswadi, S., & H. Khawaldi. (2014). The Role of the Jordanian Income Tax Law in Limiting Tax Evasion from Points of View of the Auditors of Income and Sales Tax Department and Members of Experts Society of Income and Sales Tax. *Journal of Al-Quds Open University for Research and Studies*, 41 (2), 75-90.
- Ministry of Finance – Palestine. (1993-2017). *The Financial Report from 1993 to 2017*. Retrieved from, <http://www.pmf.ps/en/41>.
- Ministry of Finance. (2004). A Law by Decree No. (17) of 2004 on Income Tax. *The Palestinian National Authority. Ministry of Finance. Income Tax Department*.
- Ministry of Finance. (2011). A Law by Decree No. (8) of 2011 on Income Tax (Latest Version 2017). *The Palestinian National Authority. Ministry of Finance. Income Tax Department*.
- Puthur, J., Mahadevan L., & George, A. (2016). Taxpayer Satisfaction and Intention to Re-Use Government Site for E-filing. *Management Studies*, 8 (1), 46-59.
- Rajeswari, K., & Mary, T. (2014). E-Filing of Income Tax Returns: Awareness and Satisfaction Level of Salaried Employees. *International Journal of Current Research and Academic Review*, 2 (9), 39-45.
- Shikhaliyev, V. (2016). Assessment of Taxpayers' Satisfaction with Tax Administration Reforms. *Tax Tribune*. <http://vn.taxes.gov.az/metbuat/chixish/TT.pdf>, 89 - 93.
- Smith, A. (2007). *An Inquiry into the Nature and Causes of the Wealth of Nations [1776]*. Edited by S. M. Soares. MetaLibri Digital Library. The Digital Edition, 29<sup>th</sup> May 2007. Retrieved from, [https://www.ibiblio.org/ml/libri/s/SmithA\\_WealthNations\\_p.pdf](https://www.ibiblio.org/ml/libri/s/SmithA_WealthNations_p.pdf).
- Tanzi, V., & Zee, H. (2001). Tax Policy for Developing Countries. *Economic Issues. International Monetary Fund*. 27. March.
- Vadde, S., & Gundarapu, S. (2012). Factors that Influence Rental Tax Payers' Compliance with Tax System: An Empirical Study of Mekelle City: Ethiopia. *Journal of Arts, Science and Commerce*, 3 (4), 41-49.
- Walsh, K. (2012). Understanding Taxpayer Behavior—New Opportunities for Tax Administration. *The Economic and Social Review*, 43 (3), 451–475.
- Yadak, I. (2006). Social Justice in the Palestinian Income Tax Law Number 17 of 2004 and the Jordanian Income Tax Law Number 25 of 1964: A Comparative Study. *Unpublished Master Thesis. College of Graduate Studies. An-Najah National University*.

Yonas, S. (2016). Assessment of Tax Payers Attitude. *International Journal of Commerce and Management Research*, 2 (3), 129-135.

***About the Author:***

**Zahrán Daraghma** is Associate Professor of Accounting at the Arab American University–Palestine. His research and teaching interests include financial accounting, cost accounting, market based accounting research and accounting information system. Prior to joining the faculty at AAUP in 2010, Dr. Daraghma was full-time assistant professor at Al-Quds University- Jerusalem from 2005 still 2010. Dr. Daraghma has published over 20 articles in refereed journals.

## Appendix 1 Questionnaire

### Questionnaire for Palestinian Taxpayers

We are carrying out an evaluation of the satisfaction degree of income tax paid by the average Palestinian taxpayer based on the tax law in Palestine, a Law by Decree No. (8), of 2011 imposed on income. This study also exposes the degrees of satisfaction on income tax that relates to (income tax brackets and rates, income tax exemptions, and income tax deductions).

Thank you for taking the time to fill in this questionnaire; it should only take 5 minutes. Your answers will be treated with complete confidentiality. If you have any questions about this questionnaire, please contact: -

Zahran "Mohammad Ali" Daraghma, Associate Professor, Ph.D.  
Arab American University-Palestine  
Mobile: 00970599091041  
E-mail: zahran.daraghma@aaup.edu

#### Section 1: Circle the choice that mostly matches you - (Respondent Information)

1. Gender
  - Male
  - Female
  
2. Academic Rank
  - Diploma or less
  - Bachelor
  - Master
  - Ph.D.
  
3. Your Source of Income
  - Career
  - Sole Proprietorship
  - Partnership
  - Many sources
  
4. Monthly Income
  - From 0 to 3000 Shekels
  - From 3001 to 6250 Shekels
  - From 6251 to 12500 Shekels
  - Greater than 12500 Shekels

**Section 2:** Please rate your level of satisfaction regarding tax brackets and rates that ruled in the Palestinian income tax law number 8 for 2011 in the following areas.

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied
1	Tax brackets and rates are considered fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	The number of tax brackets and rates is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The first proportion of the tax bracket and rates 0.05 is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	The value of the taxable income in each tax bracket and rates is appropriate	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	The last proportion of the tax bracket and rates 0.15 is appropriate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 3:** Please rate your level of satisfaction regarding tax exemptions that ruled in the Palestinian income tax law number 8 for 2011 in the following areas.

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied
1	Tax exemptions are sufficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Tax exemptions are fair compared to neighboring countries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	The annual exemption of the natural resident of 36,000 Shekels is fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Exemption of the university student 6000 shekels per year is fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	A one-time exemption of 30,000 Shekels for purchasing or building a house is fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Section 4:** Please rate your level of satisfaction regarding tax deduction that ruled in the Palestinian income tax law number 8 for 2011 in the following areas.

#	Question	Very Satisfied	Somewhat Satisfied	Neither Satisfied Nor Dissatisfied	Somewhat Dissatisfied	Very Dissatisfied
1	Tax deductions are enough.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Expenses recognized within the tax law are considered fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Insurance and healthcare deductions recognized within the tax law are considered fair.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Tax deductions are fair compared to neighboring countries.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Tax deductions are sufficient.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Thank you very much for taking the time to complete this questionnaire.  
Zahran "Mohammad Ali" Daraghma, Associate Professor, Ph.D.